ENERGY EFFICIENCY

in California's Public Power Sector

A 2014 Status Report

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I. EXECUTIVE SUMMARY

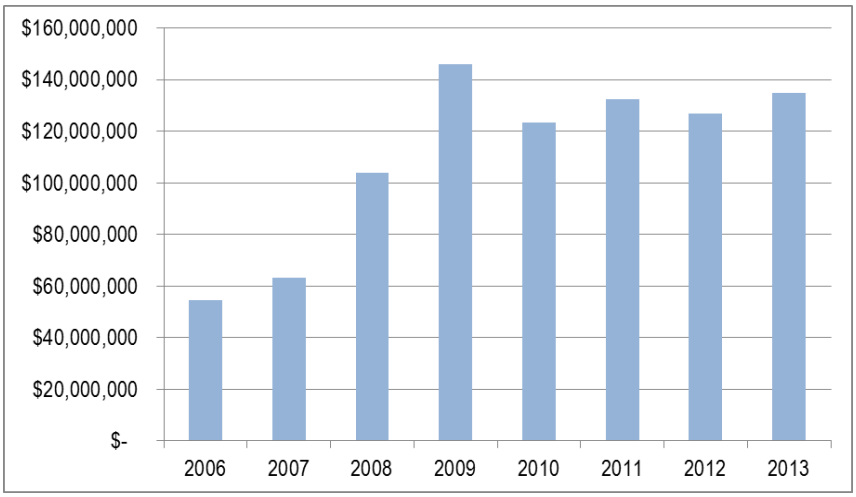
The California Municipal Utilities Association (CMUA), in collaboration with the Northern California Power Agency (NCPA) and the Southern California Public Power Authority (SCPPA), are pleased to submit this report, *Energy Efficiency in California's Public Power Sector: A 2014 Status Update.*

California Senate Bill 1037 (Kehoe, 2005) established several important policies regarding energy efficiency, including a statewide commitment to cost-effective, reliable, and feasible energy efficiency, with the expectation that all utilities consider energy efficiency before investing in other resources to meet growing demand. Assembly Bill 2021 (Levine, 2006) added to these policies by requiring the establishment of 10-year energy savings targets on a triennial basis; Assembly Bill 2227 (Bradford, 2012) amended the requirement to a quadrennial basis. Publicly owned utilities (POUs) support these policies and partner with state agencies and community stakeholders to pursue all cost-effective and feasible energy efficiency.

CMUA, NCPA, and SCPPA have been working collaboratively since October 2005 to measure energy efficiency program effectiveness and report program savings in a consistent and comprehensive manner. In December 2006, the first joint report on energy efficiency was submitted to the California Energy Commission (CEC). This eighth report takes into consideration the latest available results from public power's wide range of energy efficiency programs.

POU's long-standing commitment to energy efficiency is an extension of fundamental principles dedicated to social and environmental responsibility, ensuring reliability, and keeping rates low for the communities they serve. Even with this commitment, energy efficiency program expenditures for each utility can vary dramatically from year-to-year, depending upon the customer base of the individual utility, the climate zone in which the utility is located, physical size of the service territory, customer desires to invest in energy efficiency, and economic conditions. Despite these challenges, public power energy efficiency investments have remained very strong surpassing $120 million annually since 2009.

Total Program Expenditures, 2006-2013



Energy Efficiency Program Results

The principal findings and conclusions of this analysis for FY12/13 are as follows:

- **Significant Investment:** POUs spent $134.5 million on energy efficiency programs. This is the sixth consecutive year the $100 million threshold has been exceeded.

- **Peak Demand Reduction:** Public power programs reduced peak demand by more than 89.3 megawatts.

- **Energy Savings:** Net annual savings totaled more than 521,478 (MWh).

- **Years of Success:** Since 2006, POUs have invested nearly $885 million in energy efficiency programs, reduced peak demand by more than 656 megawatts, and achieved more than 3.4 million MWh in savings.

Summary of Programs, 2006-2013

Year	Net Peak kW Savings	Net Annual MWh Savings	Net Lifecycle MWh Savings	Total Utility Expenditures ($)
FY05/06	52,552	169,303	2,249,214	$ 54,412,728
FY06/07	56,772	254,332	3,062,361	$ 63,151,647
FY07/08	82,730	401,919	4,473,801	$ 103,907,266
FY08/09	117,435	644,260	6,749,912	$ 146,093,107
FY09/10	93,712	522,929	5,586,299	$ 123,433,250
FY10/11	81,121	459,459	4,604,364	$ 132,372,795
FY11/12	82,561	439,710	4,638,521	$ 126,936,631
FY12/13	89,305	521,478	5,722,100	$ 134,475,230
TOTAL	**656,187**	**3,413,390**	**37,086,572**	**$ 884,782,654**

- **Cost-Effectiveness:** Applying the Total Resource Cost (TRC) societal test, the principal measure used in the industry to determine whether programs are cost-effective, the aggregated TRCs for public power is 1.72 in FY12/13.

- **Most Savings:** Lighting continues to dominate public power energy efficiency programs, accounting for almost half of the total energy savings achieved (46%).

- **Efficacy of Programs:** The average cost per kWh saved from all POU programs is $0.258/kwh. The cost per kWh saved over the lifetime of the various energy efficiency measures is $0.024/kWh.

II. INTRODUCTION

Legislative & Statutory Requirements

Three pieces of legislation govern the compilation of this report. Senate Bill 1037 (Kehoe, 2005), requires POUs to annually report to its customers and the CEC on its investments in energy efficiency and demand reduction programs. Assembly Bill 2021 (Levine, 2006) directs POUs to identify all potentially achievable cost-effective, reliable, and feasible electricity efficiency savings and establish 10-year statewide energy efficiency savings targets. Assembly Bill 2227 (Bradford, 2012) changed the frequency of the energy efficiency 10-year target setting requirements from once every three years to once every four years.

In particular, this report is provided to the CEC in compliance with §9505 of the Public Utilities Code:

> *9505. (a) By March 15, 2013, and by March 15 of each year thereafter, each local publicly owned electric utility shall report to the Energy Commission and to its customers all of the following:*
>
> *(1) Its investments in energy efficiency and demand reduction programs.*
>
> *(2) A description of each energy efficiency and demand reduction program, program expenditures, cost-effectiveness of each program, and expected and actual energy efficiency savings and demand reduction results that reflect the intent of the Legislature to encourage energy savings and reductions in emissions of greenhouse gases resulting from providing service to existing residential and nonresidential buildings, while taking into consideration the effect of the program on rates, reliability, and financial resources.*
>
> *(3) The sources for funding of its energy efficiency and demand reduction programs.*
>
> *(4) The methodologies and input assumptions used to determine the cost-effectiveness of its energy efficiency and demand reduction programs.*
>
> *(b) By March 15, 2013, and by March 15 of every fourth year thereafter, each local publicly owned electric utility shall identify all potentially achievable cost-effective electricity efficiency savings and shall establish annual targets for energy efficiency savings and demand reduction for the next 10-year period. A local publicly owned electric utility's determination of potentially achievable cost-effective electricity efficiency savings shall be made without regard to previous minimum investments undertaken pursuant to Section 385. A local publicly owned electric utility shall treat investments made to achieve energy efficiency savings and demand reduction targets as procurement investments.*
>
> *(c) Within 60 days of establishing annual targets pursuant to subdivision (b), each local publicly owned electric utility shall report those targets to the Energy Commission, and the basis for establishing those targets.*
>
> *(d) Each local publicly owned electric utility shall make available to its customers and to the Energy Commission the results of any independent evaluation that measures and verifies the energy efficiency savings and the reduction in energy demand achieved by its energy efficiency and demand reduction programs.*

Outline of the Report

Nearly forty utilities detail their energy efficiency activities in this document, providing programs which cover more than 25 percent of the customer electric load served in California. Beyond the informational requirements described in the abovementioned statute, this document is designed in a manner that provides a comprehensive assessment that can be utilized by state policymakers and interested stakeholders to gauge the effectiveness of energy efficiency programs within the public power community.

Chapter III: Overview of Energy Efficiency and Public Power describes public power's unique perspective regarding energy efficiency and the role customer programs play in our communities. The chapter explores economic factors that directly influence customer decisions to participate in utility programs and invest in energy efficiency improvements. In addition, this chapter also identifies key differences among POUs and the respective customers they serve.

Chapter IV: Methodologies & Assumptions provides a description of the methodologies used by the public power community to report energy savings from different measures and programs.

Chapter V: Investments in Energy Efficiency Programs offers a summary of utility expenditures and energy savings stemming from customer programs. This chapter highlights the range of POU programs currently available to customers. Descriptions of individual utility programs can be found in **Appendix A**.

Chapter VI: Evaluation, Measurement, and Verification discusses POU commitment to independent, third-party, evaluation, measurement and verification (EM&V), as well as current POU EM&V activities. Additional information regarding EM&V activities is included in the utility descriptions in **Appendix A**.

Chapter VII: Conclusions & Policy Considerations synthesizes the collective expertise of public power into recommendations on how to achieve additional energy savings. With aggressive codes & standards updates planned, ambitious goals for existing buildings, and utility program maturation, it is imperative that the CEC, POUs, local planning departments, energy service companies, contractors, building owners, and other stakeholders work in a more coordinated manner to foster customer investments in energy efficiency improvements. This chapter identifies opportunities and likely barriers to future energy efficiency efforts.

Appendix A is a compendium of POU program data, including a description of each utility and their energy efficiency programs, as well as categorized summaries of energy savings and utility investments by program. In addition, this appendix describes EM&V funding and activities.

Appendix B summarizes the 10-year energy savings targets adopted by POUs, based on the Energy Efficiency Resource Assessment Model tool developed by Navigant to support target-setting efforts, for FY2014-2023

Appendix C is a list of references utilized in the compilation of this report.

III. Overview of Energy Efficiency and Public Power

A Public Power Perspective

The long-standing commitment of California's POUs to energy efficiency and demand reduction programs is an extension of fundamental principles dedicated to social and environmental responsibility, ensuring reliability, and keeping rates low for our communities. POUs are not-for-profit public agencies similar in structure to other municipal utility services such as water, sewer, and waste management. POUs are governed by locally- elected boards and are answerable to the very customers they serve. Energy efficiency is a critical element of the resource planning process, generation, transmission, distribution, and demand. Public power commitments to energy efficiency are guided by four important concepts:

- **Social and Environmental Responsibility**: POUs place a high priority on energy efficiency, as well as renewable power supplies, low-income programs, and economic development. Local elected officials govern public power to ensure accountability on these issues to customers.
- **Operational Efficiency**: Public power offers important programs to reduce and/or shift peak demand to optimize generation and transmission, and ensure more efficient operation of the grid.
- **Demand-side Energy Efficiency**: This is a major focus of POUs. It includes, but is not limited to: appliances, air-conditioners, building codes and standards, education, electricity management, and weatherization, all coordinated with customer-specific programs.
- **Cost-effective Energy Efficiency**: Cost-effective energy efficiency lowers the cost of providing electricity to our communities. POU customers are "shareholders" and benefits related to energy efficiency are realized by all customer-owners.

Public power commitments to energy efficiency programs are extensive and comprehensive. Residential programs focus on energy audits, Energy Star® appliance rebates and replacements, lighting improvements, attic insulation, as well as incentives to install highly-efficient heating, ventilation and air conditioning (HVAC). Commercial and industrial programs target lighting, HVAC, and manufacturing/food processing equipment. POUs also partner with schools and public institutions to educate residents and implement a variety of beneficial programs. POUs across the state are currently evaluating and developing more advanced programs in the areas of commercial/industrial demand response, thermal energy storage, on-bill financing, customer behavior change, and "whole building" retrofits.

POUs maintain a rich tradition of customer service that is distinctly local. POUs maximize the success of energy efficiency programs and services because of their unique relationships with customers and their ability to tailor programs to meet the specific needs of their communities. While harnessing the advantages of global innovations, and in many cases helping advance emerging energy technologies through progressive programs and procurement, POUs are responsive to local concerns, allowing them to maximize the value of all energy efficiency programs.

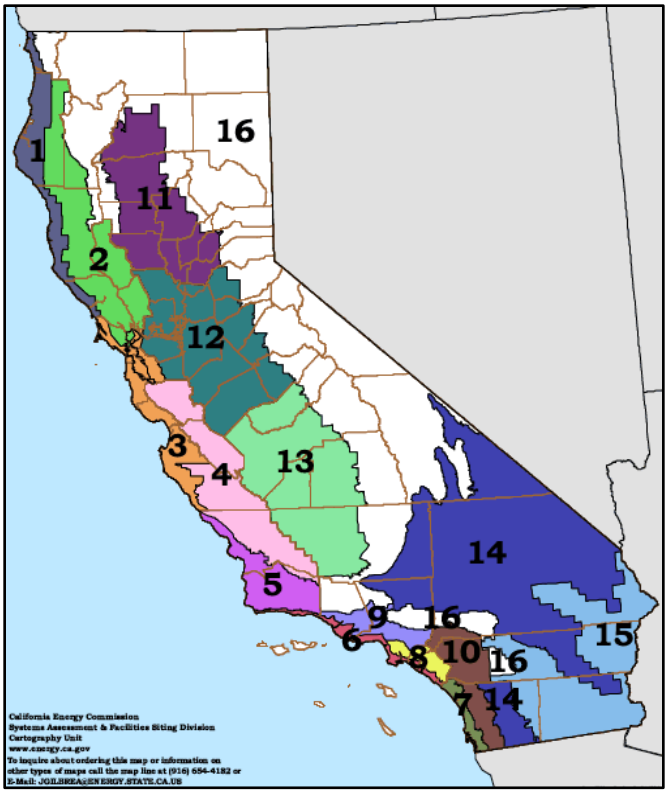
Diversity with a Common Objective

POUs are diverse, which is reflected in differing programs tailored to the needs of local constituents, taking into consideration key factors, including climate zone, customer classes, and local economic conditions. Common to all is the desire to spend energy efficiency dollars wisely and utilize the benefits of local decision-making to create programs that are effective, innovative and relevant to local conditions.

Differing Climate Zones

Location, location, location. This famous axiom regarding the "three things that matter most in property" is equally relevant when discussing what makes the Golden State's POUs unique.

Figure 1. California's 16 Climate Zones



Source: California Energy Commission

For energy policy purposes, California is divided into 16 separate and distinct climate zones, which allows state policymakers to recognize the diversity of the state's population and use of energy. This diversity extends into the evaluation of utility approaches to energy efficiency program deployment. California's POUs can be found in 13 of the 16 climate zones, ranging from Truckee-Donner over the Sierra Crest to Merced in the heart of the Central Valley to downtown Los Angeles, the nation's second largest city.

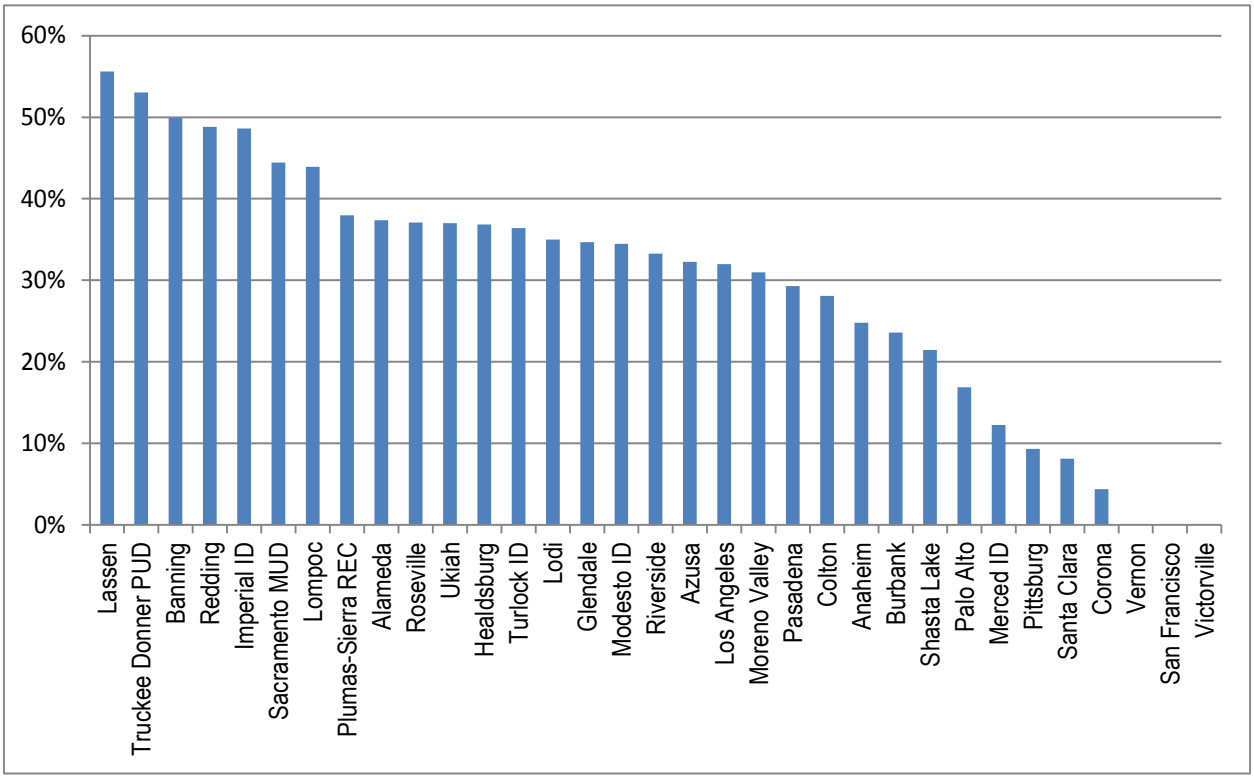
The climate zone in which the building is located is one of the primary assumptions driving differences in estimated energy savings related to specific types of energy efficiency measures across different utilities.

HVAC savings provides an excellent example of diversity across climate zones. An HVAC installed in the City of Redding (Climate Zone 11), with very hot summers that require a high utilization of air conditioner usage, yields considerably greater savings than that same unit would produce in a coastal community like Lompoc (Climate Zone 5) which lacks a significant air conditioning load. In essence, what makes for an excellent energy efficiency investment in one utility service territory may not necessarily add up to one in another. With such a wide geographic footprint, public power utilities recognize the importance of unique programs and tailor their programs to best serve the needs of their local communities.

Different Types of Customers

Customer class profiles vary significantly from utility to utility, which impacts the POU planning and program design efforts. In POU communities such as Vernon, Corona, and Silicon Valley Power, retail sales are dominated by the commercial and industrial customers. In contrast, residential customers in other POUs, such as Trinity, Lassen, and Truckee Donner represent well over 50 percent of their respective utility's total retail sales. Collectively, residential customers constitute about one third of POU retail sales (32.7%). Figure 2 below illustrates that the share of retail sales attributable to residential customers across the POUs varies considerably, highlighting the importance of customizing programs at the local level.

Figure 2. Residential Retail Sales as Percent of Total Retail Sales, 2013.



Source: US Energy Information Administration

Even among utilities with similar customer class configurations, differences can be seen. For example, Moreno Valley is a relatively new POU having started serving customers in 2004, and all of the customer facilities it serves are less than ten years old and constructed to meet current Title 24 Standards. By comparison, Lodi, Alameda, Modesto, and others have been providing service for more than 100 years, with a residential housing stock that is significantly older with different energy efficiency needs.

The success of POU energy efficiency programs is closely related to understanding the specific needs of individual customers within their respective service territories. For example, Truckee Donner has one of

the more unique customer profiles and load shapes in California since the majority of residential customers use their residences as a second home. This results in an atypical peak load for Truckee Donner between Christmas and New Year's Eve and on weekends. Glendale, which operates both a water and electric utility, closely aligns its energy efficiency programs with water conservation, administering Smart Home Energy and Water Saving Surveys which reduce customer energy consumption through comprehensive in-home energy and water saving surveys, education, and direct measures installations. Public power offers a variety of innovative programs to serve a variety of different customers (see **Appendix A** for further information**)**.

Overall Size of the Utility

POUs vary a great deal in size, which impacts the range of energy efficiency programs that are offered. At the larger end of the spectrum are the Los Angeles Department of Water and Power (LADWP), Sacramento Municipal Utility District (SMUD), and Imperial Irrigation District (IID). On the other end are POUs serving much smaller communities, such as the cities of Needles, Gridley and Biggs.

LADWP and SMUD together represent over half of the total retail electricity sales from public power (55.8%). The ten largest POUs account for the lion's share of sales (84.9%). Conversely, the ten smallest POUs are less than two percent of total retail sales from public power (1.7%).

Program support activities, including EM&V by independent third parties, can be easier for the larger utilities to manage than smaller utilities with limited resources. Even with these limitations, the collaborative nature of the public power community allows for the development and sharing of best practices among utilities, which could apply to EM&V analyses. A successful program in one utility can be replicated in other utilities with similar customer needs. Likewise, EM&V work completed for one utility can inform the decision-making of other utilities regarding whether to move forward with a program or vendor. For more on POUs EM&V activities, see **Chapter VI: Evaluation, Measurement, and Verification**.

Local Economic Factors

The state of the local economy also impacts the ability of utilities to deploy energy efficiency programs, and despite experiencing one of the worst economic recessions in decades, public power utility programs are continuing to offer a comprehensive range of programs. As previous reports have shown, energy efficiency expenditures have been strong in recent years. As we review 2013, California's economy continued to show some signs of improvement. Still, California's statewide unemployment rate in December 2013 remained above eight percent (8.3%), nearly one and a half percentage points higher than the national unemployment rate at the end of 2013 (6.7%).

In general, the communities that public power utilities serve have seen a modest improvement in their unemployment rates, consistent with the statewide trend. However, the majority of POU communities are located in areas with higher unemployment rates compared to the state as a whole, with many exhibiting unemployment rates above 10% on average in 2013 (see **Figure 3**).

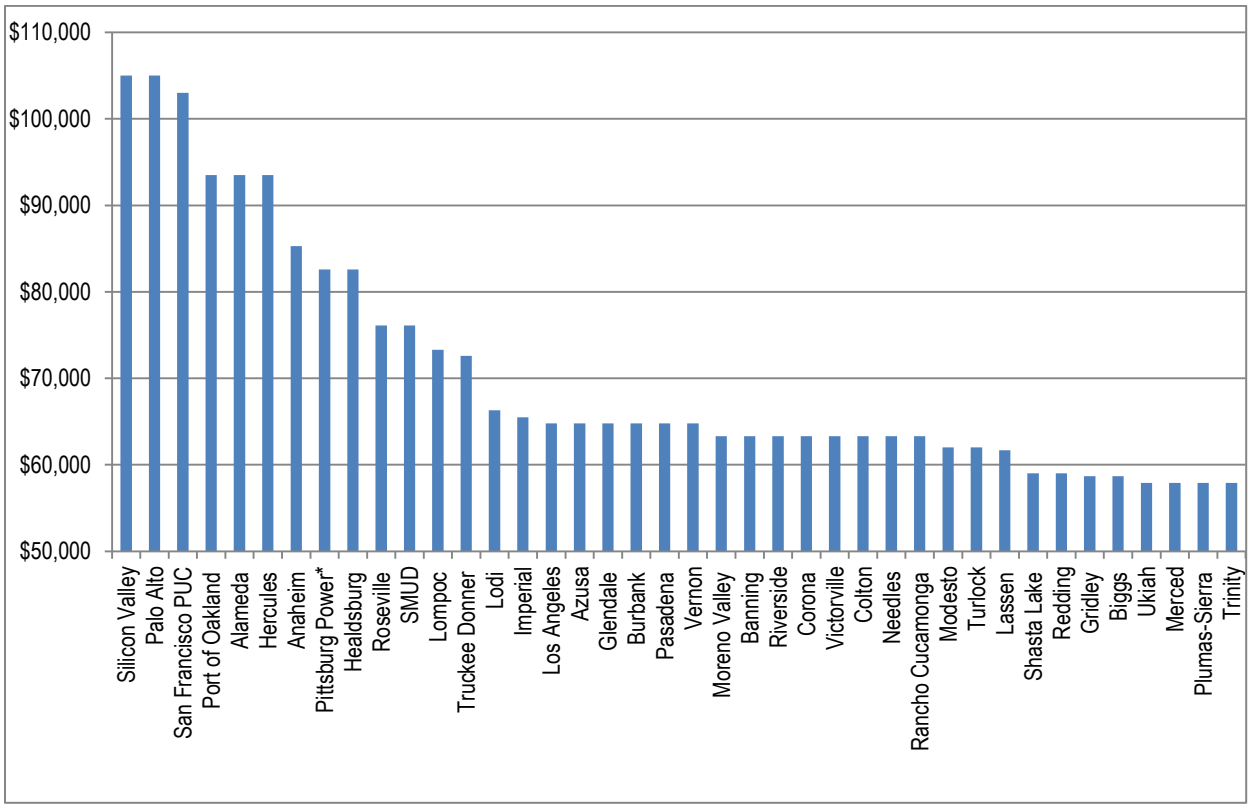
Figure 3. POU Community Unemployment Rates, 2013 Average

Utility	Unemployment Rate	Utility	Unemployment Rate
Imperial	24.5%	Lodi	9.7%
Gridley	23.2%	Redding	9.5%
Shasta Lake	14.9%	CALIFORNIA	8.9%
Merced	14.5%	SMUD	8.8%
Biggs	13.5%	Glendale	8.6%
Trinity	12.8%	Burbank	8.0%
Plumas-Sierra	12.6%	Anaheim	8.0%
Victorville	12.2%	Ukiah	7.8%
Lompoc	12.1%	Healdsburg	7.7%
Moreno Valley	11.9%	Roseville	7.6%
Banning	11.8%	Needles	7.6%
Port of Oakland	11.3%	Pasadena	7.5%
Modesto	11.2%	Corona	7.5%
Los Angeles	10.9%	Truckee Donner	6.5%
Colton	10.9%	Rancho Cucamonga	6.5%
Lassen	10.8%	Silicon Valley	6.3%
Azusa	10.7%	San Francisco	5.7%
Pittsburg Power*	10.4%	Alameda	5.0%
Riverside	10.3%	Palo Alto	3.6%
Turlock	9.8%	Vernon	0.0%

Source: California Employment Development Department
****Unemployment rate for Pittsburg is the City of Vallejo, where their customers are located***

Another useful measure of local economies and the desire of residential customers to invest in energy efficiency is the area median income, developed by the California Department Housing and Community Development. Similar to unemployment rates, the median income in POU communities varies significantly. Utilities operating in the Bay Area have the highest median income, reflecting both the very high cost of living in the region as well as the resurging technology sector of the economy. On the other end of the scale are the more rural counties of the Central Valley and the High Sierras, as well as urban pockets in the Greater Los Angeles Area, with some areas reporting median incomes that are half the levels reported in the Bay Area.

Figure 4. Median Income for POU Service Territories, 2013.



Source: California Department of Housing and Community Development

The Bay Area and Silicon Valley economies in particular are performing better than other areas. The economic vitality helps empower customers to invest in energy efficiency, which in turn drives local utilities to offer more clean energy programs and adopt more aggressive energy savings targets and clean energy goals.

Other regions have not fared as well. The Central Valley, the High Sierra, and the southeastern desert continue to struggle from the impacts of the recession. Struggling local economies adversely impact the ability of customers to participate in utility energy efficiency programs. For many it is simply a lack of disposable income. Customers with a lack of disposable income are often precluded from making energy efficiency investments even if they only require very little upfront capital, even if the investment would produce energy savings that would pay for itself in a short timeframe. POU customers who have experienced dramatic decreases in equity may be less inclined to purchase new appliances or be able to secure another loan or mortgage to finance an energy efficiency retrofit, regardless of the payback period.

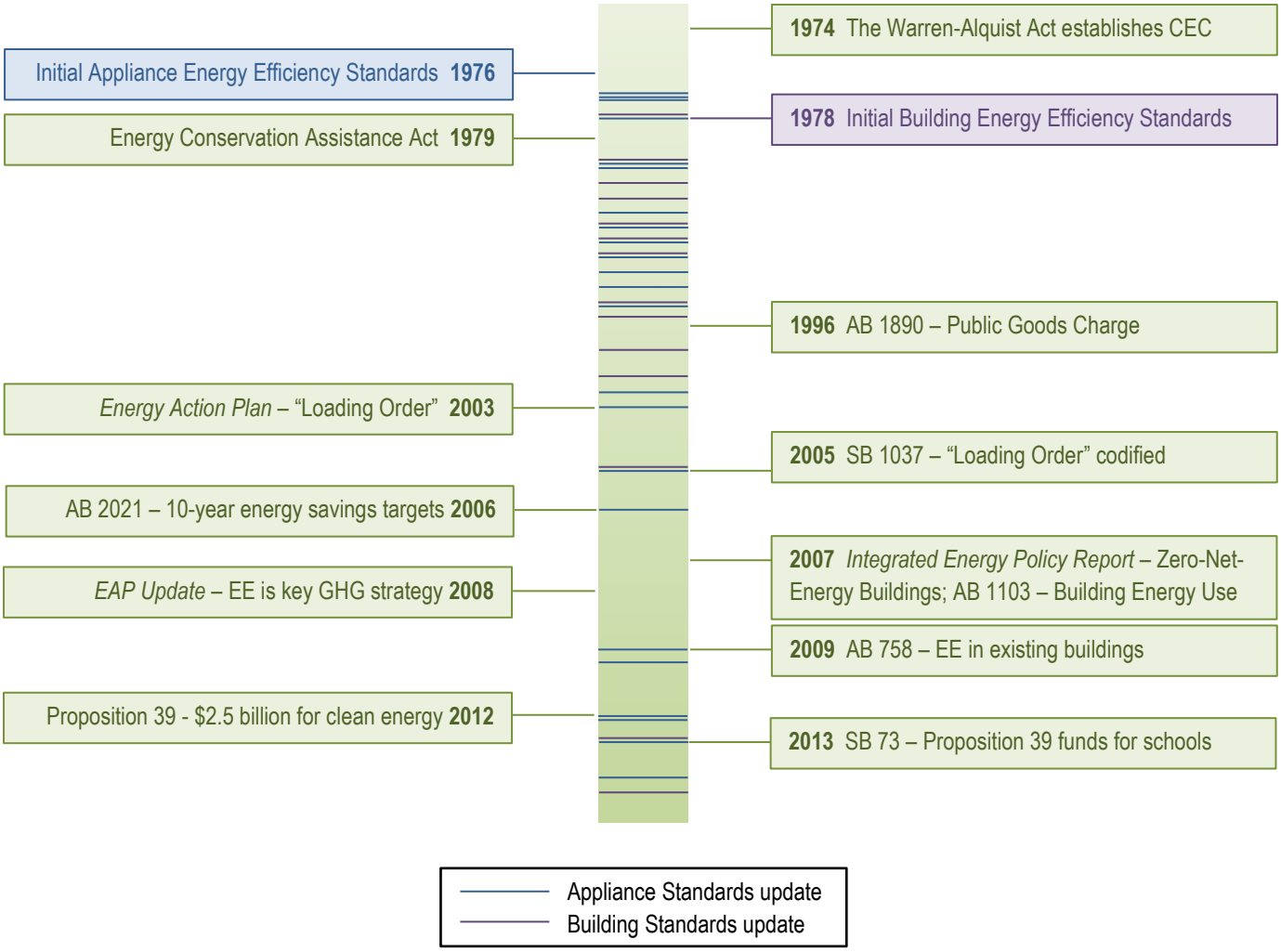
Customer participation in utility energy efficiency programs in communities with high unemployment and low median income can be especially challenging. To help customers who may not be able to afford energy efficiency improvements, even if they would save more than their investment over the long term, many POU communities are authorizing Property Assessed Clean Energy (PACE) financing. PACE

financing allows property owners to finance energy efficiency, water conservation and solar energy improvements with no money down and to repay the borrowed funds as assessments on their property tax bills. Credit ratings are not involved and the financing remains with the property so, if the property is sold, the borrower isn't required to repay the loan which is simply transferred to the new property owner. PACE financing allows more customers to make energy efficiency investments but the option is so new that many customers are not yet aware of the benefits.

Complementing Statewide Efforts

Public power programs are one of the many facets of the state's efforts to reduce energy consumption. The appliance and building energy efficiency standards – the foundation of California's energy efficiency efforts, and arguably the state's most successful and cost-effective policy for reducing greenhouse gas emissions – were initiated under Governor Brown's previous administration. For nearly 40 years, California has adopted policies aimed at promoting customer energy efficiency.

Figure 5. Timeline of Major Energy Efficiency Initiatives in California



Many of the above initiatives are active programs that continue to be implemented and improved by the CEC, utilities, and a wide range of industry and community stakeholders. The following sections review five major statewide energy efficiency program areas – Codes & Standards, the Public Goods Charge, Energy Efficiency in Existing Buildings, Zero-Net-Energy Buildings, and Proposition 39 – and examine their relationships to one another.

Codes & Standards

Since its creation nearly 40 years ago, the California Energy Commission (CEC) has been tasked with prescribing standards for minimum levels of operating efficiency and promoting the use of energy and water efficient appliances through the Appliance Energy Efficiency Standards (Title 20). In addition, the CEC prescribes building standards that increase the efficiency in the use of energy and water for new building construction through the Building Energy Efficiency Standards (Title 24).

As depicted in Figure 5, the initial Title 20 appliance standards were adopted in 1976. In general, between 1977 and 2010, the CEC adopted 21 updates to the Title 20 standards. Similarly, the initial Title 24 building standards were issued in 1978. Between 1980 and 2013, the CEC adopted 12 updates to the Title 24 standards. The CEC estimates that since their inception, Title 20 appliance standards and Title 24 building standards have saved California consumers over $37 billion and $30 billion respectively.

The CEC recognizes the effectiveness of codes and standards (C&S) updates in achieving energy savings. As noted in the *2013 Integrated Policy Report (2013 IEPR)*, "building standards ensure that cost-effective efficiency features are incorporated into each building during construction, the point at which these features are least expensive and most cost-effective. Similarly, appliance standards benefit consumers by ensuring that the most cost-effective efficiency is incorporated into their purchases." Cost-effective and feasible standards that are demonstrated to achieve energy savings have been and will continue to be one of the state's most successful energy and environmental policies, and POUs support ongoing efforts to systematically adopt cost-effective and feasible building and appliance standards updates.

There is a direct relationship between energy savings from C&S updates and the claimed energy savings from POU customer incentive programs. In general, utilities only report energy savings that are above code. As the CEC mandates higher energy efficiency standards, utility energy savings decline, compared to the savings that could claimed under the previous standards for the same measure. For example, the CEC estimates that the 2013 Building Energy Efficiency Standards are 25 percent more energy efficient than previous standards for residential construction and 30 percent better for nonresidential construction. As a result, the savings a utility reports for a measure in one year may diminish greatly or no longer be claimed the next year, which has a dramatic impact on utility program planning as well as annual progress towards 10-year energy savings targets.

To date, the state's three largest investor owned utilities (IOUs) – PG&E, Southern California Edison, and San Diego Gas & Electric – have participated in helping develop new codes and standards by funding and developing the vast majority of the research on which updates to the appliance and buildings energy efficiency standards are based. In doing so, the IOUs claim estimated savings from C&S updates towards their energy efficiency goals, for which they are provided rewards or penalties based on evaluated energy savings. POUs are only now beginning to play a more active role in the development, evaluation, and adoption of updates to Title 20 and Title 24 standards, but previously did not report any savings associate with the C&S updates. As a general practice, POUs will claim savings from C&S only if they provide

resources to support the development and/or enforcement of C&S updates, which will be noted in their narratives in **Appendix A: Description of Utility Programs**.

Public Goods Charge

POU efforts to encourage customers to invest in energy efficiency predate the passage of SB 1037 in 2006. AB 1890 (Brulte, 1996) also established the POU public goods charge (PGC), a non-bypassable charge collected from all customers to fund investments by the utility in any of the following program areas:

- Cost-effective energy efficiency and energy conservation
- Renewable energy resources and technologies
- Research, development, and demonstration to advance science and technology
- Low-income customer services

Per §385 of the Public Utilities Code, each POU is required to collect a public goods charge equal to 2.85% of the utility's annual revenue. Whereas the requirement for IOUs to collect the PGC expired at the end of 2011, AB 1890 continued the POU PGC in perpetuity. The statute allows POUs to focus their PGC funds on programs that best meet the needs to their particular customers. A POU local governing board serving a customer base with higher unemployment rates may elect to dedicate more of their PGC funds on low-income programs compared to another POU that tailors programs to support small businesses to lower their monthly electricity bill through energy saving retrofits.

As noted in the section on ***Codes & Standards***, PGC-funded energy efficiency programs typically provide incentives for measures that perform above current Title 20 and Title 24 standards. However, the CEC notes in the *2013 IEPR* that "as energy efficiency codes and standards continue to improve, energy efficiency savings from incentives programs may diminish unless those programs continue to expand beyond traditional efficiency measures. To accomplish this, the state may need to modify its incentive mechanisms to provide value for both compliance with the standards and the total energy savings from upgrading inefficient equipment and building measures."

Energy Efficiency in Existing Buildings

For decades, public power has focused on providing financial incentives and other assistance to customers to reduce energy usage in their homes and businesses. Assembly Bill 758 (Skinner, 2009) requires the CEC, in collaboration with the California Public Utilities Commission (CPUC) and stakeholders, to develop a comprehensive program to achieve greater energy efficiency in the state's existing buildings. Specifically, the CEC is directed to develop a portfolio of strategies that will achieve greater energy efficiency in existing residential and nonresidential structures that fall significantly below the current standards in Title 24.[1] In response, CEC staff issued the *Draft Action Plan for the Comprehensive Energy*

[1] §25943(a)(1) of the Public Resources Code

Efficiency Program for Existing Buildings (AB 758 Draft Action Plan) in July 2013. The AB 758 Draft Action Plan consists of three categories of strategies:

- **No Regrets Strategies** are intended to provide critical foundational resources, such as broader access to relevant information, code compliance support, widespread education and outreach, and high-quality targeted workforce development.
- **Voluntary Pathways** are broadly defined as market support activities that build on past efforts, which include ramping up current programs for market segments that have low participation rates, such as multi-family dwellings and leased commercial buildings.
- **Mandatory Approaches** may be necessary depending on the success of no regrets strategies and voluntary pathways. If determined to be necessary, mandatory approaches would be intended to make the market more transparent and move mature measures into wider use.

The AB 758 Draft Action Plan looks beyond utilities, and recognizes that a large range of stakeholders and groups are involved in facilitating customer involvement in energy efficiency retrofits. Public power strongly supports this approach and CEC efforts to improve coordination, collaboration, and communication amongst the stakeholders in implementing strategies to reach the goals of AB 758, which in itself advances the foundational principle of the "Loading Order" of energy efficiency as the preferred energy resource, as well as the state's ambitious commitment to reducing greenhouse gas emissions.

Public power has and continues to offer customer energy efficiency programs focused on improvements to existing buildings. One of the barriers to customer participation has been stakeholder and policymaker pressure to limit utility incentives and other financial assistance for measures that exceed current energy efficiency codes and standards. Achieving energy savings in buildings significantly below Title 24 code may be greatly supported by reconsidering the measures and activities that utilities are encouraged to fund and report savings from.

Zero-Net-Energy (ZNE) Buildings

A ZNE building is one where the net amount of energy produced by on-site renewable energy resources is equal to the amount of the energy consumed annually by the building, at the level of a single "project" seeking development entitlements and building code permits, measured using the CEC's Time Dependent Valuation metric.

The CEC first introduced the concept of ZNE buildings in the *2007 Integrated Energy Policy Report*. This proposal was incorporated into the CPUC's *Long Term Energy Efficiency Strategic Plan* in 2008 as one of the four "Big Bold" energy efficiency strategies. Specific legislation was not passed directing either the CEC or the CPUC to pursue a ZNE policy or program. However, both agencies cite AB 32 (Núñez, 2006), the Global Warming Solutions Act of 2006, SB 1037 (Kehoe, 2005), and AB 2021 (2006, Levine), as well as multiple Governor's Executive Orders, as establishing the policy imperative for pursuing the statewide policy that all new residential construction by 2020, and all new commercial construction by 2030, will be ZNE.

To accomplish the ZNE goal, the Title 24 updates for 2016 and 2019 are planned to reduce energy consumption by 40-60 percent compared to the 2013 update, which as previously noted was itself a 25 percent improvement over the 2008 residential building code. This represents an unprecedented effort to reduce energy usage in new buildings.

With regard to the portion of the ZNE definition that requires each building to produce a net amount of energy on-site equal to the value of energy consumed annually by the building, the CEC states in the *2013 IEPR*, "To ensure that all buildings have a pathway to compliance, the Energy Commission anticipates establishing reasonable exceptions to account for building and building site limitations, including the need for "development entitlements" for off-site renewable energy resources, such as community based renewable energy generation." The CEC correctly recognizes that not all future buildings will be suitable for on-site renewable energy resource installations and that alternative arrangements will need to be developed. Whether the renewable resource is located on-site or off-site, this requirement will have a significant impact on utility operations and resource planning. In addition, the potential for significant new development of off-site renewable energy resources designed to service a new housing development will likely impact local zoning and planning ordinances.

Proposition 39

In November 2012, the voters of California passed Proposition 39, which amended the state's corporation tax code in a manner that was estimated by the Legislative Analyst's Office to generate approximately $1 billion in additional tax revenue for the state. For the first five years, beginning in fiscal year 2013, half of new tax revenue ($2.5 billion total) is required to be spent funding energy efficiency and clean energy project. The Legislature and Governor agreed to focus Prop 39 funds on projects at K-14 public schools. SB 73 (Committee on Budget and Fiscal Review, 2013) appropriated the funds for energy efficiency and clean energy projects for fiscal year 2014, as follows:

- $381 million to local educational agencies (LEA) (e.g., school districts, county offices of education)
- $47 million to California community college districts
- $28 million to the CEC for low-interest/no-interest revolving loans and technical assistance
- $3 million to the California Workforce Investment Board for workforce training grants
- $5 million to the California Conservation Corps to perform energy surveys and other activities

Each LEA is allocated Prop 39 funding based on a legislatively established formula. In order to receive their allocation from the California Department of Education, a LEA must submit an expenditure plan to the CEC for review.[2] Since many schools lack qualified energy management staff, utilities will play a vital role in supporting schools in their applications for and administration of Prop 39 grant funds. Most POUs have been working closely with their schools on energy efficiency and rooftop solar projects for years. In many

[2] §26235(f) of the Public Resources Code

cases, POUs have designated key accounts staff to their school districts. Given the generally smaller geographic footprint of many POU service territories and a strong interest in their local communities, public power is uniquely positioned to assist schools successfully implement Prop 39-funded projects. As a practical matter, to the extent a POU dedicates resources to support a LEA in applying for Prop 39 funding, prioritizing projects, selecting third-party administrators, and/or managing energy efficiency or clean energy projects, the POU will report the energy savings from Prop 39-funded projects in forthcoming annual reports.

Utilities will play a critical role in the implementation of Prop 39, even if LEAs do not request assistance. SB 73 requires a LEA, as a condition of receiving their funding, to authorize its local electric and gas utilities to provide 12 months of past and ongoing usage and billing records at the school facility site level to the CEC.[3] The CEC, as noted in the *Proposition 39: California Clean Energy Jobs Act – 2013 Program Implementation Guidelines,* has interpreted the statute to require a LEA to provide access to their utility billing records through 2023. The CEC also requires LEAs to provide the utility billing data for all of its meters, not just the site(s) where Prop 39 funds will be spent. The access to utility billing records must be granted at the time of application for funds by completing the CEC standardized Utility Data Release Authorization form. However, since the CEC has yet to establish a process for the utility to provide usage and billing records. It is unclear what specific data a utility will be required to provide and in what form that data should be sent to the CEC. POUs will continue to work closely with the CEC to resolve these critical implementation issues.

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Public power actively participates in these many energy efficiency forums, workshops, and program proceedings to provide perspective and feedback from our diverse communities. Many of the program areas overlap with one another, facing similar challenges and sharing similar opportunities. Achieving the state's visionary energy efficiency goals, and realizing the attendant greenhouse gas emissions reductions and other non-energy benefits, requires a great deal of collaboration among stakeholders and coordination among programs. POUs look forward to working with the CEC and the growing universe of stakeholders on ensuring that the development implementation of programs in pursuit of energy savings are 'efficient' in their own right.

[3] §26240(a) of the Public Resources Code

IV. METHODOLOGIES & ASSUMPTIONS

Modeling & Compiling Program Data

This section provides a brief overview of the analytical tools developed by the public power community to report its energy efficiency savings and develop energy efficiency targets, as well as activities being undertaken to further refine the processes used to verify reported savings. In evaluating public power energy efficiency programs it is absolutely critical to understand how energy savings estimates attributed to programs are interpreted and measured.

As a practical matter, energy savings attributable to utility energy efficiency programs is defined as the difference between the expected energy use of a proposed efficiency measure and expected energy use under baseline conditions and assumptions. In most cases, baseline energy usage is governed by the Title 20 and Title 24 energy efficiency standards, as well as Federal Appliance Standards. For some custom projects, these standards do not apply, so industry standard practice is used for the baseline.

Database for Energy Efficient Resources

The Database for Energy Efficient Resources (DEER) is a CEC and California Public Utilities Commission (CPUC) sponsored database designed to provide well-documented, verifiable and consistent estimates of energy and peak demand savings values, measure costs, and effective useful life (EUL) from one data source. DEER accounts for the new baselines established through the Title 24 building standards, as well as new federal energy standards. For consistency, POUs used the DEER.

As noted in the draft *2014 DEER Update Study,* a number of stakeholders have expressed concerns with the DEER database. For example, several parties voiced concern, in the comments related to CPUC Decision 12 05 015, when a large number of measures that were originally included in DEER2005 were removed as part of the 2011 DEER update. The parties argued that some of those measures are still prominent in program accomplishments and requested that updates to restore the measures be included in DEER as soon as possible. IOUs also expressed concern that DEER measure definitions sometime lag current industry standards. In response to both the removal of measures in 2011 and the definitions lagging utility standard, IOUs have relied upon their own workpapers to provide energy savings estimates that are more representative than the DEER database. In some cases, measures covered by an IOU workpaper may comprise a large portion of the portfolio of savings. In short, DEER, the estimated energy savings resource funded by IOUs to be used by IOUs is not being used by the IOUs due to its serious shortcomings.

POUs share many of the concerns voiced by IOUs and other stakeholders regarding the DEER database. For many measures, the DEER database continues to provide energy savings estimates that align with results from POU EM&V reports of their programs. However, for other programs the estimated DEER savings are not consistent with the actual measure and program results, so POUs must rely on other sources or studies. The process in which DEER is updated and the basis on which changes to the DEER

database are made are not transparent – at least not to public power. Of course, the DEER database is primarily designed for IOUs at the direction of the CPUC, and not by public power.

Technical Reference Manual

Recognizing that the DEER database is not a tenable resource for public power to continue to use, POUs have contracted for the development of a technical reference manual (TRM). Silicon Valley Power first initiated a project to develop an energy savings estimate database specific to their respective programs as an alternative to DEER. Energy & Resource Solutions (ERS) was retained to develop the TRM for Silicon Valley Power, which was later expanded by Palo Alto Utilities to include additional measures specific to their programs as well. The 12 remaining members of NCPA, all 11 SCPPA members, and 7 CMUA members, including SMUD, then contracted with ERS for a larger TRM tool that could be used by utilities in different climate zones across the state. The TRM is expected to be finished by April 1st and will be the basis on which many POU plan their programs in the coming years.

The TRM provides the methods, formulas, and default assumptions used for estimating energy savings and peak demand impacts from energy efficiency measures and projects. The energy savings estimates are used to report program accomplishments and measure progress towards program goals.

Energy efficiency measures are documented and classified as either unit energy savings (UES) measures, semi-custom measures, or custom measures. The manual presents both nonresidential and residential measures. Each measure type is presented in separate sections and grouped by technology type. Measure information is presented in a consistent tabular format.

The reference manual also includes spreadsheets that provide detailed and transparent measure calculations and, for semi-custom measures, energy savings calculators for estimating energy savings for project-specific measures. The measure spreadsheet includes summary tables for transferring measure savings data into the program's regulatory compliance reporting tool.

The TRM includes the main manual as well as supporting spreadsheets. The manual presents both nonresidential and residential measures. Each measure type is presented in separate sections and grouped by technology type. All references and data resources are identified in the table footnotes.

As needed, each section also contains supplementary tables and charts to provide additional measure details. Measures with multiple savings values (savings by size, building use, varying levels of efficiency, etc.) will have both savings and cost data listed in a supplementary table. The last section of the manual provides the custom measure protocol, which outlines a process for estimating and documenting custom measure savings.

Energy savings calculators are also provided as part of the reference manual. The calculators are Excel spreadsheet-based engineering models for estimating semi-custom measures per the described methodology. They provide a consistent, transparent, and user-friendly approach for estimating project-specific energy savings.

The TRM will be fully accessible to the public via public power websites. The basis for energy savings estimates will be completely documented and transparent. The TRM provides a much higher degree of transparency to POUs, policymakers, and interested stakeholders regarding the energy savings estimates underpinning public power's energy efficiency programs. Next year's report will include program results based on TRM energy savings estimates.

E3 Reporting Tool

Since SB1037 was passed in 2005, public power has significantly invested in the development of tools and resources for POUs to use when reporting and verifying the results of their energy efficiency programs. The company Energy and Environmental Economics (E3) has provided public power with their considerable expertise in this effort.

The E3 Reporting Tool is a sophisticated Excel spreadsheet model used to report the results of utility energy efficiency programs. It was originally developed for the CPUC's review of IOU energy efficiency programs and has been enhanced and updated to perform this same function for POU's energy efficiency programs. The model contains a database of over 5,000 energy savings measures. The measure database included in the Reporting Tool was updated based on the final 2009 KEMA Measure Quantification Report, which itself drew from DEER. Utility incentives paid to free-riders are added as a cost in the TRC test, consistent with the CPUC methodology adopted for investor owned utilities.

During the 2011 reporting cycle, the avoided costs were updated to reflect CPUC avoided costs adopted in the fall of 2011. Updated DEER load shapes for Air Conditioning measures were also added. Finally, updated DEER Net-to-Gross (NTG) values were included and applied to each measure included in the database. These updates have reduced the TRC ratios reported by municipal utilities in years past – in some cases significantly. Those reductions are primarily a reflection of changes in the avoided costs and DEER measures rather than fundamental differences in utility programs.

The current model of the E3 Reporting Tool includes a calculation of GHG savings associated with each POU energy efficiency measure. The calculation of GHG savings will be updated for next year's report to reflect changes in POU supply portfolios per compliance with the Renewables Portfolio Standard, the California Air Resources Board's adoption of a default greenhouse gas emission factor for unspecified electricity imports, and improved methodologies for estimating GHG savings.

V. Investments in Energy Efficiency Programs

Program Results

This section provides an aggregate overview and discussion about current and future energy efficiency programs and savings that apply to California's public power utilities. A detailed overview of specific utility program descriptions, expenditures, and energy savings can be found in **Appendix A**.

Figure 6 provides a comprehensive summary of energy efficiency savings and an aggregated measure of cost effectiveness of all POUs. The table reveals a range of savings, which is largely a reflection of utility size and economic considerations. LADWP and SMUD alone had net peak savings during the reporting period of over 50 megawatts (MW). Another 10 utilities (Anaheim, Burbank, Glendale, IID, Modesto, Pasadena, Riverside, Roseville, SVP, and TID) had peak savings that fell in the range of 1-8 MW.

For the first time in the annual report, public power is reporting gross savings in addition to net savings.[4] LADWP alone report over 198,836 MWh of gross savings, which is approximately the total gross savings of all other POUs, excluding SMUD, (198,501 MWh). Beginning in the next report, greater attention and analysis will be given to gross demand savings (kW), gross annual savings (kWh), and gross lifecycle savings (kWh) to facilitate a more robust discussion and evaluation of public power energy efficiency programs and the role they play in informing long-term demand forecasts, as well as state policy goals.

Figure 7 reviews the aggregated results by program sector. From the tables, it is clear that lighting and cooling programs once again account for the largest share of the savings. Regarding specific program results, lighting (particularly non-residential direct installations) continues to dominate public power energy efficiency programs, accounting for almost half of the total energy savings achieved (46%). Utility rebates accounted for the majority of program expenditures, although about one-third of the total was dedicated to utility marketing, administrative costs, and evaluation, measurement, and verification (EM&V) efforts.

Figure 8 and **Figure 9** summarize POU energy efficiency program savings and cost information for fiscal years 2006 through 2013.[5] During FY12/13, POUs spent nearly $134.5 million on energy efficiency programs, the sixth consecutive year utility energy efficiency investments have exceeded $100 million. When added to investments since the signing of SB1037, public power has spent nearly $900 million on energy efficiency. Supporting those investments were reductions in peak demand last year of 89.3 MW as well as more than 521,478 MWh of energy saved over the course of the reporting year.

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[4] Gross savings data was not available for SMUD in this reporting year, so net savings was used instead, which by definition is lower than their actual gross savings. As a result, actual cumulative POU gross savings data is higher than what is reported here.

[5] Imperial Irrigation District, Merced Irrigation District, Modesto Irrigation District, Plumas-Sierra Rural Electric Cooperative, Sacramento Municipal Utility District, Turlock Irrigation District, and Truckee Donner Public Utility District all operate on a fiscal year that extends on a calendar year basis. As such, each utility's data for FY12/13 is actually calendar year 2013.

Figure 6. Summary of Utility Results, FY12-13

All POU Summary	Resource Savings Summary						Cost Summary		
	Gross Annual kWh Savings	Gross Lifecyle kWh Savings	Net Peak kW Savings	Net Annual kWh Savings	Net Lifecycle kWh savings	Net Lifecycle GHG Reductions (Tons)	Utility Incentives Cost ($)	Utility Mktg, EM&V, and Admin Cost ($)	Total Utility Cost ($)
Alameda	3,426,185	49,687,096	399	3,076,309	43,936,427	24,376	533,493	548,199	1,081,692
Anaheim	28,672,818	143,414,384	6,879	28,672,818	143,414,377	84,987	2,103,402	973,158	3,076,560
Azusa	3,899,636	39,475,856	858	3,806,793	39,061,212	22,648	873,388	156,486	1,029,874
Banning	208,955	2,998,769	88	198,507	2,848,831	1,807	62,745	72,920	135,666
Biggs	2,664	28,150	1	1,669	17,700	10	1,179	9,221	10,399
Burbank	11,292,372	103,374,352	3,249	10,069,940	90,420,739	55,731	2,243,100	1,076,054	3,319,154
Colton	1,576,404	7,377,063	193	1,544,339	7,142,385	4,003	85,505	42,000	127,505
Corona	27,106	288,648	49	23,040	241,291	144	55,150	10,148	65,298
Glendale	12,636,721	50,308,060	1,256	12,601,727	49,873,042	29,730	1,039,246	143,098	1,182,344
Gridley	338,626	1,712,659	172	277,042	1,382,575	751	102,045	46,946	148,991
Healdsburg	947,017	12,829,056	137	804,475	10,898,575	6,021	154,001	170,566	324,567
Imperial ID	20,710,661	268,739,264	7,789	17,799,981	232,972,855	142,595	8,312,563	2,259,762	10,572,325
LADWP	198,835,556	2,897,203,712	23,448	171,477,109	2,580,946,588	1,492,728	26,158,250	24,094,350	50,252,600
Lassen	152,218	6,608,944	96	98,092	1,271,673	354	76,458	32,322	91,923
Lodi	2,253,195	34,215,436	1,069	1,801,552	27,347,813	16,043	294,109	51,363	345,472
Lompoc	243,980	2,830,940	41	196,462	2,287,370	1,265	35,514	18,500	54,014
Merced	2,295,325	25,521,600	12	1,790,962	19,918,168	10,785	233,393	-	233,393
Modesto	11,061,683	130,524,136	1,410	9,226,846	108,546,837	58,982	1,431,804	1,452,364	2,884,168
Moreno Valley	-	-	-	-	-	-	-	-	-
Needles	24,960	449,280	27	24,960	449,280	284	144,000	6,000	150,000
Oakland	-	-	-	-	-	-	-	-	-
Palo Alto	9,743,062	91,766,176	775	8,074,481	58,362,777	-	1,122,777	1,309,890	2,432,668
Pasadena	16,896,694	167,139,120	2,089	16,896,694	159,692,686	96,952	2,434,082	543,948	2,978,030
Pittsburg	128,667	1,539,939	21	128,667	1,539,939	853	8,678	5,250	13,928
Plumas-Sierra	85,118	948,182	27	56,289	594,740	351	65,004	47,527	112,531
Rancho Cucamonga	146,565	2,345,040	51	146,565	2,345,040	1,537	57,027	32,000	89,027
Redding	685,367	10,779,544	693	531,858	8,415,135	8,351	1,390,156	230,000	1,620,156
Riverside	23,773,072	279,814,560	2,065	19,300,874	219,672,154	133,171	3,517,953	940,428	4,458,381
Roseville	6,722,839	79,282,960	3,174	6,133,165	72,959,559	43,407	1,846,208	1,084,928	2,931,136
Sacramento	173,680,585	1,435,045,477	27,433	173,680,585	1,435,045,477	564,175	20,066,398	15,398,230	35,464,628
San Francisco PUC	3,159,333	40,581,680	282	3,159,333	40,581,680	21,797	2,270,850	248,842	2,519,692
Shasta Lake	230,875	2,696,154	115	188,209	2,175,177	1,225	120,264	82,689	202,953
Silicon Valley	15,475,424	2,696,154	2,034	13,057,521	166,765,730	89,795	1,717,493	1,997,923	3,715,416
Trinity PUD	21,476	534,859	2	15,033	374,401	227	28,979	-	28,979
Truckee Donner	3,400,369	30,597,688	888	2,491,682	22,413,293	12,042	601,478	393,137	994,615
Turlock ID	13,052,240	146,774,720	1,546	10,415,557	117,227,380	65,261	957,261	304,208	1,261,469
Ukiah	534,607	4,837,391	213	436,904	3,881,184	2,181	169,834	45,759	215,594
Vernon	4,674,583	67,251,624	724	3,272,208	47,076,138	27,478	293,823	56,261	350,084
Victorville	-	-	-	-	-	-	-	-	-
Summary	571,016,957	6,142,218,671	89,305	521,478,250	5,722,100,229	3,022,049	$80,607,610	$53,884,476	$134,475,230

Note: All data is fiscal year, except for the following calendar year utilities: IID, Merced, Modesto, Plumas Sierra, SMUD, Truckee Donner, and TID.

*LADWP believes "Net" savings as a results reporting outcome are abstract and irrelevant for planning power procurement needs, but have been included here to fit the current SB 1037 reporting template. Relating EE achievements in terms relevant to power procurement planning is absolutely essential to credibly establishing EE as a supply-side resource. LADWP supports a paradigm shift in EE goals and results reporting away from the traditional (and obsolete) "gross vs net" considerations and towards a concept of "grid-realized savings", with expected vs actual grid realized savings to be reconciled through EM&V. In this paradigm free-ridership should absolutely still be reviewed and used to inform continuous program evolution and improvement to avoid subsidizing transformed markets. But the savings that matter to power procurement planning are the grid-realized savings, and thus should form the basis of EE portfolios' goals and reported results. LADWP looks forward to engaging the CEC and the other CMUA members in this discussion in the coming year.

Figure 7. Summary of Energy Savings by Program Sector, FY 12/13

All POU Summary		Resource Savings Summary							Cost Summary		
Program Sector (Used in CEC Report)	Category	Units Installed	Gross Annual kWh Savings	Net Demand Savings (kW)	Net Peak kW Savings	Net Annual kWh Savings	Net Lifecycle kWh savings	Net Lifecycle GHG Reductions (Tons)	Utility Incentives Cost ($)	Utility Mktg, EM&V, and Admin Cost ($)	Total Utility Cost ($)
Appliances	Res Clothes Washers	4,930	338,147	663	663	479,071	6,318,041	2,843	$ 292,963	$ 213,268	$ 506,231
HVAC	Res Cooling	67,690	12,870,680	9,087	11,603	14,852,357	252,816,310	145,215	$ 7,781,975	$ 4,143,882	$ 11,925,858
Appliances	Res Dishwashers	1,768	54,565	144	144	79,613	1,023,713	486	$ 101,396	$ 122,494	$ 223,890
Consumer Electronics	Res Electronics	48,767	87,745	782	782	6,388,471	63,603,774	25,091	$ 654,596	$ 693,190	$ 1,347,786
HVAC	Res Heating	651	9,160	318	315	1,110,952	19,999,945	7,871	$ 330,187	$ 126,230	$ 444,060
Lighting	Res Lighting	1,681,071	14,927,980	19,663	11,381	63,597,080	496,862,619	207,641	$ 5,845,570	$ 3,546,492	$ 9,392,062
Pool Pump	Res Pool Pump	2,197	682,763	584	584	1,917,462	26,244,623	11,136	$ 553,638	$ 772,288	$ 1,325,927
Refrigeration	Res Refrigeration	41,436	18,613,550	2,958	2,957	20,305,175	174,698,472	94,549	$ 6,604,070	$ 1,641,654	$ 8,245,723
HVAC	Res Shell	40,988	7,139,914	1,464	1,482	6,787,640	95,188,799	57,986	$ 3,211,169	$ 6,209,303	$ 9,420,472
Water Heating	Res Water Heating	8,311	85,559	18	17	150,550	2,527,897	1,085	$ 103,808	$ 69,682	$ 173,490
Comprehensive	Res Comprehensive	233,491	17,154,122	925	913	16,951,679	41,205,924	23,481	$ 1,920,316	$ 404,553	$ 2,324,869
Process	Non-Res Cooking	2	2,100	41	41	464,200	1,871,500	740	$ 25,586	$ 26,567	$ 52,154
HVAC	Non-Res Cooling	31,433,987	55,983,695	7,032	7,138	47,779,143	621,184,808	369,767	$ 11,083,177	$ 9,165,678	$ 20,248,855
HVAC	Non-Res Heating	3	42,277	7	7	35,352	357,077		$ 8,664	$ 13,390	$ 22,054
Lighting	Non-Res Lighting	22,384,317	130,238,829	27,966	26,422	150,214,405	1,470,386,978	810,801	$ 27,022,755	$ 14,897,836	$ 41,916,091
Process	Non-Res Motors	139,541	6,017,949	16	663	5,694,927	67,490,819	36,920	$ 2,465,115	$ 332,974	$ 2,798,089
Process	Non-Res Pumps	750	1,616,665	97	97	1,530,036	13,584,814	7,960	$ 484,018	$ 47,338	$ 531,356
Refrigeration	Non-Res Refrigeration	483,366	8,293,477	819	803	7,116,875	67,750,796	36,011	$ 1,080,981	$ 703,301	$ 1,784,282
HVAC	Non-Res Shell	1,833	9,600,939	1,635	1,394	9,370,944	36,641,464	19,393	$ 657,285	$ 274,785	$ 932,070
Process	Non Res Process	5,479	77,828,062	10,041	10,006	76,305,437	1,458,161,109	809,698	$ 835,230	$ 1,394,612	$ 2,229,842
Comprehensive	Non Res Comprehensive	13,545,999	26,969,670	755	755	21,137,066	190,980,099	110,756	$ 2,494,097	$ 2,466,939	$ 4,961,035
Other	Other	175,260	8,411,114	1,265		8,411,012	11,432,032	6,530	$ 107,419	$ 56,079	$ 163,498
SubTotal		70,301,838	396,968,961	86,282	78,166	460,679,450	5,120,331,615	2,785,960	$ 73,664,017	$ 47,322,535	$ 120,969,695
T&D	T&D	2	1,112,597	28	28	1,112,597	24,734,078	4,150	$ 0	$ 38,450	$ 38,450
Total		70,301,840	398,081,557	86,310	78,195	461,792,047	5,145,065,693	2,790,110	73,664,017	47,360,984	121,008,145

		Ratio
EE Program Portfolio	TRC Test	**1.72**
	PAC Test	2.75

TRC excludes T&D

Figure 8. Summary of Energy Savings from All Programs, 2006-2013

Year	Net Peak kW Savings	Net Annual MWh Savings	Net Lifecycle MWh Savings	Total Utility Expenditures ($)
FY05/06	52,552	169,303	2,249,214	$ 54,412,728
FY06/07	56,772	254,332	3,062,361	$ 63,151,647
FY07/08	82,730	401,919	4,473,801	$ 103,907,266
FY08/09	117,435	644,260	6,749,912	$ 146,093,107
FY09/10	93,712	522,929	5,586,299	$ 123,433,250
FY10/11	81,121	459,459	4,604,364	$ 132,372,795
FY11/12	82,561	439,710	4,638,521	$ 126,936,631
FY12/13	89,305	521,478	5,722,100	$ 134,475,230
TOTAL	**656,187**	**3,413,390**	**37,086,572**	**$ 884,782,654**

Figure 9. Total Program Expenditures, 2006-2013

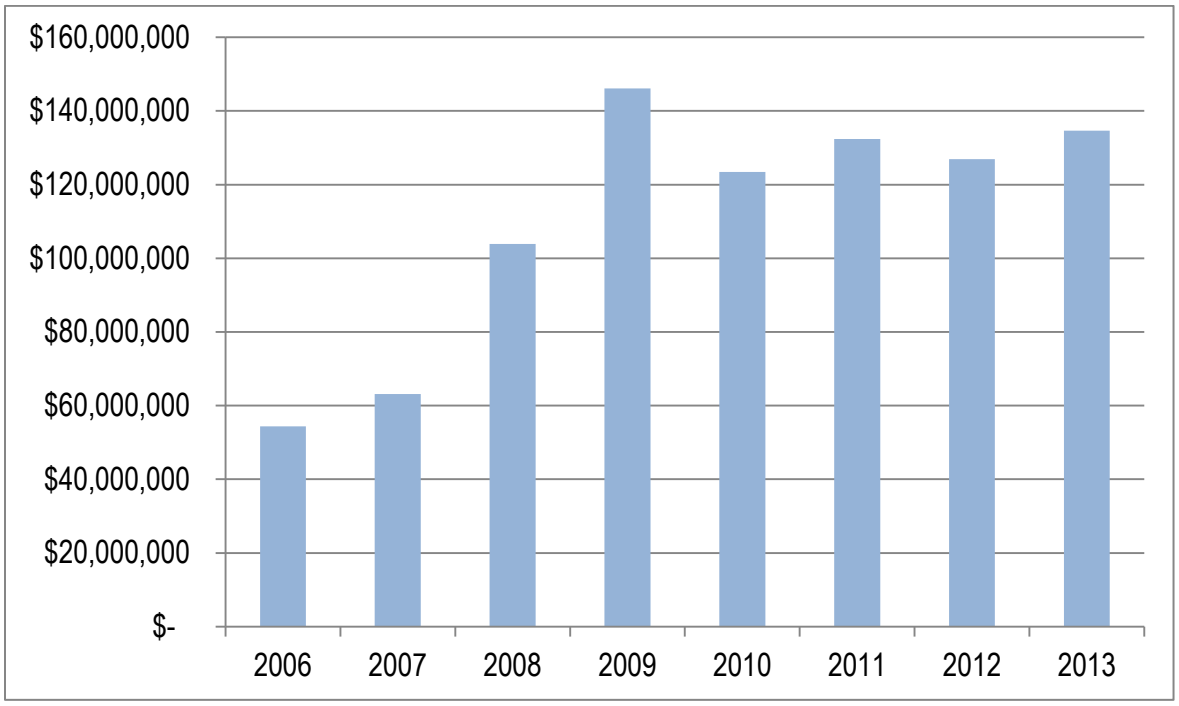

Figure 10. Utilities Most Heavily Influencing Energy Efficiency Savings

Utility	Net Annual KWh Savings	Utility Percent of Total Savings	Cumulative Percentage of Total Savings
Sacramento	173,680,585	33.3%	33.3%
Los Angeles	171,477,109	32.8%	66.1%
Anaheim	28,672,818	5.5%	71.6%
Riverside	19,300,874	3.7%	75.3%
Imperial	17,799,981	3.4%	78.7%
Pasadena	16,896,694	3.2%	81.9%
Silicon Valley	13,057,521	2.5%	84.4%
Glendale	12,601,727	2.4%	86.8%
Turlock	10,415,557	2.0%	88.8%
Burbank	10,069,940	1.9%	90.8%
Modesto	9,226,846	1.8%	92.5%
Palo Alto	8,074,481	1.5%	94.1%
Roseville	6,133,165	1.2%	95.3%
Azusa	3,806,793	0.7%	96.0%
Vernon	3,272,208	0.6%	96.6%

Figure 10 provides the FY12/13 data for the 15 utilities with the highest annual net savings. These 15 utilities provided 96.6% of the total amount reported by the entire POU community.

Continuing a long-standing trend, the majority of energy efficiency program impacts reflect public power's two largest utilities: LADWP and SMUD. From a state policy perspective focused on understanding the diversity within public power, it is important to recognize the energy efficiency program trends of the other POUs across the state. **Figure 11** highlights public power's commitment to energy efficiency programs, excluding LADWP and SMUD. During F12/13, the remaining utilities spent nearly $49 million on energy efficiency programs. While the demand (kW), annual savings (kWh), and total utility expenditures all decreased slightly from last year, the results are consistent with the general trends over the past four reporting years.

Figure 11. Summary of All POU Programs (excluding LADWP & SMUD), 2006-2013

Year	Net Peak kW Savings	Net Annual MWh Savings	Net Lifecycle MWH savings	Total Utility Cost ($)
FY05/06	19,292	67,766	953,628	$ 21,921,485
FY06/07	21,174	96,741	1,402,162	$ 28,663,125
FY07/08	37,822	171,738	2,079,276	$ 39,000,521
FY08/09	40,791	208,658	2,670,085	$ 45,476,667
FY09/10	37,781	219,315	2,529,693	$ 51,301,075
FY10/11	38,285	161,572	1,909,185	$ 52,061,405
FY11/12	45,705	187,843	2,258,294	$ 52,140,211
FY12/13	38,424	176,321	1,706,108	$ 48,758,002
TOTAL	**279,274**	**1,289,954**	**15,508,431**	**339,322,491**

Understanding Public Power Energy Efficiency Funding Sources

Section 9505(a)(3) of the Public Utilities Code requires POUs to include "the sources of funding for its investment in energy efficiency and demand reduction program investments." To that end, unless otherwise noted, program funding for energy efficiency programs within the public power community comes from the public goods charge that is collected from each utility customer pursuant to Section 385 of the Public Utilities Code.

The public goods charge is designated not only for energy efficiency, but also for renewable investment, electricity-related research and development, and low income assistance. When the Legislature authorized the imposition of the public goods charge beginning in 1998, local governing boards were afforded full discretion regarding how these funds would be allocated. Over the years, certain restrictions have been imposed on this discretion, limiting how future dollars can be allocated. As an example, under the California Solar Initiative, public utilities are precluded from reducing their expenditures on energy efficiency or low income assistance to fund its solar programs. That said, local governing boards allocate the majority of their public benefits expenditures to energy efficiency programs.

In some instances, local governing boards allocate dollars above and beyond public benefits expenditures, or even increase the public benefits surcharge to a level above the minimum 2.85% of sales requirement. Additional dollars as a practical matter come from the general fund of each jurisdiction, but could, from an energy policy context, be considered a means to defer procurement investment, to put it in context that is consistent with Section 9505(a)(3).

Critical to the ultimate success of public power energy efficiency programs is the ability to optimize the use of public dollars that are dedicated to energy efficiency activities. Putting aside the growing costs of measurement and verification, the majority of expenditures represent direct incentives to the customer and direct installation costs. By keeping overhead costs low, POUs are able to maximize the flow of money into their respective communities, which fosters economic development and customer investment into existing building infrastructures. In turn, these investments help to retain local jobs as well as promote local job growth.

The average cost per kWh saved for all POUs is 26 cents per kWh. However, this total does not capture the full electricity savings over the lifetime of different measures. The cost per kWh saved over the lifetime of the energy efficiency measures is an estimated at less than 2.5 cents per kwh. It is clear that California's POUs have established a high benchmark for efficient and effective delivery of energy efficiency programs.

VI. EVALUATION, MEASUREMENT, AND VERIFICATION

Section 9505(d) of the Public Utilities Code requires that each local publicly owned electric utility shall make available to its customers and to the CEC the results of any independent evaluation that measures and verifies the energy efficiency savings and the reduction in energy demand achieved by its energy efficiency. Public power has strategically responded to this directive in a manner that confirms the accuracy of reported savings while optimizing the exchange of program information across the entire range of public power utilities, large and small.

The EM&V process used to provide utility program managers with feedback relies generally on the approaches articulated in the National Action Plan for Energy Efficiency, adopted CPUC protocols, and the innovation and expertise of firms experienced in program evaluation. To further enhance the value of the information obtained from these reports, the public power community has been working closely with CEC staff to develop a consistent set of evaluation guidelines for third-party consultants that are retained to evaluate utility programs. During the past two years, the CEC has conducted several workshops regarding the EM&V process and has created a working version of evaluation guidelines, and these insights are already adding value to the analyses being undertaken across the public power community. CMUA, SCPPA and NCPA continue their active collaboration in this regard, sharing best practices and coordinating the distribution of program evaluation information throughout the public power community.

EM&V reports are intended to help utilities to understand the effectiveness of specific program areas with the purpose of enhancing program offerings in the future. Many of the EM&V studies completed to date focused on measures with high savings and measures that exhibit the greatest levels of uncertainty. Key findings from the reports submitted by POUs continue to confirm high realization rates for utility-reported energy savings, corroborating that public power's energy efficiency reporting provides a reliable source of data to help state policymakers gauge the success of the state's overall energy efficiency efforts.

The economic slowdown has had an impact on program evaluation and savings realization rates. In some cases, businesses participating in energy efficiency programs do not survive the economic downturn, even though the efficiency measures they paid for were installed, but ultimately are not being utilized as intended. In essence, unanticipated vacancies can negatively impact realization rates. In addition to the economic impacts, the continuing debate surrounding the use of net-versus-gross savings, especially when empirical data is not readily available, has made it difficult for evaluators to conduct a reliable net-to-gross analysis. Such debate is not exclusively focused on public power. The IOUs have effectively abandoned the use of net savings, something the public power community will consider going forward.

At the time this report was published, the public power community had made available more than 75 separate EM&V studies. Unless otherwise noted, each document is available at http://www.ncpa.com/current-issues/energy-efficiency-reports.html. A number of utilities are currently in the process of completing EM&V studies for 2013 programs. These and other subsequent reports will be posted to the above URL as they become available. POU-specific information regarding EM&V activities can be found in the utility narratives contained in **Appendix A**.

VII. CONCLUSIONS & POLICY CONSIDERATIONS

Conclusions

CMUA, NCPA, and SCPPA appreciate the opportunity to provide this report on the results of the energy efficiency programs administered by public power in California over fiscal year 2013. This section highlights the continued commitment of the POUs to making significant investments in energy efficiency on behalf of the customers and communities they serve. In the following section, public power offers policy considerations regarding future energy efficiency programs in furtherance of the state's energy, environmental, and economic goals.

FY12/13 Energy Efficiency Program Results

Regarding POU programs provided in FY12/13, the principal findings of this analysis are as follows:

- **Significant Investment:** POUs spent $134.5 million on energy efficiency programs. This is the sixth consecutive year the $100 million threshold has been exceeded.
- **Peak Demand Reduction:** Public power programs reduced peak demand by more than 89.3 megawatts.
- **Energy Savings:** Net annual savings totaled more than 521,478 (MWh).
- **Years of Success:** Since 2006, POUs have invested nearly $885 million in energy efficiency programs, reduced peak demand by more than 656 megawatts, and achieved more than 3.4 million MWh in savings.
- **Cost-Effectiveness:** Applying the Total Resource Cost (TRC) societal test, the principal measure used in the industry to determine whether programs are cost-effective, the aggregated TRCs for public power is 1.72 in FY12/13.
- **Most Savings:** Lighting continues to dominate public power energy efficiency programs, accounting for almost half of the total energy savings achieved (46%).
- **Efficacy of Programs:** The average cost per kWh saved from all POU programs is $0.258/kwh. The cost per kWh saved over the lifetime of the various energy efficiency measures is $0.024/kWh.

Policy Considerations

California's 40 years of energy efficiency policy represents a significant environmental and ratepayer accomplishment, and public power is proud of our role in the state's clean energy legacy. Looking ahead, the relationships that POUs nurture with their customers will become increasingly important in order to ensure continued success. Furthermore, public power is uniquely situated in our communities to facilitate broader partnerships with a range of stakeholders who play significant roles in achieving energy savings in both existing buildings and new construction. With this being the eighth year that public power has issued this report, we would like to offer the following observations – based on our collective experience administering energy efficiency programs – that are intended to guide policy considerations going forward.

1. Customers drive success of energy efficiency programs

POUs go to great lengths to plan, develop, and implement energy efficiency incentive programs that will attract customer participation, as evidenced by the sustained success of public power programs discussed in **Chapter V** and summarized in the section above. A POU's relationships with their customers are critical to understanding the unique needs and motivations of customers in their service territory. **Chapter III** discussed some of the various factors that directly impact customer decision-making. **Chapter VI** explored the principles of EM&V report and the crucial feedback they provide regarding measure and program performance that informs utility program planning.

A thorough understanding of the factors and motivations that influence customer decision-making is vital to future success of POU and the state's energy efficiency programs. The CEC correctly states in the AB 758 Draft Action Plan that, "Consumers make decisions on energy efficiency expenditures based on many factors beyond costs. These factors can include social context, lifestyle, regional differences, cultural norms, habits, and psychology." Public power's years of experience working with customers on energy efficiency supports this concept that individuals' personal beliefs regarding energy efficiency vary a great deal and influence their decision-making. Furthermore, in many cases a customer's decision to make energy efficiency improvements is not primarily motivated by energy benefits or a specific attitude towards energy efficiency. Arthur Rosenfeld, prior to becoming a CEC Commissioner, co-authored research (Mills & Rosenfeld, 1996) that framed customer motivations as follows:

> *"From a consumer perspective, it is often the non-energy benefits that motivate (or can be used to promote) decisions to adopt energy-efficient technologies. Consumer benefits can be grouped into the following categories: (1) improved indoor environment, comfort, health, and safety (2) reduced noise, (3) labor and time savings, (4) improved process control, (5) increased amenity or convenience, (6) water savings and waste minimization, and (7) direct and indirect economic benefits from downsizing or elimination of equipment. Consumer awareness of non-energy benefits is also relevant to utilities, energy service companies, and others seeking to sell efficiency. While energy-efficient technologies help provide equivalent services at lower costs, non-energy benefits can actually add value or enhance the energy services delivered by efficient technologies. In addition, where certain market segments are not sensitive to economic arguments (e.g., in the*

proverbial "landlord-tenant" split-incentive situation) non-energy benefits can assume special importance. From the perspective of energy consumers, non-energy benefits can equal or even exceed the importance of the energy cost avoided, thus meriting greater consideration in private investment decisions, marketing strategies, design and evaluation of utility programs, and government policies designed to promote energy efficiency."

Nearly 20 years later, the findings of the research are no less true. Understanding customer motivations for investing – and not investing – in energy efficiency is particularly critical to POU and CEC programs targeting energy savings in existing buildings. While there remain significant energy savings opportunities in existing buildings, motivating customers to pursue improvements to realize those savings presents real challenges given decades of effective energy efficiency programs in California. Efforts to reduce energy in existing buildings would be greatly advantaged by additional research to contextualize customer decision-making regarding energy efficiency, and to better identify which non-energy benefits are most likely to motivate different sub-sections of the customer spectrum to pursue energy saving measures.

2. Deeper energy savings require stronger partnerships with a diverse array of stakeholders

Related to understanding customer motivations is recognizing that regulatory requirements and utility incentives represent only a couple of the strategies needed to further reduce customer energy usage in California. The state's pursuit of its aggressive energy savings goals, for which achieving success will be increasingly difficult and complex, necessitates greater collaboration amongst the CEC, utilities, and a growing universe of stakeholders.

In the AB 758 Draft Action Plan, the CEC again correctly states, "Regulatory solutions alone will not meet with sufficient success; true success will involve the widest array of participants applying creative, systemic solutions in the marketplace. Successful approaches will first and foremost meet the needs of building owners and occupants. In addition contractors, architects, local building officials, equipment manufacturers and suppliers, banks, and many others may touch any given building project, and must be part of the conversation around AB 758 implementation."

Similarly, in seeking resolution to the outstanding implementation issues in the ZNE building program the CEC acknowledges that, "At a minimum, the Energy Commission should obtain the input of the CPUC, the ARB, the Governor's Office of Planning and Research, investor-owned and publicly-owned utilities, the building industry, environmental groups, and environmental justice representatives on these issues."

The positioning of POUs in local governments and their strong working relationships with stakeholders in their communities creates opportunities for public power to facilitate partnerships that support energy efficiency in existing buildings, as well as implementation of codes and standards updates. POUs look forward to continuing to participate in workshops and forums to identify new opportunities to collaborate with other stakeholders on supporting energy efficiency investments, as well as to better understand developments that are likely to affect their own customer programs.

3. Transparent and reliable metrics are essential

The foundation of all energy efficiency programs is firmly rooted in the energy savings estimates for measures. If the energy savings estimates for measures are wrong, then no meaningful evaluation of program can be completed. As noted in **Chapter IV**, public power will shift away in the next reporting year from DEER to a technical reference manual (TRM), designed specifically for POU programs. In addition to developing more accurate energy savings estimates for POU measures, the TRM includes standardized methodologies and best practices for custom measures for which current energy savings data is limited. Overall, the TRM provides greater consistency, and improves reporting practices for all POUs.

Beyond energy savings estimates, the next major metric of energy efficiency programs is reported savings. Evaluations with different purposes will rely on different metrics for reported savings. If the purpose of the evaluation is to incorporate utility energy efficiency program results into demand forecasts, then ***gross savings*** are most appropriate. If the goal is to evaluate only the energy savings attributable to a utility program, discounting savings associated with 'free ridership' and other factors, then ***net savings*** are used. Though not entirely useful or relevant to utility resource planning or operations, net energy savings are presented in this report.

Estimating net savings has always been a difficult task because it involves comparing actual program results (gross savings) to that which cannot be observed – namely, what a customer would have done in the absence of the program. Calculating net savings is becoming even more difficult as projects and programs become increasingly complex. Utilities are also not exclusive providers of energy efficiency services and programs; in fact, the AB 758 Draft Action Plan is explicitly designed to expand the non-utility energy efficiency marketplace. More complex measures and marketplace mean the methodologies that attempt to calculate net savings are also becoming increasingly complicated.

Previous POU annual reports showed results in terms of net energy savings in order to ensure the POUs did not overstate their energy savings accomplishments. However, the CEC also uses the POU annual report to inform the state's long term electricity demand forecasts. Projections based on net energy savings have a greater propensity to be incorrect since they are not based on the actual energy reductions. Therefore, POUs will report gross savings, in addition to net savings. This supports CEC efforts to develop the state's long term electricity demand forecasts.

APPENDIX A: DESCRIPTIONS OF UTILITY PROGRAMS

This appendix consists of detailed narratives of each publicly owned utility's energy efficiency programs, as well more general descriptions of the utilities. Utility-specific summaries of their energy programs for FY2013, compiled using the E3 Reporting Tool, can be found at the end of each utility's narrative.
The table below summarizes the energy savings and programs investments made by all POUs in 2013.
For more analysis on statewide energy efficiency data, see **Chapter V: Investments in Energy Efficiency Programs**.

All POUs – Summary of Energy Efficiency Programs, FY 2013

All POU Summary	Resource Savings Summary						Cost Summary		
	Gross Annual kWh Savings	Gross Lifecyle kWh Savings	Net Peak kW Savings	Net Annual kWh Savings	Net Lifecycle kWh savings	Net Lifecycle GHG Reductions (Tons)	Utility Incentives Cost ($)	Utility Mktg, EM&V, and Admin Cost ($)	Total Utility Cost ($)
Alameda	3,426,185	49,687,096	399	3,076,309	43,936,427	24,376	533,493	548,199	1,081,692
Anaheim	28,672,818	143,414,384	6,879	28,672,818	143,414,377	84,987	2,103,402	973,158	3,076,560
Azusa	3,899,636	39,475,856	858	3,806,793	39,061,212	22,648	873,388	156,486	1,029,874
Banning	208,955	2,998,769	88	198,507	2,848,831	1,807	62,745	72,920	135,666
Biggs	2,664	28,150	1	1,669	17,700	10	1,179	9,221	10,399
Burbank	11,292,372	103,374,352	3,249	10,069,940	90,420,739	55,731	2,243,100	1,076,054	3,319,154
Colton	1,576,404	7,377,063	193	1,544,339	7,142,385	4,003	85,505	42,000	127,505
Corona	27,106	288,648	49	23,040	241,291	144	55,150	10,148	65,298
Glendale	12,636,721	50,308,060	1,256	12,601,727	49,873,042	29,730	1,039,246	143,098	1,182,344
Gridley	338,626	1,712,659	172	277,042	1,382,575	751	102,045	46,946	148,991
Healdsburg	947,017	12,829,056	137	804,475	10,898,575	6,021	154,001	170,566	324,567
Imperial ID	20,710,661	268,739,264	7,789	17,799,981	232,972,855	142,595	8,312,563	2,259,762	10,572,325
LADWP	198,835,556	2,897,203,712	23,448	171,477,109	2,580,946,588	1,492,728	26,158,250	24,094,350	50,252,600
Lassen	152,218	6,608,944	96	98,092	1,271,673	354	76,458	32,322	91,923
Lodi	2,253,195	34,215,436	1,069	1,801,552	27,347,813	16,043	294,109	51,363	345,472
Lompoc	243,980	2,830,940	41	196,462	2,287,370	1,265	35,514	18,500	54,014
Merced	2,295,325	25,521,600	12	1,790,962	19,918,168	10,785	233,393	-	233,393
Modesto	11,061,683	130,524,136	1,410	9,226,846	108,546,837	58,982	1,431,804	1,452,364	2,884,168
Moreno Valley	-	-	-	-	-	-	-	-	-
Needles	24,960	449,280	27	24,960	449,280	284	144,000	6,000	150,000
Oakland	-	-	-	-	-	-	-	-	-
Palo Alto	9,743,062	91,766,176	775	8,074,481	58,362,777	-	1,122,777	1,309,890	2,432,668
Pasadena	16,896,694	167,139,120	2,089	16,896,694	159,692,686	96,952	2,434,082	543,948	2,978,030
Pittsburg	128,667	1,539,939	21	128,667	1,539,939	853	8,678	5,250	13,928
Plumas-Sierra	85,118	948,182	27	56,289	594,740	351	65,004	47,527	112,531
Rancho Cucamonga	146,565	2,345,040	51	146,565	2,345,040	1,537	57,027	32,000	89,027
Redding	685,367	10,779,544	693	531,858	8,415,135	8,351	1,390,156	230,000	1,620,156
Riverside	23,773,072	279,814,560	2,065	19,300,874	219,672,154	133,171	3,517,953	940,428	4,458,381
Roseville	6,722,839	79,282,960	3,174	6,133,165	72,959,559	43,407	1,846,208	1,084,928	2,931,136
Sacramento	173,680,585	1,435,045,477	27,433	173,680,585	1,435,045,477	564,175	20,066,398	15,398,230	35,464,628
San Francisco PUC	3,159,333	40,581,680	282	3,159,333	40,581,680	21,797	2,270,850	248,842	2,519,692
Shasta Lake	230,875	2,696,154	115	188,209	2,175,177	1,225	120,264	82,689	202,953
Silicon Valley	15,475,424	2,696,154	2,034	13,057,521	166,765,730	89,795	1,717,493	1,997,923	3,715,416
Trinity PUD	21,476	534,859	2	15,033	374,401	227	28,979	-	28,979
Truckee Donner	3,400,369	30,597,688	888	2,491,682	22,413,293	12,042	601,478	393,137	994,615
Turlock ID	13,052,240	146,774,720	1,546	10,415,557	117,227,380	65,261	957,261	304,208	1,261,469
Ukiah	534,607	4,837,391	213	436,904	3,881,184	2,181	169,834	45,759	215,594
Vernon	4,674,583	67,251,624	724	3,272,208	47,076,138	27,478	293,823	56,261	350,084
Victorville	-	-	-	-	-	-	-	-	-
Summary	571,016,957	6,142,218,671	89,305	521,478,250	5,722,100,229	3,022,049	$80,607,610	$53,884,476	$134,475,230

Note: All data is fiscal year, except for the following calendar year utilities: IID, Merced, Modesto, Plumas Sierra, SMUD, Truckee Donner, and TID.

*LADWP believes "Net" savings as a results reporting outcome are abstract and irrelevant for planning power procurement needs, but have been included here to fit the current SB 1037 reporting template. Relating EE achievements in terms relevant to power procurement planning is absolutely essential to credibly establishing EE as a supply-side resource. LADWP supports a paradigm shift in EE goals and results reporting away from the traditional (and obsolete) "gross vs net" considerations and towards a concept of "grid-realized savings", with expected vs actual grid realized savings to be reconciled through EM&V. In this paradigm free-ridership should absolutely still be reviewed and used to inform continuous program evolution and improvement to avoid subsidizing transformed markets. But the savings that matter to power procurement planning are the grid-realized savings, and thus should form the basis of EE portfolios' goals and reported results. LADWP looks forward to engaging the CEC and the other CMUA members in this discussion in the coming year.

ALAMEDA MUNICIPAL POWER (AMP)

At a Glance

- Established in 1887; oldest utility in the west
- Climate Zone 3
- Total customers – 34,536, residential - 30,260, commercial - 4,276
- Percent of retail sales by customer class – residential – 88%, commercial – 12%
- FY 2013 electric revenues $51,246,550.39
  Budgeted energy efficiency $1,178,870.84
  Actual energy efficiency expenditures $1,080,782.82

Major Changes

- AMP electric sales continue to decline, partially to new solar photovoltaic systems and energy efficiency, but largely due to the economic recession and the sluggish East Bay economy:

Year	Actual Electric Sales (MWh/yr.)
2011	382,634
2012	373,787
2013	363,444

- The energy efficiency savings increased significantly in FY 2013 largely due to an aggressive commercial lighting program, energy efficiency retrofits of several ships home ported in Alameda, and a high efficiency new four-building campus in Alameda.
- A staff person was added to manage the residential energy efficiency sector programs and services, as well as AMP's greenhouse gas emission reduction plans. There are now two full-time energy efficiency staff members.
- AMP energy efficiency expenditures continue to increase.

Year	Rebates to Customers	Other Costs – Admin & Energy Services	Total Cost to AMP
2010	$115,465	$463,603	$579,068
2011	$224,026	$429,790	$653,816
2012	$427,182	$455,312	$882,494
2013	$532,584	$548,199	$1,080,783

Program Highlights

- AMP's "Commercial Lighting Pilot Program" which started November 2011 (FY 2012) and ended December 2012 (FY 2013) has provided 3,918,605 kWh/yr. savings from 138 customer projects.

Customers received $717,861 in rebates. The goal of this program was to retrofit all T12 fluorescent lamps before the federal policy prohibiting the manufacturing of T12 fluorescent lamps took effect. AMP provided high rebates in this program to encourage whole building lighting retrofits and contractor incentives for small commercial sector retrofit projects.

- AMP's "Commercial New Construction Program" provided the highest rebate ever to one customer for a new four-building complex that will use 40% less electricity than the California State building code, Title 24. This amounts to an estimated energy savings of nearly 900,000 kWh/yr. Most of the energy savings are from the indirect, direct evaporative cooling system. The project developers are applying for LEED Gold rating. A third party verification of the energy efficiency measures in the 150,000 ft2 office complex has been completed.
- Over 8% of AMP's load is maritime; the largest customer in this sector is the Maritime Administration (MARAD) with nine ships home-ported in Alameda. AMP has been working with MARAD since 2008 to implement energy efficiency retrofits on the ships. In FY 2013 lighting retrofits were done on five ships and mechanical efficiency measures were installed on one ship resulting in 1,080,218 kWh/year in energy savings.

Program Descriptions

The following is a description of AMP's energy efficiency programs and services:

Res Refrigeration

- Energy Star Refrigerator Rebate & Recycle Program – Rebate for buying an Energy Star refrigerator and recycling the old refrigerator with our recycler.
- 2nd Refrigerator Pick-Up Program – Rebate for customers recycling their second refrigerator with our recycler.

Res Lighting

- Trade-Ins for CFLs – Trade-in events where customers bring in their incandescent lights and exchange those for compact fluorescents (CFL).
- LED/Advanced Technologies – Promote advanced technologies such as LED down lights.

Res Other

- Monitor Lending Program – Borrow a monitor to measure the energy use of appliances.
- Onsite Energy Audits – Residential audits at no cost.
- Weatherization Cash Grant Program – Grant for up to 80 percent of the cost of weatherizing homes with electric heat.
- Online Energy Audit – Online residential energy audit and associated tools such as an appliance calculator and energy library on AMP's website.
- Home Energy Report Pilot – The goal of this pilot program was to target AMP's highest tier energy users, determine customer interest in receiving detailed information on their energy use, and test

customer reception to home energy reports. Customers received a monthly detailed report on their energy use and information on how to reduce it.

Non-Res Cooling

- Commercial HVAC Retrofit Program – Prescriptive rebates for retrofitting existing buildings with energy-efficient HVAC equipment.

Non-Res Lighting

- Commercial Lighting Pilot Program – A contractor-driven commercial lighting retrofit program with high rebates and contractor incentives for retrofitting small commercial customers.

Non-Res New Construction

- New Construction Design Assistance – Grants of up to $10,000 for energy-efficient design work.
- New Construction Rebates – Whole building and systems rebates for energy-efficient new construction.

Non-Res Other

- Commercial Customized Retrofit Program – Based upon the kWh/yr. reduced, rebates for energy efficiency retrofits such as motors and server virtualization.
- Commercial On-Site audits – Free energy audits for lighting, HVAC, refrigeration, process systems, etc.

EM&V

As a small utility AMP completes evaluation, measurement, and verification (E,M,&V) of energy efficiency programs each year and the study is submitted every two years. EM&V has been completed and submitted for FY 2010 and 2011. The next E,M,&V study will be for FY 2012 and 2013 and will be submitted in FY 2014.

Complimentary Public Benefits Programs

- Renewable Energy Programs:
    - Solar Photovoltaic Program – In FY 2013 AMP provided both a residential and a commercial solar PV rebate program.
    - Alameda Green - Alameda residents and businesses now have the power to choose 100% renewable energy with Alameda Green, a voluntary green power program offered by Alameda Municipal Power (AMP). Through this program customers purchase Green-e Energy Certified clean energy for one hundred percent of their electricity use.
- Low-Income Programs:
    - Energy Assistance Program – Provides energy audits, energy efficiency measures, and a 25 percent bill subsidy to qualifying low-income customers.

- Energy Assistance through Supportive Efforts - Provides short-term emergency assistance based upon matching funds from the customer.

FY12/13 Program Results

Alameda		Resource Savings Summary							Cost Summary		
Program Sector (Used in CEC Report)	Category	Units Installed	Net Demand Savings (kW)	Net Peak kW Savings	Gross Annual kWh Savings	Net Annual kWh Savings	Net Lifecycle kWh savings	Net Lifecycle GHG Reductions (Tons)	Utility Incentives Cost ($)	Utility Mktg, EM&V, and Admin Cost ($)	Total Utility Cost ($)
Appliances	Res Clothes Washers										
HVAC	Res Cooling										
Appliances	Res Dishwashers										
Consumer Electronics	Res Electronics										
HVAC	Res Heating	1	6	3	2,002	1,401	28,028	14	$960	$249	$1,209
Lighting	Res Lighting	781	27	6	35,522	29,315	221,476	118	$4,761	$2,349	$7,110
Pool Pump	Res Pool Pump										
Refrigeration	Res Refrigeration	404	25	25	187,340	118,252	751,344	408	$20,020	$8,597	$28,617
HVAC	Res Shell										
Water Heating	Res Water Heating										
Comprehensive	Res Comprehensive										
Process	Non-Res Cooking										
HVAC	Non-Res Cooling	5	220	110	1,110,045	921,463	20,917,888	11,640	$144,096	$245,582	$389,677
HVAC	Non-Res Heating										
Lighting	Non-Res Lighting	5	509	255	2,075,394	1,992,378	21,882,695	12,125	$361,937	$289,933	$651,870
Process	Non-Res Motors	1			8,541	7,260	72,599	38	$912	$801	$1,713
Process	Non-Res Pumps										
Refrigeration	Non-Res Refrigeration	1			7,341	6,240	62,399	33	$808	$688	$1,496
HVAC	Non-Res Shell										
Process	Non Res Process										
Comprehensive	Non Res Comprehensive										
Other	Other										
SubTotal		1,198	786	399	3,426,185	3,076,309	43,936,427	24,376	$533,493	$548,199	$1,081,692
T&D	T&D										
Total		1,198	786	399	3,426,185	3,076,309	43,936,427	24,376	$533,493	$548,199	$1,081,692

EE Program Portfolio	TRC Test	1.58826165
	PAC Test	**3.93**

Excluding T&D

ANAHEIM PUBLIC UTILITIES (APU)

At a Glance

- Established in 1894
- Climate Zone 8
- 177,830 meters, 115,113 are electric and 62,717 are water
- Percent of retail sales by customer class – 25% residential, 30% commercial, 44% industrial and 1% miscellaneous
- Budgeted amount for energy efficiency programs: $4,095,437, amount actually expended: $4,146,864 and funding source: Electric Revenue.
- Load growth: 1.6%

Utility Overview

Anaheim Public Utilities (APU) provides electricity and water to a community of 346,161 residents, approximately 9,000 businesses, and more than 20 million annual visitors over an area that covers more than 50 square miles. While the Anaheim Resort area accounts for a large proportion of the energy and water consumed in Anaheim, significant amounts of energy and water are consumed by businesses in the 3000-acre industrial area known as The Anaheim Canyon. New developments in the planning stage include three hotels in The Anaheim Resort, 15 new industrial buildings on a former Boeing campus in The Anaheim Canyon, and 6,500 new dwelling units in the 800-acre Platinum Triangle near Anaheim Stadium.

Current trends affecting energy efficiency programs in Anaheim include changing codes and standards that reduce the amount of potential claimed energy savings, customer reluctance to make significant investments in energy efficiency, the slow economic recovery and higher-than-average unemployment among residents, a built-out community with fewer properties changing hands and therefore fewer tenant improvement projects, and a diverse residential population with differing needs and priorities.

Customers are increasingly interested in options to traditional sources of electricity. In particular, solar energy systems have grown in acceptance and now generate approximately 5.5 MW of power each year in Anaheim. As part of our solar program, we strongly encourage customers to “lean out” their properties by adopting energy efficiency measures before committing to installing new solar equipment. Customers who do so sometimes find energy efficiency to be more cost-effective than solar energy and consequently abandon their plans for solar. These experiences validate the loading order established by the State and encourage increased integration of energy efficiency and renewable energy efforts.

Major Program Changes

We are continually updating and modifying our program portfolio to take advantage of new opportunities, which is especially important as changes in technology and codes and standards mean that traditional energy efficiency programs such as CFL distributions and lighting retrofits become less reliable sources of kilowatt hour savings. In FY 2012/2013, we developed six new programs, primarily targeting commercial

and industrial customers where there are opportunities for significant energy savings. Since these programs were in development phase during FY 12/13, they generated only modest energy savings. However, we expect they will contribute significantly to our energy savings accomplishments in future years.

Program Highlight

The Customized Energy Efficiency Incentives Program continues to be the program that best meets our customers' needs. In addition receiving incentives, large commercial customers can receive free energy audits, which they often use as multi-year energy efficiency work plans. Unsurprisingly, this combination of audit and customized incentives is valued by our customers who can receive up to $0.15 per kWh or $400 per kW saved.

Current Commercial Customer Programs Descriptions

Total annual program cost: $1,133,135

Resulting in: 3,068 kilowatt demand reduction and 17,387,594 kilowatt-hour reduction

Non-Res Cooling

- Heat Pump Programs: Encourage installation of high-efficiency heat pumps.
- Energy Efficient Incentives Program: Customized financial incentives for installation of high-efficiency air conditioning, motors, and other production related equipment.

Non-Res Lighting

- Comprehensive Energy Audits: Customized on-site audits and recommendations designed to improve energy operating efficiency and help customers reduce costs.
- LED Exit Sign Program: Financial incentives for up to 50 percent of the cost to retrofit incandescent bulbs or fluorescent lamps in exit signs with more efficient exit sign lighting technology.
- Lighting Incentives: Provides incentives to improve energy efficiency for a variety of lighting applications.
- Small/Medium Business Program: Provides customers of less than 50 kilowatt demand with energy use evaluations, retrofit funding, and installation assistance; focusing on lighting upgrades, programmable thermostats, air conditioning, and refrigeration tune-ups.

Non-Res Pumps

- Commercial & Residential Water Savings Resulting from Equipment Rebates: Businesses and companies are eligible for rebates by installing or retrofitting with qualifying water-saving devices through the "Save a Buck" Program. Water savings result from the application of measures such as:
    - Landscape Performance
    - Rotating Nozzle Rebates

- SmarTimer Rebates

Non-Res Comprehensive

- Operations Program: Produces energy savings by turning off large transformers that are not customers' serving loads.

Other

- Codes and Standards: Savings obtained by calculating the average of 2012 and 2013 Codes and Standards Credits for Anaheim based on Statewide Energy Requirements from 2006.
- Small/Medium Business Audits: Customized on-site audits and recommendations designed to improve energy operating efficiency and help customers reduce costs.

Current Residential Customer Programs Descriptions

Total annual Program Costs: $2,253,361

Resulting in: 9,101 kilowatt demand reduction and 11,285,224 kilowatt-hour reduction

Res Cooling

- TreePower: Provides complimentary shade trees and incentives for residential customers. Shade trees, when properly placed, can help reduce air conditioning costs.

Res Lighting

- Home Utility Check-Up Equipment-CFL Direct Install: A customized in-home survey of water and energy use and existing appliances. Customers receive free installation of up to five CFLs.
- CFL Distribution: Mail out of two 23 watt CFLs to residents of two neighborhood districts.

Res Refrigeration

- Refrigerator Recycling Program: Provides a rebate to customers who recycle an old, operational refrigerator or freezer.
- Weatherization: Provides weatherization measures, ensures combustion appliance safety and install Energy Star appliances for income-qualified residential homeowners and tenants.

Res Comprehensive

- Home Incentives: Rebates for purchase and installation of high efficiency ENERGY STAR® rated appliances and high efficiency conservation measures.
- O Power: Comparative Usage behavior pilot program with 13,874 selected residential customers. The reports include descriptions of the customer's energy use, comparisons to similar sized homes, and options to reduce energy costs.
- On-Line Home Utility Check-Up and click on Public Utilities to complete a detailed survey online. Either way, customers receive money saving advice, and learn about incentives designed to help them be more water and energy efficient.

- Home Utility Check-Up: A customized in-home survey of water and energy use and existing appliances; or an option to go to www.anaheim.net

EM&V

APU plans to initiate EM&V analysis of energy efficient programs in FY 13/14.

Complimentary Public Benefits Programs

- Neighborhood Comprehensive Revitalization: Provides comprehensive revitalization and retrofits to existing income-qualified neighborhood developments. Funding is provided to install high efficiency conservation measures and Energy Star appliances.
- Lighten-Up CFL Fundraiser: Provides free CFLs to students to sell as a fund raising activity to attend outdoor environmental camp (or other specified extracurricular activity).
- Water Use Surveys: Customers receive expert analysis of a facility's water use, specific water saving recommendations, and an explanation how incentives may help fund improvements.
- Economic Development/Business Retention Rate: Qualifying businesses receive rate discounts with an efficiency measures installation component.
- New Construction: Customers receive design assistance and incentives for new construction and facility expansions that install energy-efficient equipment that exceed Title 24.
- Renewable Energy Programs:
    - Green Power Program: Customers pay an extra charge to support renewables. The funds go towards purchasing solar, wind, geothermal, hydroelectric and other forms of renewable generation.
    - Solar Energy Incentives: Customers and schools can receive incentives for systems that do not exceed 100% of their historic consumption. In addition, permit fees are waived.
- Low-Income Programs:
    - Income-Qualified Senior or Disabled Energy Credit: Provides a 10 percent reduction on the electric portion of bills to seniors or long-term disabled customers at or below 80 percent of the Orange County median income.
    - Dusk to Dawn Income-Qualified Assistance: In addition to receiving a free outdoor light, income-qualified residents may also have the light installed by one of Anaheim's approved and licensed electrical contractors free of charge.
    - Emergency Assistance – Provides a one-time electric utility payment for customers in economic hardship.
- Research, Development, and Demonstration:
    - Plug-in Electric Vehicles Incentives: Customers are reimbursed for out-of-pocket expenses up to $1,500 per charger. Eligible expenses include the charger purchase price, and installation costs. In addition to the $1,500 rebate, permit application fees related to the installation of the EV charger are waived.
    - California Manufacturing Technology Consultants (CMTC) VERSA Program: CMTC engineers analyze industrial customers' production systems to identify and recommend

opportunities for energy reduction and energy efficiency through behavioral measures. This is a demonstration project involving two large industrial customers. If successful, it will be the subject of an EM&V analysis to verify the energy savings.

FY12/13 Program Results

Anaheim		Resource Savings Summary							Cost Summary		
Program Sector (Used in CEC Report)	Category	Units Installed	Net Demand Savings (kW)	Net Peak kW Savings	Gross Annual kWh Savings	Net Annual kWh Savings	Net Lifecycle kWh savings	Net Lifecycle GHG Reductions (Tons)	Utility Incentives Cost ($)	Utility Mktg, EM&V, and Admin Cost ($)	Total Utility Cost ($)
Appliances	Res Clothes Washers										
HVAC	Res Cooling	2	231	231	334,967	334,967	5,044,788	3,218	$19,838	$48,546	$68,384
Appliances	Res Dishwashers										
Consumer Electronics	Res Electronics										
HVAC	Res Heating										
Lighting	Res Lighting	2	8,248	4,234	7,035,485	7,035,485	35,177,426	19,953	$451,681	$191,454	$643,135
Pool Pump	Res Pool Pump										
Refrigeration	Res Refrigeration	2	237	236	1,080,302	1,080,302	5,427,601	3,063	$157,983	$31,310	$189,293
HVAC	Res Shell										
Water Heating	Res Water Heating										
Comprehensive	Res Comprehensive	4	385	373	2,624,701	2,624,701	6,961,976	4,053	$136,137	$41,117	$177,254
Process	Non-Res Cooking										
HVAC	Non-Res Cooling	2	258	258	2,285,115	2,285,115	23,460,694	15,106	$199,181	$232,111	$431,292
HVAC	Non-Res Heating										
Lighting	Non-Res Lighting	4	1,391	1,391	5,137,189	5,137,189	57,166,834	33,858	$780,237	$374,065	$1,154,302
Process	Non-Res Motors										
Process	Non-Res Pumps	1			669,198	669,198	669,198	373	$250,000	$3,477	$253,477
Refrigeration	Non-Res Refrigeration										
HVAC	Non-Res Shell										
Process	Non Res Process										
Comprehensive	Non Res Comprehensive	1	155	155	1,360,000	1,360,000	1,360,000	805	$1,000	$8,315	$9,315
Other	Other	2	1,265		8,145,860	8,145,860	8,145,860	4,557	$107,345	$42,764	$150,109
SubTotal		20	12,170	6,879	28,672,818	28,672,818	143,414,377	84,987	$2,103,402	$973,158	$3,076,560
T&D	T&D										
Total		20	12,170	6,879	28,672,818	28,672,818	143,414,377	84,987	$2,103,402	$973,158	$3,076,560

EE Program Portfolio	TRC Test	**3.98**
	PAC Test	**5.52**

Excluding T&D

AZUSA LIGHT & WATER

At a Glance

- The City of Azusa was incorporated in 1898, the water utility established in 1900 and the electric utility followed shortly after in 1904
- Climate Zone 9
- The utility serves approximately 16,100 retail customers in a community of approximately 47,400 residents (2012)
- Percent of retail sales by customer class – 40% residential, 60% commercial/industrial
- Budgeted amount for energy efficiency programs was ($1,276,785), amount actually expended ($1,178045) and customer line item utility charge funding sources ($651,992); specify if unused EE dollars are reallocated to other Public Benefits program (no excess)
- Annual load growth was approximately 1%

Utility Overview

Since inception of the energy efficiency programs, Azusa Light & Water has expended close to $10.0 Million toward providing energy conservation information to the Azusa community and rewarding businesses and residents for upgrading inefficient energy consuming equipment with more energy efficient equipment. These efforts have resulted in an annual peak demand and energy use reductions of approximately one percent.

Major Program Changes

Over the past few years the direct install programs have been ramped up, resulting in additional savings for the smaller businesses and hard to reach customers.

Program Highlight

The Small Business Audit/Retrofit Program and the "Keep Your Cool" direct install programs provided the greatest impact on meeting the needs of the harder to reach businesses and small retailers within the service territory. These hard to reach customers have a very tight cash flow and in many times are unable to participate in the rebate programs unless there is little to no up-front monetary outlay. Both of these programs allow the customers to immediately see the savings and avoid the initial cash outlay associated with the typical rebate type programs.

Program Descriptions

Current Commercial and Industrial Customer Programs:

- Business Partnership Program: Retrofit existing buildings and factories with high efficiency lighting, air conditioning and process equipment.
- Free Energy Audits: Provide suggestions on the most energy efficient equipment and more cost effective methods of operations.

- New Business Retrofit Program: Encourage the use of the most energy efficient equipment in the design and construction of new buildings and factories.
- Small Business Audit/Retrofit Program: Provide free utility audit, free CFL retrofit, free packaged A/C tune-ups, the first $1,500 free lighting retrofit and recommendations for further energy saving measures with a corresponding 50% rebate up to a maximum rebate of $10,000 per customer account.
- "Keep Your Cool Audit/Retrofit Program": Provide free utility audit, free LED case lighting retrofits, free refrigeration tune-ups, free case seal replacements, auto door closers and fan controllers.

Current Residential Customer Programs:

- EnergyStar® Refrigerator Program: Rebates are offered for the purchase of an EnergyStar® rated refrigerator.
- EnergyStar® Air Conditioner Program: Rebates are offered for the purchase of an Energy Star® rated room or central air conditioning unit.
- Home Weatherization Rebate Program: Rebates are offered for a variety of home weatherization measures.
- EnergyStar® Appliance Program: Rebates are offered for most high efficiency appliances that have the EnergyStar® rating, including but not limited to, dishwashers, clothes washers, pool pumps, ceiling fans and various lighting measures.
- Free Home-in-Home Energy Audits: Provide recommendations for the effective use of energy within the residence.
- Free On-Line Home Energy Audit Program: Customers can enter various parameters that match their home and lifestyle, and receive an immediate list of conservation recommendations and measures along with an estimate of what each appliance within the home is using in the way of energy.
- LED TV and Computer Monitor Program: Rebates are offered for the purchase of LED TV's and computer monitors.

Public Facilities:

- Program guidelines are essentially the same as the current commercial and industrial programs; therefore they are included in that category for funding and savings.

City Schools:

- LivingWise: Provide an interactive 6th grade conservation education program to all 6th grade classes within the City of Azusa, both private and public.

EM&V

Azusa Light & Water contracted with Lincus Energy in 2010 to complete a study of the various FY 2008-09 energy efficiency programs and associated savings. The Lincus study is available on the CMUA website and the Azusa light & Water website (http://www.ci.azusa.ca.us/DocumentCenter/View/26058). Azusa Light

& Water will continue to make EM&V reports available to the CEC and other parties as they are completed and will continue with its EM&V programs and practices in the future.

Complimentary Public Benefits Programs

- Low-Income Programs: The Azusa Light & Water Low Income Assistance Program is outlined in Rule No. 18 of Azusa Light & Water's Rules and Regulations. Interested customers are required to fill out an application and provide documentation of income. In general, Azusa Light & Water's guidelines for qualifying customers follow the low income thresholds used by the State.
- Research, Development, and Demonstration: Azusa Light & Water has, jointly with the Southern California Public Power Authority (SCPPA), applied for an APPA DEED Grant in the amount of $60,000 to fund the proposed Residential TES Program that will demonstrate the value of combining TES with small air conditioning (AC) units.

FY12/13 Program Results

Azusa		Resource Savings Summary							Cost Summary		
Program Sector (Used in CEC Report)	Category	Units Installed	Net Demand Savings (kW)	Net Peak kW Savings	Gross Annual kWh Savings	Net Annual kWh Savings	Net Lifecycle kWh savings	Net Lifecycle GHG Reductions (Tons)	Utility Incentives Cost ($)	Utility Mktg, EM&V, and Admin Cost ($)	Total Utility Cost ($)
Appliances	Res Clothes Washers	1			128	128	1,280	1	$3,105	$4	$3,108
HVAC	Res Cooling	1	1	1	3,704	2,963	53,338	34	$585	$336	$921
Appliances	Res Dishwashers										
Consumer Electronics	Res Electronics	1	6	6	15,868	15,868	142,812	81	$25,509	$501	$26,010
HVAC	Res Heating										
Lighting	Res Lighting	1	62	62	455,812	455,812	4,102,308	2,327	$4,057	$14,390	$18,447
Pool Pump	Res Pool Pump										
Refrigeration	Res Refrigeration	2	4	4	26,755	21,750	391,493	222	$9,236	$1,429	$10,665
HVAC	Res Shell	2	14	14	38,491	36,896	1,030,320	650	$40,811	$5,607	$46,418
Water Heating	Res Water Heating										
Comprehensive	Res Comprehensive	4	120	120	484,730	399,228	1,988,303	1,151	$166,961	$7,431	$174,392
Process	Non-Res Cooking	1	1	1	2,100	2,100	23,100	13	$3,116	$82	$3,197
HVAC	Non-Res Cooling	5	5	5	16,599	16,599	248,985	156	$29,230	$1,257	$30,486
HVAC	Non-Res Heating										
Lighting	Non-Res Lighting	25	257	257	1,196,595	1,196,595	13,959,905	8,407	$117,628	$63,574	$181,201
Process	Non-Res Motors	5		26	54,018	54,018	804,046	464	$36,703	$3,080	$39,783
Process	Non-Res Pumps										
Refrigeration	Non-Res Refrigeration	4	47	47	367,189	367,189	3,750,282	2,094	$91,466	$13,355	$104,821
HVAC	Non-Res Shell	8	316	316	1,237,647	1,237,647	12,565,040	7,048	$344,983	$45,440	$390,424
Process	Non Res Process										
Comprehensive	Non Res Comprehensive										
Other	Other										
SubTotal		60	832	858	3,899,636	3,806,793	39,061,212	22,648	$873,388	$156,486	$1,029,874
T&D	T&D										
Total		60	832	858	3,899,636	3,806,793	39,061,212	22,648	$873,388	$156,486	$1,029,874

EE Program Portfolio	TRC Test	**4.17**
	PAC Test	**4.17**

Excluding T&D

CITY OF BANNING

At a Glance

- Established in 1922.
- 27 employees.
- Of the 11,827 customers, 90% are residential.
- Average demand during FY 12/13 was 17.2 MW, up 4.2% from the prior period.
- Peak demand during FY 12/13 was 46.9 MW, up 5.9% from the prior period. Peak demand is primarily due to air conditioning load during the summer.
- Retail energy sales in FY 12/13 were 138,884,139 kWh, up 2.1% from the prior period. Retail sales are broken down as 49 percent residential and 51 percent commercial/industrial/institutional.

Utility Overview

During FY 12/13, Banning spent $135,666 in Energy Efficiency programs, which have provided 79 kW demand and 208,955 kWh energy savings. It should be noted that the City of Banning is located in an economically disadvantaged area. A significant portion of the City's population is either low income or senior citizens living on a fixed income. Due to the economic demographics of Banning's population, the majority of Public Benefits dollars are utilized to provide low-income assistance through reduced rates.

Major Program Changes

One of Banning's main goals for FY 2013-14 is to expand participation in its commercial retrofit and refrigeration programs, primarily through the adoption of increased monetary incentives for low-income businesses. To accomplish this, Banning will work with community organizations to further increase awareness of and overall participation in existing programs, including amongst our commercial customers.

Program Descriptions

- Air Conditioner: Monetary incentives to replace an existing central air conditioning unit with a new high-efficiency unit.
- EnergyStar® Appliances: Monetary incentives for purchasing products that meet the Energy Star®" criteria.
- EnergyStar® Refrigerator: A monetary incentive for replacing an old inefficient refrigerator with a new energy efficient unit.
- Recycle: Rebates offered to remove and recycle operating old and inefficient refrigerators and freezers.
- Energy Weatherization: Monetary incentives to replace inefficient materials with products that will improve the energy efficiency of their facility and reduce energy use.
- Shade Tree: Rebates offered to plant shade trees around homes to help reduce the amount of energy used for air conditioning.
- Commercial Programs: Monetary incentives for commercial customers to install more energy-efficient equipment such as lighting, signage, refrigeration, etc.

- New Construction: Monetary incentives for new construction projects that exceed the energy efficiency above California's Title 24 standards.
- Energy Audits: Provides customers with a variety of recommendations for reducing energy consumption.
- Low Income Assistance: An electric utility reduced Baseline Rate for qualified customers. The majority of the Public Benefits funds are spent providing low income assistance.

EM&V

The City of Banning Electric Utility has hired third-party firms, such as Lincus, Inc., to perform EM&V studies in previous years. The City will continue with its EM&V programs and practices.

Complimentary Programs

The City of Banning is committed to reaching 33 percent renewables by 2020. The City has contracted for geothermal energy from two generating facilities. Together they supply approximately 13 percent of the City's energy need. The City is also in negotiations to divest itself of its interest in the San Juan Generating Station Unit 3. The City will be replacing this coal-based energy with renewable energy. Banning has met its California SB1 requirements by providing $2.4 million in rebates for the installation of solar photovoltaic systems in its service territory. The rebates have helped install approximately 0.75MW of customer-owned solar photovoltaic capacity in the city.

FY12/13 Program Results

Banning		Resource Savings Summary							Cost Summary		
Program Sector (Used in CEC Report)	Category	Units Installed	Net Demand Savings (kW)	Net Peak kW Savings	Gross Annual kWh Savings	Net Annual kWh Savings	Net Lifecycle kWh savings	Net Lifecycle GHG Reductions (Tons)	Utility Incentives Cost ($)	Utility Mktg, EM&V, and Admin Cost ($)	Total Utility Cost ($)
Appliances	Res Clothes Washers	43	6	6	2,666	2,533	30,392	18	$3,225	$539	$3,764
HVAC	Res Cooling	64	9	20	20,641	19,609	350,006	221	$31,563	$8,881	$40,443
Appliances	Res Dishwashers	26	3	3	798	758	8,341	5	$1,300	$140	$1,440
Consumer Electronics	Res Electronics										
HVAC	Res Heating										
Lighting	Res Lighting	3			534	507	5,073	3	$100	$78	$178
Pool Pump	Res Pool Pump										
Refrigeration	Res Refrigeration	95	8	8	37,945	36,048	254,726	144	$5,890	$4,142	$10,032
HVAC	Res Shell	142	42	42	91,118	86,563	1,731,250	1,140	$15,928	$50,613	$66,541
Water Heating	Res Water Heating										
Comprehensive	Res Comprehensive										
Process	Non-Res Cooking										
HVAC	Non-Res Cooling										
HVAC	Non-Res Heating										
Lighting	Non-Res Lighting	136	9	8	39,698	37,713	409,936	243	$4,190	$7,618	$11,808
Process	Non-Res Motors										
Process	Non-Res Pumps										
Refrigeration	Non-Res Refrigeration	22	2	2	15,554	14,776	59,105	33	$550	$910	$1,460
HVAC	Non-Res Shell										
Process	Non Res Process										
Comprehensive	Non Res Comprehensive										
Other	Other										
SubTotal		531	79	88	208,955	198,507	2,848,831	1,807	$62,745	$72,920	$135,666
T&D	T&D										
Total		531	79	88	208,955	198,507	2,848,831	1,807	$62,745	$72,920	$135,666

EE Program Portfolio	TRC Test	**0.99**
	PAC Test	**3.37**

Excluding T&D

CITY OF BIGGS

At a Glance

- Electric utility established in 1904
- Biggs is located in climate zone 11
- The electric utility has 686 retail customer connections servicing 637 retail customers
- Percent of retail sales by customer class are as follows: residential, 28%, commercial, 6% and industrial, 66%
- Budgeted amount for energy efficiency programs for FY 12/13 was $14,900.00. The amount actually expended was $11,214.10, funded through a 2.85% Public Benefits Surcharge. Unallocated funds were re-appropriated to augment funding for our Solar PV Incentive Program.
- Load growth in fiscal year 12/13 was -6%

Utility Overview

Economic conditions in Biggs and the surrounding communities, remain depressed, dampening customer enthusiasm for any investments in energy efficiency measures. Of the 612 residential units served by Biggs Municipal Utilities during this reporting period, an average of 40 units per month were empty, due to foreclosure or abandonment. Of the 37 commercial properties we serve, 11 are empty and 9 are simply relay stations for cable, telephone service or rail road signals. An additional 4 are church properties used once or twice a week. Our summer cooling load is relatively high, due to our high summer temperatures and aging housing stock with non-efficient cooling systems. Few households rely on electric heating during the cold winter months.

Major Program Changes

There have been no major changes in programs offered or budgeted funds for energy efficiency programs during this reporting cycle. With low customer participation, some unused funds were re-appropriated to support our Solar PV Program.

Due to the denial of additional ARRA funding to augment City funds, the City's Street Lighting Retrofit program was discontinued, resulting in a decrease in energy savings compared to the 11/12 fiscal year. Though there are additional energy savings to be realized by retrofitting street lights, the Program was not cost effective when solely funded by Public Benefit Surcharge Funds.

Program Highlight

Our Residential Shell Program, comprised of insulation and window replacement rebates, appears to have the greatest impact on customer comfort and satisfaction. Though the reportable energy savings for window replacement renders the rebates non-cost effective, customer feedback is positive, so we continue to offer window retrofit rebates. We are currently designing a Residential Shell Program that, in addition to window replacement and insulation, will offer substantial rebates for whole-house air sealing.

Program Descriptions

- Commercial Lighting Program: Customized Lighting Retrofit Rebate Program available to all commercial customers and educational facilities.
- Commercial HVAC Program : Customized HVAC Retrofit & Optimization Program provides generous incentives for businesses and educational facilities to update aging HVAC units or tune-up units that don't need replacement.
- Residential Appliance Program: This program offers incentives to residential customers for the purchase of Energy-Star rated refrigerators and the recycling older units.
- Residential HVAC Program: Tiered incentives for replacement of aging HVAC units at residential properties. The greater the SEER level above Title 24 requirements, the greater the potential incentive. The Res. HVAC program also provides incentives for tune-ups of HVAC units and the installation of 7-day programmable thermostats.
- Residential Shell Program: This program offers incentives for increasing insulation levels and installation of dual-pane windows to replace single-pane. Future programs may include whole-house air sealing.

EM&V

In 2007, in response to AB 2021, Biggs hired a third-party contractor to formulate an EM & V plan. In 2008, 2009 & 2010, Biggs contracted with Navigant Consulting to perform Energy Efficiency Program Evaluation studies of all programs the city offers. Those studies can be found on the NCPA website and our city website. With the understanding that all programs need not be evaluated every year, Biggs moved to evaluation of all programs, in three year blocks. The next evaluation for FY 10/11, 11/12 and 12/13 will be completed in the spring of 2014.

Complimentary Public Benefits Programs

- Renewable Energy Programs: Biggs offers incentives to customers who install up to 3 kW of solar PV capacity for residential service and custom incentive programs for commercial customers.
- Low-Income Programs: Biggs works with Community Action Agency of Butte County to provide weatherization, appliance replacement, lighting replacement and HEAP grants to income-qualified household within our service territory.

FY12/13 Program Results

Biggs		Resource Savings Summary							Cost Summary		
Program Sector (Used in CEC Report)	Category	Units Installed	Net Demand Savings (kW)	Net Peak kW Savings	Gross Annual kWh Savings	Net Annual kWh Savings	Net Lifecycle kWh savings	Net Lifecycle GHG Reductions (Tons)	Utility Incentives Cost ($)	Utility Mktg, EM&V, and Admin Cost ($)	Total Utility Cost ($)
Appliances	Res Clothes Washers										
HVAC	Res Cooling	3		1	488	327	5,891	4	$600	$3,937	$4,537
Appliances	Res Dishwashers										
Consumer Electronics	Res Electronics										
HVAC	Res Heating										
Lighting	Res Lighting										
Pool Pump	Res Pool Pump										
Refrigeration	Res Refrigeration	4			1,756	1,111	7,189	4	$400	$2,522	$2,922
HVAC	Res Shell	2			420	231	4,620	3	$179	$2,761	$2,940
Water Heating	Res Water Heating										
Comprehensive	Res Comprehensive										
Process	Non-Res Cooking										
HVAC	Non-Res Cooling										
HVAC	Non-Res Heating										
Lighting	Non-Res Lighting										
Process	Non-Res Motors										
Process	Non-Res Pumps										
Refrigeration	Non-Res Refrigeration										
HVAC	Non-Res Shell										
Process	Non Res Process										
Comprehensive	Non Res Comprehensive										
Other	Other										
SubTotal		9	1	1	2,664	1,669	17,700	10	$1,179	$9,221	$10,399
T&D	T&D										
Total		9	1	1	2,664	1,669	17,700	10	$1,179	$9,221	$10,399

EE Program Portfolio	TRC Test	**0.18**
	PAC Test	**0.24**

Excluding T&D

BURBANK WATER AND POWER (BWP)

At a Glance

- Established in 1913
- Located in Climate Zone 9
- 43,000 residential and 6,500 commercial service connections, serving a total population of 104,000 residents and more than 3,300 businesses
- 1,144 million kWh in total retail sales. Percent of retail sales by customer class – 25% residential, 75% commercial.
- The Fiscal Year (FY) 2012-13 budget for energy efficiency programs was $2,709,000. Of this, $2,321,348 (86%) was spent. BWP's funding source for energy efficiency programs is the Public Benefits Charge. BWP can reallocate unspent budgeted dollars to other Public Benefits programs or, more typically, invests them in the following fiscal year. In FY 2013-14, BWP has budgeted $3,325,000 for energy efficiency programs, a 23% increase over the previous fiscal year. This budget amount reflects hope for a rebounding economy and associated increased program usage.
- Load growth is estimated at less than one percent per year, which we seek to offset through energy efficiency

Utility Overview

Burbank is known as the Media Capital of the World, and is home to two of the world's largest studios, Warner Bros. and Disney. While our geographic footprint is small, our residential customers are all over the map, ranging from higher income professionals to middle class families to low income seniors. There is no typical Burbank resident, which makes it challenging and interesting to design and implement programs that will have universal appeal.

BWP's energy efficiency portfolio has been designed to reflect our organizational goal of providing sustainable, affordable, and reliable service to all of our residents and businesses. At the same time, BWP is not immune to and is adjusting to changes in the utility industry. The biggest change may be what is known as the "Utility Death Spiral," where lower solar costs have led to increased customer penetration and lower sales for the utility. As lower sales are spread across the same or higher fixed costs, rates need to be adjusted. As rates increase, more customers will find solar even more appealing, leading to a negative spiral. BWP is addressing this by providing expanded services, such as fiber optic networks, while maintaining unparalleled reliability and service affordability.

Major Program Changes

BWP consistently evaluates each of our programs and reviews market conditions in order to improve services to residents and businesses. Even with the overall economy's slow recovery from the 2008 recession, our market research has shown that about two-thirds of our residents have found it difficult to pay for necessities such as electric and water service. As a result, we are constantly looking for ways to make it easier for customers to participate in our programs:

- Green Home House Call: In FY 2012-13, BWP added free air sealing services to make this a complete whole home program equivalent to the state's Energy Upgrade Program. In FY 2013-14, we plan to add additional water conservation measures, such as toilets and rain barrels, to give our residents even more options to save on their bill.
- Business Bucks: Currently open to any and all small businesses, BWP recently added a tiered structure that will allow larger businesses to make additional upgrades, funded by BWP, valued at up to $5,000. BWP also added refrigeration measures to the eligible measure list, allowing for greater participation by convenience stores, gas stations, and other small businesses.

Program Highlight

BWP's most innovative program is the Green Home House Call program, available at no charge to all residential customers. BWP introduced the program in November 2009 as a whole house, direct install program and has been expanding it ever since. The program was designed to reduce electric use and BWP has partnered with the Southern California Gas Company and the Metropolitan Water District of Southern California to leverage additional funding and reduce natural gas and water use as well. The program has several components, including an in-home audit with energy and water education and installation of CFL and LED lamps and water savings devices. In addition, BWP assesses single family homes for additional services including the installation of attic insulation, duct testing and sealing, central air conditioning tune-ups and air sealing, as well as outdoor water conservation measures. BWP provides all of these services at no cost to participants.

In FY 2012-13, BWP installed measures in nearly 1,050 households, with an average savings of nearly 1,000 kWh per household. In addition, BWP expanded its partnership with the Southern California Gas Company to provide even more extensive services for residents, including air sealing services for single family homes. Through December 2013, the program has served more than 4,500 households, or more than ten percent of all Burbank households, after just four years of operation. With current changes to the program, many of our participating residents are now qualified to receive incentives through the state's Advanced Energy Upgrade California Program. In addition, the program has received awards, including from the California Municipal Utilities Association (CMUA) and the American Council for an Energy-Efficient Economy (ACEEE).

Program Descriptions

BWP staff has grouped programs by the associated sector-category classifications used in the E3 Reporting Tool summary table. Additional information on BWP's programs can found at https://www.burbankwaterandpower.com. The following is a sampling of BWP's largest programs:

- Residential Cooling and Non-Residential Cooling: BWP provides services that address all aspects of space cooling for residential homes and commercial homes, including rebates for the purchase of high-efficiency air conditioners and heat pumps, and free HVAC tune-ups.

- Residential Lighting: BWP provides free compact fluorescent and LED lamps to residents through our Green Home House Call program, as well as to participants in our Refrigerator Roundup program and attendees at our community events.
- Residential Refrigeration: BWP provides rebates for the purchase of ENERGY STAR refrigerators, and also provides new ENERGY STAR refrigerators at no cost to income-qualified customers. In addition, BWP also removes and recycles residents' second refrigerators at no cost in order to reduce their bills and lessen these older appliances' impact on the grid.
- Non-Residential Lighting: BWP provides free direct installation services, including for high efficiency lighting, to all qualified small businesses in Burbank. In addition, BWP provides rebates per annual energy saved for customized lighting projects, including double rebates for LED lighting.

EM&V

Along with most other POUs in California, BWP uses the E3 Reporting Tool to ensure accurate reporting of energy and peak demand savings and cost-effectiveness. In order to verify these savings, and meet the requirements of AB 2021, BWP also builds evaluation, measurement, and verification elements into every program and facilitates independent third-party studies. BWP is in the process of conducting a third-party EM&V study for the Green Home House Call program.

Complementary Public Benefits Programs

- Renewable Energy Programs: BWP continues to offer its Solar Support Rebate program to both residential and commercial customers. The rebate for residential customers is $1.28 per watt installed, and $0.97 per watt installed for commercial customers. Due to falling equipment prices, our Solar Support program continues to be very popular and has been fully subscribed. Many residents are also choosing to install solar PV systems without a rebate, which demonstrates the increasingly mainstream appeal of solar PV systems and renewable energy.
- Low-Income Programs: BWP offers a Lifeline rate to income-qualified customers, which is a discount off the standard residential rate. BWP also developed the Refrigerator Exchange program for Lifeline customers where we replace the existing primary, and often inefficient, refrigerator with an ENERGY STAR model at no cost to them. In addition, BWP encourages Lifeline customers to participate in BWP's free Green Home House Call program to further reduce their electric, water, and natural gas bills.
- Research, Development and Demonstration: BWP operates a demonstration program of 34 Ice Bear units installed at City-owned buildings and large businesses. The Ice Bear is a peak-shifting thermal energy storage unit that works with air conditioners. The unit is simply a tank containing water that is frozen during off-peak hours; the ice is then used to provide cooling, in substitution of the air conditioner's compressor, during peak hours. In FY 2012-13, the units provided about 325 kW of peak demand capacity reduction. For residential customers, BWP offers a rebate for the purchase of an electric vehicle charging station (Level 2 or higher). For FY2013-14, BWP gained City Council approval to run a pilot program targeting not-for-profit facilities. The goal of the

program is to upgrade inefficient facilities in this cash-strapped sector and create demonstration centers of efficient technologies and operations.

FY12/13 Program Results

Burbank		Resource Savings Summary							Cost Summary		
Program Sector (Used in CEC Report)	Category	Units Installed	Net Demand Savings (kW)	Net Peak kW Savings	Gross Annual kWh Savings	Net Annual kWh Savings	Net Lifecycle kWh savings	Net Lifecycle GHG Reductions (Tons)	Utility Incentives Cost ($)	Utility Mktg, EM&V, and Admin Cost ($)	Total Utility Cost ($)
Appliances	Res Clothes Washers	549	74	74	34,038	28,932	347,188	207	$53,525	$2,548	$56,073
HVAC	Res Cooling	10,629	1,271	1,190	1,417,034	1,104,243	12,106,222	7,694	$505,990	$268,395	$774,385
Appliances	Res Dishwashers	427	36	36	13,109	10,487	115,358	68	$30,475	$795	$31,270
Consumer Electronics	Res Electronics										
HVAC	Res Heating										
Lighting	Res Lighting	6,323	206	28	202,650	165,650	893,056	507	$51,091	$11,160	$62,251
Pool Pump	Res Pool Pump	28	2	2	8,988	6,202	62,017	35	$2,300	$421	$2,721
Refrigeration	Res Refrigeration	968	60	60	385,641	266,651	2,279,962	1,287	$184,453	$38,133	$222,586
HVAC	Res Shell	501	73	73	3,214,132	3,096,974	8,444,928	5,378	$384,789	$92,228	$477,018
Water Heating	Res Water Heating	2,444			25,465	9,842	98,420	57	$18,330	$4,833	$23,163
Comprehensive	Res Comprehensive										
Process	Non-Res Cooking										
HVAC	Non-Res Cooling	2,296	1,012	994	2,116,159	1,894,957	29,258,339	18,715	$270,848	$377,669	$648,517
HVAC	Non-Res Heating										
Lighting	Non-Res Lighting	3	659	659	2,896,939	2,607,246	27,152,764	16,082	$549,630	$205,646	$755,277
Process	Non-Res Motors	1		13	45,686	41,117	607,734	339	$2,284	$4,001	$6,286
Process	Non-Res Pumps	1			32,784	27,867	174,426	97	$70,777	$1,055	$71,832
Refrigeration	Non-Res Refrigeration	1	24	24	140,712	126,641	748,463	417	$5,700	$4,462	$10,162
HVAC	Non-Res Shell	3	97	97	759,035	683,131	8,131,862	4,849	$112,907	$64,707	$177,614
Process	Non-Res Process										
Comprehensive	Non-Res Comprehensive										
Other	Other										
SubTotal		24,174	3,513	3,249	11,292,372	10,069,940	90,420,739	55,731	$2,243,100	$1,076,054	$3,319,154
T&D	T&D										
Total		24,174	3,513	3,249	11,292,372	10,069,940	90,420,739	55,731	$2,243,100	$1,076,054	$3,319,154

EE Program Portfolio	TRC Test	**2.08**
	PAC Test	**4.31**

Excluding T&D

COLTON ELECTRIC DEPARTMENT (CED)

At a Glance

- CED was established in 1895 by the City of Colton
- CED is in Climate Zone(s) 10
- CED has 18,100 retail customer connections and approximately 17,895 retail customers served
- CED's percent of retail sales by customer class – residential-28.53%, commercial-20.21%, Industrial-49.62%, municipal-1.64% agriculture-0%
- CED's budgeted amount for energy efficiency programs FY 2012/2013 was $1,029,133 from the Public Benefit Fund. The amount actually expended was $595,999. Unused Public Benefit Funding was rolled over into FY 2013/2014 for energy efficiency programs.
- CED's load growth for FY 2012/2013 is 348,128 kWh, less than 1% increase from the previous year FY 2011/2012.

Utility Overview

In FY 2012/2013 CED had low staffing levels that impacted the immediate promotion of Energy Efficiency (EE) programs. In 2012 CED staff researched and identified the customer's needs for the programs that were unveiled in the beginning of 2013. CED staff identified the need for home improvement efficiency rebate programs, air conditioning upgrade, energy efficiency audit and implementation as well as an AC/tune-up program. Since the inception of the EE programs the local community has increased its participation in programs and has more positive outlook on the utility as a whole. This trend is anticipated to continue into FY 2013/2014.

To better serve Colton customers, CED with the City of Colton, redesigned its web page in FY 2012/2013. The new webpage provides all EE programs available for the community online. The web site provides energy efficiency information and rebates for commercial and residential customers. All applications for EE programs are now online.

Colton Electric Utility has included our share of the energy savings that are attributable to the State's Building Codes and Appliance Standards. Codes and standards are applied and enforced by the City of Colton.

Major Program Changes

The major changes CED has made to EE programs over the past year was adding the following rebate measures: occupancy sensors, pool pumps, solar attic fans, whole house fans, room A/C's, ceiling fans and air conditioning upgrades. These changes have increased energy savings results in FY 2012/2013.

- CED has seen an increase in energy savings in FY 2012/2013 from two lighting retrofit projects providing 138,520 kWh savings.

- CED has not had any significant increases or decrease in funding for EE programs. All CED customers pay ₵.0029 per kWh on their monthly electric bill.

Program Highlight

The efficiency program that has had the greatest impact for the community of Colton is the commercial lighting retrofit projects and the PC power saving controls installed by the Colton Joint Unified School District. The lighting retrofit project created energy efficiency savings of 138,520 kWh by replacing 114 400watt metal halides. The PC powers saving controls were installed on 2,162 computers providing 540,500 kWh savings. Working on this project strengthened the relationship working with the local school district and displayed the utilities commitment to energy efficiency in City of Colton schools.

The residential rebate program that has had the greatest impact meeting the customer's needs was adding EE home improvement rebate measures: occupancy sensors, pool pumps, solar attic fans, whole house fans, room A/C's, ceiling fans. These measures were created from a direct response from CED customer high bill complaints and energy use patterns. By creating these rebate measures CED met a direct need of the community.

Program Descriptions

- Residential Refrigeration: CED assisted customers with replacing and recycling inefficient refrigerators with new Energy Star models. The new units were provided at a cost of $15 a month billed for 12 consecutive months on the customer's electric account. The total cost to the customers is $180.
- Non Residential Lighting: Commercial and industrial customers received a rebate for lighting retrofits given for kWh savings.
- Residential Cooling: CED provided rebates for Energy Star room A/C's, solar attic fans, ceiling fans and whole house fans. CED also provided rebates for replacement of A/C units 11 SEER and under for a new unit above a SEER 15.
- PC Equipment Controls: CED provided a custom measure commercial customer rebate for PC power saving controls.
- Additional EE Measures: CED offered rebates for Occupancy sensors and pool pumps.

EM&V

The City of Colton Electric Utility has hired third-party firms such as Navigant Consulting to perform EM&V studies in previous years. CED will budget $4,000 for FY2014/2015.

Complimentary Public Benefits Programs

- Renewable Energy Programs: In FY2012/2013 CED customers did not participate in any renewable energy programs. In FY2013/2014 funding has been budgeted to provide solar rebates to meet the SB1 solar initiative and reach the goal of 4MW of solar renewable energy.

- Low-Income Programs: Income qualified City of Colton residents, who meet the federal low income requirements can be eligible to receive a credit off one month's electric portion of their bill up to $150, once per fiscal year. In Fiscal year 2012/2013 CED had 2,148 customers participate in our low income assistance program. In FY 2012/2013, $254,702.46 was provided by the CED to low-income Colton residents.
- Medical Baseline Billing: Residents with qualifying medical diagnoses may be eligible to receive an adjustment to increase the baseline kilowatt hours on their utility bill. The baseline is increased so that kilowatt hours that are used for life sustaining medical equipment are charged at the lowest rate tier.
- Research, Development, and Demonstration: In FY 2012/2013 CED installed 2 EV charges under a grant program awarded in February of 2013. In a joint effort with SCPPA, CED is going to fund energy efficiency technologies and codes & standards development in FY2013/2014.
- Online Energy Review: CED provides Industrial Time of Use (TOU) customers access to their specific interval meter data through Automated Energy's website. This program provides TOU customers an opportunity to efficiently manage their energy consumption by the hour, day, week, or month.

Colton		Resource Savings Summary							Cost Summary		
Program Sector (Used in CEC Report)	Category	Units Installed	Net Demand Savings (kW)	Net Peak kW Savings	Gross Annual kWh Savings	Net Annual kWh Savings	Net Lifecycle kWh savings	Net Lifecycle GHG Reductions (Tons)	Utility Incentives Cost ($)	Utility Mktg, EM&V, and Admin Cost ($)	Total Utility Cost ($)
Appliances	Res Clothes Washers										
HVAC	Res Cooling	8	1	1	567	454	4,988	3	$1,900	$924	$2,824
Appliances	Res Dishwashers										
Consumer Electronics	Res Electronics										
HVAC	Res Heating										
Lighting	Res Lighting										
Pool Pump	Res Pool Pump										
Refrigeration	Res Refrigeration	142	8	8	62,338	39,444	255,209	144	$52,171	$24,153	$76,324
HVAC	Res Shell										
Water Heating	Res Water Heating										
Comprehensive	Res Comprehensive										
Process	Non-Res Cooking										
HVAC	Non-Res Cooling										
HVAC	Non-Res Heating										
Lighting	Non-Res Lighting	114	6	6	60,382	51,325	564,572	334	$6,441	$1,633	$8,074
Process	Non-Res Motors										
Process	Non-Res Pumps										
Refrigeration	Non-Res Refrigeration										
HVAC	Non-Res Shell	1	117	117	912,617	912,617	912,617	509		$2,113	$2,113
Process	Non Res Process	2,162	62	62	540,500	540,500	5,405,000	3,012	$24,993	$13,177	$38,170
Comprehensive	Non Res Comprehensive										
Other	Other										
SubTotal		2,427	193	193	1,576,404	1,544,339	7,142,385	4,003	$85,505	$42,000	$127,505
T&D	T&D										
Total		2,427	193	193	1,576,404	1,544,339	7,142,385	4,003	$85,505	$42,000	$127,505

EE Program Portfolio	TRC Test	**5.59**
	PAC Test	**5.52**

Excluding T&D

CORONA DEPARTMENT OF WATER AND POWER (DWP)

At a Glance

- Electric utility began serving retail customers in 2001 with unbundled generation services to the existing investor-owned utility's customers and bundled service to new facilities located in the designated service territory.
- DWP provides electric service to approximately 1,800 customers in climate zone 10.
- Peak demand for the utility was 26.1 megawatts and annual energy sales were 141,800 megawatt-hours and are comparable to the prior year.
- Ninety-eight percent of energy sales were to non-residential customers.

Utility Overview

All bundled customers' facilities are less than 10 years old and met 2003 or 2008 Title 24 requirements. These newer facilities provide less energy efficiency upgrade opportunities.

Program Changes

For the current reporting year, Corona established a "Utility Incentive Program" for energy efficiency and conservation projects/activities which reduce energy usage by a specified amount.

Program Highlights

- $37,000 was expended to complete 13 energy audits and 363 rebates were provided for the purchase and installation of Energy Star® washing machines
- On-site energy audits that identify specific opportunities to improve energy operating efficiency and reduce load requirements.
- Coordinate opportunities to reduce electric and water customer usage.
- DWP serves municipal facilities that can be interrupted as scheduled.

Program Descriptions

- Energy Audits: On-site energy audits and recommendations designed to improve energy operating efficiency and reduce load requirements. Rebates are available for energy efficiency upgrades identified in these audits. Verification services to ensure appropriate installation of recommended measures are also provided.
- Energy Efficiency Technical Support: Technical support to facilitate installation and operation of air conditioning and lighting controls.
- Energy Usage and Demand Analysis: Analyze commercial customer energy usage and demand to facilitate customer efficiency measures and demand-side management.
- Energy Efficiency Kits: Energy efficiency kits for all residential customers that include a refrigerator thermometer, two 15 watt CFL bulbs, draft stoppers, air filter whistle, low flow showerhead, low flow faucet aerators, toilet dye tabs, and energy conservation tips.

- Appliances: Rebates are provided to customers who purchase and install Energy Star® washing machines.
- Lighting Incentives: Provides incentives to improve energy efficiency for a variety of lighting applications, which reduce energy usage by a specified amount.
- Custom Energy Efficiency Incentives: Offers financial incentives for cost-effective energy-savings opportunities, not served by existing offerings, (including HVAC, motors, pumps, refrigeration, process and other) which reduce energy usage or load requirements by a specified amount.

EM&V

Engineering analysis programs are the basis for energy savings and incentive calculations.

Complimentary Public Benefit Programs:

Renewable Energy Programs:

- Solar Initiative Program: The Solar Incentive Program provides financial incentives to qualifying customers to reduce the cost of renewable energy generation. The 2013 rebate incentive is equal to the estimated performance of the installed solar system multiplied by $1.22/watt AC.
- Net Metering Program: A net metering tariff schedule is available to qualifying customers.
- DWP Solar Installations: DWP has installed 350 kW of photovoltaic systems

FY12/13 Program Results

Corona		Resource Savings Summary							Cost Summary		
Program Sector (Used in CEC Report)	Category	Units Installed	Net Demand Savings (kW)	Net Peak kW Savings	Gross Annual kWh Savings	Net Annual kWh Savings	Net Lifecycle kWh savings	Net Lifecycle GHG Reductions (Tons)	Utility Incentives Cost ($)	Utility Mktg, EM&V, and Admin Cost ($)	Total Utility Cost ($)
Appliances	Res Clothes Washers	363	49	49	22,506	19,130	229,561	137	$18,150	$9,577	$27,727
HVAC	Res Cooling										
Appliances	Res Dishwashers										
Consumer Electronics	Res Electronics										
HVAC	Res Heating										
Lighting	Res Lighting										
Pool Pump	Res Pool Pump										
Refrigeration	Res Refrigeration										
HVAC	Res Shell										
Water Heating	Res Water Heating										
Comprehensive	Res Comprehensive	2			200	170	510		$1,800	$21	$1,821
Process	Non-Res Cooking										
HVAC	Non-Res Cooling										
HVAC	Non-Res Heating										
Lighting	Non-Res Lighting										
Process	Non-Res Motors										
Process	Non-Res Pumps										
Refrigeration	Non-Res Refrigeration										
HVAC	Non-Res Shell										
Process	Non Res Process										
Comprehensive	Non Res Comprehensive	11			4,400	3,740	11,220	7	$35,200	$550	$35,750
Other	Other										
SubTotal		376	49	49	27,106	23,040	241,291	144	$55,150	$10,148	$65,298
T&D	T&D										
Total		376	49	49	27,106	23,040	241,291	144	$55,150	$10,148	$65,298

EE Program Portfolio	TRC Test	**0.16**
	PAC Test	**0.41**

GLENDALE WATER & POWER (GWP)

At a Glance

- Established in 1909
- Climate Zone 9
- 85,629 total electric meters all classes
- Total retail sale of electricity for FY 2012-13 of 1,127,696 MWh
- Retail sales (MWh) by customer class – Residential (28%), Commercial (23%), Industrial (27%), Wholesale (17%), Street lighting (1%), Sales to Other Utilities (4%).
- Budgeted $1,410,000 for energy efficiency programs and actually expended $1,050,046
- Load growth from FY 2011-12 to FY 2012-13 was 3.06%. Load growth from FY 2008-09 to FY 2012-13 was -2.1%

Utility Overview

With the installation of digital meters, Glendale Water & Power can develop new innovative energy efficiency, load management, and demand response programs for its customers. Our customers are eager to take advantage of the many benefits and new programs a modernized utility system offers. Trends in utilities are leading towards digital communications, need for real time and near real time usage information that will help consumers take charge of their energy use and give them the tools to manage it.

A modernized electric grid greatly expand data acquisition and data sharing across business units, lowering system losses, preventing energy theft and dramatically improving outage and asset management, reducing maintenance and capital costs with the goal of keeping downward pressure on consumer prices. For the current FY2012-13 reporting year, GWP's energy efficiency programs saved 12,670 MWh (1.12% of retail sales) and reduced peak demand by 1.2 MW (0.40% of peak demand). With a modernized utility system, GWP will offer more programs and increase customer engagement through mobile applications to enable our customers to be stewards in conservation by giving them the tools to empower them.

Major Program Changes

- Due to contract process, many of our energy efficiency programs were delayed for approximately 6 months, delay affected energy savings for FY.
- Our Glendale Care program discount was increased from $10 to $13 due to an electric rate increase and lessening the impact of the new rates on our low-income customers.

Program Highlight

OPOWER home energy reports program and our Business Energy Solutions program had the greatest impact. OPOWER had the greatest impact on our customers because we ranked #1 in energy efficiency from OPOWER's portfolio. This program also reached the majority of our customers and provides constant communication and engagement. Our Business Energy Solutions program is a CMUA award winning

program that is designed to allow GWP large business customers the flexibility to define their own needs and develop their own energy efficiency projects.

Program Descriptions

Glendale Water & Power is a leader in many aspects of the utility industry. Along with aggressive conservation efforts, for the past 10 years, GWP has been giving back to the Community through its Public Benefit Programs. These programs not only assist low-income customers with their electric bills, they also provide funding and education for all customers to invest in new technologies helping them save money and lower their energy and water consumption.

- Home Energy Reports: Provides 6 print paper reports annually to 46,000 residential customers on their energy use. Reports also include action steps for each household to help them reduce their electricity consumption. Currently, the program is integrating the existing two month billing data and a wealth of external data sources to educate customers on how they can save energy. With the installation of digital meters throughout Glendale's service territory, customers are mailed a home energy report that includes their Smart Grid data and access to the website where they can review their energy usage.
- Smart Home Energy and Water Savings Rebates: Provides incentives to promote the purchase of approved energy and water saving appliances and devices. Currently offering an online platform that allows customers to process their rebate application online. Over 42,240 rebates have been processed since July 2001.
- Smart Home AC Tune-Ups: Provided by Proctor Engineering, helps residential customers save energy by ensuring that their air conditioning and duct systems are functioning at their optimal level. Over 10,368 tons of HVAC have been tuned since February 2000.
- Livingwise®: Provides energy and water conservation education materials for Glendale public and private school students. These materials support 10 hours of intensive energy education as well as installation of energy saving devices including compact florescent light bulbs. Over 16,437 students have participated in this program since July 2001.
- Tree Power:Provides up to three free shade trees and arborist services to ensure that the trees are planted correctly. When properly sited and cared for, a healthy, mature shade tree helps provide shade that cools the home and helps reduce air conditioning use. This program has planted over 2,877 trees since July 2004.
- Smart Business Energy Saving Upgrades: This CMUA award winning program provides small business customers with comprehensive no-cost energy surveys, customized written reports, energy education, and directly installs as much as $2,000 worth of cost-effective energy conservation measures. This program has conducted 4,607 energy audits and retrofits since July 2001.
- Smart Business AC Tune-Ups: Provided by Proctor Engineering, helps small business customers save energy by ensuring that their air conditioning and duct systems are functioning at their optimal level. Over 7,207 tons of HVAC have been tuned since February 2000.

- Business Energy Solutions (BES): Provides incentives to complete pre-approved energy audits and retrofit projects. Incentives are limited to the lesser of 20% total project costs for retrofit projects, 100 percent of the above Title 24 remodeling and/or new construction investments, or $0.06 per kWh saved over the life of the installed measures. This program has supported 284 retrofit projects since January 1999.

New Programs – FY 2013-2014

- OPOWER Web Portal: Provides customers with web-access to electric usage information from their digital meters. The software analytics engine enables the coupling of insightful messaging with specific, targeted action steps for each household to help the customer reduce their electricity consumption. The addition of interval electric usage data has given customers the ability to view their usage in monthly, weekly, daily or hourly intervals. Access to granular information coupled with the analytic engine will provide customers with greater insight into their usage and provide more in-depth ways for them to save energy and money.
- CEIVA/Thermostat Program: GWP partnered with CEIVA Energy, LLC to provide a unique In-Home Display (IHD) solution to residential and small business customers. The CEIVA IHD is a digital picture frame that integrates customer's personal photographs with meaningful and useful historical water usage information and near real time electric consumption information. The CEIVA IHD works as a home gateway that simultaneously communicates with GWP's electric digital meters as well as the customer's existing home networks via Wi–Fi or Ethernet. In addition to providing interval energy and water consumption usage information, GWP has the ability to enhance outreach, by pushing energy efficiency program, conservation and event messages directly to the IHD. GWP is currently piloting 72 IHD's with a broad cross section of residential and small business customers. GWP will be expanding our current pilot with CEIVA from 72 to 500 customers, and add integrated smart thermostats, and remote provisioning/web portal software. New capabilities will provide customers the added capability to: Remotely adjust set points, monitor temperature, control system status, Manage thermostat schedules remotely via web and mobile applications, Automatically respond to demand response events, Receive customized energy conservation tips and notifications via digital frame
- Behavioral DR: This program will target 40,000 Utility residential customers to receive electronic, IVR, and paper communication using a behavioral science approach, the communications will encourage customers to adjust their energy consumption during periods of peak energy demand.
- Small and Medium Business Analytics: The SMB Website Portal will provide functionality designed to target the energy data needs of 5,000 Small and Medium Businesses, the Website Portal will provide the following functionality:
  Demand View: displays peak energy demand, expressed in kilowatts on a line graph. Demand view shows an SMB's average demand for each usage interval, as well as maximum demand for each day and billing period.
  About My Business Window: allows SMB customers to specify details about their business type, this information is used to provide more relevant tips.

SMB Tip Library: SMB customers will see a tip library customized for a commercial audience along with new tip categories. The tips that are displayed for an SMB customer vary based upon type of business, heating fuel, and air conditioning type, and whether or not the business has solar panels.

- Usage Alerts: Will provide all customers with an e-mailed usage alert that a customer's usage is unusually higher than their last billing period. Give customers information on their current usage, estimates their next bill and also directs customers to tip on how to reduce their usage.

EM&V

Include URL hyperlink for EM&V reports prepared. Briefly describe plans for current and future EM&V reports, including budgets.

In 2010, Lincus Energy completed GWP's EM&V plan and received GWP's approval to proceed with the detailed study of GWP's selected energy efficiency programs. The initial draft study report was sent to GWP on January 2011 and was finalized in September 2011. The report is composed of both process and impact evaluations of selected GWP energy efficiency programs including verification of installations, numbers of sizes of installations, review of selected energy savings calculations. As soon as new EM&V guidelines are completed, GWP will resume EM&V analysis of energy efficient programs.

Complimentary Public Benefits Programs

- Renewable Energy Programs: This program provides incentives to install solar photovoltaic systems in Glendale. Funding supported by Public Benefit Funds and distributed between residential, small business and large business customers.
    - Smart Home Solar Solutions: This program provides incentives to promote the installation of grid-connected solar photovoltaic systems in Glendale. A total of .21 MW in new grid-connected residential solar photovoltaic installations in FY 2012-13.
    - Smart Business Solar Solutions: This program provides incentives to promote the installation of grid-connected solar photovoltaic systems on small businesses in Glendale. A total of .06 MW in new grid-connected small business solar photovoltaic installations in FY 2012-13
    - Large Business Solar Solutions: This program provides incentives to promote the installation of grid-connected solar photovoltaic systems on large businesses in Glendale. An existing total of .55 MW in grid-connected large business solar photovoltaic installations that generate a total of 961 MWh in FY 2012-13.
- Low-Income Programs:
    - Senior Care: This program provides electric bill discounts for low-income seniors and disabled customers 55 and older. Senior Care was closed to new participants in 2009 when Glendale Care was implemented.

- Glendale Care: This program offers all eligible low-income customers a discount of $13 on their electric bills.
- Guardian: This program provides bill discounts for households with special electrically powered medical equipment needs.
- Helping Hand: This program provides bill payment and deposit assistance for low-income customers.

- Research, Development, and Demonstration:
  - Codes & Standards: GWP has included our respective share of the energy savings that are attributable to the State's Building Codes and Appliance Standards that are applied and enforced by the City of Glendale.

FY12/13 Program Results

Glendale		Resource Savings Summary							Cost Summary		
Program Sector (Used in CEC Report)	Category	Units Installed	Net Demand Savings (kW)	Net Peak kW Savings	Gross Annual kWh Savings	Net Annual kWh Savings	Net Lifecycle kWh savings	Net Lifecycle GHG Reductions (Tons)	Utility Incentives Cost ($)	Utility Mktg, EM&V, and Admin Cost ($)	Total Utility Cost ($)
Appliances	Res Clothes Washers	253	51	51	23,225	19,742	236,899	141	$21,798	$633	$22,432
HVAC	Res Cooling	443	82	90	69,249	63,126	1,667,901	1,063	$45,656	$6,477	$52,133
Appliances	Res Dishwashers	113	11	11	3,955	3,164	34,804	21	$5,881	$88	$5,968
Consumer Electronics	Res Electronics										
HVAC	Res Heating										
Lighting	Res Lighting	934	40	40	39,228	33,344	166,719	95	$9,984	$371	$10,355
Pool Pump	Res Pool Pump	19	1	1	6,099	4,879	48,792	29	$2,477	$141	$2,617
Refrigeration	Res Refrigeration	289	9	9	69,967	52,475	734,652	415	$25,351	$1,795	$27,146
HVAC	Res Shell										
Water Heating	Res Water Heating										
Comprehensive	Res Comprehensive	935	23	23	6,383,092	6,383,092	7,201,276	4,637	$590,891	$25,749	$616,640
Process	Non-Res Cooking										
HVAC	Non-Res Cooling	3	222	222	917,120	917,120	10,778,470	6,522	$78,500	$33,419	$111,919
HVAC	Non-Res Heating										
Lighting	Non-Res Lighting	91	385	385	1,705,249	1,705,249	18,406,434	10,902	$228,483	$51,041	$279,524
Process	Non-Res Motors	2		49	387,940	387,940	5,819,100	3,243	$22,362	$13,522	$35,884
Process	Non-Res Pumps	1	7	7	57,496	57,496	862,440	481	$4,751	$2,004	$6,755
Refrigeration	Non-Res Refrigeration	1			104,606	104,606	1,046,060	583	$3,112	$2,440	$5,552
HVAC	Non-Res Shell	1	368	368	2,869,494	2,869,494	2,869,494	1,599		$5,418	$5,418
Process	Non Res Process										
Comprehensive	Non Res Comprehensive										
Other	Other										
SubTotal		3,085	1,200	1,256	12,636,721	12,601,727	49,873,042	29,730	$1,039,246	$143,098	$1,182,344
T&D	T&D										
Total		3,085	1,200	1,256	12,636,721	12,601,727	49,873,042	29,730	$1,039,246	$143,098	$1,182,344

EE Program Portfolio	TRC Test	**2.17**
	PAC Test	**4.73**

Excluding T&D

GRIDLEY MUNICIPAL UTILITIES (GMU)

At a Glance

- Year Established: 1910
- Climate Zone: 11
- Number of Retail Customers Served: 2833
- Percent of Retail Sales by Customer Class: 83.5% Residential, 16.5% Commercial/Industrial
- Energy Efficiency Program Budget: $200,000; Energy Efficiency Program Expenditures: $148,991 The balance of the budgeted funds were used to cover internal administrative expenses at GMU.
- Load Growth: 4%

Utility Overview

GMU feels a significant responsibility to its community/ratepayers to invest their Public Benefits funds in such a way as to impact both energy savings and financial savings/positive economics in Gridley. The Residential Direst Install Program provided immediate and direct economic benefits to its residential customers. Given the local impact of the economic downturn that has affected the City for several years, these benefits have been helpful and appreciated by Gridley citizens.

Major Program Changes

GMU's FY2013 energy efficiency budget was $15,000 (9%) less than FY2012. While this may not seem significant, it resulted in a decrease of 35,435 kWh (-11%). During FY2012, GMU funded a lighting direct install (100% paid) program offer for commercial customers. GMU was able to realize almost an equivalent amount of savings during FY2013 by increasing the scope of the direct install program offer for residential customers, effectively shifting the customer service focus from one year to the next.

Program Highlights

The Residential Direct Install Program contributed 84% of the kWh savings in FY2013, representing a 117% increase over FY2012 due to the expansion of the Program to include audits. Savings contributed by the residential sector were higher than FY2012 and conversely the contribution by the non-residential sector was lower.

GMU's AB 2021 Energy Reduction Target for FY2013 was 75,000 kWh; GMU exceeded this target by 269% with a total net energy reduction of 277,043 kWh. GMU's AB 2021 Demand Reduction Target for FY2013 was 22 kW; GMU surpassed this target as well with a total demand reduction of 172 kW.

GMU's cumulative AB 2021 Energy Reduction Target for FY2011-FY2013 was 225,000 kWh; GMU exceeded this target by 268% with a total net energy reduction of 826,981 kWh. GMU's cumulative AB 2021 Demand Reduction Target for FY2011-FY2013 was 65 kW; GMU surpassed this target as well with a total demand reduction of 414 kW.

GMU adopted targets of 170,000 kWh and 45 kW for FY2014.

Program Descriptions

GMU manages a comprehensive energy efficiency incentive program for residential & commercial customers focusing on peak load reduction and energy conservation. For residential customers, rebates are offered for the installation of various energy efficiency measures. For commercial customers, rebates

are available for upgraded lighting, refrigeration equipment and in cases where an analysis is performed rebates can be offered for additional equipment that reduces energy use and/or demand.

- Residential Audit Program [Res Comprehensive]: On-site energy audits are provided by GMU energy specialists. Energy efficiency measures are recommended and additional visits are completed upon request.
- Residential Lighting Program [Res Lighting]: GMU offers rebates to homeowners who install ENERGY STAR® qualified compact fluorescent lamps (CFLs), ceiling fans and LED holiday lights.
- Residential Cooling Program [Res Cooling]: GMU offers rebates to homeowners who install high performance heat pumps, central air-conditioners, or evaporative coolers that exceed current state requirements. GMU also offers a rebate for regular maintenance of cooling equipment (tune-ups every 3 years).
- Residential Equipment Program [Res Clothes Washers; Res Cooling; Res Dishwashers; Res Pool Pump; Res Refrigeration]: GMU offers rebates to homeowners who purchase new ENERGY STAR qualified products, including clothes washers, room air conditioners, dishwashers, pool pumps, refrigerators and freezers.
- Residential Weatherization Program [Res Shell]: GMU offers rebates to homeowners who invest in weatherizing their homes, including attic/wall/duct insulation, window treatments/replacement, air/duct sealing and radiant barriers.
- Residential Water Heater Rebate Program [Res Water Heating]: GMU offers rebates to homeowners who purchase a new, energy efficient electric water heater.
- Residential Direct Install Program [Res Comprehensive; Res Lighting]: Audits are preformed on residential homes and ENERGY STAR CFLs are installed at no cost to the homeowner.
- Commercial Audit Program [Non-Res Comprehensive]: On-site energy audits are provided by GMU energy specialists. Energy efficiency measures are recommended and additional visits are completed in order to provide technical assistance for implementation of measures. Energy efficiency rebates are available for upgrades identified during these audits.
- Commercial Lighting Program [Non-Res Lighting]: GMU offers rebates to business owners who invest in the installation of energy efficiency lighting upgrades. There is a prevalence of T-12 lighting throughout the city and most high bay lighting uses high intensity discharge fixtures instead of more efficiency fluorescent fixtures.
- Commercial Custom Program [Non-Res Comprehensive]: GMU offers rebates to business owners based on site-specific consumption. Rebates are tailored to the individual business owner's needs based on the audit and the potential energy savings associated with the customer project.

EM&V

GMU's last EM&V report was performed on work completed between July 1, 2008 and June 30, 2009. GMU has budgeted $5,000 in FY2014 for a comprehensive evaluation of work completed between July 1, 2009 and June 30, 2012. GMU is currently exploring the opportunity of partnering with Shasta Lake Utilities and City of Ukiah on this EM&V effort in order to gain economies of scale.

FY12/13 Program Results

Gridley		Resource Savings Summary							Cost Summary		
Program Sector (Used in CEC Report)	Category	Units Installed	Net Demand Savings (kW)	Net Peak kW Savings	Gross Annual kWh Savings	Net Annual kWh Savings	Net Lifecycle kWh savings	Net Lifecycle GHG Reductions (Tons)	Utility Incentives Cost ($)	Utility Mktg, EM&V, and Admin Cost ($)	Total Utility Cost ($)
Appliances	Res Clothes Washers										
HVAC	Res Cooling										
Appliances	Res Dishwashers										
Consumer Electronics	Res Electronics										
HVAC	Res Heating										
Lighting	Res Lighting	1	169	169	281,092	231,817	927,266	495	$49,876		$49,876
Pool Pump	Res Pool Pump	1			596	411	4,110	2	$125	$6,562	$6,687
Refrigeration	Res Refrigeration	1			182	136	1,906	1	$75	$2,827	$2,902
HVAC	Res Shell	9	2	2	3,090	1,745	34,892	22	$1,970	$28,167	$30,137
Water Heating	Res Water Heating										
Comprehensive	Res Comprehensive	7			2,667	2,134	6,401	4			
Process	Non-Res Cooking										
HVAC	Non-Res Cooling										
HVAC	Non-Res Heating										
Lighting	Non-Res Lighting										
Process	Non-Res Motors										
Process	Non-Res Pumps										
Refrigeration	Non-Res Refrigeration										
HVAC	Non-Res Shell										
Process	Non Res Process										
Comprehensive	Non Res Comprehensive	1			51,000	40,800	408,000	227	$50,000	$9,389	$59,389
Other	Other										
SubTotal		20	172	172	338,626	277,042	1,382,575	751	$102,045	$46,946	$148,991
T&D	T&D										
Total		20	172	172	338,626	277,042	1,382,575	751	$102,045	$46,946	$148,991

EE Program Portfolio	TRC Test	**0.82**
	PAC Test	**0.87**

Excluding T&D

HEALDSBURG ELECTRIC DEPARTMENT

At a Glance

- Healdsburg's Electric Department was established in 1899
- Healdsburg is located in Climate Zone 2
- Healdsburg serves roughly 4,710 residential customers, 989 commercial services, and 49 industrial services.
- Percent of retail kilowatt-hour sales by customer class is 36% residential, 54% commercial, and 10% industrial.
- Fiscal Year 2013-budgeted amount for Energy Efficiency rebates was$75,000, actual rebates paid in FY 2013 was $69,298. Unspent moneys are allocated to low income discounts and solar rebates.
- Average load growth for Healdsburg is less than 1%.

Utility Overview

Healdsburg's Electric Department manages a comprehensive energy efficiency program for residential and commercial customers focusing on energy conservation as well as peak load reduction. For residential customers, rebates incentivize the installation of a variety of energy efficiency measures. For commercial customers, rebates are available for upgrading lighting, refrigeration, HVAC, and custom programs where detailed analysis shows a benefit to cost ratio consistent with the Electric Department's existing programs.

Major Program Changes

In response to increased customer participation, the City of Healdsburg significantly increased funding for commercial lighting and refrigeration programs in 2013. Availability of additional funding and an improved economy resulted in over 947,017 kWh saved; almost five times the amount saved in the previous calendar year. 947,017 kWh represents roughly 1.2% of Healdsburg's annual sales.

Program Highlight

Calendar year 2013 saw a significant increase in participation with the City's commercial energy efficiency program. To gain this increase the rebate program was restructure. Both the administrative contract and commercial rebates were restructured to provide performance based payment of the energy efficiency measures. This change helped both the customer and consultant focus on the highest value energy efficiency programs. The City also lowered the commercial incentive per kilowatt-hour but now includes an adder ("kicker") for peak demand reduction. The added incentive for demand reduction provides higher value to projects that reduce system peak demands.

Program Descriptions

For residential customers the City offers the following programs;

- Energy Efficiency Hotline: The city's electrical customers can call a local number to answer questions and provide information on energy efficiency related matters.

- Free Energy Audits: On-site energy audits are available to residential customers. Energy efficiency measures are recommended based on each audit and upon request, the customer is provided a written report summarizing findings and recommendations to reduce the customer's monthly energy consumption.
- Appliance Rebates: The city provides rebates for the purchase of several ENERGY STAR® rated appliances.
- Residential Heat Pump and Efficient Air Conditioning Rebates: The city offers rebates for residential and small business customers who install high performance heat pumps, central air-conditioners or evaporative coolers that exceed current state requirements.
- Residential Lighting Rebates: The city offers rebates to homeowners who install ENERGY STAR qualified compact fluorescent lamps (CFLs), LED lamps, and LED holiday lighting.
- Residential Electric Water Heater: The city offers customers a rebate toward the installation of new, energy efficient electric water heaters.
- Weatherization/Window Incentives: The city provides financial incentives for homeowners who invest in home weatherization and window replacement projects.

For commercial customers the City provides the following programs

- Energy Audits and Rebates: This program offers complementary, on-site energy audits for both commercial and industrial customers. Energy efficiency recommendations and follow up visits support implementation of recommended energy efficiency measures. Energy Efficiency Rebates are available for upgrades identified through these audits.
- Commercial Lighting: This program engages local lighting and electrical contractors to promote and install energy efficient lighting upgrades through technical assistance and financial incentives available from Healdsburg's Electric Department.
- Commercial Refrigeration and HVAC: The City offers commercial customers a wide selection of refrigeration and HVAC rebates. These rebates are performance based and provided greater reward to projects that reduce system peak demand.
- Custom Energy Efficiency Programs: The Healdsburg Electric Department will consider custom energy efficiency programs for site-specific consumption. The Electric Department will require that the city's contractor review and endorse all custom programs. This review may result in a small cost adder to the proposed project but validates the benefit to cost ratio of the program. The Healdsburg Electric Department retains the sole right to approve or deny custom projects.

EM&V

Past EM&V reports can be found through the following link; http://www.ncpa.com/current-issues/energy-efficiency-reports.html The City plans to complete addition EM&V reports in calendar year 2014.

Complimentary Public Benefits Programs

- Renewable Energy Programs: The City still continues to provide incentives for solar installations but is nearing the end of this program. As a lower cost alternative, the City provides a "Green Rate" for customers choosing to fully cover their energy use from non-carbon sources.
- Low-Income Programs: The City actively supports a low-income discount for low-income customers. Annually this discount supports over 270 customers or nearly 6% of the City's residential customers.
- Research, Development, and Demonstration: In 2013, the City of Healdsburg installed two electric vehicle-charging stations. Over the first 8 months of operation, these charging stations have avoided over 2,500 kg of GHG.

FY12/13 Program Results

Healdsburg		Resource Savings Summary							Cost Summary		
Program Sector (Used in CEC Report)	Category	Units Installed	Net Demand Savings (kW)	Net Peak kW Savings	Gross Annual kWh Savings	Net Annual kWh Savings	Net Lifecycle kWh savings	Net Lifecycle GHG Reductions (Tons)	Utility Incentives Cost ($)	Utility Mktg, EM&V, and Admin Cost ($)	Total Utility Cost ($)
Appliances	Res Clothes Washers	7	1	1	434	369	4,427	2	$525	$1,212	$1,737
HVAC	Res Cooling	20	2	2	1,064	840	13,233	8	$2,015	$7,555	$9,570
Appliances	Res Dishwashers	1			31	25	270		$50	$74	$124
Consumer Electronics	Res Electronics										
HVAC	Res Heating										
Lighting	Res Lighting	1,434	61	6	48,676	41,374	218,341	117	$3,672	$4,197	$7,869
Pool Pump	Res Pool Pump	4			1,284	886	8,860	5	$600	$2,251	$2,851
Refrigeration	Res Refrigeration	20			2,186	1,640	22,663	12	$1,425	$5,696	$7,121
HVAC	Res Shell										
Water Heating	Res Water Heating										
Comprehensive	Res Comprehensive										
Process	Non-Res Cooking										
HVAC	Non-Res Cooling										
HVAC	Non-Res Heating										
Lighting	Non-Res Lighting	32	126	126	893,343	759,342	10,630,782	5,877	$145,714	$149,580	$295,295
Process	Non-Res Motors										
Process	Non-Res Pumps										
Refrigeration	Non-Res Refrigeration										
HVAC	Non-Res Shell										
Process	Non Res Process										
Comprehensive	Non Res Comprehensive										
Other	Other										
SubTotal		1,518	191	137	947,017	804,475	10,898,575	6,021	$154,001	$170,566	$324,567
T&D	T&D										
Total		1,518	191	137	947,017	804,475	10,898,575	6,021	$154,001	$170,566	$324,567

EE Program Portfolio	TRC Test	**2.72**
	PAC Test	**3.52**

Excluding T&D

IMPERIAL IRRIGATION DISTRICT (IID)

At a Glance

- Established in 1936 (Power Industry)
- Climate Zone 15
- 149,800 Customers
- Percent of retail sales by customer class:
    - Residential – 35.7%
    - Commercial – 31.4%
    - Industrial – 2%
    - Agriculture – 1.4%
- Budget - $20,359,000
- Expenditures - $10,572,325 for energy efficiency programs and $6,643,540 allocated to other public benefits programs (ie low income rate assistance). The unused budget of $3,143,135 is maintained in a fund balance to be applied toward qualifying projects, programs and services.
- Load growth -1.72%

Utility Overview

As the sixth largest utility in California, IID controls more than 1,100 megawatts of energy derived from a diverse resource portfolio that includes its own generation, and long- and short-term power purchases. IID's Energy Department provides electric power to more than 145,000 customers in the Imperial Valley and parts of Riverside and San Diego counties.

As a consumer-owned utility, IID works to efficiently and effectively meet our customers' demands at the best possible rates, tying our area's low-cost of living directly with low-cost utilities. Our diverse resource portfolio provides our customers with some of the lowest cost rates in southern California which is critical given unemployment rates within the service territory are one of the highest in the nation.

IID's energy efficiency programs are a key factor in the utility's overall goal. These programs provide a positive impact on utility cost by stabilizing energy consumption and reducing purchases of expensive peak power. Additionally, customers are provided with an opportunity to take charge of their energy utilization and by doing so, reducing their electricity consumption and cost.

Major Program Changes

IID remains steadfast in its resolve to help customers reduce their energy consumption and help ease the financial burden associated with electrical costs. Priorities for 2013 public benefit programs included a comprehensive marketing plan and grassroots outreach effort to increase awareness of the various programs available to residential customers and disbursement of the public benefit fund balance account in the form of programs and services. The fund balance totaled $21,181,447 in January of 2013 and

consisted of $14,823,605 by year end. The fund balance is expected to be reduced to approximately $4,400,000 by the end of 2014.

To complement this outreach and exemplify the board's commitment to demand-side energy efficiency, significant changes were made to the Energy Rewards prescriptive rebate program. Program modifications included increased rebate amounts for most measures and creation of a third-tier for HVAC rebates. As a result, participation in the program increased from the previous year.

Program Highlight

In 2013 IID offered a Quality AC Maintenance Program to residential and small commercial customers for the first time in four years. Regarded as one of the warmest areas in the state, this program proved extremely successful. IID's service territory falls within climate zone 15 where temperatures reach 120 degrees in the summer. The program had over 6,200 participating customers, generating savings of over 5,600,000 kWh.

Program Descriptions

Commercial Programs

- Custom Energy Solutions Program (CESP) – designed to promote energy efficiency by offering financial incentives to commercial customers who install energy-efficient equipment. IID provides qualifying electrical account customers with expertise to assist in identifying energy efficiency measures and cost saving opportunities. (Sector/Category codes: 13, 15, 16, 17, 18, 19, 20)
- New Construction Energy Efficiency Program – is a new construction and renovation energy efficiency program that combines an integrated design process with financial incentives for energy saving design at least 10% over the current Title 24 requirements for a building envelope; or as a *systems approach* method for individual measures. (Sector/Category codes: 13, 15, 16, 17, 18, 19, 20)
- Quality AC Maintenance Program – participating small commercial customers may receive a variety of services that include duct test & seal (DTS), refrigerant charge adjustment (RCA), inspection of all electrical connections & tightening, inspection of all moving parts & lubrication, inspection of condensate drain, inspection of system controls & thermostat settings and cleaning of evaporator & condenser air conditioning coils. (Sector/Category codes: 13, 19)
- Learning Energy Awareness Program (LEAP) – improves the energy efficiency of participating school's facilities by lowering their energy consumption through energy efficiency upgrades. Qualifying measures must retrofit, replace or upgrade old equipment with new, energy efficient technologies that exceed the applicable Title 24 energy efficiency requirements. (Sector/Category codes: 13, 15, 19)
- Open for Business Direct Install Program – helps small businesses decrease their operating costs by installing energy saving measures. A certified contractor will work with eligible small businesses

to evaluate their energy use, identify energy-saving opportunities and install energy-efficient retrofit replacement equipment at no cost to the customer. (Sector/Category codes: 15, 16, 18)

- Small Commercial Energy Audits – allows commercial customers (demand less than 100 kW) to quantify energy consumption and evaluate measures that can be applied to make a facility more energy efficient. An assessment will identify problems that may, when corrected, save the customer a significant amount of money over time. (Sector/Category codes: 13, 15, 17, 18, 19, 20, 21)
- Large Commercial Energy Audits - allows commercial customers (demand greater than 100 kW) to quantify energy consumption and evaluate measures that can be applied to make a facility more energy efficient. An assessment will identify problems that may, when corrected, save the customer a significant amount of money over time. (Sector/Category codes: 13, 15, 17, 18, 19, 20, 21)

Residential Programs

- Energy Rewards Rebate Program – offers residential customers prescriptive rebates for qualified energy efficient measures. Qualifying residential measures must retrofit, replace or upgrade old equipment with new, energy-efficient technologies that meet and exceed the Title 24 standards in effect at the time of installation. (Sector/Category codes: 2, 6, 7, 8, 9, 11)
- Quality AC Maintenance Program – participating residential customers may receive a variety of services that include duct test & seal (DTS), refrigerant charge adjustment (RCA), inspection of all electrical connections & tightening, inspection of all moving parts & lubrication, inspection of condensate drain, inspection of system controls & thermostat settings and cleaning of evaporator & condenser air conditioning coils. (Sector/Category codes: 2)
- Weatherization Program - offers comprehensive low cost energy education and weatherization services. Customers can receive up to $1,000 in energy saving services and equipment as determined through an energy assessment of the home. (Sector/Category codes: 2, 6, 9, 10, 11)
- Residential Energy Audits – allows residential customers to quantify energy consumption and to determine measures that can be applied to make a customer's home more energy efficient. An assessment will identify conditions that may, when corrected, save the customer a significant amount of money over time. IID offers energy audits and customized reports to customers. (Sector/Category codes: 6, 11)
- Refrigerator Recycling – IID offers free refrigerator pick up and proper recycling services. In addition, customers also receive a $50 incentive for each qualified refrigerator or freezer. (Sector/Category codes: 8)

Program Sector (Used in CEC Report)	Category	Code	Program Sector (Used in CEC Report)	Category	Code	Program Sector (Used in CEC Report)	Category	Code
Appliances	Res Clothes Washers	1	Refrigeration	Res Refrigeration	8	Lighting	Non-Res Lighting	15
HVAC	Res Cooling	2	HVAC	Res Shell	9	Process	Non-Res Motors	16
Appliances	Res Dishwashers	3	Water Heating	Res Water Heating	10	Process	Non-Res Pumps	17
Consumer Electronics	Res Electronics	4	Comprehensive	Res Comprehensive	11	Refrigeration	Non-Res Refrigeration	18
HVAC	Res Heating	5	Process	Non-Res Cooking	12	HVAC	Non-Res Shell	19
Lighting	Res Lighting	6	HVAC	Non-Res Cooling	13	Process	Non Res Process	20
Pool Pump	Res Pool Pump	7	HVAC	Non-Res Heating	14	Comprehensive	Non Res Comprehensive	21

EM&V

IID will conduct an evaluation of their programs on a bi-annual basis, covering programs for the two-year cycle. Not all programs will be evaluated in each evaluation cycle. Programs that generate the most energy savings will be included in each evaluation and others will be included on an as-needed basis. Full results and report will be submitted to SCPPA and incorporated in the SB1037 report accordingly.

Copies of IID's EM&V reports are available online at http://www.ncpa.com/current-issues/energy-efficiency-reports.html.

Complimentary Public Benefits Programs

- Lamp Exchange Event:
  During the 2013 calendar year, IID sponsored two Operation Lamp Exchange events for its Imperial County and Coachella Valley customers to help them save energy and money. The program allowed IID residential customers to exchange up to five halogen and incandescent plug-in lamps per household for new Energy Star-qualified fluorescent lamps. The events generated estimated energy savings of 392,652 kWh which will be reported in next year's report due to the timing of the accounting accrual.
- Renewable Energy Programs:
  - SB1 Solar Solutions Program - IID offers incentives to customers who install solar systems. Two types of incentives are offered: Expected Performance Based Incentive (EPBI) and Performance Based Incentive (PBI). The EPBI incentives are paid based on verified solar energy system characteristics such as location, system size, shading and orientation. The PBI incentive is a flat cents-per-kWh payment for all output from a solar energy system over its initial five years of operation.
  - Net Energy Metering – IID pays net-surplus customers for generating excess electricity produced by eligible solar or wind power systems. Customers can also elect to receive a kilowatt credit rather than monetary compensation at rates established by the utility.
- Low-Income Programs: As a large number of IID's residential customers participate in our income-qualified programs, a significant portion of revenue generated through the public benefits charge is allocated toward these programs. Program expenditures for the 2013 year totaled over $5.1M, with enrollment of over 15,232 customers.

- Residential Energy Assistance Program – provides customers with a discounted rate on their electric bill. Qualification is based on the number of persons residing in your home and the total gross income of all the income sources in the home.
- Emergency Energy Assistance Program – provides financial assistance to customers facing a financial crisis and disconnection for nonpayment.
- Medical Equipment Energy Assistance Program – provides a reduced electrical rate for a defined quantity of electricity used to operate medical equipment. The household must include a full-time resident who requires specific medically necessary electric equipment to sustain life or prevent deterioration of a person's medical condition.

FY12/13 Program Results

Imperial ID		Resource Savings Summary							Cost Summary		
Program Sector (Used in CEC Report)	Category	Units Installed	Net Demand Savings (kW)	Net Peak kW Savings	Gross Annual kWh Savings	Net Annual kWh Savings	Net Lifecycle kWh savings	Net Lifecycle GHG Reductions (Tons)	Utility Incentives Cost ($)	Utility Mktg, EM&V, and Admin Cost ($)	Total Utility Cost ($)
Appliances	Res Clothes Washers										
HVAC	Res Cooling	14,817	1,834	4,384	5,254,923	4,352,277	60,001,944	37,724	$2,612,071	$537,299	$3,149,370
Appliances	Res Dishwashers										
Consumer Electronics	Res Electronics										
HVAC	Res Heating										
Lighting	Res Lighting	8,184	338	49	324,178	293,068	1,749,368	992	$80,695	$172,777	$253,472
Pool Pump	Res Pool Pump	242	23	23	139,170	121,078	1,210,779	723	$41,318	$11,981	$53,298
Refrigeration	Res Refrigeration	671	12	12	508,360	221,467	1,747,831	987	$57,872	$14,495	$72,367
HVAC	Res Shell	2,445	563	564	955,966	945,785	17,801,192	11,233	$1,306,838	$311,923	$1,618,761
Water Heating	Res Water Heating	7			532	532	7,980	5	$316	$675	$991
Comprehensive	Res Comprehensive	741	50	50	282,321	234,315	702,945	399	$217,607	$88,894	$306,501
Process	Non-Res Cooking										
HVAC	Non-Res Cooling	16,525	2,219	2,101	6,624,778	5,803,895	69,575,077	43,026	$2,418,010	$408,705	$2,826,716
HVAC	Non-Res Heating										
Lighting	Non-Res Lighting	18,398	947	293	5,678,811	4,976,190	72,742,361	43,083	$1,476,317	$570,826	$2,047,144
Process	Non-Res Motors										
Process	Non-Res Pumps										
Refrigeration	Non-Res Refrigeration	302	19	18	128,656	121,722	669,803	373	$10,728	$7,237	$17,965
HVAC	Non-Res Shell	1	2	2	70,057	58,848	2,942,394	1,787	$9,808	$24,805	$34,613
Process	Non Res Process	462	326	291	742,909	670,806	3,821,182	2,263	$80,983	$110,145	$191,128
Comprehensive	Non Res Comprehensive										
Other	Other										
SubTotal		62,795	6,333	7,789	20,710,661	17,799,981	232,972,855	142,595	$8,312,563	$2,259,762	$10,572,325
T&D	T&D										
Total		62,795	6,333	7,789	20,710,661	17,799,981	232,972,855	142,595	$8,312,563	$2,259,762	$10,572,325

EE Program Portfolio	TRC Test	**1.18**
	PAC Test	**2.84**

Excluding T&D

LASSEN MUNICIPAL UTILITY DISTRICT (LMUD)

At a Glance

- Established in 1988
- 10,500 customers representing 12,500 meters
- 50% of retails sales to residential customers; the remaining sales are primarily to commercial customers, with a much smaller amount to agricultural and industrial customers

Utility Overview

Lassen Municipal Utility District (LMUD) mission is to provide reliable, quality power to our community at the best possible price. There is little or no difference in load demands for LMUD between winter and summer. Its annual energy use is 131 gigawatt-hours. LMUD's annual power content is largely hydroelectric (depending on the time of year) due to the utility's power purchase contract with Western Area Power Administration and its base resource allocation from the Central Valley Project. The remaining power is mixed between various renewable and non-renewable power. LMUD works closely with all of the other local agencies to promote planned economic growth in our service area. LMUD serves a community where the median residential income is at or below the poverty level.

Program Descriptions

LMUD manages a comprehensive incentive program for residential & commercial customers focusing on peak load reduction and energy conservation. For residential customers, rebates are offered for the installation of various energy efficiency measures. For commercial customers, rebates are available for upgraded lighting, refrigeration equipment, HVAC equipment, and in cases where an analysis is performed rebates can be offered for additional equipment that reduces energy use and/or demand.

- Residential Rebate Program: LMUD provides rebates to customers who purchase and install ENERYGSTAR® appliances and energy efficient electric water heaters and solar water heaters. LMUD also provides a residential lighting program, providing rebates for replacing incandescent bulbs with CFL's along with a variety of other lighting incentives. LMUD also offers rebates for the installation of energy efficiency heat pumps, central air conditioning and evaporative coolers.
- Custom Energy Projects: LMUD offers customized rebate programs to larger customers who have special projects that do not fit into existing rebate categories.
- Energy Audits: Commercial customers may request a free, onsite energy audit.
- "Smart*Light*": Smart*Light* was introduced in 2008 and is LMUD's commercial lighting retrofit program. The program offers commercial customers rebates for replacing inefficient lighting with new technology, such as removing existing T-12 fluorescent bulbs and replacing them with T-8s.
- **"**Community Projects" Program: Local non-profit entities submit projects based on the four guidelines of AB 1890. Qualifying projects are eligible for financial incentives equal to 50 percent of the project expenses (with a limit of $25,000).
- Energy Conservation Assistance Program "ECAP": ECAP is LMUD's low-income rate assistance program. The program is income based and allows between a 50% and 20% discount on

customers first 1,000 kWh. The program also works with local service agencies to provide energy conservation classes to participating customers.

- Consumer Education: LMUD strives to reach each of our customers to educate them and help them reduce their energy consumption. The LMUD web site and "*Ruralite*" magazine offer current energy conservation tips and advice on how to implement energy conservation measures. Through the website and the *Ruralite* magazine, customers are encouraged to call our efficiency experts for help to determine their energy usage and identify appropriate conservation measures.

EM&V

LMUD undertook its first EM&V report in 2009/2010. The report focused on the program that produced the largest amount of savings during the year, the Keep Your Cool program. Keep Your Cool provided LMUD customer's refrigeration door gaskets, strip curtains and door closers at no cost to the customers. The evaluation indicated that the program was well received overall and that most demand and consumption savings figures were reasonable and close. The one exception was glass reach-in freezer auto-closers which appeared to indicate a discrepancy between kW demand reduction, kWh savings and reasonable hours of operation. That issue is under consideration for the upcoming year. LMUD will most likely perform the next EM&V in 2013/2014.

FY12/13 Program Results

Lassen		Resource Savings Summary							Cost Summary		
Program Sector (Used in CEC Report)	Category	Units Installed	Net Demand Savings (kW)	Net Peak kW Savings	Gross Annual kWh Savings	Net Annual kWh Savings	Net Lifecycle kWh savings	Net Lifecycle GHG Reductions (Tons)	Utility Incentives Cost ($)	Utility Mktg, EM&V, and Admin Cost ($)	Total Utility Cost ($)
Appliances	Res Clothes Washers	31	31	31	14,601	12,410	148,930	93	$1,085	$6,321	$7,406
HVAC	Res Cooling	6	1	1	122	97	1,755	1	$450	$250	$700
Appliances	Res Dishwashers	15	3	3	990	867	8,712	5	$525	$1,254	$1,779
Consumer Electronics	Res Electronics										
HVAC	Res Heating	31	10	10	7,158	2,771	49,877	25	$21,450	$12,357	$21,450
Lighting	Res Lighting	97	22	22	6,287	5,344	26,889	14	$2,898	$956	$3,854
Refrigeration	Res Refrigeration	48	1	1	8,500	6,378	88,531	48	$2,400	$1,050	$3,450
HVAC	Res Shell	23	6	6	6,526	3,929	78,584	49	$7,000	$3,265	$10,265
Water Heating	Res Water Heating	40			14,224	8,249	107,251	57	$9,600	$856	$10,456
Comprehensive	Res Comprehensive										
Process	Non-Res Cooking										
HVAC	Non-Res Cooling										
HVAC	Non-Res Heating										
Lighting	Non-Res Lighting	1	15	15	90,000	55,000	752,000	57	$29,000	$4,500	$29,000
Process	Non-Res Motors										
Process	Non-Res Pumps										
Refrigeration	Non-Res Refrigeration										
HVAC	Non-Res Shell										
Process	Non Res Process										
Comprehensive	Non Res Comprehensive	10	7	7	3,810	3,047	9,144	5	$2,050	$1,513	$3,563
Other	Other										
SubTotal		302	96	96	152,218	98,092	1,271,673	354	$76,458	$32,322	$91,923
T&D	T&D										
Total		302	96	96	152,218	98,092	1,271,673	354	$76,458	$32,322	$91,923

EE Program Portfolio	TRC Test	**.59**
	PAC Test	**1.80**

Excluding T&D

Lodi Electric Utility (LEU)

At a Glance

- Established in 1910
- Climate Zone 12
- 25,556 customers (22,369 residential; 3,187 commercial/industrial; FY 12-13)
- Residential Customer sales: 151,814,834 kWh (35%)
- Commercial Customers sales: 152,534,226 kWh (35%)
- Industrial Customer sales: 131,473,405 kWh (30%)
- Budgeted amount for energy efficiency programs, funded the Lodi Public Benefits Program: $685,000 (FY 12-13)
- Load growth: .04% (from FY 11-12 to FY 12-13)

Utility Overview

Commercial and industrial customers continue to produce the majority of energy savings achieved in Lodi's energy efficiency program portfolio. For the FY 12-13, over half of the rebates provided to commercial and industrial customers were for lighting retrofits, while the remaining kilowatt hour savings achieved were for process equipment improvements, building envelope retrofits and HVAC/chiller replacements. Residential customers continue to achieve the greatest energy savings through HVAC replacements (as well as air delivery/duct system improvements) and the purchase and installation of EnergyStar ® appliances – specifically, and only, refrigerators and front-loading clothes washers.

Major Program Changes

Lodi Electric Utility made no significant changes to the energy efficiency programs provided during FY 12-13. However, the utility did increase marketing and outreach efforts to all customers (residential and non-residential), through newspaper advertisements, utility bill inserts and a revamped utility web site.

Program Highlight

Since 1998, LEU has spent more than $7 million on demand-side management rebates and programs designed to increase energy efficiency for the community, resulting in a 17 percent peak demand reduction and a 15 percent energy reduction. The G-3 to I1 Commercial/Industrial Rebate Program continued to be the main "driver" in regards to overall energy savings achieved. The utility maintains a very proactive and positive relationship with Lodi's largest energy consumers; these relationships have encouraged large commercial and industrial customers to engage and pursue retrofits and equipment improvements.

Program Descriptions

Commercial Programs

- Lodi Commercial (G-1 & G-2) Rebate Program*:* Provides rebates for small and medium-sized commercial customers who install designated energy efficiency measures, such as: attic insulation,

window tinting/shade screens, programmable thermostats, ceiling fans, appliances, high efficiency lighting retrofits, and maintenance of refrigeration/HVAC equipment; rebates range from $250 to $7,500 for smaller to medium-sized customers.

- Lodi Commercial/Industrial (G-3 to I-1) Rebate Program*:* Provides rebates of up to $25,000 to large commercial and industrial customers; the rebate is for pumps/motors, process equipment improvements, building envelope improvements, HVAC/chiller replacements, and high efficiency lighting retrofits.
- Lodi Energy Efficiency (On-Bill) Financing Program*:* two-year, interest free loans of up to $150,000 are available for commercial and industrial customers who install designated and approved energy efficiency measures. The customer does qualify for the aforementioned energy efficiency rebates, in conjunction with this financing program.

Residential Programs

- Lodi Appliance Rebate Program*:* Provides rebates to all customers who purchase an EnergyStar ® refrigerator, dishwasher and or front-loading clothes washer.
- Lodi Energy Efficient Home Improvement Rebate Program*:* Provides rebates to customers for installing attic/wall insulation, attic fans, whole house fans, shade screens/window tinting, radiant barriers, as well as for repairing/replacing HVAC duct systems, and for installing high efficiency (15+ SEER) air conditioning units.
- HVAC System Performance Test*:* Provides a rebate for customers who utilize a select list of HVAC contractors capable of performing a high-end duct system performance test (the test measures air flow, air return and system balance).

Commercial and Residential Programs

- Lodi Energy Audit Program*:* LEU offers on-line and on-site energy audits to residential and small commercial customers.

School/In-Classroom Programs

- Lodi LivingWise Program*:* Provides energy efficiency "kits" and manuals to 440 6th grade students in Lodi schools; the program is designed to teach the students the basics of energy and water conservation.
- Lodi Solar Schoolhouse Program*:* Provides teacher mini-grants and teacher training regarding solar/renewable energy resources; also via this program, we sponsor various solar fairs and events at individual school (students and teachers build solar-powered fountains, model race cars, houses, ovens, etc.).
- Youth Energy Summit*:* Provides scholarship opportunities for juniors and seniors in high school; the eligible students must participate in a two-day workshop (known as the Youth Energy Summit), then complete a community service learning project, based upon the information they garner from the Summit/training. After completing their "project," the student teams then present their findings and projects to a panel of judges, who in turn award the scholarship funds.

Low-Income Residential Programs

- Lodi C.A.R.E. Package Program*:* Provides grants to very low-income customers in need of assistance paying their electric utility account; the program coordination/customer screening is performed by the Lodi Salvation Army. In order to secure a grant payment, customers must consent to in an in-home energy audit.
- Lodi SHARE Discount Rate*:* LEU provides a rate discount of 30% for qualifying residential customers on their electric utility monthly billing statement; $400,000 annually is budgeted for this rate discount from the Lodi Public Benefits Program fund.

EM& V

LEU has implemented an EM&V Plan, and has completed six consecutive annual assessments (reports) of randomly selected programs and large rebates as part of the designed EM & V Plan. For the FY 12-13, projected energy savings were verified for ten (10) commercial and industrial customer rebates (customized rebates); all were assessed in October of 2012. Note: LEU retained the services of Summit Blue/Navigant Consulting to assist in the creation of the aforementioned Lodi EM & V Plan, as well as the on-site, first, second and third year kWh savings verification processes. LEU utilized a different EM&V contractor, ERS, for the 2010-2011 FY, 2011-2012 FY and 2012-2013 FY EM&V assessment projects. LEU will continue the annual EM&V assessment projects (FY 13-14, etc.), and will continue to budget between $15,000 and $25,000 annually for said assessments.

FY12/13 Program Results

Lodi		Resource Savings Summary							Cost Summary		
Program Sector (Used in CEC Report)	Category	Units Installed	Net Demand Savings (kW)	Net Peak kW Savings	Gross Annual kWh Savings	Net Annual kWh Savings	Net Lifecycle kWh savings	Net Lifecycle GHG Reductions (Tons)	Utility Incentives Cost ($)	Utility Mktg, EM&V, and Admin Cost ($)	Total Utility Cost ($)
Appliances	Res Clothes Washers	163	22	22	10,106	8,590	103,081	57	$8,175	$135	$8,310
HVAC	Res Cooling	311	33	37	21,896	17,293	259,879	160	$24,635	$630	$25,265
Appliances	Res Dishwashers	3			92	74	810		$100	$1	$101
Consumer Electronics	Res Electronics										
HVAC	Res Heating										
Lighting	Res Lighting	21	11	10	70,582	56,330	294,503	157	$8,997	$319	$9,316
Pool Pump	Res Pool Pump	2			642	443	4,430	2	$340	$5	$345
Refrigeration	Res Refrigeration	189	3	3	22,869	17,152	240,125	130	$9,450	$288	$9,738
HVAC	Res Shell	90	98	98	63,881	49,369	634,540	377	$29,431	$1,221	$30,652
Water Heating	Res Water Heating										
Comprehensive	Res Comprehensive										
Process	Non-Res Cooking										
HVAC	Non-Res Cooling	107	729	728	1,046,240	836,992	16,634,534	10,106	$113,725	$36,711	$150,436
HVAC	Non-Res Heating										
Lighting	Non-Res Lighting	22	144	144	740,469	592,375	8,067,973	4,464	$83,868	$10,782	$94,650
Process	Non-Res Motors	1		23	240,000	192,000	768,000	408	$3,039	$872	$3,911
Process	Non-Res Pumps										
Refrigeration	Non-Res Refrigeration	3	4	4	35,990	30,592	336,507	177	$11,537	$389	$11,926
HVAC	Non-Res Shell	3			429	343	3,432	2	$813	$7	$820
Process	Non Res Process										
Comprehensive	Non Res Comprehensive										
Other	Other										
SubTotal		914	1,044	1,069	2,253,195	1,801,552	27,347,813	16,043	$294,109	$51,363	$345,472
T&D	T&D										
Total		914	1,044	1,069	2,253,195	1,801,552	27,347,813	16,043	$294,109	$51,363	$345,472

EE Program Portfolio	TRC Test	**5.01**
	PAC Test	**11.80**

Excluding T&D

CITY OF LOMPOC

At a Glance

- Established in 1923
- Climate Zone 5
- 14,742 retail customers: 88.54% are residential; 10.74% are commercial; .37% are industrial and .36% municipal lighting.
- The budgeted amount for energy efficiency programs for FY 12-13 was $75,000.00 from Public Benefit Charge collected fees. The amount actually expended was $54,014.00. Any collected fees not expended will be carried over to succeeding years.
- The City does not expect any significant load growth in the coming year.

Utility Overview

The economic downturn has affected the City and our customers' ability to expend funds to perform energy efficiency projects. To emphasis this scenario, a look at the customer mix will lead to an understanding of the difficulty that the City has in making energy efficiency projects attractive to our customers.

Of the 88.5% of residential customers, 35% live in multifamily rental housing; seventy-five percent are considered to be low to moderate income customers and 21% of these are below the poverty level (taken from the 2010 census). This leaves a very small portion of residential customers that have the expendable money to upgrade to more energy efficient equipment unless the City heavily subsidies the purchase of the equipment. Hence, the City has created programs that offer a higher 'rebate' and pays for the initial purchase of a product with the customer paying back a portion over a one year period.

The majority of the city's commercial customers are considered small businesses, rent on a short term lease, have relatively low electric bills and are unwilling to perform retrofits. Since there is little need for air conditioning in our coastal climate, most of our rebate programs offered are for lighting retrofits with an expected payback in under three years. Still these small business owners hesitate or are unable to expend available monies on energy efficiency. Most of the larger commercial customers or demand customers who have long term leases or who own the property have taken advantage of lighting retrofits in the past. We have little manufacturing facilities in the City and the few we have are small in terms of most plants and do not have the potential for upgraded equipment.

Therefore, it is becoming more and more difficult to offer energy efficient incentives and achieve and meet goals but staff will continue to look at potential programs that will be attractive to our customers while striving to meet our energy efficiency goals.

Major Program Changes

There were no major changes in programs for FY12-13.

Program Highlight

Because of the mix of customers being mostly residential, the City's rebate programs have focused on and are mostly utilized by residential customers. The most utilized refrigerator program was created to helped low income customers replace old working refrigerator with new EnergyStar units. To qualify for this program, the customer must first meet the income requirement as defined by HUD as low to moderate income and the customer must be current in their payment of their utility bill. Of the refrigerators replaced under our rebate programs, 68% were partially funded by this program.

Program Descriptions

- Residential Refrigerator Programs:
  - A rebate of $144 is offered for the purchase of an EnergyStar refrigerator or freezer if the old refrigerator or freezer is in working order,if there is an expected energy savings of a minimum of 316 Kwh per year and if the appliance is recycled at the city landfill.
  - A rebate of $35 and haul away of the old appliance for recycling at the city landfill is available for any working refrigerator or freezer.
  - For income qualifying customers, the City will pay a participating appliance dealer up to $635 toward the purchase of an EnergyStar refrigerator to replace the refrigerator in operation in the kitchen. The old refrigerator must be in working order and there must be an expected minimum energy savings of 316Kwh per year. The customer must repay the City $240 over the next twelve month period.
- LED Holiday Light Rebate: The City offers a rebate of up to $8 per light string purchased. Each customer is limited to a rebate of up to five strings per year.
- Commercial Lighting Rebate: provides rebates for energy efficient lighting upgrades.
- Customized Rebate: provides a rebate of $.15 per watt saved for any project that results in an energy saving.

EM&V

Lompoc's EM&V reports can be found at http://www.ncpa.com/current-issues/energy-efficiency-reports.html. Since the City's programs have not changed or new programs added in the past five years, the City will hire a third party to evaluate our EM&V every third year. In the past, refrigerator programs and lighting programs have been evaluated. Another evaluation will conducted for the 2013/14 fiscal year on the current lighting program/s. The City feels that the three year evaluation plan is reasonable in light of the fact that our programs have not changed significantly nor have new programs been added that result in large energy savings. The cost of the evaluation will be almost ¼ of the cost of rebates for any given year.

Complimentary Public Benefits Programs

- Renewable Energy Programs: Lompoc first offered rebates for the installation of a photovoltaic system in 2004. Rebates were initially offered at $4.00 per watt AC installed. Current rebates are now offered at $1.50 per watt AC and are planned to be eliminated by the end of 2017.

- Low Income Programs: Customers below low to moderate income levels (as determined by HUD) receive up to $8.00 a month discount off their electric usage charge. These customers can apply for the income qualify refrigerator program.
- Other Rebate Programs: The City offers rebates for the replacement of non EnergyStar clothes washers and dishwashers. Since most water heating within the City service territory is by gas not electricity, these rebates are not funded with Public Benefits Funds and were not included above. But since the electricity used to pump and process water is significant, these programs are mentioned here.

FY12/13 Program Results

Lompoc		Resource Savings Summary							Cost Summary		
Program Sector (Used in CEC Report)	Category	Units Installed	Net Demand Savings (kW)	Net Peak kW Savings	Gross Annual kWh Savings	Net Annual kWh Savings	Net Lifecycle kWh savings	Net Lifecycle GHG Reductions (Tons)	Utility Incentives Cost ($)	Utility Mktg, EM&V, and Admin Cost ($)	Total Utility Cost ($)
Appliances	Res Clothes Washers										
HVAC	Res Cooling										
Appliances	Res Dishwashers										
Consumer Electronics	Res Electronics										
HVAC	Res Heating										
Lighting	Res Lighting	51	16		4,187	3,559	17,795	9	$408	$122	$530
Pool Pump	Res Pool Pump										
Refrigeration	Res Refrigeration	75	3	3	25,656	18,032	197,429	107	$21,583	$1,451	$23,034
HVAC	Res Shell										
Water Heating	Res Water Heating										
Comprehensive	Res Comprehensive										
Process	Non-Res Cooking										
HVAC	Non-Res Cooling										
HVAC	Non-Res Heating										
Lighting	Non-Res Lighting	1,172	53	38	214,137	174,871	2,072,146	1,148	$13,523	$16,927	$30,451
Process	Non-Res Motors										
Process	Non-Res Pumps										
Refrigeration	Non-Res Refrigeration										
HVAC	Non-Res Shell										
Process	Non Res Process										
Comprehensive	Non Res Comprehensive										
Other	Other										
SubTotal		1,298	72	41	243,980	196,462	2,287,370	1,265	$35,514	$18,500	$54,014
T&D	T&D										
Total		1,298	72	41	243,980	196,462	2,287,370	1,265	$35,514	$18,500	$54,014

EE Program Portfolio	TRC Test	**2.58**
	PAC Test	**4.37**

Excluding T&D

LOS ANGELES DEPARTMENT OF WATER AND POWER (LADWP)

At a Glance

- Established in 1902 to deliver water to the City of Los Angeles. Electricity distribution began in 1916.
- Climate Zones include CZ6 and CZ9
- Serves almost 4 million people via 1.46 million electric and 676,000 water connections. Nearly 70% of electricity usage is by the commercial/industrial sectors and over 30% by residential customers.
- Budgeted amount for FY 2013-14 energy efficiency programs is $115,946,682.
- A peak demand of 6142 MW was registered in the September 27, 2010.
- Annual energy use is 24.6 million megawatt-hours.
- Load for the years 2001 to 2012 grew by 0.55. When taking into consideration energy efficiency programs, load growth is forecasted to average 0.3% between 2013 and 2033.

Overview

LADWP is the largest municipal utility in the nation, and the third largest utility in California. While numerous recent accomplishments have been made – including achieving 20% of renewable energy sales in 2010 – significant challenges lie ahead. Increasing renewable energy to 33% by 2020, the continued rebuilding of coastal generation units, replacement of coal, infrastructure reliability investments, and ramping up energy efficiency and other demand side programs are all critical and concurrent strategic actions that LADWP has to carry out over the coming decade.

As part of its planning process, LADWP has committed to a number of energy efficiency activities to meet regulatory mandates and to meet the City's energy needs, including the following goals:

- Leverage energy efficiency as part of the strategy for eliminating coal from LADWP's energy portfolio
- Achieve an energy efficiency goal of 10% by 2020, with a target of 15% by 2020
- Contribute to greenhouse gas emissions reduction through reduced energy usage

Major Program Changes

LADWP continues our dramatic ramp-up in energy efficiency investments and results over previous years. In FY 2012-13, LADWP:

- Increased the annual EE budget from $55M to $120M+
- Adopted 8 guiding principles to guide this increased investment to ensure equity of access to EE for all customers, leverage this investment for job creation, commitment to transparency, and leverage community groups to reach hard to reach customers (guiding principles are in the portfolio business plan I sent you the link to)

- Created detailed Business Plans for the portfolio that are comparably specific to what the IOUs create for their EE funding requests to the CPUC. First time LADWP has ever had this level of detail. These plans include the continuation of roughly 10 existing programs and 10 new programs.
- Entered into a partnership with SoCal Gas to deliver joint programs to our mutual customers so we can offer electric, gas, and water savings in a "one shop stop", and have launched 7 new programs under that partnership, with 5 more pending over the next few months
- Dedicated about $60M of the EE portfolio to Direct Install programs (equipment and installation completely free) for our low- moderate- and fixed-income customers, both residential and non-residential. These include the Home Energy Improvement Program, Small Business Direct Install, and LAUSD Direct Install.
- Achieved 60% more energy savings in 12/13 than we reported in 11/12.

Program Descriptions

Residential Programs

- Small Business Direct Install: The Small Business Direct Install Program is a free direct-install program that targets small and medium business customers in the LADWP service territory. LADWP is partnering with Southern California Gas Company on this Program to offer a tri-resource efficiency program aiming to reduce the use of electricity, water and natural gas. (Non-Res Lighting)
- Home Energy Improvement Program (HEIP): The Home Energy Improvement Program is a comprehensive direct install whole-house retrofit program that offers residential customers a full suite of free products and services to improve the energy and water efficiency in the home by upgrading/retrofitting the home's envelope and core systems. While not limited to low-income customers, HEIP's priority is to serve the most needy customers. (Res Shell, Res Lighting)
- Low-Income Refrigerator Replacement Program (LIREP): The Low-Income Refrigerator Replacement Program is a free refrigerator replacement program designed to target customers that qualify on either LADWP's Low-Income or its Senior Citizen/Disability Lifeline Rates. This Program leverages a 3rd Party Contractor, ARCA (Appliance Recycling Centers of America), to administer the delivery of the Program and provides energy efficient refrigerators for this customer segment to replace older, inefficient, but operational models.(Res Refrigeration)
- Refrigerator Turn-in and Recycle (RETIRE)Program: The Refrigerator Turn-in and Recycle Program offers a $50 rebate, along with free pick-up, to residential customers to turn-in old refrigerators and freezers, for recycling. Eligible units must be fully operational and satisfy certain age and size requirements. LADWP leverages a 3rd Party Contractor, ARCA (Appliance Recycling Centers of America), to administer the delivery of the Program. (Res Refrigeration)
- Consumer Rebate Program (CRP): The Consumer Rebate Program offers incentives of up to $500 or more, to its residential customers to promote and advance comprehensive energy efficiency measures, including whole house solutions, plug load efficiency, performance standards and opportunities for integration. CRP is designed to offer and promote specific and comprehensive

energy solutions within the residential market sector. (Res Cooling, Res Shell, Res Refrigeration, Res Pool Pump)

- California Advanced Home Program (CAHP): The California Advanced Home Program is an incentive program that utilizes the statewide CAHP through its partner utility, Southern California Gas Company, to incentivize cost-effective energy efficiency upgrades in residential new construction. CAHP targets high density residential new construction, including single and multi-family high rise buildings, as this is the area with the greatest new construction energy savings potential in LADWP's service territory. (Res Comprehensive)
- Energy Upgrade California™ (EUCA): The Energy Upgrade California™ Program is a collaborative effort among California counties, cities, non-profit organizations, the state's investor-owned utilities, and publicly owned utilities to deliver a California statewide "whole house" residential retrofit energy efficiency program, in which LADWP partners with Southern California Gas Company (SoCalGas). EUCA offers incentives to homeowners who complete selected energy-saving home improvements on single-family residences or 2-4 unit buildings, such as townhouses, condominiums, etc. (Res Cooling, Res Comprehensive, Res Lighting, Res Water Heating, Res Shell)
- Million Trees Program (MTP): The Million Trees Program provides free shade trees for residents and property owners in Los Angeles to promote the planting of trees to improve building energy efficiency. This is a joint program managed by Million Trees LA and supported by LADWP. Through this partnership, MTLA is able to provide free shade trees for residents and property owners in the City of Los Angeles along with information on where to plant the trees for maximum energy efficiency benefits. MTP currently focuses on providing trees for residential customers but will also provide trees to commercial customers. (Res Cooling, Res Shell)

Commercial, Industrial, Institutional (CII) Programs Descriptions

- Los Angeles Unified School District Direct Install (LAUSD DI): The Los Angeles Unified School District Direct Install Program is designed to improve energy and water efficiency throughout LAUSD's facilities through upgrades in electric, water and natural gas consuming systems, in partnership with the Southern California Gas Company (SoCalGas). This Program provides energy efficiency design assistance, project management experience and retrofitting installation, utilizing LADWP engineering and ISS (Integrated Support Staff), to assist LAUSD facilities in need of aid in reducing energy usage and corresponding utility expenses. (Non-Res Lighting)
- Customer Lighting Efficiency Offering (CLEO): The Customer Lighting Efficiency Offering Program offers incentives to help make a wide variety of high-performance lamps and lighting fixtures cost-effective, and targets any size business that still utilizes standard fixtures. CLEO is designed to be consistent with California's statewide lighting programs, leveraging established contractor networks to offer non-residential customers a full suite of lighting products and services to improve the energy efficiency in their businesses by upgrading/retrofitting core lighting systems. (Non-Res Lighting)
- Retrocommissioning (RCx) Express: The Retrocommissioning Express Program offers cash incentives to customers who undertake a "tune-up" of their existing building system equipment to

restore equipment to its original performance level, as designed, if not higher. Incentives are offered for measures on a prescriptive menu of options, including replacement or repair of certain lighting sensors, air conditioning economizers, restoration of fan and pump variable frequency drives, operations set point strategies for supply air, temperature or duct pressure, chilled water and condenser water, operating schedules and boiler lockout. (Non-Res Comprehensive)

- Chiller Efficiency Program (CEP): The Chiller Efficiency Program offers incentives for all types of high efficiency chillers, from air-cooled to water-cooled chillers, with rebates up to $193 per ton and 100% of the incremental cost. CEP is designed to assist large offices, hotels, hospitals, medical facilities, institutional facilities, or any business with a chiller based air-conditioning system. (Non-Res Cooling)
- Refrigeration Program: The Refrigeration Program offers incentives to encourage retrofit measures and technologies to reduce energy consumption in supermarkets, liquor stores, convenience stores, restaurants, etc. Rebates are offered for commercial food appliances and refrigerator cases, ice machines, reach-in freezers/refrigerators, display cases, walk-in coolers, etc., as well as other refrigeration equipment. (Non-Res Refrigeration)
- Custom Performance Program (CPP): The Custom Performance Program offers cash incentives for energy saving measures not covered by existing prescriptive programs, such as equipment controls, industrial processes and other innovative energy saving strategies exceeding Title 24 or Industry Standards that are not included in other LADWP non-residential energy efficiency programs. Program offerings include incentives for equipment controls, CO monitoring systems, hotel guest room controls, variable frequency drives, cutting edge high-efficiency lighting technologies, and other innovative strategies. (Non-Res Cooling, Non-Res Comprehensive, Non-Res Motors, Non-Res Lighting, Non-Res Refrigeration)
- LADWP Facilities Upgrade: The LADWP Facilities Upgrade Program strives to improve energy and water efficiency throughout LADWP's facilities with energy efficiency upgrades in HVAC and lighting and water efficiency upgrades in plumbing fixtures, leak correction and landscaping improvements. It identifies and assists those LADWP facilities to reduce energy and water usage, which will result in a reduction in energy and water consumption and procurement expense for LADWP that would otherwise be borne by LADWP customers. (Non-Residential Cooling)
- Energy Efficiency Technical Assistance Program (EETAP): The Energy Efficiency Technical Assistance Program is a non-resource program that goes a step beyond the assistance offered by standard programs. EETAP was designed to assist commercial, industrial, and institutional customers in closing the gap between project development and implementation for more complex building systems. By providing incentives for project development services including energy auditing and project management, through this program, LADWP aims to help its customers to strategically plan, follow through and realize energy savings in the most cost-effective manner. (Non-Res Comprehensive)

Cross Cutting Programs Descriptions

- Codes, Standards & Ordinances (CSO): The Codes, Standards & Ordinances Program conducts advocacy activities to improve building, appliance and water use efficiency regulations. These activities include monitoring and active participation in code and standard development, compliance and enforcement support with our sister agency LA Department of Building and Safety, legislative review, sponsorship of local ordinances, and participation in policy efforts with other City departments, state agencies, and utilities. The goal of this program is to promote sustainability with regard to water and energy use. The principal audience includes the LA City Department of Building and Safety, LA City Planning, LA City Department of Public Works, and the LA City Council, which together develop and adopt codes and standards specific to Los Angeles that go beyond state and federal regulation. Other audiences include state agencies, which conduct periodic rulemakings to update energy efficiency and water conservation regulations and standards, and industry groups that conduct research and develop industry specific standards. (Non-Res Process)
- LADWP Emerging Technologies Program (ETP): The LADWP Emerging Technologies Program is designed to accelerate the introduction of innovative energy and water efficient technologies, applications, and analytical tools that are not yet widely adopted in California. By reducing both the performance uncertainties associated with new products, as well as institutional barriers, the ultimate goal of this Program is to increase the probability that promising energy and water efficiency technologies will be commercialized and adopted throughout Los Angeles.
- Program Outreach & Community Partnerships: The Program Outreach & Community Partnerships Program is an advocacy program that strives to improve customer awareness among "Hard-to-Reach" customers of LADWP on electric and natural gas energy efficiency and water conservation programs through community based outreach organizations. In FY 2013/14, this Program offers $45,000 grants to 17 local non-profit organizations that are selected to work in each Los Angeles Council District or on an at-large basis to provide community/customer awareness of LADWP's core energy efficiency and water conservation programs.

EM&V

LADWP has entered into an agreement with Navigant Consulting as of November 2013 for EM&V services of the entire energy efficiency portfolio within the next three years inclusive of programs in FY 11-12 through FY14-15 both existing and planned.

LADWP currently plans to execute EM&V activities as described below:

Program	Fiscal Year(s) Evaluated	EM&V Activities	Final EM&V Report to the CEC
Commercial Lighting Efficiency Offer (CLEO) –	FY11-12	Early 2014	March 2015

Program	Fiscal Year(s) Evaluated	EM&V Activities	Final EM&V Report to the CEC
Eval 1	and FY12-13		
Custom Performance Program (CPP) – Eval 1			
Small Business Direct Install Program			
Chiller Efficiency Program (CEP)			
Refrigeration Program (Commercial Grocery Related)			
Consumer Rebate Program (CRP)			
Million Trees LA			
Low Income Refrigerator Exchange Program	FY13-14	Late 2014	
Retrocommissioning (RCx) Express Program			
RETIRE Program			
Home Efficiency Improvement Program (HEIP)			
Codes & Standards (C&S) Program	FY12-13 and FY13-14		
Energy Upgrade California (EUCA) Program	FY13-14		
LADWP Facilities (Lighting & HVAC) Upgrade Program			
LAUSD Direct Install Program			
Energy Efficiency Technical Assistance Program (EETAP)			
Upstream HVAC Program	FY14-15	2015	March 2016
Savings By Design Program (Commercial New Con)			
California Advanced Home Program (CAHP)			
Commercial Lighting Efficiency Offer (CLEO) – Eval 2			
Custom Performance Program (CPP) – Eval 2			
Non Residential Custom Express Program (NRCEP)	FY15-16	2016	March 2017
Emerging Technologies Program (ETP)			
Program Outreach & Community Partnerships Program			

The total budget for EM&V over the 3 year contract period is $3,705,437 which is equivalent to 0.74% of the total portfolio budget on an annual basis.

FY12/13 Program Results

LADWP		Resource Savings Summary							Cost Summary		
Program Sector (Used in CEC Report)	Category	Units Installed	Net Demand Savings (kW)	Net Peak kW Savings	Gross Annual kWh Savings	Net Annual kWh Savings	Net Lifecycle kWh savings	Net Lifecycle GHG Reductions (Tons)	Utility Incentives Cost ($)	Utility Mktg, EM&V, and Admin Cost ($)	Total Utility Cost ($)
Appliances	Res Clothes Washers										
HVAC	Res Cooling	4,292	473	490	298,271	238,617	4,013,009	2,554	$364,021		$364,021
Appliances	Res Dishwashers										
Consumer Electronics	Res Electronics										
HVAC	Res Heating										
Lighting	Res Lighting	6,430	328	45	270,073	270,073	1,431,387	812	$68,740	$623,691	$692,431
Pool Pump	Res Pool Pump	817	45	45	262,226	180,936	1,809,357	1,026	$298,531		$298,531
Refrigeration	Res Refrigeration	22,088	1,293	1,293	12,741,148	11,024,553	123,596,165	69,761	$5,096,632	$490,637	$5,587,268
HVAC	Res Shell	1,449	196	213	1,968,901	1,937,426	54,151,442	32,569	$897,547	$5,459,289	$6,356,836
Water Heating	Res Water Heating										
Comprehensive	Res Comprehensive	3	311	311	1,929,440	1,924,695	11,554,264	6,640			
Process	Non-Res Cooking										
HVAC	Non-Res Cooling	31,405,113	1,008	1,008	33,427,813	24,249,743	275,585,223	176,204	$5,186,652	$6,602,937	$11,789,589
HVAC	Non-Res Heating										
Lighting	Non-Res Lighting	21,998,180	10,915	10,915	60,335,618	49,054,640	611,285,899	362,049	$12,347,594	$8,031,629	$20,379,223
Process	Non-Res Motors	139,445	15	15	125,464	87,825	1,317,375	843	$7,617	$19,396	$27,013
Process	Non-Res Pumps										
Refrigeration	Non-Res Refrigeration	20,613	152	184	1,465,731	1,165,382	4,661,877	2,598	$48,036	$221,661	$269,697
HVAC	Non-Res Shell										
Process	Non Res Process	3	8,340	8,340	67,687,546	67,687,546	1,340,669,191	747,185		$400,000	$400,000
Comprehensive	Non Res Comprehensive	11,478,104	590	590	18,323,325	13,655,673	150,871,399	90,487	$1,842,881	$2,245,110	$4,087,991
Other	Other										
SubTotal		65,076,537	23,664	23,448	198,835,556	171,477,109	2,580,946,588	1,492,728	$26,158,250	$24,094,350	$50,252,600
T&D	T&D										
Total		65,076,537	23,664	23,448	198,835,556	171,477,109	2,580,946,588	1,492,728	$26,158,250	$24,094,350	$50,252,600

EE Program Portfolio	TRC Test	**4.62**
	PAC Test	**5.52**

Excluding T&D

Merced Irrigation District (MID)

Utility Overview

For more than 75 years, the Merced Irrigation District (MID) has been in the business of generating wholesale electrical power. Fourteen years ago, MID determined the best way to leverage its investment in low-cost generating facilities, and to benefit Eastern Merced County communities was to develop its own electric delivery system. In 1996, MID created the Electric Services Department, and Foster Farms in Livingston, CA became the District's first electric customer. MID's electric distribution system has continued to grow with the addition of a 34-mile transmission loop and a sophisticated distribution system supporting customers in Eastern Merced County. MID sells electricity generated at its New Exchequer hydro power plant to PG&E under a long-term contract that expires in 2014.

Program Descriptions

MID-Electric Services implements the Public Benefit Programs, which promote, assist and educate all electric customers to participate and install energy efficiency measures.

Commercial Programs

- Commercial/Industrial Lighting Program**:** The Commercial Lighting Program is a turnkey lighting retrofit rebate program with a financial rebate menu for energy saving lighting equipment retrofits. The menu includes generous rebates for the replacement of T-12 lamps, Metal Halide Fixtures, Incandescent Lighting, and Exit Signs. The program also provides rebates for the addition of lighting controls including Photocells and Occupancy Sensors.
- Commercial/Industrial Mechanical Equipment Program**:** The Commercial/Industrial Retrofit Program is a turnkey mechanical equipment rebate program with a financial rebate menu for energy saving mechanical equipment retrofits. The menu includes generous rebates for the replacement of mechanical equipment with more energy efficiency equipment including: Refrigeration Equipment, Air Conditioning Equipment, Chillers, Motors, and Pumps. The program also provides rebates for Variable Frequency Drives on pumps, motors, and fans. Rebates are also available for Cooling Load Reduction measures to include Duct Sealing, Cool Roofs, Window Film, and Programmable Thermostats.
- Customized Commercial/Industrial Retrofit Program**:** The Customized/Industrial Retrofit Program enables qualifying commercial and industrial customers to apply for financial incentives on more specialized and comprehensive energy saving measures that do not fall under the Commercial Lighting Program or the Mechanical Equipment Retrofit Program. Applications for this program are evaluated and approved on an individual per application basis. Financial incentives for qualifying projects are paid for annual kilowatt hour savings in a one year period on approved projects.

Residential Programs:

- Residential Rebate Program**:** This program encourages residential customers to purchase EnergyStar® labeled products, home appliances and energy-efficient CFL bulbs.

- Appliance Recycle Program**:** This program allows residential customers to receive a $35.00 rebate for recycling qualified refrigerators or freezers.
- Residential Energy Assistance Program (CARE)**:** Since 2000, MID has been providing a 20 percent discount on monthly energy bills for Low-Income Families, and the Medical Baseline and Life-Support Program for those who depend on electrically powered medical equipment.

Complimentary Public Benefits Program

- Renewable Energy Programs:The Solar Incentive Program provides financial incentives to qualifying customers to buy down installed solar generation projects and to help offset the customer's investment in renewable energy generation. The rebate incentive is equal to the estimated performance of the installed solar system multiplied by $2.80/wattAC. The rebate incentive for commercial/industrial solar systems are capped at $70,000 (25kW) and $8,400 (3kW) for residential.

FY12/13 Program Results

Merced		Resource Savings Summary							Cost Summary		
Program Sector (Used in CEC Report)	Category	Units Installed	Net Demand Savings (kW)	Net Peak kW Savings	Gross Annual kWh Savings	Net Annual kWh Savings	Net Lifecycle kWh savings	Net Lifecycle GHG Reductions (Tons)	Utility Incentives Cost ($)	Utility Mktg, EM&V, and Admin Cost ($)	Total Utility Cost ($)
Appliances	Res Clothes Washers	58	8	8	3,596	3,057	36,679	20	$4,350		$4,350
HVAC	Res Cooling	22			257	174	3,164	2	$2,700		$2,700
Appliances	Res Dishwashers	12	1	1	368	295	3,242	2	$900		$900
Consumer Electronics	Res Electronics										
HVAC	Res Heating										
Lighting	Res Lighting	75	2		2,662	1,654	10,039	5	$146		$146
Pool Pump	Res Pool Pump										
Refrigeration	Res Refrigeration	47	1	1	5,687	4,265	59,714	32	$4,700		$4,700
HVAC	Res Shell										
Water Heating	Res Water Heating										
Comprehensive	Res Comprehensive										
Process	Non-Res Cooking										
HVAC	Non-Res Cooling	2			766,557	598,366	6,834,660	3,616	$99,589		$99,589
HVAC	Non-Res Heating										
Lighting	Non-Res Lighting	6			1,497,363	1,167,943	12,847,375	7,042	$118,785		$118,785
Process	Non-Res Motors										
Process	Non-Res Pumps										
Refrigeration	Non-Res Refrigeration	142	1	1	7,394	6,285	25,141	13	$1,422		$1,422
HVAC	Non-Res Shell										
Process	Non Res Process	1			11,440	8,923	98,155	52	$801		$801
Comprehensive	Non Res Comprehensive										
Other	Other										
SubTotal		365	13	12	2,295,325	1,790,962	19,918,168	10,785	$233,393		$233,393
T&D	T&D										
Total		365	13	12	2,295,325	1,790,962	19,918,168	10,785	$233,393		$233,393

EE Program Portfolio	TRC Test	**2.50**
	PAC Test	**8.50**

Excluding T&D

MODESTO IRRIGATION DISTRICT (MID)

At a Glance

- Established in 1887; electric service began in 1923
- Entire service area is Climate Zone 12
- 116,000 active retail service connections/customers served
- Retail electric sales by customer class are: 35% residential; 29% commercial; 31% industrial; 4% agricultural and pumping; 1% other (based on GWH)
- $4,729,400 budgeted for Energy Efficiency (EE) programs; $2,884,200 actually expended; under expenditure was due to lower customer participation (unused incentives); EE programs are funded by a combination of public benefits allocation and resource procurement; unused EE funds are not reallocated to other Public Benefits programs (return to the reserve fund)
- Load growth for 2013 was 0 % (based on GWH)
- Other - MID's mission is to deliver superior value to irrigation, electric and domestic water customers through teamwork, technology, and innovation

Utility Overview

MID electric sales have remained essentially "flat" over the past decade. The last major increase in energy sales occurred in 2004 (+3%) and significant reductions occurred in the recession years of 2008 and 2009 (-3% and -4%, respectively). Regarding capacity, MID hit an all time system peak in 2006 of 697 MW, whereas the peak for 2013 was only 653 MW. Clearly, the economy in the central valley continues to affect MID and its customers, which in turn impacts EE programs.

Another emerging trend in the MID service area is a significant increase in leased solar systems, which require little or no out-of-pocket cost for the homeowner. The motivation for installing these systems includes high utility rates and the perceived certainty of reduced future electric bills. Installation of these systems may dampen customer interest in pursuing EE projects.

Major Program Changes

In June of 2013, MID eliminated rebates for the conversion of T-12 to T-8 linear fluorescent lighting. Lighting rebates are still available for certain upgrades, but the base case is now first generation T-8 lighting; not T-12**.** With a substantial amount of T-12 lighting still in place in MID's service area, the remainder of 2013 showed a decrease in program energy savings and rebate expenditures for linear lighting upgrades.

Funding levels for energy efficiency programs have remained consistent with MID's energy saving goals. However, industrial customers are the largest single variable on program budgets and energy savings because they are large energy consumers and their energy projects tend to be substantial. In 2013, MID had moderate industrial participation in rebate programs, but based on customer discussions, we expect increased participation in 2014 and 2015.

Program Highlight

MID offered a pilot scale, direct install program to small commercial customers, which focused on lighting and refrigeration. It was very successful in delivering quantifiable energy savings to an underserved market segment – one that historically has had minimal interaction with utility rebate programs. This pilot successfully demonstrated to these customers that investment in energy efficiency can be cost effective, reduce energy cost, improve product presentation and has already increased their interest in other rebate programs offered by MID.

Program Descriptions

MID offers incentive programs that cover a wide variety of energy efficiency measures. The common theme for these programs is for customers to be MPowered. The correlation between these program offerings and the Sector /Category classifications used in the summary table of the E3 reporting tool are shown below:

Program Sector	Category	Corresponding MID Program(s) Offered*
Appliances	Res Clothes Washers	MPower Home
HVAC	Res Cooling	MPower Home; Weatherization
Appliances	Res Dishwashers	NA
Consumer Electronics	Res Electronics	Weatherization
HVAC	Res Heating	NA
Lighting	Res Lighting	Weatherization
Pool Pump	Res Pool Pump	MPower Home
Refrigeration	Res Refrigeration	Mpower Home; Weatherization
HVAC	Res Shell	MPower Home; Weatherization
Water Heating	Res Water Heating	MPower Home; Weatherization
Comprehensive	Res Comprehensive	MPower New Home
Process	Non-Res Cooking	MPower Custom
HVAC	Non-Res Cooling	MPower Business: Express & Custom
HVAC	Non-Res Heating	NA
Lighting	Non-Res Lighting	MPower Business: Express, Custom & New Construction
Process	Non-Res Motors	NA
Process	Non-Res Pumps	MPower Business: Custom
Refrigeration	Non-Res Refrigeration	MPower Business: Express & Custom
HVAC	Non-Res Shell	MPower Business: Custom & New Construction
Process	Non Res Process	MPower Business: Custom & New Construction
Comprehensive	Non Res Comprehensive	MPower Business: New Construction
Other	Other	MPower Business: Custom & New Construction

* see MID website (www.mid.org) for program details

EM&V

MID continued its ongoing efforts to obtain independent, third-party review of its EE programs. To that end, MID hired Power Services, Inc. (CVMP qualified) to perform M&V on selected 2013 projects - in conjunction with the rebate approval process - which included process cooling, lighting and compressed air. In 2013, MID also collaborated with Turlock and Merced Irrigation Districts and jointly hired Navigant Consulting to conduct EM&V on 2012 EE programs. MID's annual budget for EM&V work is $65,000 and completed studies can be found at: http://www.ncpa.com/current-issues/energy-efficiency-reports.html

Complimentary Public Benefit Programs

The formalization of Public Benefits programs came about through AB1890, which defined four broad categories of public benefits programs, established a minimum funding level and codified the concept via Public Utilities Code section 385. While Energy Efficiency is the focus of this report, MID's activities in the other public benefits categories are briefly noted here:

- Renewable Energy Programs: MID's renewable energy programs are no longer funded from public benefits. Rather, they are conducted in accord with subsequent legislative or regulatory mandates, such as the Renewable Portfolio Standard (RPS) and the California Solar Initiative (CSI/SB1). To date, MID has procured enough renewable energy to satisfy the renewable energy trajectory that was established by the CEC for the three compliance periods.
- Low-Income Programs: MID's low income programs are comprised of weatherization, CARE rate discount and educational outreach. Energy savings from the weatherization program are included in the results for the SB1037 report. Customer demand for weatherization exceeds the annual amount budget, and the rate discount represents a substantial portion of the total public benefits funding allocation. However, MID continues to facilitate new partnerships with other organizations to increase outreach and provide additional weatherization services to low-income customers.
- Research, Development and Demonstration: MID remains open to partner with other utilities or agencies in opportunities to leverage the limited funding it can allocate to this program area.

FY12/13 Program Results

Modesto		Resource Savings Summary							Cost Summary		
Program Sector (Used in CEC Report)	Category	Units Installed	Net Demand Savings (kW)	Net Peak kW Savings	Gross Annual kWh Savings	Net Annual kWh Savings	Net Lifecycle kWh savings	Net Lifecycle GHG Reductions (Tons)	Utility Incentives Cost ($)	Utility Mktg, EM&V, and Admin Cost ($)	Total Utility Cost ($)
Appliances	Res Clothes Washers	402	54	54	24,924	21,185	254,225	140	$14,070	$5,956	$20,026
HVAC	Res Cooling	379	88	67	84,496	70,400	1,359,954	838	$92,540	$59,288	$151,828
Appliances	Res Dishwashers										
Consumer Electronics	Res Electronics	134			10,050	10,050	150,750	83	$11,391	$4,097	$15,487
HVAC	Res Heating										
Lighting	Res Lighting	3,532	153	19	133,601	133,601	854,809	456	$40,486	$19,455	$59,941
Pool Pump	Res Pool Pump	81	4	4	26,001	17,941	179,407	97	$16,200	$3,889	$20,089
Refrigeration	Res Refrigeration	294	23	23	267,055	207,148	2,349,959	1,275	$150,702	$56,525	$207,227
HVAC	Res Shell	852	104	104	162,202	107,523	1,569,262	960	$106,390	$52,385	$158,775
Water Heating	Res Water Heating	77	1		9,978	8,758	112,196	60	$1,493	$2,365	$3,857
Comprehensive	Res Comprehensive	105			183,547	146,838	2,202,564	1,108	$52,500	$34,981	$87,481
Process	Non-Res Cooking										
HVAC	Non-Res Cooling	344	153	112	794,590	635,672	9,535,074	5,307	$90,938	$121,855	$212,793
HVAC	Non-Res Heating										
Lighting	Non-Res Lighting	280,601	770	625	5,019,350	4,254,459	44,594,433	24,606	$328,842	$591,504	$920,347
Process	Non-Res Motors										
Process	Non-Res Pumps	2	15	15	37,200	29,760	446,400	245	$4,725	$5,348	$10,073
Refrigeration	Non-Res Refrigeration	461,090	324	275	3,209,924	2,704,500	31,873,935	16,804	$329,132	$348,488	$677,620
HVAC	Non-Res Shell	1,785	245	3	195,727	156,582	2,227,412	1,239	$129,878	$28,854	$158,731
Process	Non Res Process	5	109	108	903,038	722,430	10,836,456	5,763	$62,518	$117,375	$179,893
Comprehensive	Non Res Comprehensive										
Other	Other										
SubTotal		749,683	2,042	1,410	11,061,683	9,226,846	108,546,837	58,982	$1,431,804	$1,452,364	$2,884,168
T&D	T&D										
Total		749,683	2,042	1,410	11,061,683	9,226,846	108,546,837	58,982	$1,431,804	$1,452,364	$2,884,168

EE Program Portfolio	TRC Test	**1.26**
	PAC Test	**3.77**

MORENO VALLEY UTILITY (MVU)

At a Glance

- Established in 2001, serving customers since 2004
- MVU has the potential to expand its customer base significantly in the next 10 years.
- Serves over 5,700 customers.
- Residential customers comprise the majority of the energy customers, however, residential retail sales account for about 31% of total sales.
- Peak Demand: 32.5 megawatts
- Annual Energy Use: 124.6 gigawatt-hours

Utility Overview

The City of Moreno Valley incorporated in 1984. Moreno Valley Utility (MVU) began serving its first customers in February 2004. All customers' facilities are ten years old or less, occupying buildings that meet 2003 or 2008 Title 24 requirements. This results in low energy efficiency potential.

Major Program Changes

- Residential and Small Commercial Energy Efficiency Programs: All homes and businesses within the service territory are less than ten years old, which make it difficult to offer building envelope upgrades. MVU is developing innovative programs to encourage energy efficiency. These include direct-to-customer CFL Giveaways, and Direct Install programs.
- Assembly Bill 811: The City of Moreno Valley has signed an Implementation Agreement with the Western Riverside Council of Governments (WRCOG) in support of Property Assessed Clean Energy (PACE) Financing for Renewable Energy Distributed Generation and Energy Efficiency Improvements. WRCOG began implementing programs for residential and commercial projects in late 2011. The program has been very successful so far for member agencies.
- Direct Install Program: Working with SCPPA vetted contractors, MVU has contracted with RHA to perform a direct install program on small commercial business.
- Highland Fairview Corporate Park: Highland Fairview developed a 1.8 million square foot distribution warehouse which was approved for LEED gold certification in December 2012. MVU is continuing to work with Highland Fairview in maximizing energy efficiency on all their future projects in this area.

Program Highlight

- Moreno Valley has contracted with Ice Energy to install Ice Bear TES units on commercial customers' air conditioners. During the reporting period, two units were installed on a commercial retail building. In general, thermal energy storage is growing increasingly popular for public power utilities located in areas that have high summer peak demand usage, such as the City of Moreno Valley. The product is designed to reduce peak electrical demand by utilizing electric energy to produce ice at night during off-peak hours and then use the ice for cooling during the day.

Program Descriptions

Moreno Valley Utility provides safe, reliable, and economical public electric service with a focus on customer needs, infrastructure enhancement, growth and responsible resource management:

- Energy Efficiency Program: Moreno Valley Electric Utility offers incentives to developers for buildings that exceed California Title 24 requirements by more than 10 percent. The utility also offers rebates for existing commercial customers that retrofit above Title 24 requirements.
- Energy Audits**:** Provides customers with a variety of recommendations for reducing energy consumption, when requested. Audits can be provided by community organizations that increase awareness of existing energy efficiency programs.
- Residential Energy Efficiency Programs: direct-to-customer CFL Giveaways Outreach Programs: Through a contract, Automated Energy provides medium to large sized commercial customers with detailed usage data to help them manage their energy consumption.

EM&V

Engineering analysis programs (eg, DOE-2) are the basis for energy savings and incentive calculations.

Complementary Public Benefits Programs:

- Renewable Energy Programs: In support of Senate Bill 1, the City of Moreno Valley has a generous solar rebate program. For the FY 2012/2013 the utility provided approximately $250,000 in rebates for 24 residential customers. The rebate for the fiscal year was $2.25/watt and the program installed almost 132kW of generation, estimated to generate over 207,439 kWh annually.

CITY OF NEEDLES

At a Glance

- Established in 1982.
- 2,991 meters, serving 2,559 residential customers, 469 commercial customers, 37 commercial demand customers, and 4 master metered and 1 municipal customers.
- Total energy sales are 54,870,481 kilowatt-hours (FY 2012-13); 47 percent is residential sales, 53 percent is commercial and the remainder is master metered and municipal sales.
- Peak demand is 19.1 megawatts
- 2.55% load growth between FY11/12 and FY12/13

Utility Overview

Needles is located in Western Area Power Authority Administration control area and is not part of the CAISO grid. Approximately 48% of Needles power comes from hydroelectric resources. Needles is an extreme summer peaking utility. Summer temperatures (late June through early September) can reach 130 degrees, and daytime temperatures range from minimum temperatures in the mid-90s with afternoon temperatures between 100 and 120 degrees.

The City of Needles' energy efficiency programs are designed to reduce the summer air conditioning loads and increase the annual load factor. In FY 2012-13, the City of Needles' energy efficiency programs reduced peak demand by 185 kilowatts and 185,159 kilowatt-hours Western Area Power Authority approved California 2013 Minimum Investment Report ("MIR") Annual Update. *Note: T*he kilowatt savings are derived from the number of hours that air conditioners are used in Needles (essentially all hours when temperature is greater than 90 degrees – April through October).

Program Highlight

Needles' load factor is less than 37 percent. The Needles City Council approved Resolution No. 7-24-07 1 on July 24, 2007 adopting the provisions of California Assembly Bill 2021 – *Public Utilities Energy Efficiency.* The budget amount of $150,000.00 adopted for the program was based upon the Rocky Mountain Institute's analysis *" to identify all potentially cost-effective electricity efficiency savings and establish annual targets for energy efficiency savings and demand reduction for the next 10-year period"*

Program Descriptions

The City of Needles will continue to budget $150,000 annually for the existing energy efficiency programs and will allocate additional funding if customer demand is greater than the program allocation**.** The $150,000.00 is funded by ratepayers via a line item on their electric bill (*Mandated Conservation* at $0.0035/kWh). The prerequisite for eligibility for the energy efficiency program (City pays for 14 or higher SEER rated air conditioners, evaporative coolers and refrigerators) is that the rate payer's apply for weatherization through the San Bernardino Community Action Coalition ("HEAP").

The City augments its Mandated Conservation funding with 25% landlord participation on equipment cost where installation is a leasehold improvement to landlord's property. Tenant and landlord must agree to apply for weatherization through San Bernardino Community Action Partnership ("SBCAP") which organization means tests the tenant for eligibility for weatherization. If SBCAP approves the tenant for weatherization, the tenant is approved for a new air conditioner.

- Air Conditioning Replacement Program: Air conditioner, evaporative cooler, refrigerator replacement with SEER 14 or higher with proof of home weatherization completed.
- Air Conditioning Rebate Program: Provides installation support and financial rebates to facilitate upgrades to more efficient lighting and air conditioning systems.
- Get a Tree for Free: Provides rebate of $25.00 per tree (plus sales tax) to have residents purchase up to 3 trees each at the local nursery. Once they bring their sales slip in and Code Enforcement verifies that the trees have been planted on the appropriate elevation of the home to optimize shade value, the customer's electric bill will be credited for the amount that the resident paid for the tree(s).

The City of Needles also adopted a demand reduction program target of 0.2 MW for FY 2013-2014.

Complementary Public Benefits Programs

- Renewable Energy Programs: Needles budgeted $50,000 for solar programs in FY 2012/13.

FY12/13 Program Results

Needles		Resource Savings Summary							Cost Summary		
Program Sector (Used in CEC Report)	Category	Units Installed	Net Demand Savings (kW)	Net Peak kW Savings	Gross Annual kWh Savings	Net Annual kWh Savings	Net Lifecycle kWh savings	Net Lifecycle GHG Reductions (Tons)	Utility Incentives Cost ($)	Utility Mktg, EM&V, and Admin Cost ($)	Total Utility Cost ($)
Appliances	Res Clothes Washers										
HVAC	Res Cooling	32	12	27	24,960	24,960	449,280	284	$144,000	$6,000	$150,000
Appliances	Res Dishwashers										
Consumer Electronics	Res Electronics										
HVAC	Res Heating										
Lighting	Res Lighting										
Pool Pump	Res Pool Pump										
Refrigeration	Res Refrigeration										
HVAC	Res Shell										
Water Heating	Res Water Heating										
Comprehensive	Res Comprehensive										
Process	Non-Res Cooking										
HVAC	Non-Res Cooling										
HVAC	Non-Res Heating										
Lighting	Non-Res Lighting										
Process	Non-Res Motors										
Process	Non-Res Pumps										
Refrigeration	Non-Res Refrigeration										
HVAC	Non-Res Shell										
Process	Non Res Process										
Comprehensive	Non Res Comprehensive										
Other	Other										
SubTotal		32	12	27	24,960	24,960	449,280	284	$144,000	$6,000	$150,000
T&D	T&D										
Total		32	12	27	24,960	24,960	449,280	284	$144,000	$6,000	$150,000

EE Program Portfolio	TRC Test	**0.36**
	PAC Test	**0.50**

CITY OF PALO ALTO UTILITIES (CPAU)

At a Glance

- Established:1896 and is the only municipal utility providing electric, natural gas, commercial fiber optics, waste water treatment and water services to their customers.
- California Climate Zone: 4.
- Meters: 29,299 electric and 13,659 gas.
- Percentage of retail sales by customer class:
    - Residential 20%
    - Commercial 56%
    - Industrial 24%
- Customer base: 90% residential, 9% commercial, and less than 1% industrial.
- Energy efficiency (EE) program spending:
    - Budgeted (FY2013): $5.16 million ($3.58 million for electric and $1.58 million for gas).
    - Actual (FY2013): $3.79 million ($3.16 million for electric and $0.63 million for gas).
    - Source of funding: Percent of sales revenue set aside for public benefit plus supply funds.
- Projected energy efficiency program electric goal (FY2013): 0.70% of actual total sales.
- Projected load growth (by 2020): 3.3% for electric and 1.9% for gas.

Utility Overview

City of Palo Alto Utilities (CPAU) has implemented a variety of energy efficiency programs since the 1970s. However, in order to formalize and institutionalize energy efficiency programs for the community, in 1996 the City Council approved a policy to fund electric, gas and water efficiency programs at around one percent of revenues per year. In 1998, in response to California's landmark energy legislation (AB 1890), CPAU established the Electric Public Benefits (PB) Program and increased the Electric Fund PB program budget to 2.85 percent of projected annual revenue, supplemented by a one-time infusion from the Electric Supply purchasing budget during the 2001 energy crisis. Since 2008, CPAU's annual electric efficiency program budget has been supplemented with supply funds in order to meet the state's mandate that publicly owned electric utilities, in procuring energy, shall first acquire all available energy efficiency and demand reduction resources that are cost effective, reliable, and feasible.

Electric Efficiency Goals and Achievements

In April 2007, the Palo Alto City Council approved CPAU's first Ten-year Energy Efficiency Portfolio Plan, which increased efficiency budgets by 50 percent for electric and 100 percent for natural gas by adding funding from Electric and Gas Supply budgets. The Plan also included commensurate and aggressive energy efficiency targets.

The updated Ten-Year Electric Efficiency Goals adopted by the City Council in 2010 set a cumulative goal to reduce electric consumption of 7.2% through utility programs between 2011 and 2020, with a gradual

ramp-up of annual electric savings target from 0.60% in 2011 to 0.8% in 2015. This represents a doubling of the prior Ten-Year Electric Efficiency Goals adopted in 2007.

Increasingly stringent statewide building codes and standards have also led to substantial energy savings but these regulatory savings are not attributable to, or currently reportable by, municipal utilities including CPAU. The City's cumulative electric savings since 2006, as a result of both EE program achievements and changes to appliance and building codes and standards, will be 8%, of the projected load by 2023. The current Ten-year Energy Efficiency Plan goal, adopted by the Palo Alto City Council in December 2012, is to save a cumulative 4.8% of the City's projected electric usage between 2014 and 2023.

Over the past six years, CPAU has exceeded its annual electric savings goals each year. In Fiscal Year (FY) 2012, electric savings achieved was twice that of the savings goal; this was due to a major custom EE project implemented at a large commercial customer site during the year which will not likely be replicated in the future.

In Fiscal Year (FY) 2013, electric savings attributed to utility programs was 0.85% of the total annual electric sales. This excludes electric savings from the municipal streetlight project that replaced High Pressure Sodium (HPS) streetlights with Light-Emitting Diode (LED) streetlights, which resulted in additional annual electric savings of 864,00 kWh (this savings was categorized as T&D savings in the E3 model.)

Table 1: Electric Savings Versus Goals

Year	Annual Savings Goal (as % of electric sales)	Savings Achieved
FY 2008	0.25%	0.44%
FY 2009	0.28%	0.46%
FY 2010	0.31%	0.53%
FY 2011	0.60%	0.68%
FY 2012	0.65%	1.31%
FY 2013	0.70%	0.85%

Major Program Changes

The overall electric efficiency savings in FY 2013 are lower than that in FY 2012, during which a single large project in the Commercial and Industrial Energy Efficiency Program (see description below) resulted in annual savings of over 3,150,000 kWh. The Laboratory Energy Efficiency Program, which reported no EE savings in FY 2012, delivered substantial energy savings in FY 2013. As lighting standards become more stringent, energy savings from lighting retrofits decline, as evidenced by a 45% reduction in savings from the RightLights+ program.

The cost-effectiveness of the electric efficiency portfolio, as measured by the total resource cost (TRC) ratio, has declined from 2.45 in FY 2012 to 0.85 in FY 2013. The single custom EE project implemented in FY 2012 that contributed to 40% of the total electric efficiency portfolio's savings was very highly cost effective, thereby boosting the overall EE portfolio's cost effectiveness. Within its electric efficiency portfolio, CPAU has continued to support many non-cost effective measures for low-income residents and hard-to-reach commercial customers. Other program measures such as high efficiency clothes washer and faucet aerators result in gas and water savings which are not captured in the TRC calculation.

Program Descriptions

Commercial Programs

- **C**ommercial Advantage Program (CAP)**:** Incentives offered to commercial customers for investments in efficiency lighting, motors, HVAC and custom projects that target peak demand and energy reductions. In FY 2013, CAP recorded gross annual electric savings of 2,981,556 kWh and annual gas savings of 8,709 Therms.
- Commercial and Industrial Energy Efficiency Program (CIEEP): managed by Enovity, Inc. is in its third year. This program assists commercial and industrial customers by helping them evaluate and implement energy efficiency projects. In FY 2013, CIEEP recorded gross annual electric savings of 1,469,400 kWh and annual gas savings of 1,980 Therms.
- Laboratory Energy Efficiency Program (LEEP): managed by Willdan Energy Solutions (WES) is also in its third year. This program assists customers with at least 50% lab space in their facilities to evaluate and implement energy efficiency measures that resulted energy savings. In FY 2013, LEEP recorded gross annual electric savings of 1,370,382 kWh and annual gas savings of 216,573 Therms.
- RightLights+: is an ongoing program focusing on energy efficiency savings from lighting retrofit. In FY 2013, RightLights+ recorded gross annual electric savings of 1,875,934 kWh.
- Hospitality: helps hotels implement energy efficiency measures such as Key Card Entry, LED lighting and HVAC equipment improvement. In FY 2013, Hospitality recorded gross annual electric savings of 37,656 kWh and an annual gas savings of 4,621 Therms.
- Keep Your Cool: program focuses on helping commercial customers implement energy efficient refrigeration measures. In FY 2013, Keep Your Cool recorded gross annual electric savings of 158,795 kWh.
- SBW**:** Consulting installs vending and cooling misers, as well as water efficient faucet aerators, showerheads and pre-rinse spray valves free of charge to businesses in Palo Alto. In FY 2013, SBW installed 715 units of these hardware at customer sites totaling an annual electric savings of 412,173 kWh and an annual gas savings of 48,645 Therms.
- Energy & Resource Solutions (ERS): Comprehensive technical assistance for commercial customers to identify efficiency measures to facilitate peak demand reduction and energy savings.
- Demand Response: CPAU's current demand response program is voluntary with a few key customers providing 3-5 megawatts of peak reduction upon request. There is no cost for program

participants. CPAU also owns 4 natural gas-fired generation units to add five megawatts of demand during Stage 3 alerts. CPAU is reviewing other Demand Reduction program options for the near future.

Residential Programs

- Smart Energy Program: is a comprehensive energy efficiency incentive program for residential customers to promote shell improvements, and high efficiency HVAC equipment, pool pumps, appliances and lighting. In FY 2013, Smart Energy recorded annual electric savings of 201,800 kWh and annual gas savings of 13,904 Therms.
- Residential Low-Income Assistance Program (REAP): provides weatherization and equipment replacement services to low-income residents. In FY 2013, REAP recorded annual electric savings of 77,168 kWh and annual gas savings of 6,549 Therms.
- Home Energy Report: provides Palo Alto residents with individualized reports comparing their home energy use with neighbors in similarly sized homes. Approximately 18,000 residents receive the Home Energy Report by email once every every quarter. In FY 2013, Home Energy Report recorded annual electric savings of 1,071,021 kWh and annual gas savings of 127,417Therms.
- New Residential Construction program: provides incentives to customers who build new homes which save 20% more energy than required by California Title 24 requirements. In FY 2013, the New Residential Construction program recorded annual electric savings of 1,266 kWh.

Community Programs

- Online Audits and Education: CPAU offers free residential online audits and other energy conservation and efficiency education programs to target groups in the community. Activities include hosting commercial Facility Manager Network meetings, residential energy workshops, participation in Chamber of Commerce meetings, neighborhood association events, and local fairs and special events.
- Public School Program: provides annual grants of $50,000 to the Palo Alto Public Schools (17 schools with 10,000 students total) to support teacher training programs and the development of curriculums and education projects that promote energy and water efficiency. CPAU participates in monthly sustainability committee meetings and, through the Utilities Communication section makes educational presentations to classes on energy efficiency, renewable energy, and safety.

Program Results

The electric energy savings from EE programs are slightly less than the energy savings in FY12 even after removing the one time big project savings occurred last year. This reflects the fact that most of the "low hanging fruit" has been picked. For example, most commercial customers have by now reduced energy from lighting by replacing T12s with T8s. The EE programs are now moving into the territory of harder to achieve means of energy savings. Perhaps technological advancements and cost reductions in energy saving products will unleash more lower-cost energy savings in the future, but currently the utility needs to spend more money to get equal or slightly less energy efficiency than in the past . It is for this reason that

we expect a steady tapering off of energy savings. Table 2 below shows the CPAU's EE program results for FY13.

In FY 2013, CPAU adopted a carbon neutral electric supply portfolio, i.e. there is no longer any greenhouse gas (GHG) emissions associated with customer's electric usage. Therefore, there will also no longer be any GHG reductions associated with electric efficiency savings, as shown in Table 4 and Table 5 below.

Table 2: Resource Savings Summary for FY 2013 by EE Programs

	Units Installed	Gross Annual Energy Savings (kWh)	Gross Lifecycle Energy Savings (kWh)	Net Demand Savings (kW)	Net Annual Energy Savings (kWh)	Net Lifecycle Energy Savings (kWh)	Program Adminr Cost	Total Resource Cost
TOTAL EE PORTFOLIO	2,093,243	10,064,813	91,766,176	998	8,938,863	75,650,417	1.7	0.8
COM-Com. Advantage	2,069,324	2,981,556	9,529,334	349	2,522,000	7,990,404	1.4	0.7
COM-Right Lights+	188	1,875,934	25,996,440	358	1,556,111	21,501,805	1.6	1.1
RES-Home Energy Report	17,500	1,071,021	1,071,021		1,071,021	1,071,021	0.4	0.4
RES-REAP Low Income	1,871	93,464	649,370	6	77,168	526,349	0.2	0.2
RES-Smart Energy	2,675	272,134	3,320,578	95	201,800	2,500,129	2.0	0.9
GEN-Gen T&D	1	864,382	17,287,640		864,382	17,287,640	14.1	0.6
COM-SCVWD	6	546	6,552		437	5,242	0.2	0.1
COM-Enovity	17	1,469,400	12,091,000	88	1,259,029	10,012,800	1.7	1.0
COM-Keep Your Cool	810	158,795	1,842,14	13	134,976	1,565,821	1.7	1.6

			3					
COM-Hospitality	126	37,656	457,461	6	31,263	380,471	2.0	2.0
COM-Willdan	11	1,370,382	17,865,944	84	877,044	11,434,204	1.5	0.7
COM-SBW	715	412,173	1,648,692		343,633	1,374,531	3.1	3.0

Table 3: Customer-Side Renewable Energy Program Achievements (PV Partners and SWH) Versus Goals

Fiscal Year	Program	Renewable Goals	Number of Systems; Generation Achieved
FY2000-2008	PV	1,000 kW	303 Systems; 1,197 kW
	SWH	0 Systems	0 Systems
FY2009	PV	650 kW	52 Systems; 1,190 kW
	SWH	30 Systems	7 Systems
FY2010	PV	650 kW	54 Systems; 219 kW
	SWH	30 Systems	17 Systems
FY2011	PV	650 kW	47 Systems; 485 kW
	SWH	30 Systems	10 Systems
FY 2012	PV	650 kW	47 Systems; 432 kW
	SWH	30 Systems	7 Systems
FY2013	PV	650 kW	46 Systems; 247 kW
	SWH	30 Systems	1 System
Total to Date	PV	4,250 kW	549 Systems; 3,770kW since FY2000

EM&V

Palo Alto has contracted with Navigant Consulting to conduct annual Evaluation, Measurement & Verification (EM&V) studies each year since FY 2009. Each year, impact analyses are completed on the programs with the greatest impact on total savings and/or the most unusual or potentially unrealized savings. In addition, process evaluations are occasionally conducted to examine the effectiveness of a program to help identify opportunities for process improvement, marketing and/or outreach.

For FY 2013, Navigant has undertaken EM&V for the CAP program, the Enovity program, the Hospitality program, SBW's direct install program, and the REAP program. A final EM&V report is expected to be available by March 2014.

Complementary Public Benefits Programs

- Renewable Energy Programs: CPAU offers rebate programs for customers who install both solar electric or photovoltaic (PV) and solar water heating (SWH) systems. Both programs are governed by state law in regard to development, implementation and administration. These customer-side generation systems are not included in the utility's Renewable Portfolio Standard (RPS) supply requirements. The PV rebate program started in fiscal year 2000 and funding was increased for FY2008 as required by CA Senate Bill 1(2006). CPAU's goal is 7,000 kW by 2017. The SWH program started in fiscal year 2009 with a goal of 300 systems by 2017. The SWH program has had low participation due to low natural gas prices, few solar water heating installers and the lack of available financing. Table 5 below shows the annual installations compared to the program goals.

FY12/13 Program Results

Palo Alto		Resource Savings Summary							Cost Summary		
Program Sector (Used in CEC Report)	Category	Units Installed	Net Demand Savings (kW)	Net Peak kW Savings	Gross Annual kWh Savings	Net Annual kWh Savings	Net Lifecycle kWh savings	Net Lifecycle GHG Reductions (Tons)	Utility Incentives Cost ($)	Utility Mktg, EM&V, and Admin Cost ($)	Total Utility Cost ($)
Appliances	Res Clothes Washers	297	38	38	49,812	39,850	478,195		$7,405	$1,168	$8,573
HVAC	Res Cooling	7			3,019	2,858	51,443		$3,411	$310	$3,721
Appliances	Res Dishwashers	20	2	2	800	680	7,480		$800	$18	$818
Consumer Electronics	Res Electronics										
HVAC	Res Heating										
Lighting	Res Lighting	3,016	37	16	197,092	157,573	1,681,101		$34,739	$22,870	$57,608
Pool Pump	Res Pool Pump	14	1	1	18,354	12,848	128,478		$2,800	$375	$3,175
Refrigeration	Res Refrigeration	266	10	10	76,137	50,591	420,388		$22,770	$2,492	$25,262
HVAC	Res Shell	515	13	13	20,344	14,537	259,137		$26,127	$6,218	$32,345
Water Heating	Res Water Heating										
Comprehensive	Res Comprehensive	17,911			1,071,062	1,071,053	1,071,276		$1,022	$92,440	$93,462
Process	Non-Res Cooking										
HVAC	Non-Res Cooling	18	167	167	1,895,241	1,315,750	16,652,205		$380,260	$526,543	$906,803
HVAC	Non-Res Heating	3	7	7	42,277	35,352	357,077		$8,664	$13,390	$22,054
Lighting	Non-Res Lighting	3,102	699	496	2,787,465	2,317,581	27,631,755		$264,445	$439,475	$703,920
Process	Non-Res Motors										
Process	Non-Res Pumps										
Refrigeration	Non-Res Refrigeration	860	13	13	220,064	180,340	1,747,279		$44,036	$5,862	$49,898
HVAC	Non-Res Shell	5	10	10	463,200	389,206	2,749,220		$46,320	$99,830	$146,150
Process	Non Res Process	9	1	1	4,164	3,331	51,552		$6,450	$129	$6,579
Comprehensive	Non Res Comprehensive	2,066,524			2,526,621	2,170,633	3,826,993		$266,515	$95,095	$361,610
Water Heating	Non-Res Water Heating	676			367,411	312,299	1,249,197		$7,014	$3,677	$10,691
SubTotal		2,093,242	998	775	9,743,062	8,074,481	58,362,777		$1,122,777	$1,309,890	$2,432,668
T&D	T&D	1			864,382	864,382	17,287,640			$38,450	$38,450
Total		2,093,243	998	775	10,607,444	8,938,863	75,650,417		$1,122,777	$1,348,340	$2,471,117

EE Program Portfolio	TRC Test	**0.85**
	PAC Test	**1.51**

Excluding T&D

PASADENA WATER & POWER (PWP)

At a Glance

- Established: 1906
- Climate Zone: 9
- Number of retail customer connections: 64,931 (serving over 137,000 residents, per 2010 Census)
- Retail sales: 1,127 GWh ($183,549,000)
    - Residential connections: 56,393 (29.4 % of retail sales)
    - Commercial and Industrial connections: 8,533 (61.1 % of retail sales)
    - 1.18 % increase in sales volume versus FY2011/12
- Budget for energy efficiency programs:
    - $2,978,030 expended (includes administration and marketing costs)
    - Funding source: Public Benefits Charge ("PBC"), as authorized under Public Utilities Code 385(a), funds all AB1890 programs (current PBC revenue rate = $0.00573/kWh)
    - Unused efficiency program funds are typically reserved for specific customer projects within the efficiency program category
    - Expended 1.31% of FY12/13 retail electric sales revenues on energy efficiency rebates.
    - Energy Efficiency programs represent approximately 40% of Pasadena's Public Benefit expenditures, solar incentives represent 40%, and income qualified represents 10%.

Utility Overview

Trends in the utility and the local community which impact energy efficiency programs include:

- Weak economic growth made many non-residential customers unwilling to invest in retrofits
- High potential and strong demand for utility-sponsored direct equipment installations
- Customers are buying residential properties and investing in efficiency upgrades

Major Program Changes

Major changes the utility made to programs over the past year include:

- Increased budget for small business direct install ("WeDIP") program, to serve more customers
- No changes made to residential program incentives; but there was an increase in customer participation in most programs, particularly "Efficient Cooling" program

Major changes that affected savings amount:

- Increased participation in WeDIP as new program implemented and vendor's door-to-door marketing efforts expanded
- Decreased participation in EEP -- most key accounts have done the easiest retrofits

Program Results and Highlights

Summary efficiency program energy savings results by customer type (see Tables 1 and 2 below):

Residential: 4,772 MWh Non-Residential: 12,373 MWh Total: 17,145 MWh

Table 1: PWP Energy Efficiency Program Results (by program)

	Units Installed	Net Coincident Peak Savings (kW)	Net Annual Energy Savings (kWh)	Utility Incentives ($)	Customer Incentives ($)
TOTAL EE PORTFOLIO	**159,880**	**2,118**	**17,144,909**	**$ 2,434,082**	**$ 1,531,650**
Energy Star	633	15	81,561	$ 79,997	$ 79,997
Efficient Cooling	884	133	149,475	$ 71,272	$ 71,272
Pool Pumps	52	4	16,692	$ 11,250	$ 11,250
COOL Trees	140	34	28,210	$ 5,618	$ 5,618
Refrigerator Recycling	166	46	210,986	$ 14,600	
Refrigerator Exchage	594	89	413,424	$ 171,969	
WeDIP - Water & Energy Direct Install Program	284	152	900,381	$ 312,978	
EEP - Energy Efficiency Partnering	54	1,107	7,813,564	$ 1,294,225	$ 1,294,225
Purchases	6,077	48	163,307	$ 64,684	
Audits	649	27	127,160	$ 30,201	
Home Energy Reports	150,000		3,560,000	$ 308,000	
Water EE	1		461,913	$ 69,287	$ 69,287
HECW - H2O Rebate	344	55	21,328	$ 0	$ 0
T&D	1	28	248,215	$ 0	
Codes and Standards	NA	378	2,948,695		

Energy efficiency program with the greatest impacts:

- Refrigerator Exchange (413,424 kWh savings): Income-qualified program to exchange working, low efficiency refrigerators with new high efficiency refrigerators; no cost to participant.
- Home Energy Reports (3,560,000 kWh savings): Six printed reports mailed to 25,000 customers, reminding them of efficiency and rankings to encourage reductions in their energy usage; savings are tracked from actual metered data; no cost to participant.
- WeDIP (900,381 kWh savings): Small businesses direct install program to conduct retrofits; no cost to participant.
- EEP (7,813,564 kWh savings): Commercial efficiency incentive program that encourages energy saving and load reduction projects.

Program Descriptions

- Res Lighting
  - *Energy Star® Home Incentives Program* provided prescriptive rebates on efficient refrigerators and light fixtures; promoted no-cost refrigerator/freezer recycling services
  - *Lighting Distribution Program* provides vouchers for efficient light bulbs upon request as well as a reward for participating in income-qualified and refrigerator recycling programs
- Res Cooling
  - *Efficient Cooling Home Incentive Program* provided prescriptive rebates for the installation of efficient air conditioning, skylights/windows and sun shade screens

- Non-res Lighting and Non-Res Cooling
    - *Energy Efficiency Partnering Program ("EEP")* – custom incentive program
    - *Water & Energy Direct Install Program ("WeDIP")* – no-cost audits and direct installs
- Non-Res Pumps
    - PWP's water efficiency programs saved 37.8 million gallons, resulting in 461,913 kWh annual water distribution system energy savings (shown on the E3 as "Non-Res Pumps"); PWP's PBC Fund provided $69,287 rebate to PWP's Water Conservation Fund for the value of these savings.
- T&D Efficiency Gains
    - Distribution system upgrades, including the conversion from 4kV to 17 kV, yielded energy savings of 248 MWh
- Codes and Standards-
    - PWP has included 2.9 GWH and 378 kW of energy and peak demand savings that are occurring in our service territory due to the State building codes and appliance standards that are encouraged and enforced by the City's Building Department.
    - Pasadena's activities also include monitoring and participation in code and standard development; legislative review, and participation in policy efforts with statewide agencies and utilities; educate customers on current codes and standards at community workshops, events, during site audits and in newsletters; and promote sustainability with regard to water and energy.

EM&V

PWP expended $89,600 on energy efficiency program EM&V to justify program design, expenditures and verify results:

- Residential Programs
    - Energy Star, Efficient Cooling and Pool Pump programs: Contractors performed site verifications on 10% of all residential efficiency equipment purchases and installations, and on 100% of refrigerator/freezer recycling and refrigerator exchange program participants
    - Prescriptive rebates: Used "natural replacement" deemed savings per the E3 tool, except where customers indicated "early replacement" eligibility on rebate applications
- Non-Residential Programs
    - EEP and WeDIP Programs: Utility staff and contractors performed pre-and post-installation equipment and installation verification, on site, for 100% of customer projects.
    - Of the 54 non-residential customer projects completed, 18 (33%) had an independent engineering analysis conducted by a PWP engineering consultant
        - Mechanical Equipment Retrofits: PWP engineering contractor calculated energy savings and demand reduction using DOE's eQuest building modeling software
        - Lighting: Engineer-certified Excel workbook used to calculate lighting retrofit project energy savings based on the actual hours of operation
        - Data Loggers: Data loggers and CT's were occasionally used to verify operating hours and equipment savings

- Future Evaluations: Small business direct install ("WeDIP") program (launched in spring 2013) will be fully evaluated in FY13/14

Complimentary Public Benefits Programs

- Educational Programs
    - Green Living Curriculum: PWP and Public Works Recycling funds a credentialed teacher who provides classroom instruction on environmental topics to elementary school classes, including energy sources, energy and water conservation and recycling.
    - Children Investigate the Environment: PWP and Public Works Recycling funds elementary classroom instruction and field trips to local nature parks. Students learn about energy and water resources and resource protection.
    - Workshops and community events: Educate customers on a variety of energy and water topics, including utility careers, resource management, efficient landscapes and solar energy system installations.
- Renewable Energy Programs
    - The Pasadena Solar Initiative (PSI): Funded by PWP's Public Benefit Fund and offered to residential, low-income, and business customers; PWP's commitment to a sustainable energy future through the promotion of distributed, grid-connected solar power. Through incentives and education, the PSI aims to achieve the goals of SB1 and help its customers install 14 MW of solar power by 2017.
    - Green Power Program: Offer customers the option to support PWP's renewable energy purchases. A small, voluntary premium is added on energy bills to help PWP invest in more clean, renewable power. Program participants can claim carbon footprint credits under most carbon reduction programs; also eligible to receive bonus rebates if participate in PWP's residential incentive programs.
- Rate Assistance Programs:
    - Electric Utility Assistance Program (EUAP): PWP offers three income-qualified financial assistance programs for paying electric bills (EUAP Basic, CARES, and CARES Plus), and one program to help offset electricity costs associated with home medical equipment (Medical Assistance).
    - Project A.P.P.L.E. (Assisting Pasadena People with Limited Emergencies) provides a one-time grant of up to $100 per year to help eligible low-income residential customers keep their power on.
- Emerging Technology Programs:
    - DEED Partnerships: PWP facilitates and provides funding towards the installation and evaluation of emerging technologies. Utilize APPA's DEED and SCPPA RD&D grant programs, as available. Recent projects have included LED lighting and laboratory fume hood controls. Future project: evaluate pressure-independent valves for chilled water systems.
    - Electric Vehicle Program:
        - Demonstrate a variety of plug-in, battery electric vehicles to promote clean transportation. Plug-in electric vehicles (PEVs) can curtail our dependence on oil, cut carbon emissions and reduce energy costs.
        - PWP offers residential customers with plug-in electric vehicles the option to apply for experimental time-of-use (TOU) electric rates, as well as receive no cost

energy audits and no cost LED's. No cost TOU meters provide PWP with valuable data.

- Utility Partnerships: PWP is working to create partnerships with other utilities, and leverage existing programs to better serve and reach all customer segments.

FY12/13 Program Results

Pasadena		Resource Savings Summary							Cost Summary		
Program Sector (Used in CEC Report)	Category	Units Installed	Net Demand Savings (kW)	Net Peak kW Savings	Gross Annual kWh Savings	Net Annual kWh Savings	Net Lifecycle kWh savings	Net Lifecycle GHG Reductions (Tons)	Utility Incentives Cost ($)	Utility Mktg, EM&V, and Admin Cost ($)	Total Utility Cost ($)
Appliances	Res Clothes Washers	345	55	55	21,390	21,390	256,680	153	$100	$13	$113
HVAC	Res Cooling	1,779	79	77	105,936	105,936	735,946	468	$78,946	$6,320	$85,266
Appliances	Res Dishwashers	1			31	31	338		$60	$6	$66
Consumer Electronics	Res Electronics										
HVAC	Res Heating										
Lighting	Res Lighting	5,022	71	54	187,172	187,172	1,372,679	804	$41,912	$10,479	$52,391
Pool Pump	Res Pool Pump	52	4	4	16,692	16,692	166,920	95	$11,250	$2,542	$13,792
Refrigeration	Res Refrigeration	1,339	148	148	694,469	694,469	4,426,309	2,498	$264,751	$57,866	$322,617
HVAC	Res Shell	502	86	86	115,542	115,542	2,269,216	1,494	$25,071	$13,283	$38,353
Water Heating	Res Water Heating										
Comprehensive	Res Comprehensive	150,499	27	27	3,630,910	3,630,910	3,772,729	2,246	$335,501	$74,668	$410,169
Process	Non-Res Cooking										
HVAC	Non-Res Cooling	179	157	157	3,377,567	3,377,567	64,629,499	41,340	$517,498	$174,099	$691,597
HVAC	Non-Res Heating										
Lighting	Non-Res Lighting	123	835	835	3,979,656	3,979,656	48,758,506	28,878	$782,759	$124,533	$907,293
Process	Non-Res Motors	8		228	1,042,468	1,042,468	16,679,488	9,296	$213,661	$29,455	$243,116
Process	Non-Res Pumps	1			461,913	461,913	7,390,602	4,533	$69,287	$15,654	$84,941
Refrigeration	Non-Res Refrigeration	28	39	39	314,254	314,254	6,285,080	3,503	$93,285	$35,032	$128,316
HVAC	Non-Res Shell	1	378	378	2,948,695	2,948,695	2,948,695	1,643			
Process	Non Res Process										
Comprehensive	Non Res Comprehensive										
Other	Other										
SubTotal		159,879	1,880	2,089	16,896,694	16,896,694	159,692,686	96,952	$2,434,082	$543,948	$2,978,030
T&D	T&D	1	28	28	248,215	248,215	7,446,438	4,150	$0		$0
Total		159,880	1,908	2,118	17,144,909	17,144,909	167,139,124	101,102	$2,434,082	$543,948	$2,978,030

EE Program Portfolio	TRC Test	**2.29**
	PAC Test	**6.65**

Excluding T&D

PITTSBURG POWER COMPANY DBA ISLAND ENERGY

At a Glance

- Year Established: **1996**
- Climate Zone(s): **3**
- Number of retail customer connections: **496**
- Percent of retail sales by customer class: **8% residential, 92% commercial**
- All Energy Efficiency Programs are funded by Island Energy's Public Benefits Fund (PBF). Each year, approximately two thirds of the PBF collection is allocated to Island Energy's Solar Incentive Program; Approximately one third of the PBF is allocated to Island Energy's Energy Efficiency Programs and Low Income Assistance Program.
- Program budget of $25,000 per year for 5 years. Unused budget will be carried forward to next year's budget.
- Load growth (including negative): **1%**

Utility Overview

Island Energy serves a decommissioned Navy base called Mare Island, which now hosts many different kinds of businesses and one residential neighborhood with 287 homes. Most of the residential units were built in 2007 and 2008 and have good insulation and are equipped with high energy efficient appliances. Residential Energy Efficiency Programs include free CFL and LED light bulbs, EnergyStar Qualified Appliances for natural replacement and Solar Incentive Programs. As utility rates are rising due to increasing costs of commodity and environmental compliance, more and more residents have turned to rooftop solar systems.

Most commercial buildings were built over 60 years ago. Now many of them have been refurbished and re-purposed for different kinds of businesses. Island Energy tailored its Commercial Energy Efficiency Programs to meet the needs of business owners on Mare Island. Commercial lighting is in high demand as most lights in old buildings need to be replaced. The Commercial Motors & Process Improvement and Compressed Air System Replacement are designed for industrial users to help reduce their energy usage. Island Energy provides rebates to these improvements to help lower business owners' initial investments and diminish their payback period.

Major Program Changes

Island Energy offered $1.65 /installed watt rebate in its Solar Incentive Program in 2013. More and more residential customers in Island Energy's service area have installed solar systems on their rooftops. Distributed solar installations definitely reduce the collection of the Public Benefits fund as the collection is based on electric usage from the grid, while they also increase draws from the Public Benefits Fund as numbers of installation have increased over the years. The growth of solar generation has put non-solar customers in the position of subsidizing those with solar rooftops for grid safety and maintenance costs.

Concerns about solar system owners not paying their fair share of costs to help keep the grid operating safely and reliably need to be addressed.

Program Highlight

The Commercial Lighting program has the greatest impact among all Energy Efficiency Programs and contributes over 85% of energy savings to Island Energy's Annual Energy Reduction Goal. Due to their age, most commercial buildings on Mare Island have outdated lighting layouts and fixtures. Island Energy provides rebates for one-for-one lighting fixture replacement, de-lamping, time controls, sensors as well as customized lighting retrofit projects. Most commercial lighting projects update the whole lighting layout with fewer and much more efficient lights, resulted in 50% -65% wattage reductions and energy savings. With the rebates that Island Energy offers, the payback period for such lighting project is usually 1-2 years. The Commercial Lighting Program is definitely the most cost-effective energy saving measure on Mare Island.

Program Descriptions

- Commercial Lighting Program: Lighting Redesign, Overhaul or Retrofit Projects for Commercial Buildings
- Commercial Motors & Process Improvement: Replacement of Old Motors with NEMA Premium Efficiency Motors
- Compressed Air System: Installation of New Compress Air System or Redesign/Retrofit of Old Compress Air System
- Residential Home Energy Audit: Free On-Site Energy Advisory Service to Residential Customers
- Residential Retail Lighting: Free CFL Light Bulbs & LED Lights to Residential Customers
- Residential Appliance Efficiency: Rebates for Energy Star Qualified Clothes Washers, Dishwashers, Air Conditioners and Refrigerators.
- LED Street Light: Rebates for LED Street Lights

EM&V

Energy Efficiency Programs will be administered and monitored in the same way that they have been in the past. Staff files EM&V reports as part of public utilities reporting compliance. Coming into year 2014, staff will focus more resources on R&D and demonstration programs on renewable energy resources and technologies for the public interests.

Complementary Public Benefits Program

- Renewable Energy Programs: the Solar Incentive program provides rebates for distributed solar installations and has a budget of $60,000 per year for 5 years. Unused budget will be carried forward to the next year's budget.

FY12/13 Program Results

Pittsburg		Resource Savings Summary							Cost Summary		
Program Sector (Used in CEC Report)	Category	Units Installed	Net Demand Savings (kW)	Net Peak kW Savings	Gross Annual kWh Savings	Net Annual kWh Savings	Net Lifecycle kWh savings	Net Lifecycle GHG Reductions (Tons)	Utility Incentives Cost ($)	Utility Mktg, EM&V, and Admin Cost ($)	Total Utility Cost ($)
Appliances	Res Clothes Washers	1			62	62	744		$75	$251	$326
HVAC	Res Cooling	1			107	107	963	1	$50	$252	$302
Appliances	Res Dishwashers	1			31	31	341		$50	$250	$300
Consumer Electronics	Res Electronics										
HVAC	Res Heating										
Lighting	Res Lighting										
Pool Pump	Res Pool Pump										
Refrigeration	Res Refrigeration										
HVAC	Res Shell										
Water Heating	Res Water Heating										
Comprehensive	Res Comprehensive										
Process	Non-Res Cooking										
HVAC	Non-Res Cooling										
HVAC	Non-Res Heating										
Lighting	Non-Res Lighting	366	35	21	128,467	128,467	1,537,891	852	$8,503	$4,496	$13,000
Process	Non-Res Motors										
Process	Non-Res Pumps										
Refrigeration	Non-Res Refrigeration										
HVAC	Non-Res Shell										
Process	Non Res Process										
Comprehensive	Non Res Comprehensive										
Other	Other										
SubTotal		369	35	21	128,667	128,667	1,539,939	853	$8,678	$5,250	$13,928
T&D	T&D										
Total		369	35	21	128,667	128,667	1,539,939	853	$8,678	$5,250	$13,928

EE Program Portfolio	TRC Test	**2.97**
	PAC Test	**11.90**

Excluding T&D

PLUMAS-SIERRA RURAL ELECTRIC COOPERATIVE (PSREC)

At a Glance

- Established 1937
- Climate Zone 12 in Northern California – In December 2013 our climate zone experienced 10 consecutive days with temperatures strictly below freezing
- Serves approximately 7,766 retail customers through approximately 8,400 meters
- Percent of retail sales by customer class – residential = 45.5%, commercial = 11%, industrial =38%, agriculture =5.5%
- Budgeted amount for energy efficiency programs in 2013 was $187,774. The amount actually expended was $146,011. Funding for energy efficiency programs is collected on member bills through the Public Benefits Charge.
- Load growth of 2.7% in 2013

Utility Overview

Founded in 1937, Plumas-Sierra Rural Electric Cooperative (PSREC) is a member-owned electric distribution utility providing electrical power and related services to more than 7,700 member/owners in Plumas, Lassen, and Sierra counties in California and portions of Washoe County in Nevada. We are a true cooperative, controlled by the membership through an elected seven-person board of directors.

Our goal is to provide utility services with a high level of reliability for fair and reasonable costs. We are also dedicated to improving the quality of life of our member-owners and our local communities.

Major Program Changes

A large portion of PSREC's energy savings have historically been achieved through our once highly successful Ground Source Heat Pump (GSHP) Program. Most GSHP installations are in newly constructed homes, due to PSREC's robust outreach and education to encourage custom home contractors to incorporate GSHPs in their construction plans.

With the near halt of new construction and economic downturn, our forecasted energy efficiency goals have been drastically impacted. For 2013, there was only 1 building permit issued in our Plumas County service territory. Due to this dramatic decrease in new construction, GSHP installation has stopped altogether. The construction decline has devastated our community, as well as to our energy efficiency objectives. We are hopeful to see the market recover in future years and would anticipate our dedicated contractor network to again assist us in encouraging the installation of GSHPs. In the meantime, PSREC continues to introduce contractors to new technologies for building more energy efficient homes. Attempts to diversify programs to include small commercial and irrigation members have provided participation far from exceptional.

The E3 model has limitations in how coincident peak demand savings are reported since PG&E's load profile is applied as the default. An important aspect to note is PSREC's unique peak demand occurs

during winter hours of 5 a.m. to 10 a.m. Therefore, the most cost-effective program concentration will be to reduce demand in the winter. PSREC introduced weatherization and air source heat pumps into the programs this year. As a heating utility, very little savings are achieved for cooling. Members realize more benefit from retrofitting outdated and oversized baseboard heaters to ductless mini-split systems and sealing their homes with weatherization and insulation measures. Building envelope upgrades and heating system retrofits proved to have more value to our members who need it most – those with lower incomes.

Program Highlight

The greatest impact, and higher participation than anticipated, came from the Weatherization Window Replacement Program. PSREC's serves older, rural mobile and single family homes, many of which have single pane windows or are extremely below code, have recently seen many foreclosures and changes in ownership contributing to renovating and upgrading drafty windows and sealing air leaks.

Program Descriptions

- Geothermal Heating/Cooling Loans: 0% interest loans available for installation of ground-source heat pumps. This program has suffered due to the near halt of construction in our area.
- Conservation Products: Energy-Efficient Equipment Discounts: Discounted sales of water heater blankets, low-flow showerheads and ConvectAir heaters.
- ENERGY STAR® Appliance: Rebates available for the purchase of an ENERGY STAR® refrigerator, dishwasher, clothes washer or other small electronics.
- ENERGY STAR® Lighting: Offered rebates for the purchase of LED lamps.
- ENERGY STAR® LED Holiday Light Rebate: Rebates provide an incentive to replace incandescent holiday light strands with qualified new ENERGY STAR LED holiday light strands.
- Appliance Recycling: Non-essential Freezer/Fridge Retirement: Rebates offered for recycling a non-essential freezer or refrigerator.
- Efficiency/Green Building Education: Green Building Program: Presentations to introduce contractors to new technologies for building more energy efficient homes. We have had successful response to these presentations and found that many contractors are realizing the importance of energy efficient and green retrofits for existing homes, especially with the housing slump.
- Efficiency/Green Building Education: Education/Outreach: Provide energy efficiency and conservation information to interested members to help them reduce their bill, understand their energy consumption and make their home more efficient. This program has successfully addressed high bill concerns by empowering members to use information such as our 'Do-It-Yourself Energy Audit' to learn more about their home and how they use energy.
- Efficiency/Green Building Education: Energy Audits: PSREC significantly increased efforts to provide free comprehensive energy audits to assist members with energy conservation or troubleshooting high energy consumption in their home. This program has been successful in educating members about efficiency and conservation, especially in low-income homes. Commercial Energy Audits: Provide free energy audits to businesses to assist members with energy conservation or troubleshooting high energy consumption in their business. With the

suffering economy, our local businesses are also suffering. This program has been successful in assisting business owners in making decisions in efficiency upgrades and conservation.

- Water Heaters: Marathon Water Heater Program: Discounted sales of high-efficiency electric water heaters. This program remains steady, yet has been impacted with the halt of new construction.
- Ag Irrigation: Irrigation Efficiency Program: To encourage the installation of energy efficient equipment in agricultural irrigation systems PSREC offers rebates for pump tests, NEMA Premium motor replacement and installation of variable frequency drives.
- Energy Efficiency Kits**:** Efficiency Kit Program: Free kits are available to new members offered at events such as our Annual Meeting. They include educational information along with a CFL, weather stripping, silicone caulk and outlet gaskets.
- Weatherization**:** Weatherization Program: By retrofitting a home to above-code R-Values, and upgrading windows to double-pane high-performance windows, members will not only realize the added comfort, but also gain increased home values and curb-side appeal. PSREC encourages members to invest in weatherization measures prior to, or in addition to, investing in a new heating source for energy conservation.
- HVAC**:** HVAC Rebates: PSREC provides members with rebate options to encourage installation of energy-efficient electric heat pumps and ground-source heat pumps in new construction and existing homes and small businesses. Upgrading to an energy-efficient heating and cooling system contributes to increased comfort in homes or businesses while helping to reduce energy use.

EM&V

PSREC EM&V reports can be found online at: http://www.ncpa.com/current-issues/energy-efficiency-reports.html. PSREC developed its five year EM&V plan in 2011 to focus on improving existing energy efficiency programs with a yearly internal review to evaluate effectiveness and improvement areas. PSREC has committed to seek third party evaluation of its programs every five years, dependent upon budget. Plumas-Sierra's Five Year EM&V Plan has initiated a focus on the following items:

- Update the GeoExchange program to better represent the outcome of the engineering evaluation performed by Efficiency Services Group, LLC.
- Review the process evaluation of all residential energy efficiency programs and streamlining the method of rebate tracking.
- Participation in NCPA's Demand-side Management Database through Energy Orbit allows for the ability to comprehensively measure and quantify program goals.
- Conduct a study to verify the reported energy efficiency savings and reductions in demand.
- Verify a sample of installations through a review of the application and receipt documentation.

Complimentary Public Benefits Programs

- Plumas-Sierra Solar Program: The Plumas-Sierra Solar Program (PSSP) is a program designed to encourage PSREC members to install high-quality solar PV systems on their homes and businesses and start producing clean, renewable energy.

- Net Metering Program: PSREC is also pleased to offer net-metering for members that install solar PV systems. In accordance with State Assembly Bill 920, all of PSREC's solar members are eligible to receive compensation for generating net surplus electricity.
- Meter Lending Program: Members can borrow our WattsUp® meter to plug in 120-volt appliances, helping them identify energy use of specific appliances. This program has helped several members understand just how much an appliance or space heater really uses and helps them make the choice of unplugging or reducing energy use.
- Lending Library and Resource Center: Provides energy efficiency and renewable energy resources to members through a book lending library and resource center in our office lobby.
- Low Income Winter Rate Assistance Program: Income-qualified members can apply for a discounted rate during the heating season. In conjunction, a home energy audit is offered to assist members with energy conservation. This program is steadily growing as members who are struggling in the weak economy are extremely appreciative of the assistance.
- Research, Development, and Demonstration: PSREC is researching the feasibility of installing a 250KW community solar project to offer solar energy to our members who cannot install solar on their homes or businesses. PSREC is also exploring implementation of an energy efficiency loan program through new Rural Utilities Service regulations.

FY12/13 Program Results

Plumas-Sierra		Resource Savings Summary							Cost Summary		
Program Sector (Used in CEC Report)	Category	Units Installed	Net Demand Savings (kW)	Net Peak kW Savings	Gross Annual kWh Savings	Net Annual kWh Savings	Net Lifecycle kWh savings	Net Lifecycle GHG Reductions (Tons)	Utility Incentives Cost ($)	Utility Mktg, EM&V, and Admin Cost ($)	Total Utility Cost ($)
Appliances	Res Clothes Washers	10	1	1	620	527	6,324	3	$350	$1,715	$2,065
HVAC	Res Cooling	7	1	1	1,169	935	16,834	10	$2,100	$4,780	$6,880
Appliances	Res Dishwashers	13	1	1	399	319	3,512	2	$455	$956	$1,411
Consumer Electronics	Res Electronics	5			555	472	1,887	1	$100	$419	$519
HVAC	Res Heating										
Lighting	Res Lighting	432	30	1	15,262	12,741	77,667	41	$3,237	$11,950	$15,187
Pool Pump	Res Pool Pump										
Refrigeration	Res Refrigeration	83	5	5	34,782	22,460	138,422	75	$4,850	$13,641	$18,491
HVAC	Res Shell	152	17	17	26,901	15,034	300,681	191	$51,662	$9,560	$61,222
Water Heating	Res Water Heating	15			5,430	3,801	49,413	26	$2,250	$4,505	$6,755
Comprehensive	Res Comprehensive										
Process	Non-Res Cooking										
HVAC	Non-Res Cooling										
HVAC	Non-Res Heating										
Lighting	Non-Res Lighting										
Process	Non-Res Motors										
Process	Non-Res Pumps										
Refrigeration	Non-Res Refrigeration										
HVAC	Non-Res Shell										
Process	Non Res Process										
Comprehensive	Non Res Comprehensive										
Other	Other										
SubTotal		717	55	27	85,118	56,289	594,740	351	$65,004	$47,527	$112,531
T&D	T&D										
Total		717	55	27	85,118	56,289	594,740	351	$65,004	$47,527	$112,531

EE Program Portfolio	TRC Test	**0.29**
	PAC Test	**0.68**

PORT OF OAKLAND

At a Glance

- Year established: Prior to 1990
- Climate Zone(s): 3
- Number of retail customer connections and approximate number of retail customers served: 130-150
- Percent of retail sales by customer class – residential, commercial, industrial, agriculture: 100% Commercial.
- Budgeted amount for energy efficiency programs, amount actually expended and funding sources; specify if unused EE dollars are reallocated to other Public Benefits program: All Energy Efficiency Programs are funded by AB 1890 funds. Beginning balance of AB 1890 funds for this year is $ 1,136,347. AB 1890 revenue for this is year is $251,686. This year AB 1890 funds were used to purchase SunEdison solar power ($41,211), Renewable Energy Credits (REC - $ 9,000), NCPA sponsored Energy Efficiency Study ($ 7,000), and a total of $ 24,177 lighting retrofit rebate was given to Port's electricity customers.
- Load growth (including negative): Annual energy sales dropped by 4.6 gig watt-hours and the average peak demand dropped by 0.8 mega watts.

Utility Overview

Port of Oakland is a very small community with little or no a major growth potential. The community is 100% commercial. At this time, the business at the Port remains constant at about the same level as the last year and we are optimistic that the business will grow this year to achieve its maximum allowable growth.

Major Program Changes

n/a

Program Descriptions

- Energy Audits: The Port is currently conducting an Energy Audit program that will result in recommendations of five major energy saving retrofit/improvement projects that could be undertaken to effectively support load reduction and the more efficient use of energy in the area. The proposed energy efficiency projects will be prioritized by highest to lowest energy savings. Rebates will be provided for the energy efficiency projects completed based on the energy audit recommendations, and up to 100 percent of the total energy audit cost.
- Energy Saving Measures Exceeding Title 24 Standards: Port will provide a rebate for any new facility constructed within the Port by its electricity customers that exceed the title 24 standards in energy saving measures. Eligible facility must reduce energy usage by a minimum of 10% compared to the standard title 24 facility. This rebate will pay for a % of the cost difference between a standard and an upgraded title 24 equipment (such as HVAC units) and material.

- Energy Saving Equipment Retrofits/Improvements Rebates: The Port has implemented a program that provides generous rebates and solid technical support for the installation of new energy efficient equipment/improvements by our commercial customers. Under our program, the eligible projects must reduce energy usage by a minimum of 20 percent, to be eligible for a rebate of the equipment cost differential (up to a 90 percent rebate for energy saving of 90 percent or more).
- Lighting Retrofit: A program providing rebates for the installation of energy efficient lighting that reduces annual energy usage by at least 35 percent in commercial facilities. This rebate is based on a single flat incentive rate of $0.05 per annual kilowatt-hours saved. **$ 10,746 and $ 13,431 rebates were provided to two different Port customers "Landmark Aviation" and "Business Jet" under this program for this fiscal year.**
- Energy Saving / Efficiency Research, Development, and Demonstration Programs: Port electricity customers that do research, development and demonstrate new energy saving/efficiency programs are entitled to a rebate up to 20% of the cost of a project based on availability of funds. To qualify for a rebate under this program all Energy Savings/Efficiency Research, Development and Demonstration Programs must be based on environmental friendly natural resources (or waste products).
- Photovoltaic (PV) Power Generating Systems In Accordance with Senate Bill 1 (SB1): Beginning January 1, 2008, this rebate will reimburse new solar energy generating facilities a one time flat rate of $ 3.50 per watt (Alternating Current) of installed capacity. In the event the new solar facility generates more than the electric customer's monthly electric consumption, then the Port will purchase the excess solar electric power from said facility at the same rate the Port sells power to said facility. In addition, the new solar energy generating facilities must obtain Port approval and must comply with all regulatory requirements prior to the construction of the facility. This rebate is subjected to 7% annual reduction per SB1.
- Other Renewable (or Green) Energy Programs: Beginning January 1, 2008, this rebate will reimburse new clean wind energy generating facilities that generates over 7.5 kilowatts a onetime flat rate of $ 1.50 per watt (alternating current) of installed capacity and if the facility generates less than 7.5 kilowatts then the rebate will be a onetime flat rate of $ 2.50 per watt (alternating current) of installed capacity. In the event the new wind power facility generates more than the electric customer's monthly electric consumption, then the Port will purchase the excess electric power from said facility at the same rate the Port sells electric power to said facility. In addition, the new wind power energy generating facilities must obtain Port approval and must comply with all regulatory requirements prior to the construction of the facility. All other renewable generation that qualifies under this program are given a maximum rebate of 20% of the construction cost of the generating facility, based on the availability of funds.

Complementary Public Benefits Programs

- Renewable Energy Programs:
  - Photovoltaic (PV) Power Generating Systems In Accordance with Senate Bill 1 (SB1): Beginning January 1, 2008, this rebate will reimburse new solar energy generating facilities a

one-time flat rate of $ 3.50 per watt (Alternating Current) of installed capacity. In the event the new solar facility generates more than the electric customer's monthly electric consumption, then the Port will purchase the excess solar electric power from said facility at the same rate the Port sells power to said facility. In addition, the new solar energy generating facilities must obtain Port approval and must comply with all regulatory requirements prior to the construction of the facility. This rebate is subjected to 7% annual reduction per SB1.

  - Other Renewable (or Green) Energy Programs: Beginning January 1, 2008, this rebate reimburses new clean wind energy generating facilities that generates over 7.5 kilowatts a onetime flat rate of $ 1.50 per watt (alternating current) of installed capacity and if the facility generates less than 7.5 kilowatts then the rebate will be a onetime flat rate of $ 2.50 per watt (alternating current) of installed capacity. In the event the new wind power facility generates more than the electric customer's monthly electric consumption, then the Port will purchase the excess electric power from said facility at the same rate the Port sells electric power to said facility. In addition, the new wind power energy generating facilities must obtain Port approval and must comply with all regulatory requirements prior to the construction of the facility. All other renewable generation that qualifies under this program are given a maximum rebate of 20% of the construction cost of the generating facility, based on the availability of funds.

- Research, Development, and Demonstration: Port electricity customers that do research, development and demonstrate new energy saving/efficiency programs are entitled to a rebate up to 20% of the cost of a project based on availability of funds. To qualify for a rebate under this program all Energy Savings/Efficiency Research, Development and Demonstration Programs must be based on environmental friendly natural resources (or waste products).

RANCHO CUCAMONGA MUNICIPAL UTILITY (RCMU)

At a Glance

- Year established: 2001
- Climate Zone: 10
- Number of retail customer meters: 515
- Percent of retail sales by customer class: 100% commercial and industrial
- Budgeted amount for energy efficiency programs: $525,000
- Load growth (including negative): 6% annually

Utility Overview

In fiscal year 2013, RCMU issued $7,470 in lighting rebates, which will save an estimated 145,461 kWh per year. The majority of the savings were from lighting retrofits and upgrades to LEDs. RCMU staff did see an increase in the number of customer inquiries and rebate applications on the various programs being offered this fiscal year versus the last few fiscal years. RCMU is continuing to advertise the rebate program and energy efficiency information with a quarterly newsletter and bill inserts. Free energy audits are currently utilized to educate customers on current rebates and energy efficiency updates.

Major Program Changes

There is still reluctance among many small commercial customers to participate in programs with any upfront monetary costs. Therefore, in July 2013, RCMU implemented its first direct installation program called *Direct Savings*. *Direct Savings* provides up to $1,500 for energy efficient upgrade items selected without any money being paid by the business! Any cost above the $1,500 limit would be paid for by the business. RCMU covers the cost for the energy audit of the facility and will pay for the first $1,500 of retrofits selected. RCMU hopes that this new program will attract more customers to upgrade their businesses for energy savings.

Program Highlight

RCMU's lighting rebate program had the greatest impact amongst all of our rebate categories. In FY 2013, RCMU had 7 lighting rebates, almost doubling the previous amount of lighting rebates we had issued in the past. 6 were for LED upgrades and one for Induction lighting. It seems that with lighting technology improving and upgrades getting cheaper, more businesses are doing this retrofit upgrade to save energy.

Program Descriptions

- Energy Audits: RCMU offers free, customized energy audits including lighting assessment, HVAC assessment, equipment assessment and a review of energy usage. Specific cost-effective recommendations to improve energy efficiency and reduce energy use are provided.
- "Direct Savings" Program: Starting in July 2013, RCMU introduced its "Direct Savings" program, which is a direct install program that helps businesses reduce their energy usage by paying up to $1,500 for items selected without any money being paid by the business! Any cost above the

$1,500 limit would be paid by the business. RCMU covers the cost for the energy audit of the facility and will pay for the first $1,500 of retrofits selected.

- "Express Solutions" Incentives: RCMU has adopted the "Express Solutions" model for energy efficiency rebates. RCMU does not restrict customers to specific technologies or approved models of equipment; customers can elect to install any energy efficient improvement they wish. Customers receive a rebate for estimated kilowatt hour savings for the first year. RCMU uses the following categories and incentive rates:

Category	**Annual Consumption Reduction Rebate**
Lighting	$.05/kwh
Refrigeration	$.09/kwh
HVAC	$.09-$.15/kwh
Motors	$.09/kwh
Other	$.09/kwh

Complimentary Public Benefits Programs

- Renewable Energy Programs**:** In FY 2013, RCMU added two new solar customers into its service area, which are estimated to save a total of 105,049 kWh per year. In FY 2013, RCMU continued to offer a high rebate incentive of $2.25 per watt installed for renewable energy generation systems with a peak AC output of less than 30 kW, and $0.08 per kilowatt hour produced for renewable energy generation systems with a peak AC output of 30 kW or more. By keeping the rebate incentive at this rate, RCMU hopes to encourage more businesses to invest in renewable energy. These incentives are capped at 50% of total system installation cost. RCMU is also currently waiving all RCMU-related plan check and inspection fees.
- Demand Reduction Programs**:** In FY 2013, RCMU installed two thermal energy storage products from Ice Energy called Ice Bear. The installation of the two Ice Bear's was completed in late 2012 and the system stores and produces ice during the off peak hours of the night and then works to cool the building through its existing HVAC system during the peak hours of the day. In FY 2013, the two Ice Bears, shifted 2.45 MWh of energy during peak hours and reduced demand by an average of 14 kW per month. RCMU is hoping this technology will help reduce our electric system demand during the critical hours of the day to help ensure overall system reliability.

FY12/13 Program Results

Rancho Cucamonga		Resource Savings Summary							Cost Summary		
Program Sector (Used in CEC Report)	Category	Units Installed	Net Demand Savings (kW)	Net Peak kW Savings	Gross Annual kWh Savings	Net Annual kWh Savings	Net Lifecycle kWh savings	Net Lifecycle GHG Reductions (Tons)	Utility Incentives Cost ($)	Utility Mktg, EM&V, and Admin Cost ($)	Total Utility Cost ($)
Appliances	Res Clothes Washers										
HVAC	Res Cooling										
Appliances	Res Dishwashers										
Consumer Electronics	Res Electronics										
HVAC	Res Heating										
Lighting	Res Lighting										
Pool Pump	Res Pool Pump										
Refrigeration	Res Refrigeration										
HVAC	Res Shell										
Water Heating	Res Water Heating										
Comprehensive	Res Comprehensive										
Process	Non-Res Cooking										
HVAC	Non-Res Cooling	2		20				148	$50,000	$9,777	$59,777
HVAC	Non-Res Heating										
Lighting	Non-Res Lighting	649	62	31	146,565	146,565	2,345,040	1,389	$7,027	$22,223	$29,250
Process	Non-Res Motors										
Process	Non-Res Pumps										
Refrigeration	Non-Res Refrigeration										
HVAC	Non-Res Shell										
Process	Non Res Process										
Comprehensive	Non Res Comprehensive										
Other	Other										
SubTotal		651	62	51	146,565	146,565	2,345,040	1,537	$57,027	$32,000	$89,027
T&D	T&D										
Total		651	62	51	146,565	146,565	2,345,040	1,537	$57,027	$32,000	$89,027

EE Program Portfolio	TRC Test	**4.31**
	PAC Test	**4.10**

REDDING ELECTRIC UTILITY (REU)

At a Glance

- Year established -1921
- Climate Zone -11
- Number of retail customer connections – 43,621
- Percent of retail sales by customer class – Residential - 85%, Commercial – 14%, Industrial – 1%,
- Energy Efficiency (EE) Budget - $2.0 million. The EE programs are funded from REU revenues as follows: $1.8 million Public Benefits charges, $ 0.2 million from general revenues.
- Load Growth – Total sales for FY 2013 were 774 million kWhs, a 1.1 percent increase over FY 2012. Forecasted average annual increase for the next five years is 0.8 percent.

Utility Overview

For the last few years, the Redding service area has experienced, as many other electric utilities have, a reduction in kWh sales compared to the level of electricity sales before the recent multi-year recession. Higher year-over-year sales figures for 2013 indicate a probable end to reduced sales. This is a result of a modest but sustained upturn in local economic conditions.

Since the inception of REU's Public Benefits Program and throughout recent difficult economic times, its Public Benefits Program has been successful and well received in the Redding community. To date, around 70 percent (or more than two-thirds) of REU's Public Benefits Program expenditures have been directed towards energy efficiency improvements. Because Redding is a relatively small and somewhat isolated service territory, REU has been able to build strong relationships with local businesses, including trade allies and the development community, to increase the awareness of cost-effective energy efficiency opportunities in new construction and remodeling projects throughout the community. These ties have proven to be most valuable when there is a viable need to increase or decrease a certain program and also in evaluating the addition of new programs. All EE programs need adjusting from time to time as building standards and technologies change. REU has an effective community outreach effort through the Energy Services Division's (ESD) direct engagement with local energy product vendors which makes it possible to have a continuously evolving and adaptable EE program.

Major Program Changes

To continue working toward improving REU's operating efficiency and to further provide cost-effective efficiency improvements in our system, the Utility's Thermal Energy Storage (TES) program was expanded in FY 2013. REU's TES program focuses on the 5 ton, direct expansion air-conditioning (DX-AC) market. This application of TES technology is provided with the addition of the Ice Bear® TES unit to qualified AC units. In June of 2012, Redding entered into a multi-year, multi-million dollar contract to provide several megawatts of peak load shifting capability by 2017. Prior to 2012, Redding had been installing the Ice Bear® technology for several years to validate the application of this technology to REU's customer base and unique (high peak demand, very low load factor) service territory requirements.

Program Highlight

As mentioned above, REU's operating efficiency is directly impacted by our summer air-conditioning driven peak system demand. The Utility's Thermal Energy Storage (TES) program was significantly expanded in FY 2013. REU's TES program focuses on the 5 ton, direct expansion air-conditioning (DX-AC) market. Redding's commercial customer base has a significant amount of these types of units operating in a variety of businesses throughout the service territory.

The Ice Bears® serve to reduce the applicable AC systems' peak demand on REU's electric system by diverting the vapor/gas refrigerant in the DX unit away from the compressor and into a coil that runs through the system's ice block during the peak period. By relying on the temperature differential in the ice to condense the refrigerant back to liquid state, rather than the mechanically-driven compressor, the compressor does not run during the peak period and the AC load is reduced by 95 percent for as much as six hours per day. Further, because the TES compressor is used during off-peak hours to re-freeze the storage system's water and make the ice that will later be used to provide cooling, the Utility "shifts" the load from on-peak to off-peak hours, thereby allowing the Utility to generate electricity during the cooler nighttime hours when it is more economically and environmentally efficient to do so. Shifting load to the nighttime hours also allows the Utility to consider more wind power, which is more plentiful at night.

With this nighttime operation, the compressor will typically run more efficiently than the same compressor running during the hottest hours of the day. Therefore, the customer will see a reduced amount of energy consumption (efficiency improvement) to provide a higher level of cooling comfort, and the Utility will see reduced operating costs as our load profile is flattened (operating efficiency/load factor improvement) – a true win-win, cost-effective solution for all parties. This continued focus on peak load reduction will be increasingly important for REU because more than half of our demand is driven by air-conditioner load. With the required use of the newer refrigerant R-410A in DX/AC units, the new AC units being installed in California will be at least 5 to10 percent less efficient than older units that use R-22 when the temperatures exceed 105 to 115°F. Therefore, even though appliance standards require high SEER unit installation, these new units using R-410A will perform less efficiently at peak load times than older units with lower SEER ratings because the new refrigerant's performance degrades substantially when ambient temperatures reach 105°F or more – a regular summertime occurrence in Redding.

In FY 2013 REU installed 29 Ice Bear® TES systems. This brings the total systems in service to 104, providing over a megawatt of permanent load shift (PLS). These systems are dispatchable, low maintenance (storage material is water), and long-lived with at least a 20 year service life. Both in the E3 analysis and direct comparison to REU's power supply options, the Ice Bear® systems are cost effective.

Program Descriptions

- Appliances: Rebates for Dishwashers. Only makes and models on the current ENERGY STAR eligibility list qualify for a rebate.
- HVAC: Rebates for HVAC, Duct Repair, HVAC Cleaning, Swamp Coolers, and Whole House Fans.

- Ground Source Heat Pumps: Rebates offered for geothermal/ground source heat pumps
- Pool Pump: Pool Pump Program is only for programmable variable speed drive pumps installed on existing or new in-ground pools.
- Refrigeration: Rebates for Large and Small Refrigerators. Only makes and models on the current ENERGY STAR eligibility list qualify for a rebate.
- HVAC, Residential Shell**:** Weatherization Program – Consists of Insulation, Window Treatments, Water Heater Wraps, and Radiant & Thermal Barrier.
- HVAC, Non-Residential Cooling: Rebates for Heating, Ventilation, Air Conditioning, Duct Repair, HVAC Cleaning, and Swamp Coolers. Commercial projects rebate levels are evaluated on a case by case basis.
- Lighting, Non Residential**:** Lighting retrofit program has a pre-approval requirement that evaluates existing light vs. proposed new lighting to see if the project is eligible and is used as part of the process to determine the level of the rebate.

EM&V

REU reviewed its previous EM&V efforts and is planning an EM&V report on the Utility's HVAC Rebate Program during the 2014 calendar year. REU is also planning an EM&V report in 2015.

Complimentary Public Benefits Programs

- Renewable Energy Programs: REU's Solar Program has been a great success. Funds collected from REU customers under SB 1 have been fully subscribed through the past two years due to several large Performance Based Incentive (PBI) projects. REU has seen significant interest and interconnection in solar PV activity despite the lack of available rebates from the Utility. REU anticipates a substantial amount of net generation applications once the Utility's rebate is reinstated. Funding (rebates) for new projects may be made available in mid-2014. Though solar PV rebates may be renewed in 2014, REU's recent influx of solar interest and activity (without incentives/rebates) has surfaced some deficiency issues with some of REU's distribution system, that resulted in REU's Distribution System Assistant Director requiring REU to suspend photovoltaic installations on some circuits/feeders until the Utility completes an engineering penetration and system study on each circuit/feeder. Distributed generation penetrations (including solar PV) greater than 25% have the potential to have a significant impact REU's (and all utilities) ability to comply with Federal and State reliability requirements regarding both over voltage and under voltage issues as well as over frequency and under frequency cut out. Going forward, until this engineering study is complete Solar PV installations within REU's service territory may be limited or not approved on some circuits/feeders. REU is working closely with local solar PV integrators/contractors on this issue as it continues to develop.

  ESD staff, on a monthly basis, monitors the amount of funds collected and how they are disbursed (since program inception). This process enables REU staff to ensure compliance with SB 1 requirements and to make plans for an optimal program completion in 2016.

Almost all of REU's renewable resource development efforts are in the solar photovoltaic (PV) development area. PV development is currently a separate program in and of itself, as mandated by State Senate Bill 1's passage and implementation. SB 1 funding has allowed REU to redirect dollars previously devoted to renewable development to low income assistance.

- Low-Income Programs: Low income assistance spending (through the CARES program and Lifeline Rate Discounts) continues to be the second largest area of our Public Benefits Program expenditures. During FY 2013, Lifeline support increased nearly $75,000 to over $900,000. This has been a most beneficial program to a significant portion of our customer base that has limited situational and/or financial means to participate in direct EE programs.
- Research, Development, and Demonstration: In 2013, to support electric vehicles in REU's service territory, REU formed an internal committee to work on procuring infrastructure to support this new and growing electric service. REU has had an increasing interest in services from customers who are buying electric vehicles. This new utility load may have impacts in several areas related to energy efficiency, both at the customer and utility supply and distribution levels. For example, whether electric vehicles are charged during the day or night may impact the cost and benefits of EE programs already in place. Redding will continue to work on this and other areas as to how electric vehicles will impact various utility operations.

FY12/13 Program Results

Redding		Resource Savings Summary							Cost Summary		
Program Sector (Used in CEC Report)	Category	Units Installed	Net Demand Savings (kW)	Net Peak kW Savings	Gross Annual kWh Savings	Net Annual kWh Savings	Net Lifecycle kWh savings	Net Lifecycle GHG Reductions (Tons)	Utility Incentives Cost ($)	Utility Mktg, EM&V, and Admin Cost ($)	Total Utility Cost ($)
Appliances	Res Clothes Washers										
HVAC	Res Cooling	986	86	79	143,066	120,366	2,291,839	1,401	$352,002	$70,504	$422,507
Appliances	Res Dishwashers	24	2	2	737	589	6,484	4	$1,200	$115	$1,315
Consumer Electronics	Res Electronics										
HVAC	Res Heating										
Lighting	Res Lighting										
Pool Pump	Res Pool Pump	84	5	5	26,964	18,605	186,052	101	$17,200	$3,048	$20,248
Refrigeration	Res Refrigeration	36	1	1	4,356	3,267	45,738	25	$3,400	$741	$4,141
HVAC	Res Shell	384	50	50	63,876	41,324	702,741	424	$65,441	$19,627	$85,067
Water Heating	Res Water Heating	5			380	220	3,306	2	$88	$49	$137
Comprehensive	Res Comprehensive										
Process	Non-Res Cooking										
HVAC	Non-Res Cooling	116	14	496	31,551	25,241	378,617	3,734	$921,078	$92,454	$1,013,531
HVAC	Non-Res Heating										
Lighting	Non-Res Lighting	3,703	61	61	414,437	322,246	4,800,358	2,660	$29,748	$43,462	$73,210
Process	Non-Res Motors										
Process	Non-Res Pumps										
Refrigeration	Non-Res Refrigeration										
HVAC	Non-Res Shell										
Process	Non Res Process										
Comprehensive	Non Res Comprehensive										
Other	Other										
SubTotal		5,337	219	693	685,367	531,858	8,415,135	8,351	$1,390,156	$230,000	$1,620,156
T&D	T&D										
Total		5,337	219	693	685,367	531,858	8,415,135	8,351	$1,390,156	$230,000	$1,620,156

EE Program Portfolio	TRC Test	**1.23**
	PAC Test	**1.48**

RIVERSIDE PUBLIC UTILITIES (RPU)

At a Glance

- Established in 1895
- Climate Zone 10
- Approximately 108,000 electric and 65,000 water retail customers serving a total population of approximately 314,000 residents.
- Approximately 90% of retail sales is residential and 10% is commercial, industrial and agricultural.
- Approximately $12,451,000 in Public Benefit Funds was budgeted for all programs in FY 12/13. Approximately $5.5 million was expended on energy efficiency programs. The balance of approximately $3 million expended in FY 12/13 was spent on Low Income, Research Demonstration and Development and Renewable Energy, Public Benefits Activities
- Load Growth for FY 12/13 was approximately 3.7%
- Riverside is the 12th largest City in California
- Service territory is approximately 90 square miles
- Peak demand hit system high of 604 megawatts in August 2007
- Annual energy use is approximately 2,200 gigawatt-hours
- RPU employs just under 600 full-time employees

Utility Overview

RPU was again successful in FY 12/13 by exceeding the kWh savings goal of 1% of retail sales as adopted by the Board of Public Utilities. For FY 12/13, RPU assisted its customers in saving a total of over 19 million kWh. This is the third year in a row that RPU was able to exceed this goal. In order to achieve the 1% goal the costs per kWh saved has increased over this three year period by $.10 cents from a portfolio average of $.19 cents per kWh saved to $.29 cents per kWh saved in FY 12/13.

Riverside Public Utilities has played a key role in revitalizing the local economy. The Utility has bolstered Riverside's economic development by stabilizing utility rates through the City Council adopted rate freeze. Originally adopted in 2010, this rate freeze has provided business customers with stable and predictable rates during this economic recovery. The Utility also offers attractive economic development and business retention electric rates to new and existing customers. As a result of the rate freeze and economic development efforts RPU experienced an expanded customer base and a healthy 3.7% increase in load growth. Utility load growth has also lead to a 4% increase in retail sales.

Major Program Changes

Although RPU has experienced substantial load growth over the last fiscal year the local economy is still in a recovery mode. Unemployment was over statewide and national figures at approximately 10% throughout the fiscal year and did not dip below 10% until the end of calendar year 2013. The recovering local economy is partially responsible for stagnant participation in RPU energy efficiency rebate programs which has remained flat over the last three program years at approximately 22,600 rebates per year.

Major changes or trends that impact kWh savings in FY 12/13 include:

- This is the first year that RPU did not have federal ARRA funds to supplement local Public Benefit Funds for certain programs. Introduced in 2010, RPU had been co-funding its highly successful Whole House Residential Rebate Program with ARRA funds. Although almost 250 residences took advantage of upgrading their homes with this program in FY 12/13, incentive amounts were reduced now that the program is 100% supported by Public Benefit Funds.
- The County of Riverside successfully launched its Home Energy Renovation Opportunity (HERO) Program in 2012. This AB 811, Property Assessed Clean Energy (PACE) program offers another important tool for RPU customers seeking to finance energy efficiency measures in their homes.
- CFL's are reaching market saturation and losing attractiveness compared to rapid innovation in the LED lighting segment. The biggest concern with customers is that LED's are still cost prohibitive in many cases. Declining prices will help this trend in the long run, but in the short term many customers are delaying lighting upgrade projects in the hope that LED prices will decline.

Program Highlights

The energy efficiency program that appears to be having the most significant impact on RPU customers is the Small Business Direct Installation (SBDI) Program. Although commercial customers only represent 10% of the total RPU customer base, the combined load of all commercial customers represents approximately 66% of the total utility consumption. With commercial customers representing the majority of load RPU dedicated more programs and resources to assist this customer segment in achieving energy efficiency goals. RPU's small business, Flat Rate, customers have often been reluctant to participate in traditional rebate programs due to lack of upfront capital, lack of time, or lack of building ownership. RPU's SBDI Program was designed to address these primary customer concerns. The SBDI program is a comprehensive direct installation program combining measures such as lighting HVAC tune-ups, LED exit and "open" signs and weatherization. The program is now available throughout the service territory and offers small businesses up to $2000 in free energy efficiency upgrades. Each project starts with an energy audit of the small businesses' facility to prioritize future measures that customers can pay for through a co-payment to the Utility's contractor. Customer feedback regarding this program has been very favorable with over 1300 customers served in FY 12/13. The program resulted in over 3.7 million kWh saved in this reporting year at a very cost effective average of $.25-$.30 cents per kWh saved. With the success of this program RPU plans to offer this program to medium sized Demand Rate customers in FY 13/14.

Program Descriptions

Commercial Programs

- Air Conditioning Incentives – rebates for replacement or first time purchase of efficient AC units.
- Energy Star Appliances – rebates for purchase of Energy Star refrigerators, dishwashers, commercial clothes washers, solid door refrigerator/freezers, ceiling fans and televisions.
- Lighting Incentive – rebates for kWh savings on installation of lighting and controls.

- Energy Management Systems – rebates for the purchase and installation of energy management systems for monitoring and controlling facility energy load.
- New Construction and LEED construction Incentives – rebates for energy savings exceeding Title 24 standards for new construction projects pre-approved by Riverside Public Utilities.
- Pool and Spa Pumps Incentive – rebates for purchase of qualifying multi-flow or variable speed high-efficiency pumps and motors.
- Premium Motor Incentives – rebates for the purchase of premium high efficiency electric motors.
- Tree Power – rebates for purchase and planting of up to 5 qualifying shade trees per year.
- Weatherization – rebates for installation of insulation, window film and cool roofs.
- Thermal Energy Storage Incentive – feasibility study and incentives available for use of Thermal Energy Storage based on program guidelines.
- Performance Based Incentive – rebates for customers who can demonstrate a kWh savings based on custom energy-efficiency measures.
- Custom Energy Technology Grants – Grants are awarded for RD&D of energy efficiency projects that are unique to the business or manufacturing process.

Residential Programs

- Energy Star Appliances – rebates for purchase of Energy Star refrigerators, dishwashers, clothes washers, room air conditioners, ceiling fans and televisions.
- Cool Cash – rebates for replacing Central Air Conditioners with a SEER rating of 15 above.
- Tree Power – rebates for purchasing and planting of up to 5 qualifying shade trees per year and 1 free qualifying shade tree coupon printed on the March back of the bill.
- Pool Saver – rebates for purchasing high efficiency, multi-flow or variable speed pool pump motor, and monthly billing credit for operating pool pumps during off-peak hours.
- Weatherization – rebates for installing attic insulation or wall insulation, duct replacement, duct testing/sealing, window film, solar and standard attic fans, whole house fans and cool roofs.
- Appliance Recycling – free recycling service for old inefficient refrigerators and freezers.
- Whole House Rebate Program– rebates for completing energy efficiency measures. Points are awarded for each type of measure and then multipliers are given at specific point intervals on a sliding scale to encourage implementation of multiple energy efficiency measures.

Small Business Direct Installation (SBDI) Commercial Programs

- Small Business Direct Installation (SBDI) Program – This program provides small businesses with in energy audits and direct installation of energy efficiency measures such as lighting upgrades and controls, HVAC tune-ups, exit and open/closed signs and weatherization.
- Keep Your Cool Program – This program is targeted to specific small businesses such as mini-marts, delis and convenience stores that have a significant amount of refrigerated food and beverages storage. The program offers the direct installation of energy efficiency measures such as air curtains, cooler gaskets, automatic door closures, LED case lighting retrofits and high efficiency motor upgrades.

EM&V

Riverside Public Utilities is committed to providing cost effective, on-going evaluation, measurement and verification efforts for its energy efficiency programs in support of AB2021. EM&V costs are included in the Marketing and Administrative cost budget.

In FY 12/13 RPU hired an outside consultant, Michael Bell Consulting, to conduct a comprehensive program audit pertaining to its Energy and Water Efficiency programs. The goal was to review all energy and water efficiency programs in terms of cost effectiveness, customer participation and administration. In addition, the audit provided and in-depth analysis of rebate processes, procedures, available resources, supporting documentation and record keeping. The final report includes findings and recommendation for process and program improvement to assist RPU in improving it overall program delivery moving forward.

In addition to periodic audits, RPU consistently performs the following in support of EM&V activities:

- An onsite inspection rate of no less than 10 percent for all residential program participants, performed by RPU staff and contractors.
- A pre- and post-inspection of 100% of commercial rebate participants, including a review of historical energy usage and energy-saving calculations.
- All residential and commercial solar PV installations are field inspected and verified by city personnel for program compliance, system inter-connection standards and rated production output.
- Contracted with outside engineering firms such as ACCO Engineered Systems to verify claimed energy savings on large, complex or technical commercial projects prior to issuing an incentive.
- Audits and installations performed by third-party contractors for RPU direct installation programs have high inspection rates that are performed by the consultant and RPU staff.
- Refrigerator recycling program administered by Appliance Recycling Centers of America (ARCA) assures proper inspection when the contractor is picking up old appliances.

Complimentary Public Benefits Programs

- Solar Rebate Program (SB 1) – RPU continues to promote residential and commercial participation in its solar rebate program to reduce peak load and offset customer electricity bills. In support of Senate Bill 1 (SB1) RPU has allocated a budget of $2.5 million annually through December 31, 2016 for customer installed systems. During the last fiscal year there were 154 residential installations totaling 748 kW AC and 7 non-residential systems generating 148 kW AC of renewable solar energy.
- SHARE – This program credits up to $150 toward electric deposit or bill payment assistance for qualified low-income applicants annually. In FY 12/13, RPU served over 6500 low income customers through the SHARE program for a total of $980,000 in Public Benefit Funds credited to low income families for bill payment assistance.
- Research, Demonstration and Development (RD&D) – RPU continues to invest in RD&D programs through partnerships with local higher education institutions. In FY 12/13 a $99,000 Energy

Innovation Grant (EIG) was awarded to the University of California at Riverside (UCR) for a research project pertaining to multi-scale engineering of solar cells employing biological inspiration and nanotechnology. RPU has expended over $1,000,000 in Public Benefit Funds over the last ten years to support energy research at local institutions of higher learning. RPU also participates in SCPPA-related RD&D efforts and will continue to explore future research opportunities as they occur on a case by case basis.

- Demand Response – In response the announced closure of the San Onofre Nuclear Generating Station (SONGS), RPU implemented a voluntary demand response program. This program was developed in partnership with RPU's largest commercial customers. These important customers agreed to voluntarily shed or shift a combined total of 14 MW of electric load during the peak summer months from June-September if it was deemed necessary by RPU in cooperation with the CAISO to call on this resource.
- Green Power Premium – This program allows RPU customer to donate an additional 2 cents per kilowatt hour above their current kWh rate to assist in purchasing renewable energy resources.

FY12/13 Program Results

Riverside		Resource Savings Summary							Cost Summary		
Program Sector (Used in CEC Report)	Category	Units Installed	Net Demand Savings (kW)	Net Peak kW Savings	Gross Annual kWh Savings	Net Annual kWh Savings	Net Lifecycle kWh savings	Net Lifecycle GHG Reductions (Tons)	Utility Incentives Cost ($)	Utility Mktg, EM&V, and Admin Cost ($)	Total Utility Cost ($)
Appliances	Res Clothes Washers	1,162	157	157	72,044	61,237	734,849	437	$87,150	$2,595	$89,745
HVAC	Res Cooling	16,175	750	775	3,426,102	2,406,984	71,198,379	46,945	$504,175	$421,082	$925,258
Appliances	Res Dishwashers	614	52	52	18,850	15,080	165,878	98	$30,700	$554	$31,254
Consumer Electronics	Res Electronics	552	6	6	61,272	52,081	208,325	118	$55,200	$629	$55,829
HVAC	Res Heating										
Lighting	Res Lighting	25,532	1,956	269	2,251,496	1,688,715	8,478,746	4,809	$58,375	$25,815	$84,191
Pool Pump	Res Pool Pump	147	8	8	47,187	32,559	325,590	185	$29,400	$1,086	$30,486
Refrigeration	Res Refrigeration	3,369	198	198	1,430,575	933,811	6,085,405	3,435	$313,485	$19,688	$333,173
HVAC	Res Shell	539	75	75	159,384	103,628	1,952,826	1,250	$64,503	$10,854	$75,357
Water Heating	Res Water Heating										
Comprehensive	Res Comprehensive	627			510,313	492,330	5,094,226	2,876	$316,397	$16,371	$332,768
Process	Non-Res Cooking										
HVAC	Non-Res Cooling	1,472	273	182	385,497	316,218	5,428,830	3,420	$220,175	$22,789	$242,964
HVAC	Non-Res Heating										
Lighting	Non-Res Lighting	1,323	263	263	8,666,491	7,370,370	73,703,704	43,653	$1,153,040	$272,419	$1,425,459
Process	Non-Res Motors	64	1	29	808,992	694,965	2,779,862	1,549	$108,538	$8,507	$117,045
Process	Non-Res Pumps										
Refrigeration	Non-Res Refrigeration	89	50	50	969,102	964,568	5,736,019	3,197	$280,288	$17,759	$298,047
HVAC	Non-Res Shell										
Process	Non Res Process										
Comprehensive	Non Res Comprehensive	1,348	2	2	4,700,514	3,903,174	34,493,343	19,224	$296,451	$106,966	$403,417
Other	Other	175,258			265,254	265,152	3,286,172	1,974	$74	$13,315	$13,389
SubTotal		228,271	3,790	2,065	23,773,072	19,300,874	219,672,154	133,171	$3,517,953	$940,428	$4,458,381
T&D	T&D										
Total		228,271	3,790	2,065	23,773,072	19,300,874	219,672,154	133,171	$3,517,953	$940,428	$4,458,381

EE Program Portfolio	TRC Test	3.065715509
	PAC Test	**6.63**

Excluding T&D

ROSEVILLE ELECTRIC (RE)

At a Glance

- Established in 1912 as a department of the City of Roseville.
- Climate zone 11.
- 55,203 retail customers served.
- Percent of retail sales by customer class – residential 44%, commercial 42%, industrial 14%.
- $4,437,000 budgeted for Public Benefits for FY 13. Collection on actual revenue was $4,436,831 which is 2.85% of retail energy sales.
- Funding for Public Benefit programs collected from mandated 2.85% of utility revenues. $3,333,700 budgeted for FY 13 for energy efficiency, solar, low income and demand response programs. $2,767,879 spent on energy efficiency, remainder of collected funds applied to SB 1 Solar program and/or carried forward into 2014 fiscal year.
- RE energy efficiency program TRC for FY 13 is 3.8.
- Energy efficiency savings have been increasingly more difficult to implement and the target required for AB2021 was not met in 2012 or 2013.
- Load growth is expected to remain flat for the next few years due to reduced customer energy use and continued economic recovery. Commercial load is heavily weighed by retail stores and national retail chains.

Utility Overview

Roseville Electric and the City of Roseville is a prime economic driver in the region. Roseville Electric is challenged with balancing a rate structure that encourages energy efficiency and investment in solar technology while meeting the demands of a very diverse customer base.

Roseville Electric continues to support customer willingness to embrace new energy efficiency technology through innovative programs such as LED lighting, new home construction and contractor managed energy audit programs while we evaluate opportunities through advanced metering and behavior programs.

We will be introducing Solar leasing in 2014 and expanding electric vehicle technology while balancing the implications to our grid system and public benefits budget.

Major Program Changes

- RE placed less emphasis on prescriptive DEER programs in FY 13 and placed greater reliance on custom designed rebate programs including a commercial LED lighting program and a residential right size HVAC program custom designed for climate zone 11.
- Third party direct install audit and lighting retrofit programs for multifamily residences and small nonresidential customers were a cost effective and efficient means for RE to deliver energy efficiency programs to these hard to reach market segments.

- Completion of federal ARRA Stimulus grants in previous years extracted deep reductions in our available energy savings projects.
- The economic climate affected the number of homes built during the recent economic downturn resulting in a reduction in savings RE rebated to the new home builders.

Program Funding

Funding for Public Benefits programs is entirely based on utility revenues. In past years RE funded some programs from the Electric budget in addition programs funded from mandated funding. The recent economic downturn affected City and Utility revenues resulting in budget reductions for the programs. The majority of the public benefit programs are now funded from the mandated 2.85 % collected on revenues.

Program Highlights

- Rapid Audit: RE contracted with a vendor to provide outreach and energy audit services to the small and mid-size commercial customer base in 2013. This customer base is difficult to reach and influence however, through this program over 400 businesses were audited in FY 13 resulting in lighting retrofits with annual savings of 145,636 kWh. This program will be expanded to include other retrofits identified in the first phase of this program including food services and refrigeration technology.
- Energy Orbit Rebate Tracking: RE implemented the Energy Orbit tracking and payment system in FY 13 to support rebate volume without adding new staff. This system is cloud based (Salesforce) and is designed to manage the workflow and payment for large volumes of rebates entered individually or bulk loaded for contractor driven programs such as the Rapid Audit program.

Program Descriptions

- Residential HVAC: HVAC 400 Program encourages customers to install higher efficiency systems upon retrofit. The HVAC Right Size program requires ACCA approved sizing of system along with increased attic insulation where needed.
- Residential Shade Tree: rebate program designed to incent customers to plant shade trees to keep their home cool. There are 2 rebate levels and they are directly tied to the savings associated with each tree; trees selected from the SMUD tree calculator.
- Residential Pool Pump: rebate program designed to incent customers to upgrade from a single speed to a variable speed pool pump
- Residential Exchange Lighting: program designed to incent customers to try new, efficient lighting products. Customers must exchange an incandescent bulb(s) to receive a comparable CFL or LED version.
- Residential Sunscreens: rebate program designed to incent customers to install permanent sunscreens on their windows to keep their home cool.
- Residential New Construction: This program incents two paths. Preferred homes must achieve 20% better cooling efficiency than code while the BEST (Blueprint for Energy and Solar Technology) Homes must achieve 15% efficiency above code and include a Photovoltaic system.

- Multi Family Audit: This is a no cost audit to identify energy saving opportunities. This program is paperless and provides a communication channel with the customer.
- Multi Family Lighting: This is a direct install program that is no cost to the customer. Incandescent lamps are retrofit with low wattage CFL's.
- Commercial Lighting: offers business customers a wide of energy efficient interior lighting retrofit and control options for updating their facilities.
- Commercial HVAC: includes package and split system retrofits along with several measures to reduce heat gain in the facility, including shade trees, window film, and VFD and VSM retrofits to existing HVAC supply and return fans.
- Commercial Audit: a free audit to identify energy saving opportunities, small business customers specifically. This program is paperless and provides a communication channel with the customer.
- Commercial Audit lighting: This is a direct install program that is no cost to the customer, small business customers specifically. Incandescent lamps are retrofit with low wattage CFL's and an LED "Open" sign to replace older, inefficient models.
- Commercial New Construction: This is a program that is based on current Title 24 requirements. The designed structure must exceed Title 24 specifications by at least 10 percent. The rebate is based on KW reduced in the design
- Commercial Shade trees: custom program based on the SMUD tree calculator. 2 rebate levels based on tree selection
- Commercial Custom: this customer driven rebate option targets projects that reduce peak loads and energy consumption offers unlimited technology energy efficiency opportunities for the large and key account customers

EM&V

RE has a 5 year plan for M&V and EM&V of all public benefit programs. EM&V is performed annually on one or two programs. Selection of the programs to EM&V is prioritized by the dollars spent and savings claimed for the program. The budget for EM&V is based on the complexity of the program selected for review and can vary from $20,000 up to $60,000.

M&V is performed internally or by a third party contractor on an ongoing basis for all programs.

All EM&V reports are posted on the NCPA website at http://www.ncpa.com/current-issues/energy-efficiency-reports.html. Recommendations resulting from EM&V and M&V reports are used by RE in the design and/or re design of energy efficiency programs. Recent EM&V reports focused on:

- Shade Trees (2010)
- Large Commercial lighting (2011)
- NC Homes (2012)
- HVAC Right Size (2013) (posting spring 2014)

Complimentary Public Benefits Programs

- Renewable Energy Programs: RE rebated $477,957 on 150 new residential and commercial solar systems in FY 14. These systems are estimated to generate 1,104,797 kWh annually.
- Low-Income Programs:
  - RE offers several rate assistance programs for qualified low income residential customers.
  - Customized energy efficiency retrofits rebated through partnership with the City of Roseville Housing and Redevelopment division.
  - Scholarships provided through the Utility Exploration Center for Title 1 schools to offset the costs for field trips to the UEC.
- Research, Development, and Demonstration: RE participated in 2 RD&D programs in FY 14 including:
  - City of Roseville Utility Exploration Center- a 4000 sq. ft. facility with the mission to educate ratepayers and school children about energy conservation and a sustainable lifestyle. In support of this mission, RE contributes to the development and maintenance of exhibits through annual contributions to the center. In FY 13 RE contributed $237,383 for exhibits and school programs.
  - APPA DEED- DEED is dedicated to increasing energy efficiency, reducing costs, investigating new technologies and improving utility processes and practices.

FY12/13 Program Results

Roseville		Resource Savings Summary							Cost Summary		
Program Sector (Used in CEC Report)	Category	Units Installed	Net Demand Savings (kW)	Net Peak kW Savings	Gross Annual kWh Savings	Net Annual kWh Savings	Net Lifecycle kWh savings	Net Lifecycle GHG Reductions (Tons)	Utility Incentives Cost ($)	Utility Mktg, EM&V, and Admin Cost ($)	Total Utility Cost ($)
Appliances	Res Clothes Washers										
HVAC	Res Cooling	1,164	1,789	1,783	1,441,864	1,390,264	22,482,498	13,741	$665,918	$511,364	$1,177,282
Appliances	Res Dishwashers										
Consumer Electronics	Res Electronics										
HVAC	Res Heating										
Lighting	Res Lighting	6,227	573	87	509,211	464,962	4,113,316	2,446	$91,309	$78,683	$169,992
Pool Pump	Res Pool Pump	132	19	19	127,644	89,351	893,508	494	$28,248	$9,715	$37,963
Refrigeration	Res Refrigeration	263	30	30	222,125	136,467	686,419	372	$31,100	$5,932	$37,032
HVAC	Res Shell	764	40	40	147,472	91,037	1,512,311	910	$35,731	$25,111	$60,842
Water Heating	Res Water Heating										
Comprehensive	Res Comprehensive										
Process	Non-Res Cooking										
HVAC	Non-Res Cooling	7,557	63	60	285,491	252,700	3,624,852	2,130	$120,543	$36,670	$157,213
HVAC	Non-Res Heating										
Lighting	Non-Res Lighting	37,807	1,173	1,153	3,974,808	3,697,427	39,540,705	23,256	$866,412	$416,786	$1,283,198
Process	Non-Res Motors										
Process	Non-Res Pumps										
Refrigeration	Non-Res Refrigeration	97	1	1	8,565	7,280	32,396	17	$1,289	$189	$1,478
HVAC	Non-Res Shell	23	1	1	5,658	3,678	73,554	41	$5,658	$478	$6,136
Process	Non Res Process										
Comprehensive	Non Res Comprehensive										
Other	Other										
SubTotal		54,034	3,688	3,174	6,722,839	6,133,165	72,959,559	43,407	$1,846,208	$1,084,928	$2,931,136
T&D	T&D										
Total		54,034	3,688	3,174	6,722,839	6,133,165	72,959,559	43,407	$1,846,208	$1,084,928	$2,931,136

EE Program Portfolio	TRC Test	**3.80**
	PAC Test	**4.24**

SACRAMENTO MUNICIPAL UTILITY DISTRICT (SMUD)

At a Glance[1]

- Year established: 1946
- Climate Zone: 12
- Total Customers (year-end): 604,053
- Percent of retail sales by customer class – 45% residential, 65% commercial/industrial/other
- SMUD spent $35.5 million for residential and commercial energy-efficiency programs, compared to a budget of $37.7 million.[2] All expenditures are public-goods funded.
- KWH sales increased by .6% from the previous year and net system peak demand increased 4% from the previous year.

Utility Overview

SMUD is planning program changes to respond to the following industry trends and changing customer expectations:

- Dozens of new companies now provide products and value-services that involve devices networked through the utility meter, WiFi, or cellular bands.
- LEDs: The latest price trend data suggests that the price for LEDs ($/Lumen output) will fall another 55% by 2017, at the same time that quality is improving.
- The Comprehensive Energy Efficiency Program for Existing Buildings authorized by AB 758 will ultimately generate new utility data reporting requirements, additional building assessment and rating tools and requirements, an increased emphasis on efficiency code compliance during retrofits, focus on building industry training programs, and potential requirements for utilities to finance building upgrades.
- As part of the Comprehensive Energy Efficiency Program (AB758), we can expect a greater emphasis on building benchmarking and other building rating tools to communicate building performance and identify opportunities for building improvements.
- Residential rates will begin to mimic commercial rates at SMUD, with a movement toward TOU rates. This will place a greater focus on measures that impact peak demand and load management strategies.
- More and more customers prefer to access information and communicate via mobile devices.
- Consumers are becoming increasingly interconnected, fundamentally shifting channels of social interaction.
- Customers want clear and simple choices

Major Program Changes

[1] SMUD 2012 Annual Report, front inside cover and p. 21.
[2] Includes market research, planning, M&V, and emerging technologies R&D.

The overall budget, energy and peak savings achieved in 2013 were relatively unchanged from 2012. But the following program changes allowed total savings for the portfolio to eclipse 2012 levels:

- The Home Performance Program was redesigned for 2013 using a "Home Performance Menu" approach designed to be transparent and easy to understand for the customer and contractor. The program rewarded customers for doing more measures, reduced paperwork and eliminated energy modeling requirements for the contractor. With the new design, participation doubled in 2013 and the rebate amounts were an average of 40% lower compared with 2012.
- The Complete Energy Solutions program (see description below under Program Highlight) went from pilot phase in 2012 to full production mode in 2013. The program nearly quadrupled in size, going from a budget of $0.5 Million and 1.80 GWh delivered in 2012, to $2.3 Million and 7.85 GWh in 2013.
- The Residential Lighting program was able to deliver approximately the same savings (50GWh) both years, but with a significant change to the product mix. The program went from a product mix of 98% CFLs and 2% LEDs in 2012 to a product mix of 83% CFLs and 17% LEDs in 2013. The program was able to accomplish this by lowering the incentives to both CFLs and LEDs.

Program Highlight

Complete Energy Solutions is a full service program that addresses the unique needs of small and mid-sized businesses (SMB) by providing free energy audits, project specifications, project oversight, quality assurance, and performance-based rebates that typically cover anywhere from 50-75% of the project cost. This program packages measures with both short and long-term paybacks for a more comprehensive retrofit and deeper energy savings. Complete Energy Solutions uses an innovative performance-based customer incentive structure that is tied to the estimated lifetime savings of an installed measure, and that allows for higher rebates on newer or more complex measures. The Complete Energy Solutions Program went into full production mode in 2013, delivering about 4 times as much savings as in 2012 at an impressive cost per lifetime kWh (LkWh) of $.040.

Program Overview

SMUD has been continuously operating energy-conservation, load management, and energy-efficiency programs since 1976. Over that time period, SMUD's customers have saved over 2 TWh of first year energy savings.

In 2007, the SMUD Board of Directors approved a significant expansion in annual savings goals for its energy-efficiency resources, from approximately 0.6% of annual sales to an annual average of approximately 1.5% over the following decade. These goals have now been extended through 2023. The expanded goals were part of the Board's vision to "empower our customers with solutions and options that increase energy efficiency, protect the environment, reduce global warming, and lower the cost to serve our region." SMUD is continually redesigning its energy-efficiency portfolio to expand existing programs, plan and implement new programs, and develop and implement a broader marketing and engagement plan that will meet these expanded goals and the Board's vision.

For 2013, SMUD spent $35.5 million for residential and commercial energy-efficiency programs, compared to a budget of $37.7 million.[3] All expenditures are public-goods funded. These programs delivered 27.4 megawatts (MW) of peak-load reduction and 173.7 million kilowatt-hours (GWh) of annual energy savings, compared to annual goals of 27.3 MW and 170.0 GWh.

For 2014, residential and commercial energy-efficiency programs, SMUD has budgeted $42.3 million in PG funds.[4] These programs are projected to deliver 24.6 MW of peak-load reduction and 172.0 GWh of annual energy savings.

Program Descriptions

Commercial/Industrial Retrofit Programs

Commercial/industrial energy efficiency retrofit programs for existing buildings and facilities are budgeted for $19.1 million, with goals of 11.3 MW of peak-load reduction and 94.5 GWh in annual energy savings.

- Customized Energy Efficiency Incentives: Promotes the installation of energy-efficient equipment, controls, and processes at commercial and industrial customer facilities. Provides incentives to contractors and/or customers to promote the installation of energy efficient lighting HVAC, motors, and refrigeration equipment and controls. The program also provides incentives for retrocommissioning, process improvements, and data center storage projects that result in energy savings.
- Express Energy Solutions: Provides prescriptive incentives to participating qualified contractors for high-efficiency equipment across a variety of end-uses: lighting, HVAC, refrigeration, food-service equipment, and office-network PC power-management software. Incentives are targeted to the contractor/supplier in an effort to stimulate the market for energy-efficient equipment and services, and are designed to cover a significant portion of the incremental cost of the equipment.
- Complete Energy Solutions: Third party program using a single contractor to perform comprehensive energy audits of small and medium-sized businesses. Customer receives a customized report detailing recommended energy improvements, estimated savings, estimated cost and payback. Contractor then assist customer in hiring a SMUD Certified Trade Contractor to complete the project. Projects generally payback in less than two years.
- Savings by Design: Provides incentives to builders and their design teams to design new commercial and industrial buildings 10-30 percent more energy efficient than required by Title 24 (or typical new construction in the case of Title 24-exempt buildings and processes).

Residential Programs

Residential energy-efficiency programs for existing homes are budgeted for $22.0 million, with goals of 12.1 MW of peak-load reduction and 71.0 GWh in annual energy savings.

[3] Includes market research, planning, M&V, and emerging technologies R&D.
[4] Includes market research, planning, M&V, and emerging technologies R&D.

- Shade Trees: Provides free shade trees to SMUD customers. Implemented through the community-based non-profit Sacramento Tree Foundation (STF). STF foresters review tree selection and site locations with customers, who plant the trees.
- Equipment Efficiency: Provides rebates and/or SMUD financing for qualifying (Energy Star, Consortium for Energy Efficiency, and/or other high-efficiency) efficiency improvements to homes' building shells and equipment. Improvements include central air conditioners and heat pumps, windows, attic and wall insulation, solar domestic water heaters, and cool roofs. A new program added in 2013: heat pump water heaters for replacing electric resistance water heaters. Participating contractors are being trained to properly installation and maintain the measure to ensure system performance and energy savings.
- Whole-House Performance: Participating contractors use building-science principles and diagnostic equipment to evaluate the current performance of the whole house, and then recommend comprehensive improvements that will yield an optimal combination of savings and comfort for homeowners. Once the homeowner selects the improvements that fit their needs and budget, participating contractors will do the work to Building Performance Institute standards.
- Appliance Efficiency: Provides rebates for qualifying (Energy Star or Consortium for Energy Efficiency-listed) appliances and electronics: clothes washers, dishwashers, refrigerators, Televisions and room air-conditioners. Included in this program are two previously separate programs. Refrigerator/Freezer Recycling provides rebates for the free pick-up and environmental recycling of old refrigerators and freezers. Pool Efficiency provides educational information to customers on the benefits of installing high-efficiency, variable-speed pumps and motors, and encourages customers to operate pool equipment during off-peak hours. Pool Efficiency also focuses on educating the pool-contractor community on practices for retrofit and new-pool installations that maximize pumping efficiency and minimize energy use and peak demand.
- Retail Lighting: Promotes energy efficient residential lighting products by providing incentives for manufacturers and their retail partners to sell Energy Star lighting at a discount. Implemented through agreements with manufacturers and retailers that involve cost buy-downs, marketing, and/or advertising. SMUD has been steadily increasing the percentage of LED bulbs rebated through this program.
- Multi-Family (Apartment and Condominium) Retrofit: This program is designed to capture some of the significant energy-savings potential in existing apartments and condominiums and their common areas not addressed by current SMUD programs. The foundation of the program is developing business relationships among the key players affecting the multi-family (MF) market segment, for the sole purpose of maximizing the efficiency of MF energy use, and offering rebates and financing to help buy down the higher cost of efficiency improvements. The program targets, builds, and fosters relationships with property managers and owners of MF rental property, owners of condominiums, property-management associations, condo homeowners associations, vendors, and service providers.
- Solar Smart Energy Homes provide incentives and marketing support to builders to build homes that include PV and have net electricity consumption that is 60% lower than typical new homes.

Information/Education Programs

Information and Education programs are budgeted for $1.2 million, with goals of 1.2 MW of peak-load reduction and 6.5 GWh in annual energy savings.

- Home Electricity Reports: A scientifically designed program to measure the impact of sending electricity-usage reports to residential customers. The reports compare the customer's monthly usage to that of the previous year and to about 100 neighbors in similar-size homes with the same heat energy source. The reports are customized to each house and provide energy tips to assist the customer in making behavior changes that reduce their energy use.
- Residential Advisory Service: Provides on-site energy audits of homes, on-line energy audits, and telephone assistance for customers, with recommendations to reduce their homes' energy use (and bills). Recommendations include practices and home-improvement projects that will increase the energy efficiency of their dwellings.

Demand-Reduction Programs

- Peak Corp (Residential Air Conditioner Load Management): Customers volunteer to allow SMUD to install a radio-controlled cycling device on their central air conditioners, and to send a radio signal that switches or cycles off their air conditioners during an electric-system emergency.
- Voluntary Emergency Load Curtailment: Calls on commercial and industrial participants to reduce their electrical use by a pre-determined amount. There is no obligation and no penalty if the business is unable to respond to SMUD's request to reduce usage.
- Power Direct (Automated Demand Response Program): Enhances facilities' energy performance by seamlessly integrating automated response capabilities into energy management, lighting and HVAC systems. Automatically reduces electricity consumption on Conservation Days in times of high demand.

EM&V

In concert with its commitment to significantly ramp up energy-efficiency activities over the next decade, SMUD has established a framework to develop yearly measurement and verification (M&V) action plans. SMUD is planning M&V activities for all of its major programs, scheduled at fixed intervals (2-4 years apart), with the intention of evaluating all programs on a continued cyclical basis through 2020. For methodological approaches needed to perform specific types of evaluations, SMUD will be guided by the CPUC's "California Evaluation Framework" (June 2004) and "California Energy Efficiency Evaluation Protocols" (April 2006).

SMUD is planning to allocate approximately two percent of its total energy-efficiency budget towards impact- and persistence-focused M&V studies. These studies will be conducted primarily through the use of third-party contractors, with management and oversight by SMUD's Business Planning Department. SMUD has awarded or is in the process of awarding contracts for consultants to perform evaluations of the following programs in 2014:

Residential—

- Refrigerator/Freezer Recycling
- Lighting (CFLs/LEDs)
- Multifamily Comprehensive
- Low Income Weatherization

Complimentary Public Benefits Programs

- Renewable Energy Programs: Incentives for net-energy-metered PV; a feed-in tariff for mid-scale systems (currently closed); voluntary green pricing programs including SolarShares, which supports expansion of distributed PV; commercial and residential REC purchase programs; and a community solar program aimed at enhancing K-12 curricula on renewable energy.
- Low-Income Programs: SMUD provides a low-income rate subsidy, a medical assistance rate subsidy, and no-cost weatherization services to our low-income customers.
- Research, Development, and Demonstration: SMUD has a centralized research and development program that conducts public good research across the electricity enterprises from the supply side to demand side. With an annual budget of approximately $7 million, research is conducted in eight research areas which include renewable energy, electric transportation, climate change, distributed generation, energy efficiency, demand response, storage and smart grid. These programs seek to track emerging technologies, demonstrate promising technologies and prepare SMUD and SMUD customers for adoption of these emerging technologies.

FY12/13 Program Results

Sacramento		Resource Savings Summary							Cost Summary		
Program Sector (Used in CEC Report)	Category	Units Installed	Net Demand Savings (kW)	Net Peak kW Savings	Gross Annual kWh Savings	Net Annual kWh Savings	Net Lifecycle kWh Savings	Net Lifecycle GHG Reductions (tons)	Utility Incentives Cost	Utility Mktg, EM&V, and Admin Cost	Total Utility Cost
Appliances	Res Clothes Washers	475	74	74	n/a	197,900	2,968,500	1,167	$24,070	$168,080	$192,150
HVAC	Res Cooling	15,655	2,274	2,274	n/a	4,423,560	66,353,400	26,086	$2,263,108	$2,130,495	$4,393,603
Appliances	Res Dishwashers	337	17	17	n/a	37,200	558,000	219	$16,900	$115,471	$132,371
Consumer Electronics	Res Electronics	48,075	770	770	n/a	6,310,000	63,100,000	24,807	$562,396	$687,544	$1,249,940
HVAC	Res Heating	619	302	302	n/a	1,106,780	19,922,040	7,832	$307,777	$113,625	$421,402
Lighting	Res Lighting	1,570,521	5,470	5,470	n/a	50,320,000	417,656,000	164,198	$4,599,566	$2,014,002	$6,613,568
Pool Pump	Res Pool Pump	572	472	472	n/a	1,414,000	21,210,000	8,339	$102,400	$729,338	$831,738
Refrigeration	Res Refrigeration	9,377	773	773	n/a	4,857,975	21,295,921	8,372	$51,650	$471,376	$523,026
HVAC	Res Shell	32,264	19	19	n/a	72,670	1,453,400	571	$4,796	$3,155	$7,951
Water Heating	Res Water Heating	33	8	8	n/a	95,500	1,910,000	751	$50,300	$16,438	$66,738
Comprehensive	Res Comprehensive(a)	46,171	5,969	5,969	n/a	16,825,000	97,585,000	38,365	$3,673,087	$2,537,804	$6,210,891
Process	Non-Res Cooking	1	40	40	n/a	462,100	1,848,400	727	$22,471	$26,486	$48,957
HVAC	Non-Res Cooling	11	318	318	n/a	3,696,800	55,452,000	21,800	$179,767	$211,886	$391,652
HVAC	Non-Res Heating	0	0	0	n/a	0	0	0	$0		$0
Lighting	Non-Res Lighting	1,084	5,757	5,757	n/a	40,199,600	160,798,400	63,216	$4,944,619	$2,152,071	$7,096,689
Process	Non-Res Motors	0	0	0	n/a	0	0	0	$0		$0
Process	Non-Res Pumps	0	0	0	n/a	0	0	0	$0		$0
Refrigeration	Non-Res Refrigeration	0	0	0	n/a	0	0	0	$0		$0
HVAC	Non-Res Shell	0	0	0	n/a	0	0	0	$0		$0
Process	Non-Res Process	46	1,313	1,313	n/a	15,249,300	152,493,000	59,951	$741,537	$874,028	$1,615,566
Comprehensive	Non-Res Comprehensive	437	3,856	3,856	n/a	28,412,200	350,441,416	137,773	$2,521,955	$3,146,433	$5,668,387
Other	Other(c)	0	0	0	n/a	0	0	0	$0	$0	$0
SubTotal			27,433	27,433	n/a	173,680,585	1,435,045,477	564,175	$20,066,398	$15,398,230	$35,464,628
T&D	T&D		0	0		0	0	0	$0	$0	$0
Total			27,433	27,433		173,680,585	1,435,045,477	564,175	$20,066,398	$15,398,230	$35,464,628

EE Program Portfolio	TRC Test	1.40
	PAC Test	1.38

SAN FRANCISCO PUBLIC UTILITIES COMMISSION POWER ENTERPRISE (SFPUC)

At a Glance

- Providing electricity to customers since 1925.
- Located in Climate Zone 3
- Serving approximately 2,400 retail customer connections
- Approximately 40% of production is sold to retail customers, mainly the City's own municipal agencies, including the City's Port and airport. The City also serves a small number of residential customers and redevelopment projects. The majority of remaining generation supply is sold to wholesale customers, including two of the state's irrigation districts.
- FY 2012-13 energy efficiency budget was $2.6 million; actual spending totaled $2.5 million.
- Load growth negligible

Utility Overview

The SFPUC's Hetch Hetchy Water and Power system generates an average of 1.5 million MWh of clean hydroelectric power each year, plus 7.4 MW from 14 municipal solar photovoltaic installations, and 2 MW from biogas cogeneration. SFPUC manages energy efficiency programs mainly targeting its municipal customers. Most of its programs are provided at no charge to municipal agencies or on a fee-for-service basis to revenue-producing entities. The City has made a commitment to energy efficiency as a highest priority resource, and implements a variety of energy efficiency programs with revenues generated by the City's energy resources as well as with funds from other utilities and agencies of government. City residents and businesses have demonstrated strong support for energy efficiency programs as part of a strategy to reduce greenhouse gas emissions, and promote a clean local environment.

Major Program Changes

This year's energy savings are primarily derived from completion of a small number of large comprehensive HVAC retrofits. The utility's Commissioning and Design Review program is a growing element in the efficiency portfolio, representing nearly one-third of total utility savings in each of the last two years. The utility also realized substantial natural gas savings with boiler retrofits and commissioning projects.

Utility funding of energy efficiency decreased in FY 2012-13 by more than 50% compared to the previous year and to the ten-year average. Lower funding levels for energy efficiency services are projected to continue as the utility prioritizes reinvestment in its hydroelectric facilities at Hetch Hetchy, streetlight repairs and ownership consolidation, and new investment in infrastructure for new customers, and the GoSolarSF solar incentive program.

Program Highlights

Energy efficiency has been an essential component of the City's resource portfolio for more than a decade. In the current reporting period, FY 2012-13, completed energy efficiency projects are estimated to save 3,159 MWh of electricity per year, at a utility cost of $2.5 million.

Program level highlights for FY 2012-13 include:

- The Direct Install Program aimed at municipal facilities saved 2,153 MWh/yr;
- Design and planning work on a multi-site HVAC retrocommissioning project for the San Francisco International Airport;
- A major lighting retrofit at San Francisco's Main Library;
- A pilot project to install LEDs at 60 decorative streetlights;
- Completion on a retrocommissioning pilot project at Moscone Convention Center;
- Issuance of an annual report benchmarking the energy performance of San Francisco's municipal buildings, including almost 450 buildings representing 37 million square feet of building area.

Energy Efficiency Program Descriptions (FY 2012-13)

The utility's energy efficiency programs are generally tailored to the particular customer's circumstances because most customers are large and have varied property characteristics. They include:

- Direct-Install Program**:** This program provides complete services to municipal customers at no cost to the customer. The program includes audits, project design, and project management, with a project-specific measurement and verification (M&V) analysis for most projects.
- Investment Grade Audits and Technical Assistance: This program provides investment grade energy audits and technical assistance during design and construction of energy retrofits. In some cases, services include complete construction and project management. Power Enterprise has offered project financing to some projects through interdepartmental loans.
- Civic Center Sustainability District: Through a partnership with the Clinton Global Initiative, this program provides a variety of energy efficiency and resource efficiency services to buildings int he City's historic district.
- LED Street Light Conversion Project: The program aims to convert about 18,000 of the City's high pressure sodium street lights to LED lights. The program will reduce energy use and maintenance costs, and improve pedestrian and vehicular safety. The program is coordinated with the installation of wireless controls. The project is expected to launch in 2014.
- Green Commissioning and Design Review Program: The utility provides commissioning and related green building design review services on a fee-for-service basis for municipal new construction and major renovations. For existing buildings, the program offers retro-commissioning services.
- Energy Benchmarking Program: San Francisco requires owners of non-residential buildings over 10,000 square feet to annually benchmark and disclose the energy performance of their buildings. In 2013, Power Enterprise released its second annual report benchmarking the energy performance of San Francisco's municipal buildings, including nearly 450 buildings representing 37 million square feet of building area.

EM&V

Most energy efficiency retrofit projects include an individual M&V study that follows the International Performance Measurement and Verification Protocol (IPMVP). Each project currently includes an M&V plan with a sampling plan, a logging plan, an approach to data recovery and analysis, and a written report. For reporting purposes, verified savings calculations, as they become available, are used to update estimated savings.

Complementary Public Benefits Programs

The SFPUC offers several related programs, among them:

- Renewable Energy Programs:
  - GoSolarSF**:** The program provides incentive payments to City residents and businesses installing rooftop solar projects. The program includes a component for low income residents, which complements a statewide program administered by Grid Alternatives, a nonprofit organization;
- Research, Development, and Demonstraion:
  - Green Test Bed – The program encourages vendors to test new technologies at City properties and facilitates related installations, monitoring and evaluation

.

SFPUC Power Enterprise

Time Period: Fiscal Year 2012-2013

San Francisco PUC Power Enterprise	Resource Savings Summary (1)			Cost Summary (2)		
	Savings Summary (Completed Projects)					
	kW	kWh/yr	Lifecycle kWh	Utility Incentive & Direct Install ($)	Utility Mktg, EM&V and Admin OH	Total Utility Cost
Program						
Direct Install (General Fund)	282	2,153,216	32,298,240	$ 1,886,211	$ 180,186	$ 2,066,397
Technical Assistance (Enterprise Depts) (2)	0	0	0	$ -	$ -	$ -
Civic Center Sustainability District (2)	0	0	0	$ -	$ -	$ -
Commissioning and Design Review	0	986,575	7,892,600	$ 251,920	$ 68,656	$ 320,576
LED Street Lights	5	19,542	390,484	$ 132,719	$ -	$ 132,719
Total	**286**	**3,159,333**	**40,581,324**	**$ 2,270,850**	**$ 248,842**	**$ 2,519,692**

(1) In addition to electricity savings, EE retrofits are expected to achieve natural gas savings of 543,000 therms per year.

(2) Costs for completed projects are reported in the year of completion. Some programs have no projects completing construction in FY2012-13.

CITY OF SHASTA LAKE

At a Glance

- Year established: 1993
- Climate Zone: 11
- Number of retail customers served: 4,474
- Percent of retail sales by customer class: 35% residential; 22% commercial 43% industrial
- Energy Efficiency Program Budget: $200,000; Energy Efficiency Program Expenditures: $202,953; funds may be reallocated to other PB programs depending upon program demands; $35,000 is kept in Reserves.
- Load growth: 0% (static; weather influenced)

Utility Overview

Shasta Lake is considered a disadvantaged community with a high unemployment rate and low wages. Several regulatory changes will increase costs for customer, including Title 24 requirements for 2014 (new construction standards - addition of automatic fire suppression equipment, SB 407 water conservation requirements (upgrading of housing plumbing fixtures to low-flow, as well as high-efficient water heaters), RPS compliance period 2 (25%), and Cap and Trade. Shasta Lake has little to no new construction activity with just 4 housing starts in 2013 and is also witnessing a decrease in commercial meter accounts.

Major Program Changes

Reportable savings decreased significantly in comparison to FY2012 because the City did not allocate funding for another round of the Residential Direct Install Program (which contributed 87% of the total savings in FY2012).

The Residential Weatherization Program witnessed a decrease in savings due to a drastic reduction in the rebate level for roof radiant barriers; however, Residential Cooling Program savings increased due to increased contractor activity for HVAC tune-ups.

Program Highlights

The Keep Your Cool Program contributed 32% of the kWh savings in FY2013. Overall savings from the non-residential sector was up from FY2012 due to some Commercial Lighting Program activity, which was the second largest contributor to savings in FY2013 at 28% of the total kWh.

The City's AB 2021 Energy Reduction Target for FY2013 was 300,000 kWh; the City's total net energy reduction of 188,209 kWh fell short of this target by 37%. The City's AB 2021 Demand Reduction Target for FY2013 was 81 kW; this target was surpassed with a total demand reduction of 120 kW.

The City's cumulative AB 2021 Energy Reduction Target for FY2011-FY2013 was 900,000 kWh; this target was exceeded by 68% with a total net energy reduction of 1,515,284 kWh. The City's cumulative AB 2021

Demand Reduction Target for FY2011-FY2013 was 243 kW; this target was surpassed as well with a total demand reduction of 1,291 kW.

The City adopted targets of 230,000 kWh and 68 kW for FY2014.

Program Descriptions

The City of Shasta Lake manages a comprehensive energy efficiency incentive program for residential & commercial customers focusing on peak load reduction and energy conservation. For residential customers, rebates are offered for the installation of various energy efficiency measures. For commercial customers, rebates are available for upgraded lighting, HVAC equipment and in cases where an analysis is performed rebates can be offered for additional equipment that reduces energy use and/or demand.

- Residential Audit Program [Res Comprehensive]: On-site energy audits are provided by energy specialists. Energy efficiency measures are recommended and additional visits are completed upon request.
- Residential Lighting Program [Res Lighting]: The City offers rebates to homeowners who install ENERGY STAR® qualified compact fluorescent lamps (CFLs), ceiling fans and LED holiday lights.
- Residential Cooling Program [Res Cooling]: The City offers rebates to homeowners who install high performance heat pumps, central air-conditioners, or evaporative coolers that exceed current state requirements.
- Residential Equipment Program [Res Clothes Washers; Res Cooling; Res Dishwashers; Res Pool Pump; Res Refrigeration]: The City offers rebates to homeowners who purchase new ENERGY STAR qualified products, including clothes washers, room air conditioners, dishwashers, pool pumps, refrigerators and freezers.
- Residential Weatherization Program [Res Cooling; Res Shell]: The City offers rebates to homeowners who invest in weatherizing their homes, including air/duct sealing, attic/wall/duct insulation, window treatments/replacement, roof radiant barriers and cool roofs.
- Residential Water Heater Rebate Program [Res Water Heating]: The City offers rebates to homeowners who purchase a new, energy efficient electric water heater.
- Commercial Audit Program [Non-Res Comprehensive]: On-site energy audits are provided by energy specialists. Energy efficiency measures are recommended and additional visits are completed in order to provide technical assistance for implementation of measures. Energy efficiency rebates are available for upgrades identified during these audits.
- Commercial Lighting Program [Non-Res Lighting]: The City offers rebates to business owners who invest in the installation of energy efficiency lighting upgrades. There is a prevalence of T-12 lighting throughout the city and most high bay lighting uses high intensity discharge fixtures instead of more efficiency fluorescent fixtures.
- Keep Your Cool Program [Non-Res Refrigeration]: The City offers energy efficiency refrigeration equipment upgrades to business owners at no cost

- Commercial Custom Program [Non-Res Comprehensive]: The City offers rebates to business owners based on site-specific consumption. Rebates are tailored to the individual business owner's needs based on the audit and the potential energy savings associated with the customer project.

EM&V

The City has budgeted $5,000 in FY2014 for an evaluation of work performed over the last year. The City is currently exploring the opportunity of partnering with Gridley Municipal Utilities and City of Ukiah on this EM&V effort in order to gain economies of scale.

Complimentary Public Benefits Programs

- Renewable Energy Programs: The City funds a solar PV buy down program; FY13 budget: $100,000.
- Low-Income Programs: The City funds low-income programs Salvation Army "SHARES" (onetime payment assistance) and Lifeline Discount (income qualified monthly discount); FY13 budget: $100,000

FY12/13 Program Results

Shasta Lake		Resource Savings Summary							Cost Summary		
Program Sector (Used in CEC Report)	Category	Units Installed	Net Demand Savings (kW)	Net Peak kW Savings	Gross Annual kWh Savings	Net Annual kWh Savings	Net Lifecycle kWh savings	Net Lifecycle GHG Reductions (Tons)	Utility Incentives Cost ($)	Utility Mktg, EM&V, and Admin Cost ($)	Total Utility Cost ($)
Appliances	Res Clothes Washers	6	6	6	2,826	2,402	28,825	16	$900	$2,853	$3,753
HVAC	Res Cooling	269	36	38	40,368	31,985	387,438	237	$27,653	$22,093	$49,746
Appliances	Res Dishwashers	9	2	2	594	475	5,227	3	$660	$519	$1,179
Consumer Electronics	Res Electronics										
HVAC	Res Heating										
Lighting	Res Lighting	54	7		2,868	2,368	12,156	6	$282	$970	$1,252
Pool Pump	Res Pool Pump	1			596	411	4,109	2	$250	$400	$650
Refrigeration	Res Refrigeration	31	1	1	5,628	4,221	59,095	32	$4,650	$5,343	$9,993
HVAC	Res Shell	65	11	11	17,665	11,132	200,657	124	$24,928	$15,096	$40,024
Water Heating	Res Water Heating	4			1,422	825	10,725	6	$800	$776	$1,576
Comprehensive	Res Comprehensive	1	7	7	26,055	22,147	88,587	50		$21,600	$21,600
Process	Non-Res Cooking										
HVAC	Non-Res Cooling										
HVAC	Non-Res Heating										
Lighting	Non-Res Lighting	1	40	40	61,877	52,595	841,527	466	$22,194	$1,939	$24,133
Process	Non-Res Motors										
Process	Non-Res Pumps										
Refrigeration	Non-Res Refrigeration	1	11	11	70,976	59,648	536,830	283	$37,947	$11,100	$49,047
HVAC	Non-Res Shell										
Process	Non Res Process										
Comprehensive	Non Res Comprehensive										
Other	Other										
SubTotal		442	120	115	230,875	188,209	2,175,177	1,225	$120,264	$82,689	$202,953
T&D	T&D										
Total		442	120	115	230,875	188,209	2,175,177	1,225	$120,264	$82,689	$202,953

EE Program Portfolio	TRC Test	**0.97**
	PAC Test	**1.33**

Excluding T&D

SILICON VALLEY POWER (SVP)

At a Glance

- Established in 1896
- Climate Zone 4
- 52,285 retail customers; 84% are residential; 15% are commercial & industrial; 1% are municipal
- Retail Sales Breakdown: 8.1% residential, 3.1% commercial, 88.0% industrial, 0.7% municipal (Note that commercial and industrial customers are categorized by their rate code, and not type of business performed at the location.)
- The amount budgeted for energy efficiency programs in FY 12-13 was $7,076,250. The total amount actually expended was $3,715,416. All funding for energy efficiency programs comes from the Public Benefits Charge on customers' utility bills. Unexpended energy efficiency dollars are typically rolled over into the following fiscal year's energy efficiency programs. However, at the end of Fiscal Year 2012-2013, SVP has built up a larger than usual reserve and, at the time this report is written, it does not appear that customers will utilize all budgeted energy efficiency funds for Fiscal Year 2013-2014 either, so SVP will be reallocating a portion of the unexpended commercial energy efficiency program funds from previous years to fund the FY 2013-2014 PV rebates that were being funded through other utility budgets.
- 74.4% system load factor
- Load growth projected at 3.8% for Fiscal Year 2013-2014

Utility Overview

Over the past several years, Santa Clara has experienced the effects of the economic recession, along with the rest of the country. We have seen the number of customers participating in our Low Income Financial Rate Assistance Program more than double as customers have been laid off from work and the numbers have remained relatively stable as they have gone back to work in lower paying jobs. Businesses in Santa Clara have survived relatively well, and we have continued to see load growth during the recession due to the load that new data centers have been bringing online the last few years. However, most companies are working with leaner staff and tighter budgets than they did previously, so we are seeing fewer energy efficiency projects due to lack of time and funding.

Silicon Valley Power is unique in its mix of customers. While 84% of the customers are residential, nearly 89% of the utility retail sales are to commercial and industrial customers. Approximately 50% of our electric load is attributable to our largest "Key" Customers. Historically, it is those customers, including the large data centers, who implement a few large projects each year that make up the majority of our energy savings for the year. In Fiscal Year 2012-2013, we saw fewer of these projects, which is partly due to lack of staff and budget, and partly due to the fact that these customers have been aggressively implementing energy efficiency measures for more than a decade and the opportunities for improvements are fewer and have long payback periods. Some of the energy efficiency measures that are still being implemented include IT improvements, for which SVP does not have an incentive program. Therefore, while these

savings are being achieved in our community, like the energy savings from codes and standards, they are not accounted for in this report.

Major Program Changes

At the end of FY 2011-2012, SVP ended its third party programs for Sustainable Preschools, Laboratory Energy Management, and Retrocommissioning due to lack of additional participation. The Retrocommissioning program is currently being evaluated through our third party EM&V effort and recommendations will be considered for modifying the program and bringing it back in FY 14-15. Under the commercial prescriptive program offering, SVP added additional LED lighting rebates and hotel occupancy controls. A performance incentive program was also added for controls. A residential LED light bulb rebate was added to our portfolio of programs. None of these changes had significant impact on our energy savings results and funding levels have not changed. The lack of a few large custom projects in this fiscal year accounts for the decrease in energy savings reported this year as compared to previous years.

Program Highlight

While our residential programs do not significantly contribute to our overall energy savings due to the small portion of our load that our residents represent, our residential ENERGY STAR® LED Light Bulb Rebate had a significant impact for our customers. Every customer, whether they own or rent, can make a choice regarding the light bulbs that they use and can impact their utility bills with these energy savings. SVP customers have been especially interested in LED technology since this is the heart of innovation and many of our residents work for, or have family members who work for companies that manufacture light emitting diodes and this community is interested in embracing new technology. While many of our customers had already made the switch to CFLs, there were still some areas where CFLs were unsatisfactory (such as wet bathroom conditions, ceiling fans, etc.) and some customers have concerns over the small amount of mercury in the bulbs. LEDs provide a good alternative to incandescent bulbs in these areas and program participation exceeded SVP's expectations. As more options for the technology became available in local stores and prices continued to drop, we saw an ever-increasing participation in the program.

Program Descriptions

Res Lighting

- LED Light Bulb Rebates: SVP offers a $15 rebate per Energy Star LED bulb, up to a maximum of 6 bulbs per household. For homeowners associations (HOA), SVP allows up to 100 bulbs per HOA.
- Low Income Holiday LED Light Exchange: This program allows qualifying low income customers to exchange up to 10 strands of working incandescent holiday light strings with energy-efficient LED holiday light strings at no cost to the customer. Old incandescent string cords are cut and the strings are then recycled with a local recycler to ensure that they are not used again.

Res Refrigeration

- Residential Refrigerator Rebates: Rebates encourage residents to purchase and install ENERGY STAR® labeled refrigerators and recycle their old units.
- Refrigerator Recycling: Rebate for recycling old refrigerators.
- Low Income Refrigerator Replacement Program: This program replaces old, inefficient refrigerators with new Energy Star refrigerators for qualifying low income customers at no cost to the customer.

Res Shell

- Residential Attic Insulation Rebates: These rebates encourage the installation of attic insulation by providing incentives for both single-family and multi-family units. All homes are inspected to ensure installation has been completed.

Res Cooling

- Room Air Conditioner Recycling: Rebate for recycling old room air conditioners.
- Residential Air Conditioner Rebates: Rebates encourage residents to purchase and install ENERGY STAR® labeled window AC units and recycle their old units.
- Energy Star Ceiling Fan Rebates: Provides a rebate of $35 per fan (up to three fans per residence) for the installation of Energy Star ceiling fans.
- Solar Attic Fan Rebates: This program encourages customers to cool the attic space with a solar attic fan. By reducing the attic temperature, the insulation is more effective at stopping heat from entering the home, thereby reducing the need to cool the living space.
- Whole House Fan Rebates: This program encourages customers to cool their home off in the evening with a whole house fan. By drawing in cool outside air and exhausting the hot air accumulated during the day, this reduces the need to cool the living space when customers arrive home in the evening.

Res Water Heating

- Electric Heat Pump Water Heater: Provides a rebate of up to $1,000 for replacing an existing electric water heater with an Energy Star Heat Pump Water Heater.

Non-Res Lighting

- Commercial Lighting Rebates: this program provides rebates for energy efficient lighting upgrades.

Non-Res Cooling

- Commercial HVAC Rebate program: This program provides a rebate on the purchase and installation of new, more efficient air conditioners, HVAC systems, or heat pumps.
- Controls Rebate Pilot Program: This is a performance-based incentive for controls systems under a pilot rebate program. The incentive requires demonstrated energy savings over a 5 year period and will make payments annually upon submission of a verification report.

- VFD Rebate: This program provides a rebate on qualifying variable frequency motor drives.

Non-Res Cooking & Non Res Refrigeration

- Food Service Equipment Rebate: This program provides a rebate for the purchase of qualifying energy-efficient commercial food service equipment. It includes a variety of equipment, including both cooking and refrigeration equipment.

Non-Res Process

- Data Center Efficiency Program*: The program is targeted to data centers with IT server loads greater than 350 kW or IT cooling loads greater than 100 tons. This program provides unique opportunities for energy-efficiency projects that may not otherwise fit into our standard rebate and customer assistance offerings.
- Data Center Airflow Optimization Program*: This program targets data centers up to 15,000 sf located within office buildings or other space. Airflow optimization is a cost-effective ways to save energy in this market segment where the data center may be a small percentage of the total facility square footage, but is a large percentage of the energy use.
- Uninterruptible Power Supply (UPS) Rebate: This program provides a rebate to customers who install Energy Star UPS equipment to protect enterprise servers, networking equipment, and large storage arrays.
- PC Power Management Rebate: This program provides a rebate on qualifying PC Power Management software that achieves a minimum energy savings of 125 kWh annually per PC.
- Plug Load Sensor Rebate: This program provides a rebate for smart power strips used in commercial facilities to reduce energy consumption from office equipment.
  *Data center projects under these programs may include cooling measures, among others. However, since this is the essential cooling of servers and not for comfort of people, we consider these to be process loads.

Non-Res Comprehensive

- New Construction Rebate: This program provides an incentive to customers who exceed Title 24 by at least 10% on non-residential new construction projects.

Other programs that fall into multiple categories, depending on the energy efficiency measures implemented:

- Public Facilities' Energy Efficiency Program: SVP provides technical assistance and financial incentives for the expansion, remodel, and new construction of City of Santa Clara buildings. Included in this program are higher levels of rebates for qualifying equipment, energy management assistance, and a small budget for retro commissioning.
- City Facilities Energy Efficiency Loan Program: This program provides loans for approved energy efficiency measures implemented at City of Santa Clara facilities. Loans are paid back via the utility bill through the reduction in energy consumption.

- Customer Directed Rebate: This program provides a rebate for energy efficiency projects that do not qualify for our other rebate program offerings, but have demonstrable energy savings.

Other programs educational in nature that do not fall into a category for energy savings:

- Business Audits: Free energy efficiency audits to business customers.
- Residential In-Home Energy Audits and Education: Through this technical support program SVP staff provides on-site audit analysis, energy efficiency recommendations and distributes energy saving items ("lime lite" night lights, outlet gaskets and switch plate thermometers). The Solar Explorer and the SVP information booth participate in major city events, providing education on energy efficiency and solar electric generation systems.
- LEED Rebate for Energy Efficient Building Design: If a building meets LEED criteria and exceeds Title 24 energy requirements by at least 10 percent, this program provides rebates of up to $37,600.

EM&V

Silicon Valley Power's EM&V plan and reports for the past five years can be found at http://www.ncpa.com/current-issues/energy-efficiency-reports.html. Based on the results of the EM&V study performed on the Fiscal Year 2011-2012 programs, SVP made a number of changes to its programs that took effect for the Fiscal Year 2013-2014 program year. Because those changes were already identified, it did not make sense to evaluate the Fiscal Year 2012-2013 programs, as the recommendations would be the same. Therefore, SVP made the decision to evaluate a pilot Retrocommissioning (RCx) program that ran between 2007-2011 in order to determine persistence of the energy savings. This study kicked off in late November 2013 and will be performed by the Cadmus Group. The report is anticipated to be ready by mid-March 2014 and will be posted with the previous reports on the NCPA website. The EM&V budget averages $75,000 per year, but actual spending varies, depending on the EM&V needs for the year.

Complimentary Public Benefits Programs

- Renewable Energy Programs:
  - Santa Clara Green Power Program: Residents can purchase 100% renewable energy through this voluntary program. The cost for residents and small businesses is a penny and a half per kWh. Larger companies who do not wish to purchase 100% renewable energy may purchase in 1,000 kWh blocks. Block pricing can vary depending on the location of the resources (CA vs. Western U.S), the size of the purchase, and the duration of the purchase commitment.
  - Residential Solar Photovoltaic Rebate: Provides significant financial incentive to residential customers for installation of solar systems. Customers receiving the rebate are required to also complete an energy audit, as is the case with the statewide California Solar Initiative. The rebate started at $4.50 per watt and under a declining scale similar to the California Solar Initiative program, and is currently at $1.75 per watt, up to a maximum system size of 10 kW.
  - Business Solar Photovoltaic Rebate: Provides financial incentives for the installation of solar systems at business sites. Rebate structure is designed to decline over time as more PV is

installed in SVP's service territory, similar to the California Solar Initiative program. Businesses can receive rebates up to a total of $300,000 per customer for systems up to 100 kW. While the rebates started at $3.00 per output watt, current rebate level have declined at the time of this report to $1.10 per watt. Businesses installing systems between 100kW and 1 MW are eligible for a Performance Based Incentive. These incentives started at $0.40 per kWh and are currently at a rebate level of $0.15 per kWh at the time of this report. Businesses are required to complete an energy audit in order to receive a rebate, as is the case with the statewide California Solar Initiative.

  - Neighborhood Solar Program: SVP customers have the option to pay into a special fund to support the installation of solar electric systems at non-profit community buildings. The third installation is located at the Bill Wilson Center and was completed in the Fall of 2010. Four additional installations are underway at the time this report was written.
  - City PV Installation: In fiscal year 2012-2013, SVP completed the installation of the Jenny Strand Solar Research and Development Park, a 100kW PV facility funded 50% through Public benefits funds.

- Low-Income Programs: Our low income programs include a Rate Assistance Program, where qualified low-income customers receive a 25% discount on their electric bill (low-income program), as well as a Low Income Holiday LED Light Exchange and the Low Income Refrigerator Replacement program, both of which are described in the energy efficiency programs section of this report.
- Research, Development, and Demonstration:
  - Energy Innovation Program: This program encourages businesses to demonstrate new products and product applications not yet commercially viable in today's marketplace, install energy efficient technologies not generally known or widely accepted, yet show potential for successful market growth, successfully apply energy efficiency solutions in new ways, or introduce energy efficiency into industries or businesses that are resistant to adopting new technologies or practices.
  - APPA DEED Program: Silicon Valley Power is a paying member of the American Public Power Association (APPA) Demonstration of Energy and Efficient Design (DEED) and currently occupies a seat on the DEED Board. This program funds grants, internships and student scholarships to further R&D in the electric utility industry and support innovative applications of energy efficient or renewable technologies.
  - California Lighting Technology Center (CLTC): Silicon Valley Power provides financial support to the CLTC to further research and testing of emerging technologies in the area of lighting.

FY12/13 Program Results

Silicon Valley		Resource Savings Summary							Cost Summary		
Program Sector (Used in CEC Report)	Category	Units Installed	Net Demand Savings (kW)	Net Peak kW Savings	Gross Annual kWh Savings	Net Annual kWh Savings	Net Lifecycle kWh savings	Net Lifecycle GHG Reductions (Tons)	Utility Incentives Cost ($)	Utility Mktg, EM&V, and Admin Cost ($)	Total Utility Cost ($)
Appliances	Res Clothes Washers	5	1	1	310	264	3,162	2	$500	$779	$1,279
HVAC	Res Cooling	40	1	1	2,209	1,796	21,449	13	$5,200	$14,359	$19,559
Appliances	Res Dishwashers										
Consumer Electronics	Res Electronics										
HVAC	Res Heating										
Lighting	Res Lighting	1,685	6	1	36,742	30,830	291,285	155	$23,066	$82,228	$105,294
Pool Pump	Res Pool Pump	1			321	221	2,215	1	$200	$537	$737
Refrigeration	Res Refrigeration	490	56	56	414,640	258,947	1,454,981	789	$49,003	$360,340	$409,344
HVAC	Res Shell	50	8	8	10,861	7,603	152,054	93	$8,554	$70,975	$79,528
Water Heating	Res Water Heating	3			6,459	6,136	61,361	33	$3,000	$13,273	$16,273
Comprehensive	Res Comprehensive										
Process	Non-Res Cooking										
HVAC	Non-Res Cooling	225	29	15	26,130	20,904	313,560	175	$20,700	$18,983	$39,683
HVAC	Non-Res Heating										
Lighting	Non-Res Lighting	32,679	1,131	927	7,790,547	6,621,696	70,258,821	38,817	$1,028,494	$688,620	$1,717,114
Process	Non-Res Motors										
Process	Non-Res Pumps										
Refrigeration	Non-Res Refrigeration										
HVAC	Non-Res Shell										
Process	Non Res Process	2,831	1,026	1,026	7,187,205	6,109,124	94,206,843	49,716	$578,776	$747,828	$1,326,603
Comprehensive	Non Res Comprehensive										
Other	Other										
SubTotal		38,009	2,257	2,034	15,475,424	13,057,521	166,765,730	89,795	$1,717,493	$1,997,923	$3,715,416
T&D	T&D										
Total		38,009	2,257	2,034	15,475,424	13,057,521	166,765,730	89,795	$1,717,493	$1,997,923	$3,715,416

EE Program Portfolio	TRC Test	1.63135975
	PAC Test	**4.30**

Excluding T&D

TURLOCK IRRIGATION DISTRICT (TID)

At a Glance

- Established in 1887
- 100,272 customers, 72% are residential
- Peak demand 527 MW (2013 Summer Peak)
- 2013 energy use: 1,975 gigawatt-hours

Utility Overview

The Turlock Irrigation District (TID) was the first publicly owned irrigation district in the state and is one of only four in California today that also provides electric retail energy directly to homes, farms and businesses. Organized under the Wright Act, the District operates under the provisions of the California Water Code as a special district. TID is also an independent control area and is governed by a five member board of Directors.

Since 1923, TID has been providing safe, affordable and reliable electricity to a growing retail customer base that now numbers in the excess of 100,000 residential, farm, commercial, industrial and municipal accounts in an electric service area that encompasses 662 square-miles in portions of Stanislaus, Merced, Tuolumne and Mariposa counties.

TID provides Irrigation water to more than 5,800 growers in a 307 square-mile service area that incorporates 149,500 acres of Central Valley farmland. The District has been delivering irrigation water to growers since completing its gravity-fed water conveyance system of canals and laterals in 1900.

Major Program Changes

TID will supply our residential customers, a Home Energy Analysis (HEA) Report each month. The HEA will provide the customer with information regarding their monthly usage compared to similar homes or compared to their prior year(s) usage. In addition, a web portal will give our customers access to customize their home energy use and access to helpful energy saving tips.

Program Highlights

The TID Board of Directors adopted an aggressive 10-year plan to promote energy conservation by assisting customers with efficiency projects. For 2013, the goal was to conserve 9,285 megawatt-hours of electricity.

TID continues to help customers achieve energy savings through the implementation and promotion of a variety of programs that provide rebate opportunities for all rate classes to encourage customers to conserve energy. A significant portion of the energy efficiency measures were implemented by industrial and commercial customers. TID provides a variety of options for businesses that are looking to make changes in their existing systems by making upgrades or retrofitting their existing facility. Rebates are

available that address areas such as lighting, compressed air systems, refrigeration systems, motors, gaskets, chillers and many other systems components.

Program Descriptions

Commercial, Industrial and Agricultural Customer Programs

- Meter Manager***:*** TID offers an on-line energy management tool for business customers so they can monitor their energy usage and utilize that information to more efficiently manage their energy consumption simply by logging into a secure web site.
- Energy Audits: TID offers free on-site energy audits to commercial, industrial and agricultural customers who have concerns, questions or an interest in implementing measures to manage their energy usage and reduce consumption.
- Commercial, Industrial, Agricultural Energy Efficiency Rebates**:** TID offers rebates along with comprehensive technical support for all commercial, industrial and agricultural customers to promote the purchase and installation of commercial equipment and systems that support and enhance load reduction.
- Vending/Cooling Misers for Commercial Customers: TID contracted with a vendor to install vending miser/cooler misers for customers with refrigerated vending machines and/or glass front coolers. Additionally, the program installed spray valves, aerators and showerheads for customers who have electric water heating.
- Direct Install Program: TID contracted with a vendor to conduct ~800 energy audits for our small to medium sized commercial customers. In addition, the contractor replaced incandescent bulbs with CFL's and Non-LED "Open" signs with LED signs.

Residential Programs

- Residential Energy Audits**:** TID provides free in-home energy audits to customers who would like to learn how to reduce their energy use.
- Residential Rebate Programs: TID offers customers rebates for purchasing and installing:
    - Energy Star Refrigerator
    - Energy Star Room AC
    - Energy Star Clothes Washer
    - Whole House Fan
    - Shade Screens
    - Radiant Barrier
- Shade Tree Rebate: TID provides rebates for up to 3 trees per year that are planted to provide shade.
- Premier Shade Tree Rebate**:** TID provided customers the opportunity to purchase shade trees and a planting kit (fertilizer and compost) at a 65% discount.
- Refrigerator Recycling: TID provides a rebate to customers to dispose of an old refrigerator or freezer and TID's contracted recycler will pick up and recycle the unit for free.

- CFL Rebate Program: TID provides a rebate for the purchase and installation of CFLs.
- New Construction Rebate: TID offers a rebate to home builders for exceeding Title 24 energy standards.
- Solar Attic Fan: TID provides a rebate to customers who purchase and install a new solar attic fan

Complementary Public Benefits Programs

- *Renewable Energy Programs*
  - Tuolumne Wind Project: TID invested in a 136.6 megawatt wind facility in 2008
  - Fuel Cell Project: TID installed the largest fuel cell in California partnering with the City of Turlock's Regional Water Quality Control Facility.
  - Solar: TID offers solar rebates for customers that are interested.
  - Small Hydroelectric: TID was the first in California to construct small-scale hydroelectric power plants using its own canal system and those of neighboring irrigation districts that were not in the retail electric business. Combined the eight plants constructed, beginning in the mid 1970's provide a total of 20 megawatts of electric power. TID also owns and operates a 5 megawatt hydroelectric power plant at La Grange Dam on the Tuolumne River.
  - Geothermal: In 1984, TID acquired an interest in a geothermal power plant in the Geysers Steam Field located in California's Lake County. The project has a capacity of generating 6.8 megawatts.
- Low-Income Programs
  - TID CARES Program: An energy assistance program for qualified customers to receive a discount on their monthly energy bills. The CARES program reduces the monthly customer charge of $11 to $2, a savings $9, and provides a 15% discount on the first 800 kWh energy charges.
  - Medical Rate Assistance: The District provides a 50% discount on the first 500-kWh energy charges for customers who use additional energy due to life-support equipment or a medical condition.
  - Weatherization: TID has contracted with organizations within our community to provide weatherization services for families who meet the income qualification guidelines. The program enables families to reduce their energy bills by making their homes more energy efficient.
  - Window Replacement: TID has a program to provide replacement of inefficient windows for families who meet the income qualification guidelines. The program allows customers to purchase windows for a discounted amount and requests them to install them on their own. Assistance is available for those are unable to install.
- Research, Development, and Demonstrations: While TID did not perform any research and development projects in 2013, TID is continually looking for opportunities to develop new methods for improving energy efficiency and renewable opportunities.

FY12/13 Program Results

Turlock ID		Resource Savings Summary							Cost Summary		
Program Sector (Used in CEC Report)	Category	Units Installed	Net Demand Savings (kW)	Net Peak kW Savings	Gross Annual kWh Savings	Net Annual kWh Savings	Net Lifecycle kWh savings	Net Lifecycle GHG Reductions (Tons)	Utility Incentives Cost ($)	Utility Mktg, EM&V, and Admin Cost ($)	Total Utility Cost ($)
Appliances	Res Clothes Washers	523	5	5	15,167	12,134	121,336	67	$18,305	$302	$18,607
HVAC	Res Cooling	537	28	28	151,117	120,894	3,544,155	2,264	$15,423	$12,440	$27,863
Appliances	Res Dishwashers										
Consumer Electronics	Res Electronics										
HVAC	Res Heating										
Lighting	Res Lighting	1,091	4	4	40,304	20,152	100,760	54	$1,230	$206	$1,436
Pool Pump	Res Pool Pump										
Refrigeration	Res Refrigeration	495	19	19	116,648	77,784	751,744	408	$24,885	$1,690	$26,575
HVAC	Res Shell	41	7	7	12,634	7,043	74,968	42	$5,011	$192	$5,203
Water Heating	Res Water Heating										
Comprehensive	Res Comprehensive	62,647			23,179	18,543	556,296	314	$101,500	$1,282	$102,782
Process	Non-Res Cooking										
HVAC	Non-Res Cooling										
HVAC	Non-Res Heating										
Lighting	Non-Res Lighting	883	1,090	1,090	11,244,421	8,995,537	99,348,049	55,057	$670,564	$255,600	$926,163
Process	Non-Res Motors	7		41	229,245	180,091	2,194,425	1,216	$10,874	$5,574	$16,448
Process	Non-Res Pumps	3	67	67	282,866	226,293	3,394,392	1,881	$14,144	$8,598	$22,742
Refrigeration	Non-Res Refrigeration	4	62	62	490,059	393,734	4,091,292	2,267	$28,158	$10,524	$38,682
HVAC	Non-Res Shell	2	100	100	138,380	110,704	1,217,744	675	$6,919	$3,134	$10,053
Process	Non Res Process	5	123	123	308,220	252,648	1,832,218	1,015	$60,249	$4,665	$64,915
Comprehensive	Non Res Comprehensive										
Other	Other										
SubTotal		66,238	1,505	1,546	13,052,240	10,415,557	117,227,380	65,261	$957,261	$304,208	$1,261,469
T&D	T&D										
Total		66,238	1,505	1,546	13,052,240	10,415,557	117,227,380	65,261	$957,261	$304,208	$1,261,469

EE Program Portfolio	TRC Test	**2.57**
	PAC Test	**10.13**

Excluding T&D

TRUCKEE DONNER PUBLIC UTILITY DISTRICT (TDPUD)

At a Glance

- Established in 1927
- Climate Zone(s): 16 (winter, weekend, and holiday peaking electric utility)
- 13,283 retail customer connections (88 percent residential)
- Percent of retail sales by customer class – residential (54%) and commercial (46%)
- Budgeted amount for energy efficiency programs ($1,033,499), amount actually expended ($1,005,780, >97%) and funding sources (Rates). TDPUD moves money within energy efficiency programs and across PB programs to respond to customer needs. TDPUD's low-income program energy savings and costs are included in the above numbers since it includes an energy efficiency component. Energy savings and all associated costs from water conservation programs are also included.
- Load growth: TDPUD is projecting a 0.7% average growth rate per year, for the next 10 years

Utility Overview

Truckee Donner Public Utility District serves electricity and water to the greater Truckee area comprised of approximately 44 square miles in eastern Nevada County and approximately 1.5 square miles in adjacent Placer County. TDPUD is governed by a locally elected Board of Directors consisting of 5 members with staggered 4-year terms and operates on a calendar year budget. TDPUD is a transmission-dependent utility within NV Energy's control area and secures electric resources primarily through the Utah Associated Municipal Power System (UAMPS). TDPUD has been successful in the past in transitioning to renewable energy sources, keeping rates stable, and investing in accessible, cost-effective, energy efficiency programs.

In 2013, TDPUD continued to invest in public benefit programs spending over 5.3% of retail sales including 4.5% of retail sales spent directly on energy efficiency programs. TDPUD's energy efficiency results included a first year energy savings of 1.7% of retail sales with a TRC of 2.29. TDPUD delivered energy efficiency programs for a cost of less than $0.045/kWh which is significantly less than TDPUD's power purchase costs and a small fraction of the customer's rate. All of these numbers are down slightly from last year's results. TDPUD continues to deliver significant, cost-effective results aided by a customer base that embraces energy efficiency and conservation along with innovative program designs. A large portion of past savings have come from residential lighting (CFL's) and other lighting programs. Maintaining these saving levels is becoming increasingly difficult due, in part, to saturation.

Major Program Changes

TDPUD continues to deliver innovative and cost-effective energy efficiency programs despite increasing saturation, regulatory burdens, and unfounded regulatory reductions in reportable savings. The energy efficiency results that the TDPUD is able to claim in this report are less than ¾ the actual result. The ability to claim actual savings are further being undermined by the miss-application of codes & standards as the

baseline for energy savings for retrofits when older technologies remain widely available. Measuring actual/gross results would also be consistent with energy efficiency target setting (AB2021) and would truly position the energy efficiency resource as the 'first loading order'.

TDPUD continues to invest in Staff and tools to make the delivery and tracking of our energy efficiency programs easy for the customer and more efficient for the utility. This includes a cloud-based program management tool with on-line rebate applications that was implemented with 6 other Northern California Power Agency (NCPA) members, improved website, and contractor directory. TDPUD has also increased our customer service resources to more effectively serve customer demand.

TDPUD continues to invest in our most successful programs and to seek out new, cost-effective program opportunities. In 2013, TDPUD launched a new residential LED lighting rebate, HE Clothes Washer rebate, and custom commercial rebate. The appliance rebates were modified by lowering the incentive for EnergyStar appliance and offering increasing incentives for CEE Tiers 2 & 3. TDPUD is also starting to install CFL's and low-flow showerheads during our Residential Energy Surveys.

The multi-year drought in California is of great concern to TDPUD's community and is creating economic hardship for those dependent on water/snow and the associated tourism industries. Focus on water, however, does open up the opportunity to engage the community on the benefits of conservation and efficiency.

There have not been significant increases or decreases in funding for the programs.

Program Highlights

TDPUD's energy efficiency results included a first year energy savings of 1.7% of retail sales with a TRC of 2.29. TDPUD delivered energy efficiency programs for a cost of less than $0.045/kWh which is significantly less than TDPUD's power purchase costs and a small fraction of the customer's rate. The portfolio performance is excellent.

TDPUD's Residential Energy Survey's remain a very popular program with customers. The 'visual survey' comes complete with over 20 energy and water saving measures that are delivered at the end of the survey for free. This program allows customers to implement the 'low hanging fruit' immediately and the educational component empowers customers to pursue more complicated energy efficiency opportunities.

Residential lighting remains a critical program area (TDPUD is 88% residential with a large number of vacation homes). TDPUD continues to effectively deliver residential lighting through our Residential Energy Survey's, low-income program, at numerous events throughout the community, and at our office. Every light bulb delivered to our customer is done face-to-face and the customer must ask for the light bulbs.

TDPUD's LED Holiday Light Exchange remains very popular with ~5% of our customers visiting the conservation department in less than 1-month. Not only is the program cost-effective and very well received

by our customers, but TDPUD takes the face-to-face opportunity to educate customers about other programs and to distribute free residential lighting.

TDPUD's commercial lighting programs continue to deliver strong results and very strong customer participation. LED T8's and screw-in lamps are gaining customer acceptance and the costs are starting to come down (although these programs are less cost-effective than the previous fluorescent tube programs).

Program Descriptions

- Residential Green Partner Lighting Program (Res Lighting): Encourages customers to replace incandescent and halogen light bulbs with energy efficient lighting by distributing, in person and for free, 7-types of Compact Fluorescents (CFL's) to customers who visit the TDPUD Conservation Department or at a local event. CFL give-a-ways include a 12-pack of 60-watt equivalent spiral CFLs and up to 12 mix-n-match specialty CFLs.
- Residential Lighting Rebate (Res Lighting): Encourages customers to replace incandescent and halogen light bulbs with energy efficient lighting by providing incentives for Compact Fluorescent ($2 per CFL) and Light Emitting Diode ($5 per LED) screw-in or plug in lamps.
- Residential Energy Survey – RES (Res Lighting): Provides free residential energy surveys and energy and water-saving measures including the installation of up to 24 compact fluorescent light bulbs (CFL) and 2 low-flow shower heads at the time of survey. Customers are also informed about TDPUD conservation programs that they may benefit from and provided with associated literature.
- Residential Appliance Rebate (Res Clothes Washers, Res Dishwashers, and Res Refrigeration): Provides increasing incentives to customers to purchase more energy efficient appliances as identified by Energy Star and the Consortium for Energy Efficiency (CEE). Rebates range from $75 to $125.
- Refrigerator Recycle (Res Refrigeration): Promotes the recycling of older, working refrigerators and freezers by providing customers with free pick-up and a $30 rebate.
- LED Holiday Light Exchange (Res Lighting): Exchanges old incandescent holiday light strands with new, efficient Light Emitting Diode (LED) holiday strands for free. This one-for-one exchange (up to 66 feet of light strands) starts on the Wednesday before Thanksgiving and runs while supplies last.
- Energy Saving Program – ESP, Income-Qualified (Res Lighting): Provides a one-time bill credit and a free residential energy survey to income qualified customers. Customers are qualified by an intermediary agency and are eligible for a one-time credit equal to their highest energy charge in the past 12-months (not to exceed $200) upon completion of the required Residential Energy Survey (RES).
- Watt Meter Loan (Not evaluated): Provides a free loan of a watt meter to help customers answer the question 'How much energy does that 110 VAC device use?'. Includes information about plug-loads and how to manage their energy use.

- High Efficiency Electric Water Heater Rebate (Res Water Heating): Provides an incentive of $2/gallon for new, qualifying electric water heaters that meet Energy Factor and other requirements. Maximum rebate $150.
- Residential Building Efficiency Rebates (Res Shell): Provides an incentive of up to $75 each for building envelope and/or duct air leakage tests and up to $250 (50% of project cost) each for building envelope or duct leakage mitigation.
- Thermally Efficient Windows Rebate (Res Shell): Provides an incentive of $5 per square foot of window to replace qualifying single-pane windows. Primary heating source must be a permanent electric space heating system.
- Water-Efficient Toilet Rebate (Non-Res Pumps): Encourages customers to replace high-water use toilets with low water use toilets by providing increasing incentives for more efficient toilets. Rebates range from $25 to $125.
- Water-Efficient Toilet Exchange (Non-Res pumps): Encourages customers to replace high-water use toilets with low water use toilets by offering a free toilet exchange or the option to apply a credit towards the purchase of any toilet carried by the exchange vendor that meets the program rules. Toilet exchange is conducted during regular business hours at a local toilet vendor.
- Customer Leak Repair Rebate (Non-Res pumps): Provides a $100 incentive to help customers locate and repair a water leak on their property. Requires the use of a licensed contractor for the repairs.
- HE Clothes Washer Rebate (Non-Res Pumps): Provides a $50 incentive to customers who purchase a qualifying high water efficiency clothes washer. This is in addition to any applicable energy rebate.
- Residential Green Partners Water Program (Res Water Heating): Distributes, in person and for free, a variety of water saving measures to customers. Give-a-ways range from low-flow shower heads to sink aerators to hose spray nozzles.
- Patricia S. Sutton Conservation Garden (Not Evaluated): Promotes water-efficient landscaping by demonstrating, at the TDPUD's headquarters, native and drought tolerant plants, hardscaping/mulching techniques, and efficient irrigation. Plant lists, design, and materials used in the project are all available via a web-based resource at www.tdpud.org.
- Conservation Garden Party and Water-Wise Gardening Lecture Series (Not Evaluated): Encourages water-efficient gardening via lectures, access to local resources, and demonstrations.
- Neighborhood Resource Mobilization (Res Lighting): Delivers, through collaboration between a dozen local agencies, conservation programs directly to customers in a neighborhood block-party format.
- School Conservation Education (Res Lighting): Promotes energy and water conservation through an innovative series of programs designed to both educate students and deliver, for free, energy and water savings measures.
- Contractor Directory (Not Evaluated): Provides a list of screened contractors for TDPUD customers who require the support of a licensed contractor to access TDPUD conservation

programs. Contractor directory is managed by a partnership with the Electric and Gas Industries Association (EGIA).

- Business Green Partners Lighting Program (Non-Res Lighting): Provides energy efficient screw-in compact fluorescent (CFL) and light emitting diode (LED) bulbs, free of charge, to replace existing incandescent and halogen bulbs. TDPUD conservation specialist visits business to evaluate lighting needs and provide solutions.
- Commercial Lighting Rebate (Non-Res Lighting): Provides incentives to commercial customers for replacing inefficient lighting equipment with high efficiency lighting. Customers may receive a rebate equal to 1/3 of project cost (up to $10,000) for replacing old linear fluorescent fixtures with reduced wattage T8 fluorescent or LED fixtures. Other lighting retrofits may qualify for a rebate equivalent to projected first year energy saving.
- Commercial Refrigeration (Non-Res Refrigeration): Provides energy-efficient refrigeration controls, motors, case lighting, and infiltration barriers. Customers receive a comprehensive refrigeration energy audit and proposal for energy efficient refrigeration measures from TDPUD's installation contractor. Once the proposal is accepted the measures are installed at no charge.
- Commercial Custom Rebate (Not Evaluated): Provides incentives to commercial electric customers for replacing inefficient plant equipment with high efficiency equipment. Customers may receive a rebate equal to the projected first year energy savings.
- Green Building (Not Evaluated): Promotes green building standards and techniques through collaboration with and support of local agencies and non-profits.
- Business Green Partners Water Program (Not Evaluated): Distributes to business and commercial customers free water saving measures including pre-rinse spray valves, faucet aerators and shower heads. Custom water-saving projects are evaluated for cost-effectiveness, peak reduction, and opportunities to demonstrate new technologies.

EM&V

TDPUD operates on a calendar-year for financials and we strive to deliver our completed E3 model and EM&V reports by the March 15th deadline for this report. This is a very short time-frame (2 ½ months) but the alternative of presenting EM&V results more than a year after program completion would not allow for timely feedback and program improvements. It should be noted that, given this timeframe, TDPUD does occasionally make minor adjustments to the E3 model presented in this report and the final results in the EM&V report. TDPUD has been conducting EM&V on an annual basis since 2008 and plans to continue to do so. The budget for EM&V is ~$30,000 per year.

TDPUD EM&V reports can be found at (http://www.tdpud.org/departments/conservation/em-v-and-reporting).

Complimentary Public Benefits Programs

- Renewable Energy Programs: TDPUD has a successful SB1 Solar Rebate program for our customers. TDPUD also achieved an estimated 41% Renewable Portfolio Standard (RPS) in 2013

using the methodology defined by the California Energy Commission. TDPUD was able to transition our energy resource portfolio from primarily fossil fuel based in 2008 to a diversified mix that includes wind, solar, landfill gas, and small hydro while maintaining stable and competitive rates.

- Low-Income Programs: The TDPUD's income-qualified program, Energy Saving Program (ESP), was also described in the Program Descriptions as the participation requires that customer also implement energy efficiency measures. ESP provides a one-time bill credit and a free residential energy survey to income qualified customers. Customers are qualified by an intermediary agency and are eligible for a one-time credit equal to their highest energy charge in the past 12-months (not to exceed $200) upon completion of the required Residential Energy Survey (RES). TDPUD's income-qualified program achieves a solid return on investment for both the customer and utility.
- Research, Development, and Demonstration: It is not practical for a small utility like TDPUD to run direct RD&D programs. However, through the Northern California Power Agency, TDPUD does participate in the American Public Power Associations DEED R&D program and TDPUD Staff does investigate new energy and water conservation products and programs. TDPUD is also exploring public access charging stations for plug-in electric vehicles.

FY12/13 Program Results

Truckee Donner		Resource Savings Summary							Cost Summary		
Program Sector (Used in CEC Report)	Category	Units Installed	Net Demand Savings (kW)	Net Peak kW Savings	Gross Annual kWh Savings	Net Annual kWh Savings	Net Lifecycle kWh savings	Net Lifecycle GHG Reductions (Tons)	Utility Incentives Cost ($)	Utility Mktg, EM&V, and Admin Cost ($)	Total Utility Cost ($)
Appliances	Res Clothes Washers	233	26	26	38,278	26,029	312,351	173	$25,875	$7,646	$33,521
HVAC	Res Cooling										
Appliances	Res Dishwashers	148	14	14	13,517	9,326	102,591	57	$11,100	$2,100	$13,200
Consumer Electronics	Res Electronics										
HVAC	Res Heating										
Lighting	Res Lighting	39,605	1,705	669	2,554,780	1,772,957	16,250,474	8,675	$177,697	$257,600	$435,298
Pool Pump	Res Pool Pump										
Refrigeration	Res Refrigeration	326	30	30	172,987	143,191	877,569	476	$31,156	$14,497	$45,653
HVAC	Res Shell	33	2	2	1,505	1,195	21,949	13	$5,750	$2,590	$8,340
Water Heating	Res Water Heating	5,683	9	9	21,668	16,687	167,245	89	$17,632	$25,912	$43,544
Comprehensive	Res Comprehensive										
Process	Non-Res Cooking										
HVAC	Non-Res Cooling										
HVAC	Non-Res Heating										
Lighting	Non-Res Lighting	1,283	113	113	390,560	339,516	3,031,589	1,680	$202,911	$55,682	$258,593
Process	Non-Res Motors										
Process	Non-Res Pumps	741	8	8	75,209	57,510	647,355	351	$70,335	$11,201	$81,536
Refrigeration	Non-Res Refrigeration	8	16	16	131,865	125,271	1,002,171	528	$59,022	$15,909	$74,931
HVAC	Non-Res Shell										
Process	Non Res Process										
Comprehensive	Non Res Comprehensive										
Other	Other										
SubTotal		48,060	1,924	888	3,400,369	2,491,682	22,413,293	12,042	$601,478	$393,137	$994,615
T&D	T&D										
Total		48,060	1,924	888	3,400,369	2,491,682	22,413,293	12,042	$601,478	$393,137	$994,615

EE Program Portfolio	TRC Test	**2.29**
	PAC Test	**2.29**

Excluding T&D

CITY OF UKIAH

At a Glance

- Year established: 1987
- Climate Zone: 2
- Number of retail customers served: 7,805
- Retail sales by customer class: 35% residential; 61% commercial; 1% industrial; 3% other
- Energy efficiency program budget: $353,329; energy efficiency program expenditures: $215,594; unused energy efficiency funds roll over into the next fiscal year for energy efficiency programs
- Load growth: 0%

Utility Overview

The City of Ukiah remains committed to helping their customers manage their energy use through energy education and a comprehensive menu of energy efficiency incentive s. The City's customer base does not respond well to a "standard" energy efficiency incentive program. The main reason for this is most customers do not have the discretionary income to fund energy efficiency projects. The City works to overcome this barrier by offering generous incentives to customers in order to persuade them to participate. However, even with generous incentives participation in the commercial lighting program was down in FY2013. Residential and commercial customers enthusiastically participate when the cost of their energy efficiency projects are covered in full by the City's incentive programs. The City includes seasonal energy saving tips with their customer's energy bills in order to increase awareness and promote energy education.

Major Program Changes

Reportable savings decreased significantly in FY2013 because the City did not allocate funding for another round of the Keep Your Cool (KYC) commercial refrigeration retrofit program (which contributed 62% of the total savings in FY2012).

In the residential sector, the City issued rebates for over eight times the amount of insulation. This increase in activity can be attributed to targeted marketing through bill insert flyers.

Program Highlights

The Commercial Lighting Program contributed 47% of the kWh savings in FY2013. Overall savings from the non-residential sector was down significantly from FY2012 due to lack of funding for the KYC program. The second largest contributor to savings in FY2013 was the Residential Low-Income Direct Install Program at 42% of the total kWh.

The City's AB 2021 Energy Reduction Target for FY2013 was 310,000 kWh; this target was exceeded by 41% with a total net energy reduction of 436,904 kWh. The City's AB 2021 Demand Reduction Target for FY2013 was 84 kW; this target was surpassed as well with a total demand reduction of 214 kW.

The City's cumulative AB 2021 Energy Reduction Target for FY2011-FY2013 was 810,000 kWh; this target was exceeded by 188% with a total net energy reduction of 2,334,803 kWh. The City's cumulative AB 2021 Demand Reduction Target for FY2011-FY2013 was 220 kW; this target was surpassed as well with a total demand reduction of 709 kW.

The City adopted targets of 450,000 kWh and 105 kW for FY2014.

Program Descriptions

The City of Ukiah manages a comprehensive energy efficiency incentive program for residential & commercial customers focusing on peak load reduction and energy conservation. For residential customers, rebates are offered for the installation of various energy efficiency measures. For commercial customers, rebates are available for upgraded lighting, HVAC equipment and in cases where an analysis is performed rebates can be offered for additional equipment that reduces energy use and/or demand.

- Residential Audit Program [Res Comprehensive]: On-site energy audits are provided by energy specialists. Energy efficiency measures are recommended and additional visits are completed upon request.
- Residential Lighting Program [Res Lighting]: The City offers rebates to homeowners who install ENERGY STAR® qualified compact fluorescent lamps (CFLs), ceiling fans and LED holiday lights.
- Residential Cooling Program [Res Cooling]: The City offers rebates to homeowners who install high performance heat pumps, central air-conditioners, or evaporative coolers that exceed current state requirements. The City also offers a rebate for regular maintenance of cooling equipment (tune-ups every 3 years).
- Residential Equipment Program [Res Clothes Washers; Res Cooling; Res Dishwashers; Res Pool Pump; Res Refrigeration]: The City offers rebates to homeowners who purchase new ENERGY STAR qualified products, including clothes washers, room air conditioners, dishwashers, pool pumps, refrigerators and freezers. The City also offers a financial incentive for the recycling and decommissioning of secondary refrigerators and freezers.
- Residential Weatherization Program [Res Cooling; Res Shell]: The City offers rebates to homeowners who invest in weatherizing their homes, including air/duct sealing, attic/wall/duct insulation and window treatments/replacement.
- Residential Water Heater Rebate Program [Res Water Heating]: The City offers rebates to homeowners who purchase a new, energy efficient electric water heater.
- Residential Low-Income Direct Install Program [Res Comprehensive; Res Lighting; Res Water Heating]: Audits are preformed on residential homes for low-income customers; ENERGY STAR CFLs and low-flow showerheads are installed at no cost to the homeowner.
- Commercial Audit Program [Non-Res Comprehensive]: On-site energy audits are provided by energy specialists. Energy efficiency measures are recommended and additional visits are completed in order to provide technical assistance for implementation of measures. Energy efficiency rebates are available for upgrades identified during these audits.

- Commercial Lighting Program [Non-Res Lighting]: The City offers rebates to business owners who invest in the installation of energy efficiency lighting upgrades. There is a prevalence of T-12 lighting throughout the city and most high bay lighting uses high intensity discharge fixtures instead of more efficiency fluorescent fixtures.
- Keep Your Cool Program [Non-Res Refrigeration]: As funding allows from year to year, the City offers energy efficiency refrigeration equipment upgrades to business owners at no cost
- Commercial Custom Program [Non-Res Comprehensive]: The City offers rebates to business owners based on site-specific consumption. Rebates are tailored to the individual business owner's needs based on the audit and the potential energy savings associated with the customer project.

EM&V

The City plans to do a comprehensive evaluation of work performed over the last 3 years during FY2014. The City is currently exploring the opportunity of partnering with Gridley Municipal Utilities and Shasta Lake Utilities on this EM&V effort in order to gain economies of scale.

Complimentary Public Benefits Programs

- Renewable Energy Programs: a solar PV buy down program; FY13 budget: $150,000.

FY12/13 Program Results

Ukiah		Resource Savings Summary							Cost Summary		
Program Sector (Used in CEC Report)	Category	Units Installed	Net Demand Savings (kW)	Net Peak kW Savings	Gross Annual kWh Savings	Net Annual kWh Savings	Net Lifecycle kWh savings	Net Lifecycle GHG Reductions (Tons)	Utility Incentives Cost ($)	Utility Mktg, EM&V, and Admin Cost ($)	Total Utility Cost ($)
Appliances	Res Clothes Washers	3	3	3	1,413	1,201	14,413	8	$225	$941	$1,166
HVAC	Res Cooling	26	4	5	1,754	1,393	23,339	14	$2,827	$1,364	$4,191
Appliances	Res Dishwashers	4	1	1	264	211	2,323	1	$240	$152	$392
Consumer Electronics	Res Electronics										
HVAC	Res Heating										
Lighting	Res Lighting	17	121	119	222,483	182,679	731,980	391	$36,565	$368	$36,933
Pool Pump	Res Pool Pump										
Refrigeration	Res Refrigeration	22	1	1	7,517	5,190	49,985	27	$2,025	$2,997	$5,022
HVAC	Res Shell	154	39	39	58,856	40,354	806,702	491	$86,336	$25,184	$111,520
Water Heating	Res Water Heating										
Comprehensive	Res Comprehensive	5	2		1,905	1,524	4,572	2			
Process	Non-Res Cooking										
HVAC	Non-Res Cooling										
HVAC	Non-Res Heating										
Lighting	Non-Res Lighting	1	44	44	240,414	204,352	2,247,871	1,246	$41,615	$14,753	$56,369
Process	Non-Res Motors										
Process	Non-Res Pumps										
Refrigeration	Non-Res Refrigeration										
HVAC	Non-Res Shell										
Process	Non Res Process										
Comprehensive	Non Res Comprehensive										
Other	Other										
SubTotal		231	214	213	534,607	436,904	3,881,184	2,181	$169,834	$45,759	$215,594
T&D	T&D										
Total		231	214	213	534,607	436,904	3,881,184	2,181	$169,834	$45,759	$215,594

EE Program Portfolio	TRC Test	**1.65**
	PAC Test	**2.11**

Excluding T&D

CITY OF VERNON LIGHT AND POWER (VLP)

At a Glance

- Established in 1905, began serving electric customers in 1933
- Climate Zone 8
- During the fiscal year ending 2012/13, the electric system served approximately 1,899 customers, supplied approximately 1,138 Megawatt hours, and had a peak demand of 196 megawatts.
- With less than 1% population of residential customers served in Vernon, the other 93% is comprised of commercial & industrial customers. The other 7% consist of Municipal facilities.
- The City of Vernon budgeted ½ million dollars to fund their energy efficiency programs, which $400,000 was actually spend. 2 million dollars was allocated to fund the new RPS pass-through for renewable energy and over a million was help fund the City of Vernon wind project.
- The forecasted future load growth in the City of Vernon is to see a 1 or 2% jump but that depends on a lot of variables but a realistic goal is to maintain our current load with minimum setbacks.

Utility Overview

- To provide a host of programs that will enable business customers to conserve energy and utilize energy efficiently.
- To inform Vernon electric utility customers of the Public Benefit Programs and the associated benefits of participating in these programs.
- To monitor and evaluate the effectiveness of the programs.
- Meet or exceed energy efficient goals.

Major Program Changes

The City of Vernon has not made any a major changes in their programs but the 2012/13 fiscal year has pointed to the business community that energy saving can be achieved by looking into great detail to the operation process side of the their respectable businesses. By operating efficiently and smart, energy saving can be still be met. By focusing on more projects like compressors, heat retention, and refrigeration controls energy savings 2013/14 City of Vernon goals can be reached.

Program Highlights

During the 2012/13 fiscal one of the City's top manufactures in food service disposables and packaging products underwent four involved projects that resulted in over 1.5 million kilowatt savings for the City of Vernon.

- <u>Heat Retention of the plastic resin plastic fabrication processes:</u> Plastic resin is heated to 300 degrees Fahrenheit then transported through 3 inch stainless steel pipes to various thermo-formers. These pipes were non-insulted and as a result the resin loss heat or thermal energy while transport. This lost heat is then compensated for by resistance heater before the resin is supplied to the thermo-former. A thick one inch insulation was applied to approximately 450 feet of stainless steel pipe which resulted in an energy savings.

- *Chilled Water Efficiency:* This project was able to optimize their four plastic resin dryers which resulted in over cooling. By installing new controller in each of the dryers process there was great saving on the chilled water side and the natural gas savings on the reheat side.
- Air Compressor Sequencing: this project was added to the current system in order to optimize the flow rate based on the required demand. A meter study was done to show the ideal sequence for the compressors and point out the various air demands during plant operations.
- Dust Collector VFD retrofit: Due to the material produced in the plant, their dust collector system runs continuously, therefore by adding variable frequency drive (VFD) to a 60HP motor. With the addition of the VFD, tests were performed to determine the expected energy savings.

Program Descriptions

- Customer Incentive Program: Fund the exploration and implementation of energy efficient technologies and equipment, such as lighting technologies, variable speed drives, air compressors, motors, refrigeration, and air conditioning. Provide cash incentives to businesses that install energy efficient technologies.
- Customer-Directed Program: Fund customized projects demonstrating energy and cost savings and/or commercial market potential in the area of energy efficiency. Customers must fund at least 25 percent of total project cost. Projects are only eligible if they do not qualify for any of the other programs.
- Energy Education & Demonstration Workshops: Provide customers with an array of information resources to encourage energy efficiency measures through energy efficiency workshops and other forms of customer outreach.
- Energy Audit Program: Provide on-site audits for commercial/industrial businesses. A comprehensive audit includes an analysis of energy usage and costs, identification of energy conservation measures, and recommended actions.
- Time of Use Rate Programs: All customers loads exceeding 100 kilowatts demand are eligible to receive time-of-use rate; enabling them to reduce their energy cost through time management of their energy usage.

EM&V

The City of Vernon will provide transparency in the documentation of its energy efficiency programs once new guidelines set by the CEC are in place. The City of Vernon has had numerous projects this past fiscal year which provide in depth analysis of the energy, measurement & verification of their projects to prove the validity of the energy savings.

Public Benefits Programs

- Renewable Energy Programs
  - Solar Incentive Program: The City of Vernon had two solar projects go online this past fiscal year, one was a 22KW and the other was a 33KW system. The future is bright for new solar in

Vernon since a new 350KW AC system will be completed in the first quarter in 2014 and an two more systems are planned and will be completed mid-2014.

- Research, Development, and Demonstration: The City of Vernon Tehachapi wind energy project located in Kern County, California is moving forward but the City is still collecting data, reviewing/addressing environmental issues, and discussing permitting with federal and local agencies. This particular project is a huge undertaking in scope which requires the City's due diligences to make this venture successful.
- Demand Reduction Program: Interruptible service provides: Can reduce 12.65 MW within 30 minutes in case of emergencies.

FY12/13 Program Results

Vernon		Resource Savings Summary							Cost Summary		
Program Sector (Used in CEC Report)	Category	Units Installed	Net Demand Savings (kW)	Net Peak kW Savings	Gross Annual kWh Savings	Net Annual kWh Savings	Net Lifecycle kWh savings	Net Lifecycle GHG Reductions (Tons)	Utility Incentives Cost ($)	Utility Mktg, EM&V, and Admin Cost ($)	Total Utility Cost ($)
Appliances	Res Clothes Washers										
HVAC	Res Cooling										
Appliances	Res Dishwashers										
Consumer Electronics	Res Electronics										
HVAC	Res Heating										
Lighting	Res Lighting										
Pool Pump	Res Pool Pump										
Refrigeration	Res Refrigeration										
HVAC	Res Shell										
Water Heating	Res Water Heating										
Comprehensive	Res Comprehensive										
Process	Non-Res Cooking										
HVAC	Non-Res Cooling	6	185	185	877,203	614,042	11,876,302	6,619	$42,389	$12,231	$54,619
HVAC	Non-Res Heating										
Lighting	Non-Res Lighting	2,521	402	402	2,521,000	1,764,700	28,235,200	16,723	$186,277	$34,775	$221,052
Process	Non-Res Motors	5		26	227,845	159,492	637,966	356	$10,232	$665	$10,897
Process	Non-Res Pumps										
Refrigeration	Non-Res Refrigeration	101	56	56	605,495	423,847	5,086,158	3,089	$34,465	$7,297	$41,762
HVAC	Non-Res Shell										
Process	Non Res Process	1	56	56	443,040	310,128	1,240,512	691	$20,461	$1,293	$21,754
Comprehensive	Non Res Comprehensive										
Other	Other										
SubTotal		2,634	698	724	4,674,583	3,272,208	47,076,138	27,478	$293,823	$56,261	$350,084
T&D	T&D										
Total		2,634	698	724	4,674,583	3,272,208	47,076,138	27,478	$293,823	$56,261	$350,084

EE Program Portfolio	TRC Test	**30.32**
	PAC Test	**14.62**

VICTORVILLE MUNICIPAL UTILITY SERVICES (VMUS)

At a Glance

- The City of Victorville established VMUS in 2001 to provide safe, reliable and cost-effective electric service to retail customers that were building new facilities located in the designated service territory.
- VMUS began serving commercial and industrial customers in 2003 that reside in climate zone 14.
- VMUS receives wholesale power through its 33 kV and 12 kV switchgear equipment.
- VMUS serves approximately 50 non-residential meters.
- Peak demand for the utility was 14.0 megawatts and annual energy sales were 77,400 megawatt-hours and are comparable to the prior year.
- $217,000 for energy efficiency payments were budgeted for the period July 1, 2012 – June 30, 2013. No energy efficiency funds were disbursed.

Utility Overview

Customers are served through 12,000-volt underground facilities with larger gauge ASCR conductors to improve system reliability and reduce system losses. VMUS evaluates circuit load performance to optimize performance and reduce system losses. VMUS purchases and installs efficient transformers to reduce system losses. All customers' facilities are nine years old or less, occupying buildings that meet 2003 or 2008 Title 24 requirements. This results in lower energy efficiency potential. The system load factor is 63%.

Major Program Changes

- Establish a "Construction Incentive Program" for new construction projects that exceed Title 24 baseline standards by a specified amount.
- Establish a "Utility Incentive Program" for energy efficiency and conservation projects/activities which reduce energy usage by a specified amount.

Program Highlights

VMUS offers time-of-use rates. Customers can access their specific interval meter data on the client web portal and assess the cost impact of their energy usage pattern and demand requirements.

In addition, VMUS serves municipal facilities that can be interrupted as scheduled.

Program Descriptions

- Resource Planning: Ensure that energy efficiency is part of integrated resource planning by determining and implementing the most cost-effective, reliable, and feasible energy efficiency improvements.

- Energy Audits: On-site energy audit and recommendation designed to improve energy operating efficiency and reduce load requirements.
- Lighting Incentives: Provides incentives to improve energy efficiency for a variety of lighting applications, which reduce energy usage by a specified amount.
- Custom Energy Efficiency Incentives: Offers financial incentives for cost-effective energy-savings opportunities, not served by existing offerings, (including HVAC, motors, pumps, refrigeration, process and other) which reduce energy usage or load requirements by a specified amount.

EM&V

$217,000 for energy efficiency payments were budgeted for the period July 1, 2012 – June 30, 2013. No energy efficiency funds were disbursed. No EM&V is required.

Complimentary Public Benefit Programs:

Solar Initiative Program: The Solar Incentive Program provides financial incentives to qualifying customers to reduce the cost of renewable energy generation. The 2013 rebate incentive is equal to the estimated performance of the installed solar system multiplied by $1.95/watt AC. The rebate incentive is capped at $15,000 per customer not to exceed 50% of the total installed cost of a new solar energy system.

APPENDIX B: 10-YEAR ENERGY SAVINGS TARGETS

The table below contains the 10-year energy savings targets for POUs in California, as required by §9505(b) of the Public Utilities Code. The targets were developed using the Energy Efficiency Resource Assessment Model (EERAM), developed by Navigant (see Appendix C). For more information on utility-specific models, please see Appendix D in the 2013 version of this report, which can be downloaded at: http://cmua.org/wpcmua/wp-content/uploads/2013/03/FINALv3-SB-1037-AB-2021-Report-Appendices.pdf

All POUs – Annual Targets (MWh), 2014-2023

Utility	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	10-Year Total	% of Sales Forecast
Alameda	1,154	1,100	1,158	1,247	1,061	1,081	1,108	1,196	1,346	1,617	12,068	0.32%
Anaheim	24,026	24,425	24,228	25,742	24,585	24,842	25,254	25,480	25,567	25,204	249,353	1.01%
Azusa	2,570	2,585	2,568	2,573	2,342	2,438	2,411	2,567	2,386	2,316	24,756	0.95%
Banning	472	546	532	591	573	621	715	730	802	852	6,434	0.35%
Biggs	35	39	42	46	47	49	51	52	52	51	464	0.27%
Burbank	9,947	10,739	11,124	11,281	10,852	11,677	12,111	13,037	12,977	12,829	116,574	0.89%
Colton	966	1,273	1,614	1,759	1,911	2,137	2,435	2,610	3,804	3,712	22,221	0.64%
Corona	313	316	326	334	325	359	374	361	374	385	3,467	0.43%
Glendale	11,782	11,671	11,151	11,607	11,486	11,371	12,120	12,830	13,214	13,548	120,780	1.07%
Gridley	170	170	170	170	170	170	170	170	170	170	1,700	0.51%
Healdsburg	260	266	293	336	348	382	429	441	598	535	3,888	0.44%
Hercules	22	24	25	25	21	22	22	23	24	24	232	0.13%
*Imperial**	*TBD*	*TBD*	*TBD*	*TBD*	*TBD*	*TBD*	*TBD*	*TBD*	*TBD*	*TBD*	*TBD*	*TBD*
*LADWP**	*TBD*	*TBD*	*TBD*	*TBD*	*TBD*	*TBD*	*TBD*	*TBD*	*TBD*	*TBD*	*TBD*	*TBD*
Lassen	249	266	268	290	305	313	338	333	347	364	3,073	0.21%
Lodi	2,735	2,904	3,155	3,492	3,359	3,543	3,617	3,737	4,311	5,081	35,934	0.79%
Lompoc	168	186	203	229	195	212	232	246	258	268	2,197	0.16%
Merced	1,581	1,486	1,179	1,392	1,140	1,040	1,099	1,148	1,386	1,274	12,725	0.27%
Modesto	15,950	17,104	18,196	18,986	18,254	18,974	19,233	19,162	18,770	17,862	182,491	0.67%
Moreno Valley	286	276	269	277	251	272	284	303	304	309	2,831	0.17%
Needles	72	90	107	128	139	159	177	195	215	229	1,511	0.18%
Palo Alto	6,078	6,257	6,248	6,245	6,248	6,260	6,809	6,846	7,412	7,452	65,855	0.63%
Pasadena	12,750	12,750	12,750	12,750	12,750	12,750	12,750	12,750	12,750	12,750	127,500	1.00%
Pittsburg Power	140	134	122	123	128	124	122	120	125	122	1,260	0.65%
Plumas-Sierra	126	128	144	146	133	128	178	150	233	198	1,564	0.10%
Port of Oakland	91	97	101	104	103	106	108	111	108	105	1,034	0.15%
Rancho Cucamonga	441	449	470	509	550	598	600	656	634	711	5,618	0.51%
Redding	3,045	3,224	3,318	3,458	3,207	3,384	3,581	3,857	4,207	4,349	35,630	0.44%
Riverside	18,399	19,099	18,870	19,756	19,317	20,287	23,368	24,469	25,889	25,865	215,317	1.00%
Roseville	7,713	7,768	8,037	8,007	7,499	7,790	7,260	7,697	8,094	8,479	78,344	0.64%
SF PUC	4,353	4,353	4,857	4,857	4,857	2,970	2,536	2,806	2,806	2,806	37,201	0.35%
Shasta Lake	230	524	299	239	261	243	256	269	361	368	3,049	0.16%
Silicon Valley	24,076	24,387	23,079	22,848	22,407	21,274	20,961	20,174	18,923	18,282	216,411	0.66%
SMUD	172,000	175,000	178,000	180,000	182,000	184,000	186,000	187,000	189,000	191,000	1,824,000	1.52%
Trinity	68	86	103	122	118	143	161	180	203	219	1,403	0.14%
Truckee Donner	1,367	1,521	1,558	1,552	1,080	1,134	1,103	1,121	1,198	1,204	12,838	0.79%
Turlock	9,570	10,081	13,232	11,996	13,674	12,666	13,698	15,601	16,159	17,372	134,049	0.61%
Ukiah	450	450	448	428	364	404	395	391	414	423	4,167	0.32%
Vernon	6,417	6,631	6,609	6,664	6,592	6,561	6,454	6,377	7,060	7,065	66,430	0.51%
Victorville	102	124	146	172	202	231	260	291	341	370	2,239	0.31%
CALIFORNIA	340,174	348,529	354,999	360,480	358,854	360,715	368,780	375,487	382,822	385,770	3,636,609	0.94%

*LADWP and IID are in the process of finalizing targets that will be adopted later this year

**TID's fiscal year is the calendar year and adopted goals for 2013-2022.

APPENDIX C: LIST OF REFERENCES

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