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Energy Efficiency

in California's Public Power Sector

TABLE OF CONTENTS

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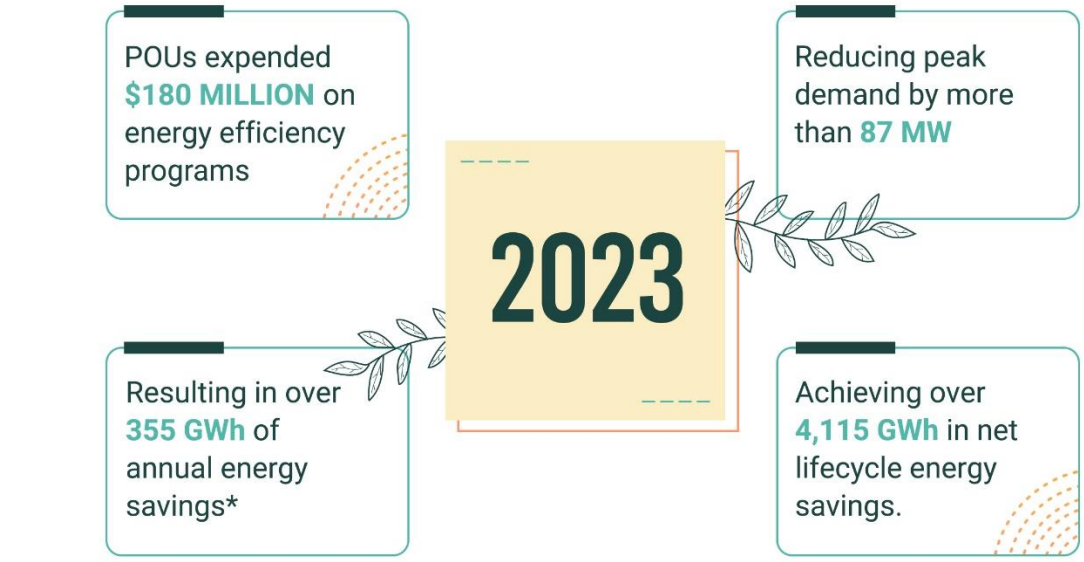
Project Managers: Frank Harris, California Municipal Utilities Association (CMUA)
Emily Lemei, Northern California Power Agency (NCPA)
Steven Starks & Brandon Czworniak, Southern California Public Power Authority (SCPPA)

Heather Heinbaugh
Alameda Municipal Power
Brian Zimmerman
Anaheim Public Utilities
Paul Reid and Liza Sagun
Azusa Light & Water
Amber Rockwell
City of Banning
Carrie Pahua
City of Biggs
Ruzan Soloyan
Burbank Water & Power
Jessica Sutorus and Adrianne Rogers
City of Colton
Aneta Badalian
Glendale Water & Power
Hugo Valdez and Sabrina Barber
Imperial Irrigation District
Terra Sampson
City of Healdsburg
Theresa Phillips
Lassen Municipal Utility District
Astrida Trupovnieks
City of Lodi
Steven Valle
City of Lompoc
Armen Saiyan, Damon Turney, Melanie Kwong, and Luke Sun
Los Angeles Department of Water & Power
Vanessa Lara
Merced Irrigation District
Craig Castro, Karen Mullins, Esmeralda Alvarez, and Samantha Perea
Modesto Irrigation District
Tanya Dunlap
City of Moreno Valley
Tim Scott
City of Palo Alto Utilities
Gordon Algermissen
Pasadena Water & Power
Vanessa Xie
City of Pittsburg
Emily Compton
Plumas-Sierra Rural Electric Cooperative
Trina Valdez and Deborah Allen
City of Rancho Cucamonga
Kamryn Hutson
City of Redding Electric Utility
Griselda Rivera and Kirsten Rosales
Riverside Public Utilities
Rachel Marmorstein
Roseville Electric
Cynthia Austin and Jamie Arbizo
Sacramento Municipal Utility District
Daniel Young, James Hendry, and Bigit Kundu
San Francisco Public Utilities Commission
James Takehara
City of Shasta Lake
Mary Medeiros McEnroe
Silicon Valley Power
Steve Keates
Truckee Donner Public Utilities District
Monique Hampton, Willie Manuel, Christian Poley, and Cory Sobotta
Turlock Irrigation District
Jonathan Sun and Anthony Serrano
Vernon Public Utilities
Len Viejo
ASTRUM Utility Services
Miranda Boutelle and Paul Rich
Efficiency Services Group

EXECUTIVE SUMMARY

California's Publicly Owned Utilities (POUs) continue to collaborate to develop cost-effective Energy Efficiency (EE) programs and report annual results to their customers and the California Energy Commission (Energy Commission) in a consistent and comprehensive manner. This 17th edition report presents the latest results from POUs' wide range of EE programs.

During the Fiscal Year (FY) 2023 reporting cycle, POUs expended over **$180 million** on EE programs for their communities, including low-income customers, resulting in **355 Gigawatt hours (GWh)** of net annual energy savings and reducing peak demand by more than **87 Megawatts (MW).** Since the enactment of Senate Bill (SB) 1037 (Kehoe, 2005), public power has spent over **$2.9 billion** on EE and demand reduction, achieving over **105,617 GWh** in net lifecycle energy savings.



California's POUs are evaluating new methods to reduce energy use and Greenhouse Gas (GHG) emissions cost-effectively. As indicated in some utility narratives, many POUs have expanded their electrification and GHG gas reduction efforts, focusing on clean energy solutions that demonstrate greater cost-effectiveness than remaining EE opportunities. The successes of the past provide an excellent foundation on which public power will continue to build.

Appendix A contains additional information on each POU's portfolio, including program descriptions, expenditures, and energy savings. **Appendix B** presents a comprehensive outline of the calculations used within the Cost Effectiveness Tool (CET) Reporting Platform (RP) (CET/RP).

INTRODUCTION

Pursuant to the Public Utilities Code, each year POUs are required to report the following information to customers and the Energy Commission :[1]

- Investments in EE and demand reduction programs.
- Descriptions of each EE and demand reduction program, program expenditures, cost-effectiveness of each program, and expected and actual EE savings and demand reduction results.
- Sources for funding of EE and demand reduction programs.
- Methodologies and input assumptions that are used to determine cost-effectiveness of programs.
- A comparison of the POUs' annual EE targets and the POUs' reported electricity efficiency savings and demand reductions.

This collaborative report compiles the required data from the individual POUs into a comprehensive document in compliance with the California Public Utilities Code.

The State's POUs supply approximately one-quarter of California's electricity to a broad range of communities with widely differing climates, customer bases, and economic conditions. This compilation is presented to foster analyses of broader EE trends and offer policymakers data-driven considerations regarding the practical impacts of related policies.

The POUs have long supported California's EE policies and administered programs to provide financial incentives and rebates to POU customers for investments in a variety of energy-saving measures. The purpose of this report is to look back on the past year's success, in addition to looking ahead to inform discussions on how best to achieve additional energy savings in the future.

"Equitably advancing energy efficiency is foundational to the transition to a clean energy future."

2023 Integrated Energy Policy Report[2]

[1] California Public Utilities Code (Cal. Pub. Util. Code) § 9505.

[2] See https://www.energy.ca.gov/data-reports/reports/integrated-energy-policy-report/2023-integrated-energy-policy-report.

PROGRAM RESULTS

This section provides an overview of the EE program results for public power in California during FY 2023. Most POUs manage and implement EE programs on a fiscal year basis; for POUs that operate on a calendar year basis, their respective report results for FY 2023 are equal to that of Calendar Year 2023.[3]

In summary, during the 2023 reporting cycle, POUs collectively spent over **$180 million** on EE programs, resulting in **355 GWh** of net annual energy savings, with **4,115 GWh** of net lifecycle energy savings and reduced peak demand by **over 87,000 kilowatts (kW)**.

TABLE 1: Historic Program Results

Fiscal Year	Net Peak Savings (kW)	Net Annual Savings (MWh)	Net Lifecycle Savings (MWh)	Total Utility Expenditures
2006	52,552	169,303	2,249,214	$54,412,728
2007	56,772	254,332	3,062,361	$63,151,647
2008	82,730	401,919	4,473,801	$103,907,266
2009	117,435	644,260	6,749,912	$146,093,107
2010	93,712	522,929	5,586,299	$123,433,250
2011	81,121	459,459	4,604,364	$132,372,795
2012	82,561	439,710	4,638,521	$126,936,631
2013	89,305	521,478	5,722,100	$134,475,230
2014	110,437	568,980	6,414,228	$169,940,735
2015	124,807	644,703	7,836,316	$162,896,993
2016	107,925	771,592	10,253,633	$154,796,668
2017	113,549	861,942	11,991,602	$226,386,251
2018	129,244	638,656	8,267,536	$218,730,235
2019	147,405	646,281	7,312,304	$260,675,319
2020	126,522	475,631	5,221,787	$261,918,171
2021	81,596	254,310	2,850,853	$158,527,378
2022	70,858	361,940	4,265,855	$223,075,217
2023	87,510	355,286	4,114,639	$180,313,119
Total	**1,756,041**	**8,992,711**	**105,615,325**	**$2,902,042,740**

[3] POU fiscal years run from July 1 to June 30, except for the following POUs who operate on a calendar year basis: Imperial Irrigation District, Merced Irrigation District, Modesto Irrigation District, Plumas-Sierra Rural Electric Co-op, Sacramento Municipal Utility District, Truckee Donner Public Utility District, and Turlock Irrigation District.

As shown in **Table 1**, public power has collectively spent over **$2.9 billion** on EE programs, resulting in **105,615 GWh** in net lifecycle energy savings since 2006 and avoided the development of **1,756 MW** of generation resources to serve peak demand during that time. Table 1 also shows that Net Annual Savings continue to be below that realized prior to the pandemic, indicating that there has been a shift in the energy efficiency savings available for utility programs.

California's POUs continue to support the statewide goal of doubling EE by 2030 under the Energy Commission's direction. Using the Energy Commission's methodology to determine cumulative energy savings, POUs' cumulative first-year savings from FY 2015 through FY 2023 equals **5,010.3 GWh,** as presented in **Table 2** below. For the first year since the doubling targets were set, the POUs collectively did not exceed the CEC's target for the POUs.[4] This difference reflects the changing landscape of energy efficiency programs, and the savings achieved more closely align with updated energy efficiency forecasting conducted by the POUs.

TABLE 2. California POU Cumulative 1st Year Energy Savings Comparison

Net 1st Year Savings per Installation Year (GWh)									Cumulative Savings	CEC Cumulative Savings Target
2015	2016	2017	2018	2019	2020	2021	2022	2023		
644.7	771.6	861.9	638.7	646.3	475.6	254.3	361.9.0	355.3	5,010.3	5,239.0

The Energy Commission methodology used to calculate "cumulative" savings shown in Table 2 combines only the "first-year savings" from each of the POUs' portfolios in the respective reporting years to calculate "cumulative savings." POUs are concerned that this calculation does not account for any expected useful life of the efficiency measures in the portfolios or savings persistence from behavioral changes after an efficiency improvement has been made. Therefore, in addition to the representation of POUs' cumulative savings in Table 2, POUs have also calculated alternative representations of the cumulative energy savings from their combined portfolios that potentially better reflect the true cumulative impact of EE savings on the electric grid.

Table 3, shown below, represents the cumulative savings as the Lifecycle Savings from all the EE measures installed each year in the POUs' EE portfolios.

TABLE 3. California POU Cumulative Lifecycle Savings Comparison

Cumulative Savings Per Installation Year (GWh)									Cumulative Savings
2015	2016	2017	2018	2019	2020	2021	2022	2023	
7,837	10,254	11,992	8,268	7,312	5,222	2,851	4,266	4,115	62,117

[4] Energy Commission, October 2017, *Senate Bill 350: Doubling EE Savings by 2030,* Table A-11.

Table 3 accurately accounts for the savings achieved by all measures over their expected useful life. However, at this time, there is no degradation factor included in the modeling to reflect potential loss of use, nor is there any measure or estimation of customers' behavioral changes to gauge a level of persistence in use of efficient measures – rather than revert to less efficient equipment upon burnout or end of the efficient measure's life. Regardless, as calculated today, Lifecycle Savings may be a better representation of cumulative savings than 1st-year Annual Savings.

Table 4 shows the cumulative energy savings from all of the measures that are in effect or active in each of the years depicted, including current and historical measures. Whereby, when a measure's life ends, the savings for that measure are no longer counted. There is a strong potential that this representation is the closest to the definition of cumulative savings. However, the primary drawback to this method when considering a single point forecast, such as "cumulative savings in 2030", is that a utility receives no "credit" for any energy savings achieved from measures installed between 2015 and 2029 whose expected useful life has expired. That is, no matter when installed, a measure would have to be active in 2030 to count towards the cumulative doubling of the efficiency savings goal.

TABLE 4. California POU Cumulative Active Measure Energy Savings Comparison

Lifecycle Savings Per Installation Year (GWh)									Cumulative Savings
2015	2016	2017	2018	2019	2020	2021	2022	2023	
1,172	1,646	2,225	2,775	3,289	3,650	3,818	3,968	4,247	25,790

Table 5, shown on the next page, provides a comprehensive summary of the EE savings for all POUs' respective EE Portfolios in FY 2023. The 16 largest utilities subject to Integrated Resource Plan (IRP) requirements account for the majority of savings within the public power community. As in past years, the two largest POUs, Los Angeles Department of Water & Power (LADWP) and Sacramento Municipal Utility District (SMUD), accounted for nearly two-thirds of the total POU savings during the 2023 reporting cycle. Taken as a group, the 16 IRP POUs produced 97% of the total savings. The remainder of the savings were realized by 25 smaller and mid-sized POUs located throughout California.

TABLE 5. EE Program Results by Utility

Utility	Gross Peak Savings (kW)	Gross Annual Savings (kWh)	Gross Lifecycle Energy Savings (kWh)	Net Peak Savings (kW)	Net Annual Savings (kWh)	Net Lifecycle Energy Savings (kWh)	Net Lifecycle GHG Reduction (Lbs)	Total Utility Cost	PAC	TRC	Utility ($/kWh)
Alameda	99	146,604	1,953,801	54	109,516	1,449,070	1,139,147	$361,163	0.46	0.32	0.324
Anaheim	24,021	7,070,358	91,941,411	24,021	7,070,358	91,941,411	65,910,784	$6,729,157	1.39	1.53	0.096
Azusa	813	2,667,474	36,800,458	812	2,666,531	36,772,162	23,918,642	$1,468,043	2.61	11.33	0.053
Banning	124	515,895	7,045,778	89	411,319	5,599,955	4,162,611	$302,408	2.19	2.11	0.072
Biggs	0	0	0	0	0	0	0	$0			0.000
Burbank	1,732	5,318,928	68,110,040	1,732	5,318,928	68,110,040	47,492,778	$1,769,558	7.09	2.78	0.035
Colton	1,591	4,063,706	92,984,616	1,448	4,027,922	92,605,044	67,734,927	$995,333	10.22	0.88	0.017
Corona	0	0	0	0	0	0	0	$0			0.000
Glendale	3,582	18,635,376	133,696,385	3,581	18,621,848	133,531,130	88,809,577	$6,883,237	2.77	2.68	0.064
Gridley	16	273,002	2,455,824	15	266,141	2,373,419	1,697,288	$100,861	2.43	0.76	0.053
Healdsburg	37	258,868	2,749,554	24	159,752	1,712,750	2,482,696	$129,779	2.02	0.67	0.094
Imperial	5,652	28,737,883	501,215,347	5,650	28,729,105	501,171,457	436,598,308	$6,296,901	8.40	13.64	0.019
IPUC	0	0	0	0	0	0	0	$0			0.000
Lassen	48	496,730	5,111,561	38	390,261	4,068,388	3,342,887	$324,841	1.58	1.14	0.098
Lodi	172	1,219,398	12,835,453	143	1,065,346	11,209,018	9,286,058	$473,506	2.76	1.55	0.052
Lompoc	34	81,207	903,961	23	60,715	684,766	489,746	$92,042	0.76	0.45	0.168
Los Angeles	29,222	145,660,765	1,422,709,840	29,222	145,660,765	1,422,709,840	123,238,355	$116,358,941	1.17	1.41	0.102
Merced	11	268,221	3,152,291	7	163,630	1,930,833	1,289,323	$224,271	0.83	0.92	0.147
Modesto	580	5,534,699	81,824,829	449	4,403,733	65,173,863	45,242,495	$1,602,972	5.37	2.06	0.033
Moreno Valley	8	45,388	453,880	6	36,310	363,104	263,885	$808,224			2.695
Palo Alto	36	445,377	7,022,292	31	378,570	5,968,948	5,196,209	$658,916	0.87	0.83	0.151
Pasadena	2,102	10,742,500	46,016,342	2,012	10,640,640	44,291,875	31,176,677	$2,838,843	1.91	2.87	0.075
Plumas-Sierra	37	88,646	1,303,119	23	53,376	786,364	606,043	$160,399	0.65	0.19	0.274
Port of Oakland	0	0	0	0	0	0	0	$13,692			0.000
Rancho Cucamonga	133	326,507	3,497,057	133	326,020	3,489,753	2,458,337	$65,480	5.63	10.76	0.024
Redding	54	888,105	8,152,609	54	888,105	8,152,609	7,645,848	$2,532,608	0.25	0.81	0.353
Riverside	2,147	11,523,069	166,745,232	1,822	10,622,386	144,541,219	105,021,961	$5,687,438	3.78	8.94	0.054
Roseville	1,021	18,310,268	67,809,129	905	13,141,206	56,987,656	45,853,646	$2,375,804	1.85	1.26	0.051
Sacramento	14,984	99,965,081	1,389,841,591	11,611	75,414,252	1,070,061,088	54,816,329	$14,324,803	0.94	0.28	0.020
San Francisco	55	465,428	6,981,420	55	465,428	6,981,420	6,691,961	$347,266	2.30	2.07	0.066
Shasta Lake	39	210,857	2,063,868	35	195,045	1,892,034	1,344,309	$194,754	1.08	1.64	0.125
Silicon Valley Power	2,211	15,509,918	209,129,534	1,879	13,183,431	177,760,104	73,674,009	$3,556,067	6.22	1.06	0.026
Truckee Donner	2	20,759	408,559	2	17,495	344,991	270,051	$382,726	517.89	528.17	1.629
Turlock	1,213	7,115,113	101,315,989	941	6,538,325	95,141,934	63,949,968	$1,802,390	5.37	1.88	0.025
Ukiah	27	159,395	1,473,004	22	130,973	1,157,210	1,069,498	$142,373	1.53	1.47	0.147
Vernon	526	3,157,256	31,389,038	526	3,157,256	31,389,038	20,088,018	$239,428	14.95	4.95	0.010
Victorville	145	971,469	24,286,712	145	971,469	24,286,712	17,771,558	$68,895	35.24	9.04	0.005
EE and Low Income Subtotal	**92,472**	**390,894,249**	**4,533,380,525**	**87,510**	**355,286,159**	**4,114,639,202**	**1,360,733,930**	**$180,313,119**	**2.99**	**2.42**	**0.059**

Table 6 breaks down the statewide results by end-use. As has occurred for the past several years, lighting programs once again account for the largest share (**35%**) of the gross annual EE program savings.

TABLE 6. EE Program Results by End-Use Category

EndUse	Gross Peak Savings (kW)	Gross Annual Savings (kWh)	Gross Lifecycle Energy Savings (kWh)	Net Peak Savings (kW)	Net Annual Savings (kWh)	Net Lifecycle Energy Savings (kWh)	Net Lifecycle GHG Reduction (Lbs)	Total Utility Cost	PAC	TRC	Utility ($/kWh)
<All Types>	2,372	12,267,940	170,611,702	2,097	10,206,413	141,757,328	56,988,493	$3,352,777	4.23	3.87	0.032
Appliance & Plug Loads	2,038	10,056,155	110,846,884	1,564	7,752,162	83,827,859	11,367,614	$4,047,436	0.64	0.26	0.065
BROs	1,353	19,561,617	24,269,952	1,350	14,835,468	18,837,553	15,588,755	$1,114,558	1.74	1.72	0.064
Building Envelope	5,010	10,840,085	202,405,544	4,823	10,540,287	196,518,611	43,651,787	$9,881,026	3.42	2.00	0.072
Codes & Standards	7,950	51,006,747	765,134,939	6,360	40,805,735	612,114,698	29,995,550	$1,313,622	5.98	5.98	0.003
Commercial Refrigeration	539	5,098,008	79,220,262	513	4,872,122	77,172,873	27,035,502	$1,832,985	3.54	2.60	0.033
Food Service	9	64,802	802,327	9	63,099	776,791	51,117	$83,909	0.58	0.18	0.139
HVAC - Cooling	18,092	69,185,524	920,997,662	16,878	61,163,426	796,388,431	246,943,674	$44,802,199	1.94	1.16	0.077
HVAC - Heat Pump	127	411,427	6,107,702	81	300,624	4,447,554	3,741,319	$634,742	0.68	0.43	0.199
HVAC - Heating	0	-873,065	-13,096,376	0	-873,095	-13,096,642	-1,131,118	-$151,282	2.52	1.99	0.015
Lighting - Indoor	15,598	100,489,099	836,748,681	15,241	97,914,827	811,372,727	262,349,000	$69,659,546	0.98	1.62	0.103
Lighting - Outdoor	3,032	36,564,517	515,015,257	2,496	32,641,211	485,871,627	390,100,086	$14,088,725	3.28	4.11	0.041
Miscellaneous	29,284	30,861,627	251,840,489	29,282	30,813,925	251,051,280	179,156,898	$16,328,947	1.93	2.22	0.083
Process	758	4,129,367	55,613,466	734	3,950,495	52,915,557	8,655,364	$1,958,355	103.91	13.59	0.048
Service & Domestic Hot Water	-19	-230,939	-4,799,002	-32	-316,616	-5,657,689	-54,691	$600,351	-0.58	-0.52	-0.142
Water Pumping / Irrigation	3,728	26,145,172	390,478,337	3,727	26,144,908	390,474,380	54,826,622	$2,747,993	10.80	14.33	0.009
Whole Building	1,674	11,258,477	168,003,721	1,584	10,672,316	159,188,614	8,570,395	$3,261,256	0.64	0.09	0.031
EE Subtotal	91,544	386,836,558	4,480,201,549	86,707	351,487,308	4,063,961,551	1,337,836,366	$175,557,145	3.05	2.43	0.058
Low Income	928	4,057,690	53,178,976	803	3,798,851	50,677,651	22,897,564	$4,755,974	2.99	2.42	0.059
EE and Low Income Subtotal	92,472	390,894,249	4,533,380,525	87,510	355,286,159	4,114,639,202	1,360,733,930	$180,313,119	2.99	2.42	0.059

Table 7 presents the statewide EE program results by sector. As has historically been the case, the Commercial and Industrial (C&I) sectors account for the majority of California POUs' annual energy savings **(55%).** In comparison, residential programs resulted in **37%** of the gross annual EE program savings.

TABLE 7. EE Program Results by Sector

Sector	Gross Peak Savings (kW)	Gross Annual Savings (kWh)	Gross Lifecycle Energy Savings (kWh)	Net Peak Savings (kW)	Net Annual Savings (kWh)	Net Lifecycle Energy Savings (kWh)	Net Lifecycle GHG Reduction (Lbs)	Total Utility Cost	PAC	TRC	Utility ($/kWh)
<All Types>	5,018	24,023,193	358,240,759	5,015	23,979,969	357,592,396	44,912,012	$1,902,553	14.44	11.18	0.007
Agricultural	17	46,188	692,827	17	45,925	688,870	475,143	$8,429	9.25	1.26	0.016
Commercial	51,956	196,898,942	2,182,819,854	50,587	187,526,317	2,086,790,263	870,447,571	$97,386,381	2.00	1.46	0.061
Industrial	954	7,251,153	121,245,533	873	6,720,288	113,186,152	76,822,415	$1,432,136	8.12	2.75	0.018
Other	203	1,260,058	15,248,115	203	1,260,058	15,248,115	12,844,910	$4,014,414	0.36	0.37	0.323
Residential	33,395	157,357,024	1,801,954,461	30,012	131,954,750	1,490,455,756	332,334,315	$70,813,232	4.22	3.95	0.067
EE Subtotal	91,544	386,836,558	4,480,201,549	86,707	351,487,308	4,063,961,551	1,337,836,366	$175,557,145	3.05	2.43	0.058
Low Income	928	4,057,690	53,178,976	803	3,798,851	50,677,651	22,897,564	4,755,974	2.99	2.42	0.059
EE and Low Income Subtotal	92,472	390,894,249	4,533,380,525	87,510	355,286,159	4,114,639,202	1,360,733,930	$180,313,119	2.99	2.42	0.059

Table 8, on the next page, presents the statewide EE program results by building type.

TABLE 8. EE Program Results by Building Type

BuildingType	Gross Peak Savings (kW)	Gross Annual Savings (kWh)	Gross Lifecycle Energy Savings (kWh)	Net Peak Savings (kW)	Net Annual Savings (kWh)	Net Lifecycle Energy Savings (kWh)	Net Lifecycle GHG Reduction (Lbs)	Total Utility Cost	PAC	TRC	Utility ($/kWh)
<All Types>	21,104	129,721,617	2,020,625,684	19,293	118,132,343	1,848,226,869	669,212,892	$15,927,333	21.55	23.78	0.012
<Multiple Types>	4,970	22,837,719	290,345,888	4,644	20,654,521	261,373,654	131,084,720	$8,929,429	3.80	1.34	0.044
Assembly	308	4,341,182	32,014,164	304	4,316,969	31,784,600	4,143,958	$1,839,935	0.92	1.65	0.068
Education - Community College	38	200,422	2,859,666	38	200,422	2,859,666	203,355	$61,449	3.96	5.45	0.029
Education - Primary School	958	4,521,612	55,566,428	940	4,404,200	54,767,044	4,014,571	$12,218,714	0.36	0.52	0.287
Education - Secondary School	930	4,022,643	31,654,056	928	4,005,390	31,395,261	2,631,684	$2,324,589	1.20	0.29	0.089
Education - University	1,175	6,312,571	52,979,977	1,173	6,267,386	52,627,633	4,866,854	$3,102,235	1.32	1.57	0.071
Grocery	529	4,127,671	66,465,917	508	3,937,006	64,569,742	11,058,850	$1,466,033	2.93	1.81	0.032
Health/Medical - Hospital	2,140	14,495,754	93,232,743	2,140	14,495,381	93,225,279	9,623,094	$11,057,128	0.63	2.17	0.134
Health/Medical - Nursing Home	24	85,679	1,137,230	24	85,679	1,137,230	83,256	$38,157	3.08	0.15	0.043
Lodging - Hotel	440	2,396,968	24,669,051	409	2,200,511	21,926,953	1,611,109	$1,329,495	0.89	1.47	0.079
Lodging - Motel	1,447	10,146,022	64,588,545	1,435	10,057,195	63,256,137	6,387,337	$8,089,151	0.51	1.74	0.145
Manufacturing Biotech	263	1,430,577	18,084,277	261	1,412,568	17,814,142	1,145,947	$463,440	3.18	0.34	0.034
Manufacturing Light Industrial	621	4,682,018	68,288,184	595	4,380,776	64,160,297	10,511,431	$858,265	2.38	2.18	0.019
Office - Large	2,760	17,467,777	148,460,574	2,710	17,099,018	145,134,418	14,518,455	$8,691,867	1.34	0.44	0.072
Office - Small	435	2,764,860	30,987,572	405	2,575,877	28,991,837	5,420,261	$1,205,448	1.70	0.33	0.055
Other Agricultural	499	3,348,671	50,230,060	449	3,026,629	45,399,438	2,386,207	$545,431	1.07	0.10	0.018
Other Commercial	27,876	32,537,059	302,345,870	27,312	28,585,420	273,388,640	93,091,748	$21,975,185	1.10	1.06	0.099
Other Industrial	546	7,993,491	84,642,727	508	7,780,175	81,442,990	35,851,983	$2,714,582	2.54	2.12	0.042
Residential	4,263	36,349,882	169,197,513	3,844	30,401,157	136,214,712	110,581,638	$8,776,536	2.35	2.09	0.086
Residential - Mobile Home	33	73,721	368,606	33	73,721	368,606	43,459	$99,670	0.66	1.04	0.295
Residential - Multi-Family	4,580	14,104,184	102,500,034	4,509	13,672,086	96,017,117	9,246,086	$22,651,497	0.44	0.76	0.286
Residential - Single-Family	12,877	47,341,913	605,871,127	11,626	38,694,144	488,860,469	153,592,283	$34,469,943	0.99	0.70	0.099
Restaurant - Fast-Food	819	4,567,927	27,699,807	819	4,564,294	27,665,239	2,779,146	$3,300,391	0.66	1.78	0.133
Restaurant - Sit-Down	54	307,229	3,580,409	49	276,961	3,229,166	706,547	$177,461	0.82	0.05	0.075
Retail - Big Box	0	0	0	0	0	0	0	$0			0.000
Retail - Large	809	3,238,972	35,748,103	730	2,920,351	33,153,095	3,739,121	$1,494,421	1.76	1.83	0.059
Retail - Small	145	799,228	6,077,946	133	728,458	5,555,572	676,405	$372,034	1.16	1.74	0.080
Storage - Conditioned	565	4,070,445	57,157,125	559	4,022,785	56,823,506	30,960,437	$835,213	6.83	4.35	0.020
Storage - Unconditioned	195	1,162,049	12,872,630	192	1,135,908	12,689,641	6,166,337	$375,540	2.57	2.06	0.038
Warehouse - Refrigerated	138	1,386,693	19,949,637	136	1,379,973	19,902,598	11,497,197	$166,574	13.48	8.23	0.012
EE Subtotal	91,544	386,836,558	4,480,201,549	86,707	351,487,308	4,063,961,551	1,337,836,366	$175,557,145	3.05	2.43	0.058
Low Income	928	4,057,690	53,178,976	803	3,798,851	50,677,651	22,897,564	$4,755,974	2.99	2.42	0.059
EE and Low Income Subtotal	92,472	390,894,249	4,533,380,525	87,510	355,286,159	4,114,639,202	1,360,733,930	$180,313,119	2.99	2.42	0.059

Table 9 compares the actual savings in 2023 to the POUs' adopted annual targets for each utility. In total, the actual energy savings were approximately 19% below forecasted levels for 2023.

TABLE 9. Forecast vs. Actual for Installation Year 2023 [5] [6]

Utility	Gross/Net	Forecast	Actual	%
Alameda	Net	1,243	95	7.7%
Anaheim	Gross	17,277	6,369	36.9%
Azusa	Net	1,687	2,667	158.1%
Banning	Net	205	411	200.6%
Biggs	Net	6	0	0.0%
Burbank	Gross	9,388	5,296	56.4%
Colton	Net	4,199	4,028	95.9%
Corona	Net	23	0	0.0%
Glendale	Net	17,504	18,622	106.4%
Gridley	Net	92	266	289.3%
Healdsburg	Net	353	252	71.4%
Imperial	Net	12,643	28,729	227.2%
IPUC	Net	231	0	0.0%
Lassen	Net	189	390	206.5%
Lodi	Net	909	1,065	117.2%
Lompoc	Gross	239	81	34.0%
Los Angeles	Gross	247,850	144,028	58.1%
Merced	Net	2,271	163	7.2%
Modesto	Net	12,469	4,229	33.9%
Moreno Valley	Net	517	36	7.0%
Palo Alto	Net	4,500	527	11.7%
Pasadena	Net	12,995	10,638	81.9%
Plumas-Sierra	Net	66	54	82.2%
Port of Oakland	Gross	51	0	0.0%
Rancho Cucamonga	Gross	512	327	63.8%
Redding	Net	1,305	896	68.6%
Riverside	Net	18,523	9,738	52.6%
Roseville	Gross	11,024	21,093	191.3%
Sacramento	Gross	100,000	128,338	128.3%
San Francisco	Net	2,801	465	16.6%
Shasta Lake	Net	536	195	36.4%
Silicon Valley Power	Net	11,536	13,190	114.3%
Truckee Donner	Net	477	57	11.8%
Turlock	Net	11,139	6,292	56.5%
Ukiah	Net	404	131	32.4%
Vernon	Net	5,504	3,157	57.4%
Victorville	Net	374	971	259.8%
Total		**511,042**	**412,796**	**81%**

[5] To be consistent with EE savings reported in Table 3, Annual targets exclude codes and standards savings.

[6] Not all Small, Non-IRP POUs are included in this list because they either did not develop forecasts in 2023, or did not have any energy savings in 2023.

RESOURCES AND TOOLS

This section provides an overview of the technical resources, analytical tools, methodologies, and input assumptions used or developed by public power to evaluate its EE program and develop EE targets, in accordance with the Public Utilities Code.[7]

EE Cost-Effectiveness Tool and Reporting Platform

Energy Platforms, LLC developed a cloud-based EE cost-effectiveness tool and reporting platform to improve POUs' tracking and evaluation of program performance and to support the development of reports in compliance with state and federal reporting requirements. This tool built upon the functionality of the complex spreadsheets used in prior reporting years to calculate the cost-effectiveness of EE and demand reduction measures and programs, and to summarize and report the related program expenditures and energy savings. The model continues to include all of the traditional benefit-cost ratio calculation methodologies used industry-wide to evaluate EE resource programs: Total Resource Cost (TRC), Program Administrator Cost (PAC), Ratepayer Impact (RIM), and Participant Cost Test, as developed by the CPUC in the 1980s and codified in the California Standard Practice Manual.[8]

Using this tool, POUs can analyze individual efficiency measures or full programs to determine the potential savings and cost-effectiveness before implementation. POUs are able to create unique programs and measures for their utility – and may choose to share them with other POUs collaboratively. The model also allows each POU to be able to specify many key inputs, including, but not limited to, the following:

- retail rates,
- hourly load shapes,
- hourly GHG emissions curves,
- hourly avoided cost, and
- overhead allocations by measure, programs, portfolio, sector, and/or end-use.

The tool allows POUs to manage reference libraries of measures, avoided costs, load shapes, and GHG emissions, allowing useful tracking and comparative scenario analyses for integrated planning purposes. Energy Platforms, LLC continues to update and improve the platform to enhance reporting functionality.

[7] Cal. Pub. Util. Code § 9505(a)(4).

[8] CPUC. February 1983. *Standard Practice for Cost-Benefit Analysis of Conservation and Load Management Programs*. The TRC and RIM were presented in the 1987-1988 version of the Standard Practice Manual.

Technical Reference Manual

POUs contracted for the development of a POU technical reference manual[9] (TRM) in 2013, which has since updated in 2016, 2017, and another update is currently in progress. The POU TRM replaced DEER as the basis for which most POUs calculate the energy savings of their programs. Deviations from the TRM for individual utilities are noted in **Appendix A.**

The TRM provides the methods, formulas, and default assumptions used for estimating energy savings and peak demand impacts from EE measures and projects in a very clear and open format. POUs use energy savings estimates to report program accomplishments and measure progress towards program goals. EE measures are documented and classified as either unit energy savings measures, semi-custom measures, or custom measures. The TRM includes nonresidential and residential measures, presenting each measure type in separate sections, grouped by technology type.

In addition, public power is actively involved in the California Technical Forum's (CalTF) statewide electronic TRM (eTRM), an online repository for ll statewide deemed measures for California.[10] NCPA, SCPPA, SMUD, and LADWP are members of the CalTF Policy Advisory Committee, which consists of statewide EE stakeholders who advise on the organization's vision, mission, and guiding principles, and affirm the annual Work Plan. The POUs' energy efficiency reporting platform is now integrated with the CalTF eTRM, and will be incorporated into the next update of the POU TRM.

Evaluation, Measurement & Verification

California Public Utilities Code requires each POU to make available to its customers and the Energy Commission the results of any independent evaluation that measures and verifies the EE savings and the reduction in energy demand achieved by its EE.[11] The Evaluation, Measurement, & Verification (EM&V) process relies on the approaches articulated in the National Action Plan for EE, adopted CPUC protocols, and the innovation and expertise of firms experienced in program evaluation. EM&V reports help to define the effectiveness of individual programs with the intent of improving future offerings. Key findings from the EM&V reports confirm high realization rates for reported energy savings.[12]

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[9] California Municipal Utilities Association Savings Estimation Technical Reference Manual, 3rd. Ed. 2017. https://www.cmua.org/energy-efficiency-technical-reference-manual.

[10] For more information on the CalTF, visit: http://www.caltf.org/.

[11] Cal. Pub. Util. Code § 9505(d).

[12] See: https://www.cmua.org/emv-reports.

SOURCES OF FUNDING

This section provides an overview of the POUs' sources of funding for its investments in EE and demand reduction programs, as required by the Public Utilities Code.[13] The POUs collectively spent $280 million in FY 2023 from a combination of Public Goods Charge (PGC) funds, Cap-and-Trade (C&T) allowances, and General Fund monies.

Public Goods Charge

The PGC is a "non-bypassable" usage-based charge on local distribution services collected by POUs in accordance with the Public Utilities Code.[14] The PGC is available to fund investments in the following:

- Cost-effective demand-side management services to promote EE and energy conservation,
- New investment in renewable energy resources and technologies,
- Research, development, and demonstration programs for the public interest to advance science or technology not adequately provided by competitive and regulated markets, and
- Services provided for low-income electricity customers.

Cap-and-Trade Allowances

The California C&T program allows utilities to use proceeds from the sale of freely allocated allowances to invest in EE programs to reduce GHG emissions. Expenditures explicitly noted as acceptable include but are not limited to equipment rebates and building retrofits.

Funds are generated once a quarter as part of CARB's regular C&T auctions, but the level of available revenues is expected to increase over time as minimum auction prices have escalation factors that are applied once a year.[15]

General Fund

POUs also support EE improvements and social good in the communities that they serve by using funds from their general operating reserves through programs such as home improvement and retrofit projects, appliance recycling and replacement programs, disconnection assistance programs for DACs, and income-qualified bill assistance discounts.

[13] Cal. Pub. Util. Code § 9505(a)(3).
[14] *Id*. § 385.
[15] California Code of Regulations (CCR), Title 17, § 95801.

Appendix A – POU Narratives

Appendix A consists of detailed narratives of each POU's EE programs and general descriptions of the utilities, presented in alphabetic order.

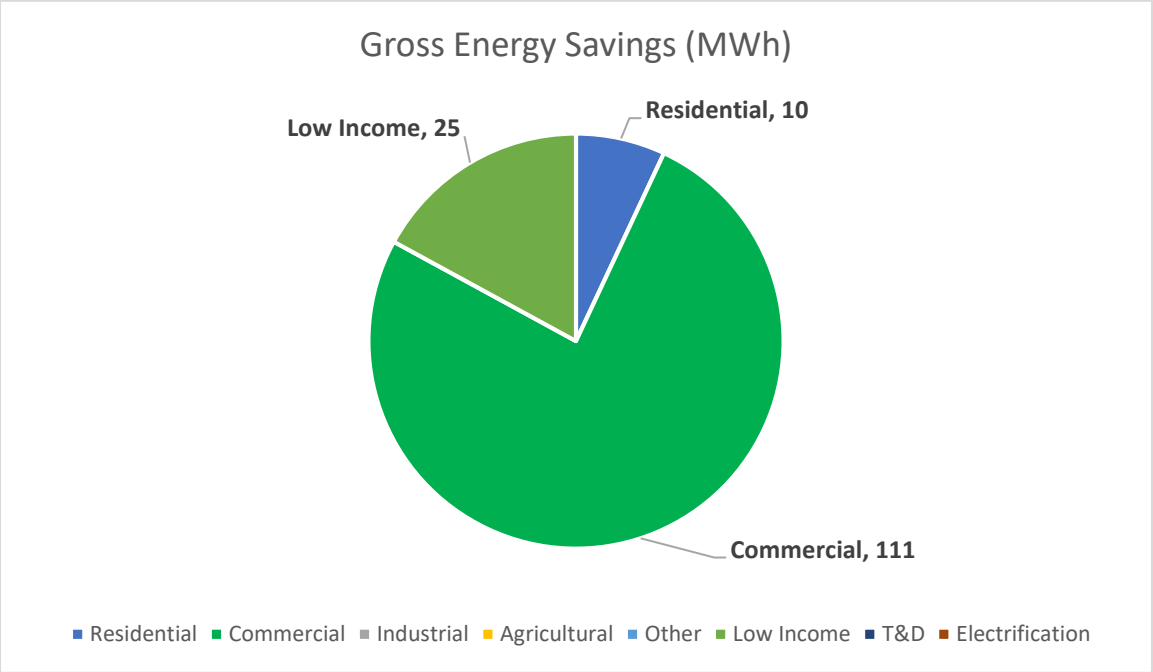
TABLE 10. Annual EE Program Summary

Utility	Gross Peak Savings (kW)	Gross Annual Savings (kWh)	Gross Lifecycle Energy Savings (kWh)	Net Peak Savings (kW)	Net Annual Savings (kWh)	Net Lifecycle Energy Savings (kWh)	Total Utility Cost
Alameda	99	146,604	1,953,801	54	109,516	1,449,070	$361,163
Anaheim	24,021	7,070,358	91,941,411	24,021	7,070,358	91,941,411	$6,729,157
Azusa	813	2,667,474	36,800,458	812	2,666,531	36,772,162	$1,468,043
Banning	124	515,895	7,045,778	89	411,319	5,599,955	$302,408
Biggs	0	0	0	0	0	0	$0
Burbank	1,732	5,318,928	68,110,040	1,732	5,318,928	68,110,040	$1,769,558
Colton	1,591	4,063,706	92,984,616	1,448	4,027,922	92,605,044	$995,333
Corona	0	0	0	0	0	0	$0
Glendale	3,582	18,635,376	133,696,385	3,581	18,621,848	133,531,130	$6,883,237
Gridley	16	273,002	2,455,824	15	266,141	2,373,419	$100,861
Healdsburg	37	258,868	2,749,554	24	159,752	1,712,750	$129,779
Imperial	5,652	28,737,883	501,215,347	5,650	28,729,105	501,171,457	$6,296,901
IPUC	0	0	0	0	0	0	$0
Lassen	48	496,730	5,111,561	38	390,261	4,068,388	$324,841
Lodi	172	1,219,398	12,835,453	143	1,065,346	11,209,018	$473,506
Lompoc	34	81,207	903,961	23	60,715	684,766	$92,042
Los Angeles	29,222	145,660,765	1,422,709,840	29,222	145,660,765	1,422,709,840	$116,358,941
Merced	11	268,221	3,152,291	7	163,630	1,930,833	$224,271
Modesto	580	5,534,699	81,824,829	449	4,403,733	65,173,863	$1,602,972
Moreno Valley	8	45,388	453,880	6	36,310	363,104	$808,224
Palo Alto	36	445,377	7,022,292	31	378,570	5,968,948	$658,916
Pasadena	2,102	10,742,500	46,016,342	2,012	10,640,640	44,291,875	$2,838,843
Plumas-Sierra	37	88,646	1,303,119	23	53,376	786,364	$160,399
Port of Oakland	0	0	0	0	0	0	$13,692
Rancho Cucamonga	133	326,507	3,497,057	133	326,020	3,489,753	$65,480
Redding	54	888,105	8,152,609	54	888,105	8,152,609	$2,532,608
Riverside	2,147	11,523,069	166,745,232	1,822	10,622,386	144,541,219	$5,687,438
Roseville	1,021	18,310,268	67,809,129	905	13,141,206	56,987,656	$2,375,804
Sacramento	14,984	99,965,081	1,389,841,591	11,611	75,414,252	1,070,061,088	$14,324,803
San Francisco	55	465,428	6,981,420	55	465,428	6,981,420	$347,266
Shasta Lake	39	210,857	2,063,868	35	195,045	1,892,034	$194,754
Silicon Valley Power	2,211	15,509,918	209,129,534	1,879	13,183,431	177,760,104	$3,556,067
Truckee Donner	2	20,759	408,559	2	17,495	344,991	$382,726
Turlock	1,213	7,115,113	101,315,989	941	6,538,325	95,141,934	$1,802,390
Ukiah	27	159,395	1,473,004	22	130,973	1,157,210	$142,373
Vernon	526	3,157,256	31,389,038	526	3,157,256	31,389,038	$239,428
Victorville	145	971,469	24,286,712	145	971,469	24,286,712	$68,895
EE and Low Income Subtotal	**92,472**	**390,894,249**	**4,533,380,525**	**87,510**	**355,286,159**	**4,114,639,202**	**$180,313,119**

ALAMEDA MUNICIPAL POWER

Alameda at a Glance

- Climate Zone: 3
- Customers: 38,131
- Total annual retail sales: 350,532 MWh
- Annual Retail Revenue: $67,820,952
- Annual EE expenditures for reporting year: $361,163
- Gross annual savings from reporting year portfolio: 147 MWh



Alameda Municipal Power Overview

Due to Alameda's temperate climate and small amount of industry, the peak demand for electricity is in the winter (December and January) in the early evening. Alameda Municipal Power's (AMP) electric load is relatively flat compared to most California utilities and there is little residential AC.

AMP has committed to spending its cap-and-trade and renewable energy credit (REC) funds to reduce greenhouse gas emissions in its service area.

Major Program and Portfolio Changes

FY 2023 savings included the continuation of a successful non-residential self-install lighting program, a residential online rebate portal for heat pump water heaters, electric dryers, smart thermostats, and a direct-install program for income-qualified residential customers.

Program and Portfolio Highlights

AMP's non-residential lighting retrofit program provided more than 75 percent of total savings. This program provides incentives for lighting upgrades that a customer can do themselves or work with a qualified contractor.

Commercial, Industrial & Agricultural Programs

- Non-Residential Self-Install Program: This program offers non-residential customers rebates for EE upgrades for lighting retrofits. In FY 2023, five customers participated in lighting upgrades with low co-pay amounts, due to AMP's generous rebates. AMP maintains this program as a means of offering customers a do-it-yourself option for EE upgrades. This is a common pathway for chain retailers who are trying to manage incentivized upgrades across various locations.
- Commercial Kitchen Rebate Program: This program was introduced in the second half of FY 2021, targeting the growing restaurant and food service industry in the City of Alameda. This program offers rebates for EE such as solid doors for commercial refrigerators and freezers, glass doors for commercial refrigerators and freezers, commercial ice makers, and other EE commercial kitchen equipment. AMP supplements this program with no-cost in-person commercial kitchen audits, and free in-person or virtual webinars.

Residential Programs

- Residential Online Rebates – Lighting and Appliances: Alamedans have been able to participate in residential EE rebates using a simple web application since March 2016. In FY 2023 AMP approved 37 EE applications. EE rebates were available for electric clothes dryers, heat pump water heaters, and smart thermostats.
- Energy Assistance Program (EAP) Plus – In October 2019, AMP launched a residential direct-install program called EAP Plus, targeting income-qualified residents living in single and multi-family homes. Eligible customers received no-cost EE upgrades, including LED bulbs, LED fixtures, refrigerators, advanced power strips, low-flow shower heads, and various weatherization measures. In FY 2023, the program served 60 customers. The program will remain open for most of FY 2024.

Complementary Programs

AMP currently offers 17 incentive programs, a TOU(TOU) rate, and two financial assistance programs for customers focusing on EE, building electrification, and clean transportation. Some of these programs are listed below:

- EV Programs: AMP offers a TOU rate plan that currently has 950 customers enrolled. AMP offers a $1,500 rebate for the purchase of a used EV with a purchase price less than $40,000. AMP also offers a $500 rebate for the purchase of a Level 2 charger, and a rebate of $200-$600 for the purchase of an electric bike.
- Low-Income Programs: AMP continues to provide financial assistance to Alameda's low-income families through the Energy Assistance through Supportive Efforts (EASE) program and the EAP. In FY 2023, EASE, an emergency relief program, helped 181 households receive a total of $24,697.43 in electric bill assistance. A maximum amount of $200 is available per household within a three-year period through the EASE program. EAP provides a 25 percent monthly discount on electric bills. A total of $164,138.36 was allocated to 1,074 Alameda households in FY 2023 through the EAP. These programs are funded through the public purpose component of AMP's energy charges.
- RD&D: AMP is developing a new Heat Pump heating, ventilation, and AC (HVAC) rebate for residential and non-residential customers. Additionally, AMP plans to implement an energy management device program in FY 2024.

EM&V Studies

AMP completes an Evaluation, Measurement, and Verification (EM&V) study every other year with a focus on the two previous years. The most recent EM&V report was completed by ADM Associates for FY 2021–FY 2022. AMP plans to complete the next study in FY 2024, covering residential and commercial programs.

Major Differences or Diversions from the California POU TRM for Energy Savings

With a goal of getting the most accurate energy savings, AMP staff used a variety of sources. For the residential lighting energy savings, AMP used historical AMP customer program data, buoyed by a high realization rate in the FY 2022 EM&V report. The energy savings figures for the residential refrigerator/freezer and heat pump water heaters were from the TRM for the CMUA. The electric clothes dryer savings were from an Energy Star® report.

Energy savings for non-residential programs were calculated using a hybrid of actual pre- and post-installation inspections and the TRM 2017. Customized lighting projects were calculated using a combination of the TRM 2017 and pre- and post-calculations.

TABLE AMP-1. EE Program Results by End Use

Summary by End Use	Resource Savings Summary								Cost Test Results		
End Use	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Appliance & Plug Loads	0	4,854	27,996	0	3,379	19,444	7	$21,955	0.12	0.13	1.272
Building Envelope	0	22	440	0	6	123	0	$371	0.12	0.07	4.431
Lighting - Indoor	94	18,277	274,155	51	9,870	148,044	55	$83,947	0.20	0.20	0.758
Lighting - Outdoor	0	1,853	27,795	0	1,001	15,009	6	$9,125	0.19	0.19	0.813
Low-Income	94	25,006	330,386	51	14,255	182,620	69	$115,398	0.19	0.19	0.828
HVAC - Cooling	0	131	1,965	0	105	1,572	1	$1,001	0.24	0.21	0.851
Lighting - Indoor	4	41,165	617,481	3	32,932	493,985	229	$77,324	0.82	0.29	0.209
Lighting - Outdoor	0	70,213	842,561	0	56,171	674,049	230	$91,252	0.74	0.55	0.170
Miscellaneous	0	10,088	161,408	0	6,053	96,845	41	$76,187	0.19	0.22	1.072
EE	4	121,598	1,623,415	3	95,261	1,266,450	501	$245,765	0.59	0.35	0.252
EE and Low Income	99	146,604	1,953,801	54	109,516	1,449,070	570	$361,163	0.46	0.32	0.324
C&S, T&D and Electrification								$0			
Utility Total	99	146,604	1,953,801	54	109,516	1,449,070	570	$361,163	0.46	0.32	0.324

TABLE AMP-2. EE Program Results by Sector

Summary by Sector	Resource Savings Summary								Cost Test Results		
Sector	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Residential	94	25,006	330,386	51	14,255	182,620	69	$115,398	0.19	0.19	0.828
Low-Income	94	25,006	330,386	51	14,255	182,620	69	$115,398	0.19	0.19	0.828
Commercial	4	111,379	1,460,042	3	89,103	1,168,033	459	$168,576	0.77	0.38	0.186
Residential	0	10,219	163,373	0	6,158	98,417	42	$77,188	0.19	0.22	1.069
EE	4	121,598	1,623,415	3	95,261	1,266,450	501	$245,765	0.59	0.35	0.252
EE and Low Income	99	146,604	1,953,801	54	109,516	1,449,070	570	$361,163	0.46	0.32	0.324
C&S, T&D and Electrification								$0			
Utility Total	99	146,604	1,953,801	54	109,516	1,449,070	570	$361,163	0.46	0.32	0.324

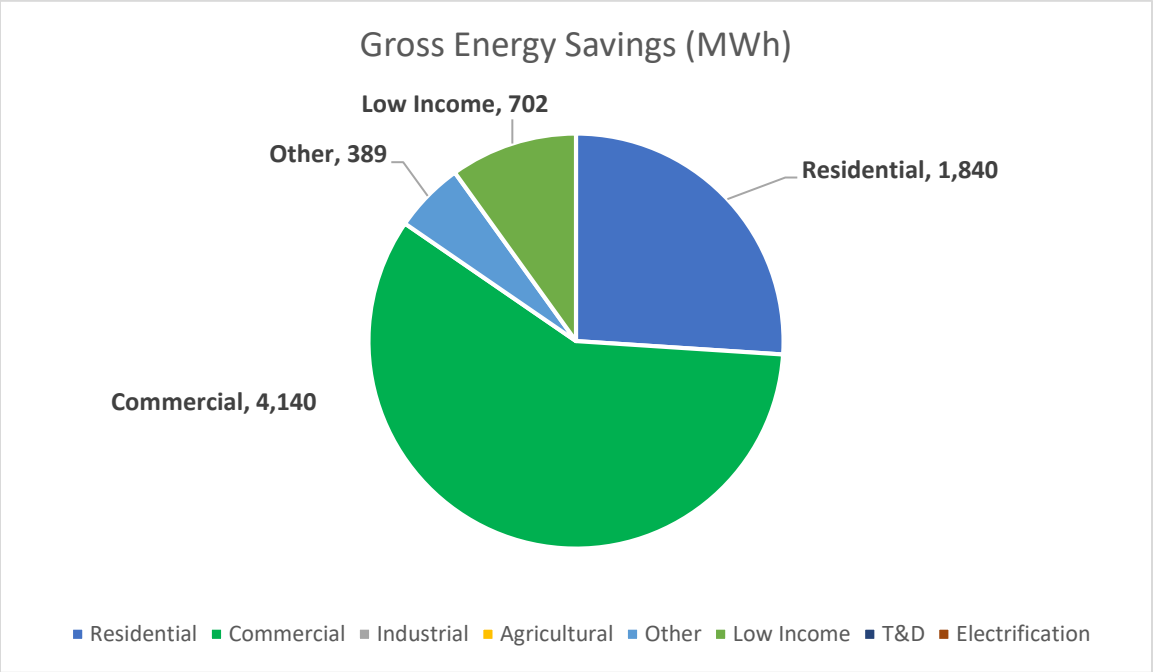
TABLE AMP-3. EE Program Results by Building Type

Summary by Building Type	Resource Savings Summary								Cost Test Results		
Building Type	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Any	0	4,312	21,560	0	3,018	15,092	6	$9,333	0.23	0.23	0.674
Residential	94	20,344	303,926	51	10,992	164,098	61	$95,160	0.20	0.20	0.774
Residential - Single-Family	0	350	4,900	0	245	3,430	1	$10,906	0.04	0.04	4.167
Low-Income	94	25,006	330,386	51	14,255	182,620	69	$115,398	0.19	0.19	0.828
Any	4	111,379	1,460,042	3	89,103	1,168,033	459	$168,576	0.77	0.38	0.186
Residential	0	10,219	163,373	0	6,158	98,417	42	$77,188	0.19	0.22	1.069
EE	4	121,598	1,623,415	3	95,261	1,266,450	501	$245,765	0.59	0.35	0.252
EE and Low Income	99	146,604	1,953,801	54	109,516	1,449,070	570	$361,163	0.46	0.32	0.324
C&S, T&D and Electrification								$0			
Utility Total	99	146,604	1,953,801	54	109,516	1,449,070	570	$361,163	0.46	0.32	0.324

ANAHEIM PUBLIC UTILITIES

Anaheim Public Utilities at a Glance

- Climate Zone: 8
- Customers: 123,333
- Total annual retail sales: 2,223,949 MWh
- Annual Retail Revenue: $348,589,000
- Annual EE expenditures for reporting year: $6,729,157
- Gross annual savings from reporting year portfolio: 7,070 MWh



Anaheim Public Utilities Overview

The City of Anaheim is a modern, diverse city that spans over 50 square miles, and serves over 123,333 electric customers and 25 million annual visitors. Anaheim owns and operates the only not-for-profit, POU in Orange County. Anaheim Public Utilities (APU) maintains a customer-centric approach; thus, a variety of incentive programs are designed to help and encourage customers to reduce energy and water consumption to lower their utility bills.

In alignment with state initiatives for a carbon-free future, APU endeavors to deliver programs that resonate positively with customers, by focusing on making programs simple, offering choices, and enhancing outreach and engagement efforts.

In FY 2023, APU continued to help electric customers improve their quality of life through efficiency, lighting improvements, bill assistance, community outreach events, and educational programs. Additionally, APU facilitated new programs, increased community outreach activity, and supported a significant increase in customer participation for efficiency incentives and rebates.

As APU continues the journey towards a cleaner grid, APU aims to design new program areas such as building electrification, enhanced DR, and new incentives that support customers' transition to a carbon-free future. Furthermore, to help customers prepare for the ambitious state initiatives ahead, APU will unveil a new Sustainability Education Center in FY 2025. The Sustainability Education Center will serve as APU's flagship educational demonstration center that incorporates technology, sustainability, and workforce development programs. APU has played an active role in supporting student engagement efforts, including mentoring, internships, and career symposiums. The Sustainability Education Center will take another step to support the Anaheim community by providing pathways for even more students to learn about sustainable utility careers.

Major Program and Portfolio Changes

APU is proud to introduce an array of innovative additions to its EE program's portfolio and community resources in FY 2023. These initiatives aim to promote sustainability, bill affordability, program choices, and support for electrification.

In FY 2023, APU launched the Sustainable Home Survey, an initiative designed to receive customer feedback, recognize local sustainability champions, and help customers measure their home efficiency efforts. The questionnaire included a scoring component designed to help residents assess their sustainability behaviors and discover opportunities for further improvement. The response was overwhelmingly positive, with over 500 participants sharing their insights. Nine participants received recognition for their commitment to resource conservation and active involvement in various energy and water efficiency programs. The recipients each received an award value of $3,000 in home efficiency upgrades. Participants in the Sustainable Home Survey Program serve as community ambassadors and neighborhood champions for sustainability, sharing their experiences and inspiring others to participate in APU's home efficiency programs. The initiative highlighted the positive impact individuals can make by embracing EE measures and sustainable living.

As a community-owned utility, APU understands the significance of helping students and educators. APU offers educational programs where students learn about clean energy and water conservation at an early age, since those messages can turn into simple actions in homes. Furthermore, APU develops career pathways to help students learn about job opportunities they may not have otherwise considered, and collaborates closely with schools, not only helping them with campus improvements to lower their bills, but to help them demonstrate environmental stewardship.

Launched in FY 2023, APU initiated the Bright Girls Program. This program aims to mentor and inspire middle-school girls, encouraging them to explore utilities-related careers. Participants engage in hands-on Science, Technology, Engineering and Math (STEM) activities, facility tours, and interactions with accomplished female professionals in the industry. The Bright Girls Program aims to break down gender stereotypes and create a supportive environment where young girls can envision a future in utilities-related fields. By fostering curiosity and interest in STEM disciplines, the program contributes to building a more diverse and inclusive workforce.

Recognizing the financial challenges faced by some members of the community, APU enhanced the Refrigerator Rebate Program for income-qualified customers. This program offers an increased incentive for energy-efficient refrigerators, making the appliances more accessible to households with limited financial resources. The enhanced Refrigerator Rebate Program not only helps residents save on energy costs but also contributes to reducing overall energy consumption and environmental impact. By aiding those in need, APU aims to create a more equitable and sustainable community.

In FY 2023, APU increased the rebate amount in the commercial program, Customized and Lighting Incentive, from $0.10 to $0.15 per kWh saved. This enhancement significantly increased interest from customers who had previously declined program participation due to the low return on investment. Consequently, during FY 2023, 32 commercial customers actively participated in APU's incentive programs, resulting in an annual savings of 2,973,589 kWh.

The new program additions to the EE programs portfolio demonstrate APU's commitment to customer-centric sustainability initiatives, bill affordability, community engagement, and fostering of the next generation of leaders in the utilities industry. By recognizing sustainable practices, encouraging diversity in career choices, and providing bill assistance to income-qualified customers, Anaheim continues to help customers be more sustainable, keep bills affordable, and transition to a cleaner grid.

Program and Portfolio Highlights

Community engagement continues to be at the forefront of APU's program marketing approach. With a presence at 87 community outreach events in FY 2023, APU was able to reach and provide resources to over 18,100 community members, with 648 bill assistance program applications disseminated and over 500 Home Utility Check-Up Program sign-ups received through community engagement at events. In addition to traditional program marketing mechanisms such as utility webpages, utility bill inserts, social media, and program flyer distribution to city facilities, APU makes a concerted effort to bring resources directly to each unique neighborhood.

Launched as a pilot project in FY 2022, APU collaborated with the Community Services Department to support the Mobile Family Resource Center initiative. Through the Mobile Family Resource Center initiative, various city departments and non-profit organizations work collectively to travel to neighborhoods throughout Anaheim and provide essential services and

information to disadvantaged residential and multi-family customers, with an on-the-spot utility bill assistance enrollment service provided by APU. In FY 2023, nine city departments and 29 non-profit agencies supported the Mobile Family Resource Center, resulting in over 5,400 significant contacts with residents through 84 events held at 28 key Anaheim neighborhoods. In addition to providing utility support through bill assistance and program enrollment, the project distributed 1,559 food boxes to families, along with a holiday toy distribution effort that reached 878 children.

APU's income-qualified Weatherization Program also realized significant program participation results in FY 2023. With 1,370 residential customers served, and over 12,000 high-efficiency measures direct-installed, the program achieved a collective energy savings of more than 700 MWh. The Weatherization Program offers income-qualified members of the community access to the benefits of EE, leading to reduced utility bills, and a more sustainable living environment.

The LED Welcome Kit distribution initiative continues to be a key EE program. Aimed to provide new electric utility customers with valuable resources, each Welcome Kit includes four high-efficiency LED lamps alongside a comprehensive brochure featuring city information, contacts, and resources. In FY 2023 alone, the initiative reached 7,830 customers, resulting in more than 1,120 MWh of energy conserved.

The Dusk-to-Dawn Lighting Program extends the benefits of energy conservation, and public safety, to outdoor spaces such as streets, alleys, and privately owned driveways. Through the distribution and installation of over 800 high-efficiency exterior lighting fixtures for this reporting period, more than 408 MWh of energy was conserved. APU implemented a concerted effort to extend Dusk-to-Dawn lighting opportunities to multi-family dwellings, reaching over 50 multi-family units and successfully installing 415 dusk-to-dawn lighting fixtures within the collective commercial sector. The Dusk-to-Dawn Program not only enhances the safety and security of Anaheim neighborhoods and businesses, but also contributes significantly to APU's overall EE goals.

In FY 2023, APU expanded its Small Business Direct Install Program to include property owners of multi-family housing units. APU collaborated with other city departments, community leaders, and local neighborhood representatives to improve exterior lighting and safety concerns in disadvantaged communities. The collective outreach, such as community meetings and marketing efforts, resulted in a significant increase in property owner awareness and participation.

The Home Incentives Program achieved nearly 200 MWh in energy savings through rebates issued for energy-efficient appliances. By encouraging and incentivizing APU customers to invest in modern, energy-saving technologies, customers are engaging in sustainable behaviors and reducing energy demands, all while lowering their utility bills. Looking ahead, APU remains committed to offering customers more choices, and enhancing EE programs to support customers with the state's transition to clean energy and electrification.

Commercial, Industrial & Agricultural Programs

APU provides commercial, industrial, and multifamily customers with several opportunities to improve the EE of their operation, reduce peak demand, and incentives with customization features to meet their unique needs.

APU's commercial and industrial programs significantly contribute to Anaheim's overall energy savings target. Throughout FY 2023, APU provided commercial customers with the following programs:

- Comprehensive Energy Assessments: Aligned with ASHRAE standards, we conduct customized on-site analyses to offer recommendations that assist customers in reaching their energy-efficient goals.
- Customized Energy Incentives Program: Tailored incentives for projects such as high-efficiency AC units, energy management systems (EMS), and other innovative high-efficiency technologies.
- Heat Pump Incentives Program: Encouraging the installation of high-efficiency heat pumps (HP) to reduce electricity consumption.
- Lighting Incentives: Incentivizing improvements in EE for various LED lighting applications, contributing to appropriate lighting levels and energy savings.
- New Construction: Offering design assistance and incentives for projects exceeding Title 24 standards.
- Small Business Energy & Water Direct Install/Assessment Program: Providing small businesses with energy and water consumption analyses, focusing on LED lighting upgrades, smart thermostats, and AC/refrigeration tune-ups.
- Air Purifier Rebate: Prescribed rebates for using ENERGY STAR® certified air purifiers.
- Dusk-to-Dawn Lighting: Commercial customers can receive free high-efficiency LED lighting fixtures with photo sensors, including wall packs and pole-mountable parking lot lights.
- Energy & Water Incentives for Multi-family Housing Projects: Providing financial incentives for new construction and rehabilitation of multi-family dwellings to promote sustainability.
- Tree Power: Offering complimentary shade trees for commercial customers.

In FY 2023, APU's concerted outreach efforts resulted in a significant increase in program participation, including the installation of 3,446 measures, and energy savings totaling 3,756,135 kWh. Looking ahead, APU is exploring innovative marketing strategies and introducing new program opportunities to support commercial customers on the journey to meet the state's carbon-free goals.

Residential Programs

APU is committed to providing customers with program options to achieve their energy reduction and water conservation goals. With over 60 measure incentives and direct-installation services available through the residential rebate programs and turnkey program services, coupled with emerging electrification programs and DR initiatives, APU continues to develop innovative resources that support sustainability and bill affordability.

Below is an overview of APU's residential programs:

- Weatherization Program: Inter-utility partnership with SoCalGas that assists income-qualified renters and homeowners in making their homes more water and energy efficient. Program offers no-cost home repairs and replacement of inefficient appliances, consisting of ENERGY STAR® certified ceiling fans and room air conditioners, plug load occupancy sensors in smart power strips, LED lamps, duct sealing and testing, A/C tune-ups with refrigerant recharge, high-efficiency toilets, and additional electric, water, and gas saving measures.
- Home Utility Check-Up Program: Complimentary home assessment of electric and water use, customized audit report with efficiency recommendations, outdoor water assessment component with irrigation scheduling and controller programming, direct-installation of LEDs, low-flow shower heads, aerators, toilet leak/dye tab test, and toilet flapper replacement as needed.
- Dusk-to-Dawn Lighting Program: Residential customers can receive up to two free high-efficiency LED fixtures with photo sensors. Participants have the option to pick-up lights from the Program contractor's office in Anaheim or receive lighting fixtures during Home Utility Check-Up and Weatherization Program services.
- Dusk-to-Dawn Lighting Program Income-Qualified Assistance: In addition to receiving up to two free outdoor security lights, income-qualified residents may also have the light installed by one of Anaheim's approved and licensed electrical contractors free of charge.
- Home Incentives Program: Provides rebates for the purchase and installation of replacement ENERGY STAR® rated appliances and high-efficiency conservation measures.
- Air Conditioner (AC) Tune-Up Program: Provides up to a $100 incentive to residential customers who have a licensed HVAC contractor perform an A/C tune up, with an enhanced incentive of up to $150 for income-qualified customers.
- Refrigerator & Freezer Recycling Program: Provides a $50 incentive to customers who recycle an old, operational refrigerator or freezer. Appliance collection is available at no cost to the customer.
- Uninterruptible Power Supply Rebate Program: Provides a $50 incentive for standard equipment and $200 incentive for medical device uninterruptible power supply systems that meet ENERGY STAR® certification requirements.

- Electric Portable Power Station Rebate Program: Provides a $50 incentive for standard equipment and $200 incentive for medical device associated electric portable power stations. Incentive eligible for battery powered electric portable power station devices, with a minimum 100W AC output.
- Tree Power Program: Provides up to 6 complimentary shade trees, along with an option for a $20 incentive per shade tree for residential customers.
- MyPower Savings Program: As a DR program, participating residential customers earn event participation rewards of $1.00 for every kWh of energy reduced during event hours (up to $100 in bill credits per FY). Additionally, instant enrollment bill credits are provided for participants with central A/C units, pool pumps, wall A/C units, and/or EV chargers.
- LED Distribution Program (Welcome Kits): New residential electric utility customers are direct-mailed LED Welcome Kits, inclusive of 4 LED lamps and a welcome brochure with city information and resources.
- Utility Discount Program: Provides a 10% reduction on the electric and/or water portions of utility bills to seniors, military veterans, or long-term disabled customers at or below 80% of the Orange County median income.
- Community Solar Discount Program: Income-qualified customers are eligible to receive a $20 monthly discount on the electric portion of their utility bill for a 12-month period.
- EAP: Provides up to $350 in utility payment assistance for income-qualified customers experiencing financial hardship.

Complementary Programs

- School Education Programs: Public and private school students engage in the classroom and through hands-on outdoor labs to explore environmental issues in our region. Programs recently enhanced to incorporate Next Generation Science Standards into curricula that now includes education on renewable resources, water conservation, solar power, EV adoption and the benefits thereof, in-home student-led energy/water evaluation assessments, hands-on fieldtrips to various nature centers and outdoor venues, with educational activities centered around sustainability and environmental stewardship.
- Water Conservation Student Poster Contest: APU continues to hold an annual "Water is Life" Poster Contest, whereby 1st through 8th graders are invited to submit artwork associated with water conservation, giving students the opportunity to help raise water awareness through the art they create. At the culmination of the contest, winning artwork is printed on APU-branded water bottle labels and an artist recognition is held at a City Council meeting. This year hosted the 32nd Annual Student Poster Contest, with over 250 artwork entries received.
- Scholarship Program: Program supports the pursuit of post-secondary education for high school students and provides a monetary award toward continued education in a

STEM-related field. Participants submit an essay whereby ideas/initiatives are proposed that would supplement APU' existing sustainability programs to promote clean, green communities. In the summer of 2023, Scholarship Program awardees also participated in a paid internship with APU, in partnership with Workforce Development and Hope Builders.

- Mentorship Program: Through the 4-session program, students learn to collaborate with others from different schools, while exploring a variety of skill sets, inclusive of resume building, interview skills, teamwork, and public speaking. Participants learn of utility power/water resources and sustainability initiatives and are exposed to various utility jobs and career paths.
- Bright Girls Program: Mentorship initiative intended to inspire middle-school girls to learn about various utilities-related career path opportunities, engage in hands-on STEM activities, tour utility facilities, and interact with female professionals in the industry.
- Sustainable Home Awards Program: Community outreach and customer sustainability acknowledgement program. This year, nine exemplary customers were acknowledged for their commitment to resource conservation and active participation in various energy and water efficiency programs.
- Sustainable Schools Award Program: Each year, APU recognizes kindergarten through 12th grade (K-12) Anaheim schools for making positive environmental impacts on campus and in curriculums. Through the Sustainable Schools Award Program, schools showcase their energy- and water-efficiency programs, unique environmental initiatives, and environmental education programs for students and staff. Two winning schools are recognized each year and receive the opportunity to select one grand prize, including 30 ENERGY STAR® laptops, digital smart boards, or support for an on-site school sustainability project. In addition to the Sustainable Schools Award Program, APU offers educators additional resources such as facility tours, extracurricular programs, and projects to enhance the educational experience for Anaheim students.
- Battery Storage Rebate Program: Incentive of up to $3,000 available for residential customers who install an energy storage system with minimum of 5 kWh capacity. FY 2023 saw a substantial increase in Program interest, incentivizing a total of 29 battery storage systems.
- Private Use EV Charger Rebate Program: Incentive of up to $1,500 for residential and business customers who install Level 2 plug-in electric vehicle chargers for personal or business use. A total of 381 Private Use EV Charger Rebates were issued in FY 2023 alone.
- Public Access EV Charger Station Rebate Program: Initiative provides up to $5,000 per level 2 EV charging station and $10,000 per direct current (DC) fast charging stations at multi-unit dwelling locations or other publicly accessible areas; up to $10,000 per EV charging station servicing affordable housing or K-12 schools; up to an additional $5,000 for program participants who choose to install an associated sub-meter; and APU

rebates the City's plan check fees (up to $1,500/installation) and pays permit fees (approx. $170/charger) for the EV charger(s). The program includes an enhanced rebate for chargers located at multi-unit dwellings within low-income and disadvantaged communities. In FY 2023, APU incentivized 105 public chargers, 13 plan check fees, and 43 commercial permit fee waivers.

- EV Fleet Charger & Infrastructure Rebate Program: Incentive open to commercial customers and K-12 schools and provides rebates for networked Level 2 or greater EV chargers and associated EV charger infrastructure upgrades. Maximum of ten EV chargers per year; Commercial Business Fleet Customers receive up to $5,000 per EV charger, up to $45,000 per site for associated EV charger infrastructure upgrades and up to $5,000 for associated sub-meter installation costs. School Customers receive up to $10,000 per EV charger, up to $95,000 per site for associated EV charger infrastructure upgrades and up to $5,000 for associated sub-meter installation costs. APU will pay, on a per reservation basis, the applicable City permit fees, and rebate City plan check fees of up to $1,500 and electric service connection fees of up to $2,000. In FY 2023, APU incentivized 20 fleet chargers.
- EV Ride Sharing Program: Provides access to EVs for residents who live in multi-family accommodations located within disadvantaged or low-income communities and who may not otherwise have access to EVs. The program provides rebates to property owners and property management companies who host EV ride sharing company vehicles and make them available for use to their residents. Rebates include up to $24,000 per year for the lease of two EVs, and up to $36,000 per year to cover the cost of licensed driver ridership, for up to three years. In FY 2023, two multi-family properties took advantage of this program making four EVs available to their residents. Over 207 drivers signed up to use the vehicles.
- EV Feasibility and Master Planning Studies: In FY 2023, APU partnered with a consultant to offer no-cost, no-commitment feasibility and master studies to commercial sites and multi-family dwellings. Customers who participate in a feasibility study receive a high-level report with EV charging installation recommendations. A master study will include an in-depth report that provides technical specifications and long-term planning (10-year electrification expansion plan).
- EV Ride-and-Drive Events: APU promotes and advocates the use of plug-in vehicles through events and education. In partnership with Plug In America, three free EV test drive events were hosted in FY 2023. Attendees were given the opportunity to learn more about EVs through test driving and interactions with knowledgeable volunteers and dealer staff. Events held at Katella High School and West Anaheim Youth Center were well attended, with over 244 test drives. Additionally, APU hosted its annual OC Green Expo in June 2023, which featured an EV test drive experience with over 309 participants, connecting the community with sustainable resources, organizations, and vendors.

- Residential and Commercial Water Savings Resulting from Equipment Rebates: Businesses and residents are eligible for rebates by installing or retrofitting with qualifying water-saving devices through the "SoCal Water$mart" Program in partnership with the Metropolitan Water District of Southern California. Water savings result from the application of measures such as:
    - Rotating Sprinkler Nozzles
    - Weather-Based Irrigation Controllers
    - Soil Moisture Sensor Systems
    - Turf Replacement
    - High-Efficiency Clothes Washers
    - Premium High-Efficiency Toilets
    - Rain Barrels & Cisterns
- Water Smart Landscaping Workshops: Partnership with OC Master Gardeners Speakers Bureau to provide free gardening and landscaping workshops on various topics at venues throughout Anaheim.
- LED Street Lighting Retrofit Initiative: Anaheim is currently in the process of converting its city streetlights from HPS to LED lights. In FY 2023, a total of 853 streetlights were retrofitted with LED lighting, resulting more than 200 MWh of energy conserved.
- Holiday Light Exchange Program: Provides free LED holiday light strands to residents who turn in old incandescent holiday light strands.

EM&V Studies

Under SCPPA and CMUA EE Services Resolution No. 2021-105, Anaheim contributed to the development of tools and services that calculate and report the cost-effectiveness of EE and DR programs.

Major Differences or Diversions from California POU TRM for Energy Savings

N/A.

TABLE APU-1. EE Program Results by End Use

Summary by End Use	Resource Savings Summary								Cost Test Results		
End Use	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Appliance & Plug Loads	0	31,026	424,220	0	31,026	424,220	171	$31,926	1.26	2.87	0.098
Building Envelope	52	38,249	761,080	52	38,249	761,080	325	$49,078	1.99	2.87	0.095
HVAC - Cooling	45	72,806	852,448	45	72,806	852,448	347	$153,356	0.53	2.99	0.229
HVAC - Heat Pump	5	19,404	232,108	5	19,404	232,108	81	$36,140	0.64	10.11	0.197
Lighting - Indoor	691	3,429,487	42,538,683	691	3,429,487	42,538,683	15,269	$534,393	7.86	15.04	0.016
Lighting - Outdoor	49	677,063	11,039,349	49	677,063	11,039,349	4,316	$3,168,061	0.37	0.37	0.396
Miscellaneous	22,824	1,873,364	25,772,882	22,824	1,873,364	25,772,882	8,248	$1,275,795	2.14	2.39	0.068
Service & Domestic Hot Water	0	3,600	54,000	0	3,600	54,000	22	$2,967	1.71	2.87	0.073
Water Pumping / Irrigation	0	187,523	1,687,707	0	187,523	1,687,707	698	$262,402	0.63	0.72	0.184
Whole Building	0	36,227	108,681	0	36,227	108,681	36	$179,117	0.09	0.09	1.721
EE	23,666	6,368,750	83,471,159	23,666	6,368,750	83,471,159	29,514	$5,693,235	1.50	1.68	0.090
Appliance & Plug Loads	1	5,781	67,101	1	5,781	67,101	27	$8,525	0.75	0.96	0.159
HVAC - Cooling	279	334,336	3,246,683	279	334,336	3,246,683	1,334	$407,080	0.79	0.79	0.151
Lighting - Indoor	36	322,754	4,841,313	36	322,754	4,841,313	1,949	$575,879	0.79	0.79	0.159
Miscellaneous	40	38,737	315,155	40	38,737	315,155	132	$44,437	0.79	0.79	0.168
Low-Income	355	701,608	8,470,252	355	701,608	8,470,252	3,442	$1,035,921	0.79	0.79	0.156
EE and Low Income	24,021	7,070,358	91,941,411	24,021	7,070,358	91,941,411	32,955	$6,729,157	1.39	1.53	0.096
C&S, T&D and Electrification								$0			
Utility Total	24,021	7,070,358	91,941,411	24,021	7,070,358	91,941,411	32,955	$6,729,157	1.39	1.53	0.096

TABLE APU-2. EE Program Results by Sector

Summary by Sector	Resource Savings Summary								Cost Test Results		
Sector	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Any	0	187,523	1,687,707	0	187,523	1,687,707	698	$262,735	0.63	0.72	0.184
Commercial	23,049	4,139,793	53,045,526	23,049	4,139,793	53,045,526	16,887	$1,239,517	4.46	6.22	0.030
Other	49	200,988	4,019,767	49	200,988	4,019,767	1,888	$3,059,554	0.14	0.14	1.120
Residential	568	1,840,446	24,718,159	568	1,840,446	24,718,159	10,040	$1,131,429	2.11	2.66	0.061
EE	23,666	6,368,750	83,471,159	23,666	6,368,750	83,471,159	29,514	$5,693,235	1.50	1.68	0.090
Residential	355	701,608	8,470,252	355	701,608	8,470,252	3,442	$1,035,921	0.79	0.79	0.156
Low-Income	355	701,608	8,470,252	355	701,608	8,470,252	3,442	$1,035,921	0.79	0.79	0.156
EE and Low Income	24,021	7,070,358	91,941,411	24,021	7,070,358	91,941,411	32,955	$6,729,157	1.39	1.53	0.096
C&S, T&D and Electrification								$0			
Utility Total	24,021	7,070,358	91,941,411	24,021	7,070,358	91,941,411	32,955	$6,729,157	1.39	1.53	0.096

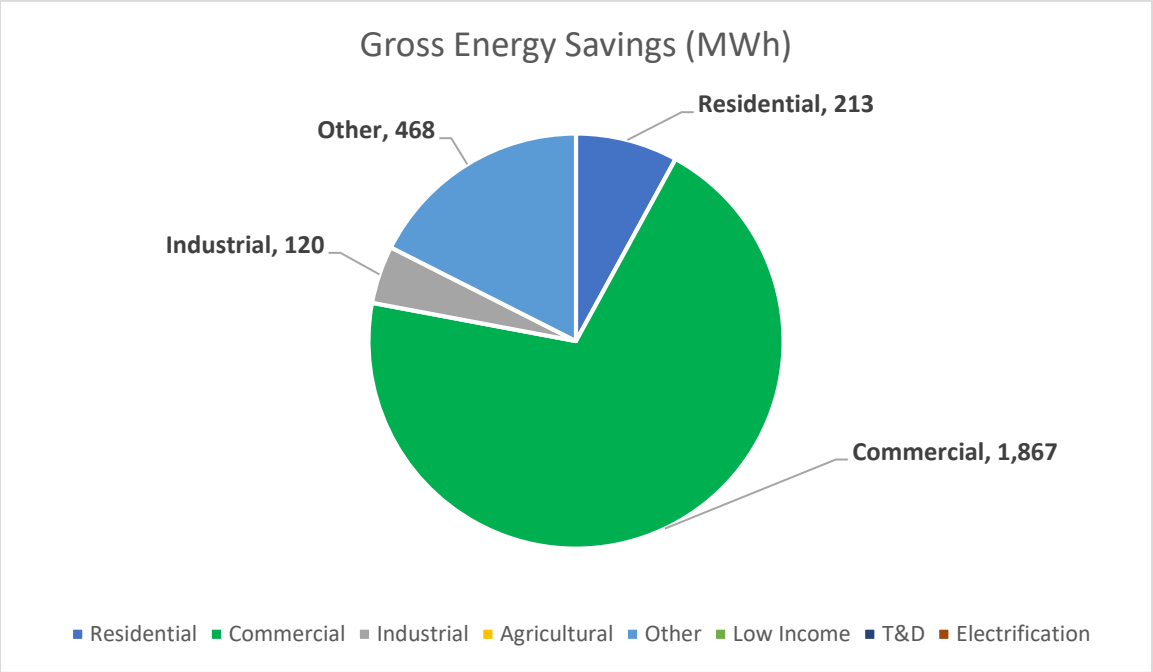
TABLE APU-3. EE Program Results by Building Type

Summary by Building Type	Resource Savings Summary								Cost Test Results		
Building Type	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Any	88	783,911	15,062,361	88	783,911	15,062,361	4,503	$271,603	6.11	9.27	0.026
Multiple	0	187,523	1,687,707	0	187,523	1,687,707	698	$262,402	0.63	0.72	0.184
Other Commercial	23,009	3,556,870	42,002,932	23,009	3,556,870	42,002,932	14,273	$4,027,468	1.07	1.14	0.121
Residential	516	1,761,435	23,387,008	516	1,761,435	23,387,008	9,459	$1,076,206	2.05	2.58	0.061
Residential - Single-Family	52	79,011	1,331,151	52	79,011	1,331,151	581	$55,556	3.40	4.06	0.058
EE	23,666	6,368,750	83,471,159	23,666	6,368,750	83,471,159	29,514	$5,693,235	1.50	1.68	0.090
Residential	290	658,083	8,223,965	290	658,083	8,223,965	3,338	$992,025	0.79	0.79	0.155
Residential - Mobile Home	25	20,137	130,840	25	20,137	130,840	50	$21,389	0.79	0.79	0.188
Residential - Single-Family	40	23,388	115,447	40	23,388	115,447	54	$22,507	0.79	0.79	0.213
Low-Income	355	701,608	8,470,252	355	701,608	8,470,252	3,442	$1,035,921	0.79	0.79	0.156
EE and Low Income	24,021	7,070,358	91,941,411	24,021	7,070,358	91,941,411	32,955	$6,729,157	1.39	1.53	0.096
C&S, T&D and Electrification								$0			
Utility Total	24,021	7,070,358	91,941,411	24,021	7,070,358	91,941,411	32,955	$6,729,157	1.39	1.53	0.096

AZUSA LIGHT & WATER

Azusa Light & Water at a Glance

- Climate Zone: 9
- Customers: 17,494
- Total annual retail sales: 241,341 MWh
- Annual Retail Revenue: $45,721,857
- Annual EE expenditures for reporting year: $1,468,043
- Gross annual savings from reporting year portfolio: 2,667 MWh



Azusa Light & Water Overview

Since the inception of the EE programs, Azusa Light & Water has spent over $17 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 a consistent annual peak demand and energy use reduction of approximately one percent.

Major Program and Portfolio Changes

The onset of the COVID pandemic began reducing the amount of participation in the residential rebate programs and business-related EE measure implementation. In addition, the number of

Azusa Pacific University students residing in Azusa was dramatically reduced, resulting in a reduction of hundreds of residential customers. Since the passing of the pandemic, the number of customers has returned to pre-pandemic levels and has started to increase again.

Program and Portfolio Highlights

The direct install Small Business Audit/Retrofit Program continues to provide the maximum 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 are often unable to participate in the rebate programs unless there is little to no up-front monetary outlay. This program allows customers to immediately see the savings and avoid the initial cash outlay associated with the typical rebate-type programs.

Due to the COVID pandemic, the In-Class Education Program was converted from in-class to online to accommodate the pandemic-related online learning curriculum. The curriculum has since returned to the in-class structure and participation has also increased to the pre-pandemic level.

Commercial, Industrial & Agricultural Programs

- Business Partnership Program: Retrofit existing buildings and factories with high-efficiency lighting, AC, 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 LED 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.
- "The Proctor Engineering HVAC Tune-Up and Retrofit Program": Provides free HVAC tune-ups and HVAC equipment replacement recommendations.

Residential Programs

Home Weatherization and Residential EnergyStar® Appliance Rebate Program: Rebates are offered for a variety of home weatherization measures and most high-efficiency appliances that have the EnergyStar® rating, including but not limited to, refrigerators, air conditions, LED Televisions and computer monitors, dishwashers, clothes washers, pool pumps, ceiling fans, and various lighting measures.

- 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 uses in the way of energy.

Complementary Programs

- The Public Facilities Program is essentially the same as the current commercial and industrial programs; therefore, they are included in the same category for funding and savings.
- City Schools "Tinker" Program: Provides an interactive 5th-grade conservation education program to all 5th-grade classes within the City of Azusa, both private and public.
- 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, ALW's guidelines for qualifying customers follow the low-income thresholds used by the State.
- RD&D: ALW, jointly with the Southern California Public Power Authority (SCPPA), is an active member of the American Public Power Association (APPA) Demonstration of Energy & Efficiency Developments (DEED) Program.

EM&V Studies

Azuza Light & Water contracted with Lincus Energy to complete a study of the various EE programs and associated savings. The Lincus study is available on the CMUA website and the Azuza Light & Water website.[16] Azuza Light & Water will continue to make EM&V reports available to the Energy Commission and other parties as they are completed and will continue with its EM&V programs and practices in the future.

Major Differences or Diversions from California POU TRM for Energy Savings

For savings, Azuza Light & Water uses a combination of figures from TRM, E3, utility work papers and custom savings analysis along with vendor calculations when applicable.

[16] See http://www.ci.azusa.ca.us/DocumentCenter/View/26058.

TABLE Azuza-1. EE Program Results by End Use

Summary by End Use	Resource Savings Summary								Cost Test Results		
End Use	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Any	82	323,632	3,912,432	82	323,632	3,912,432	1,298	$65,801	6.08	11.46	0.021
Building Envelope	596	1,991,602	29,481,458	595	1,990,659	29,453,162	9,451	$1,313,307	2.33	11.30	0.059
Miscellaneous	134	352,240	3,406,568	134	352,240	3,406,568	1,211	$88,935	4.07	11.46	0.033
EE	813	2,667,474	36,800,458	812	2,666,531	36,772,162	11,959	$1,468,043	2.61	11.33	0.053
EE and Low Income	813	2,667,474	36,800,458	812	2,666,531	36,772,162	11,959	$1,468,043	2.61	11.33	0.053
C&S, T&D and Electrification								$0			
Utility Total	813	2,667,474	36,800,458	812	2,666,531	36,772,162	11,959	$1,468,043	2.61	11.33	0.053

TABLE Azuza-2. EE Program Results by Sector

Summary by Sector	Resource Savings Summary								Cost Test Results		
Sector	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Commercial	580	1,866,878	27,539,858	580	1,866,878	27,539,858	8,798	$1,255,662	2.27	11.46	0.061
Industrial	12	120,008	1,800,120	12	120,008	1,800,120	611	$35,867	5.07	11.46	0.027
Other	155	468,076	5,318,408	155	468,076	5,318,408	1,765	$70,650	7.70	11.46	0.017
Residential	66	212,512	2,142,072	66	211,569	2,113,776	785	$105,864	2.30	9.68	0.065
EE	813	2,667,474	36,800,458	812	2,666,531	36,772,162	11,959	$1,468,043	2.61	11.33	0.053
EE and Low Income	813	2,667,474	36,800,458	812	2,666,531	36,772,162	11,959	$1,468,043	2.61	11.33	0.053
C&S, T&D and Electrification								$0			
Utility Total	813	2,667,474	36,800,458	812	2,666,531	36,772,162	11,959	$1,468,043	2.61	11.33	0.053

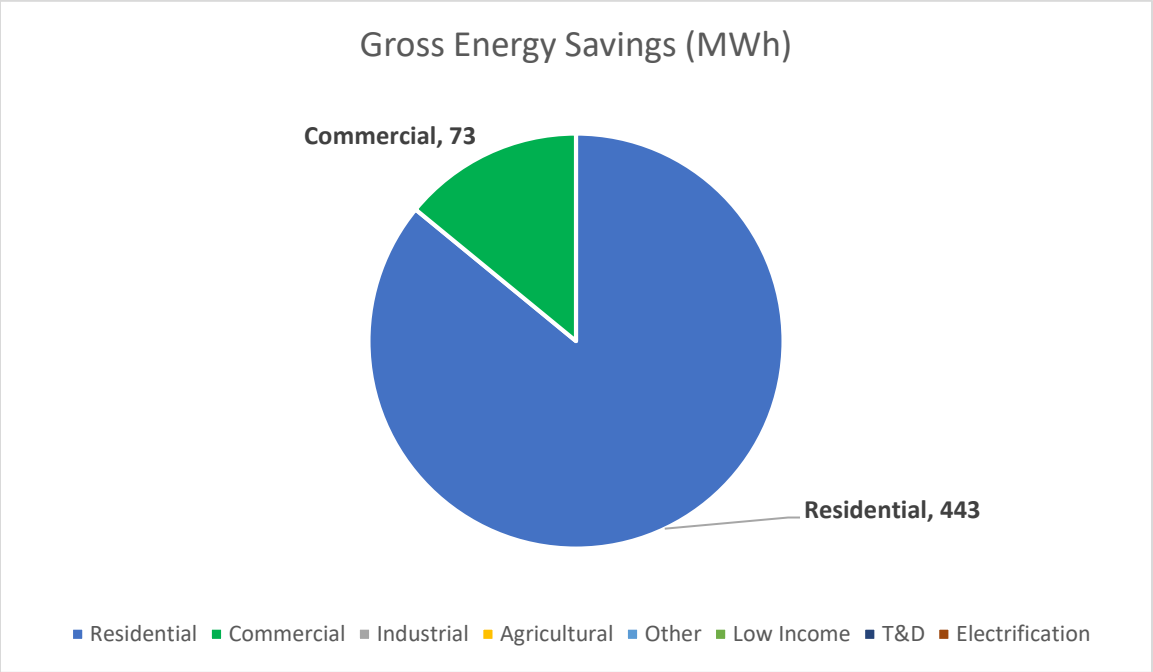
TABLE Azuza-3. EE Program Results by Building Type

Summary by Building Type	Resource Savings Summary								Cost Test Results		
Building Type	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Any	591	1,776,545	24,945,443	591	1,776,545	24,945,443	8,028	$1,103,124	2.34	11.46	0.058
Other Commercial	144	558,409	7,912,823	144	558,409	7,912,823	2,535	$223,188	3.69	11.46	0.037
Other Industrial	12	120,008	1,800,120	12	120,008	1,800,120	611	$35,867	5.07	11.46	0.027
Residential	66	212,512	2,142,072	66	211,569	2,113,776	785	$105,864	2.30	9.68	0.065
EE	813	2,667,474	36,800,458	812	2,666,531	36,772,162	11,959	$1,468,043	2.61	11.33	0.053
EE and Low Income	813	2,667,474	36,800,458	812	2,666,531	36,772,162	11,959	$1,468,043	2.61	11.33	0.053
C&S, T&D and Electrification								$0			
Utility Total	813	2,667,474	36,800,458	812	2,666,531	36,772,162	11,959	$1,468,043	2.61	11.33	0.053

CITY OF BANNING ELECTRIC UTILITY

City of Banning Electric Utility at a Glance

- Climate Zone: 15
- Customers: 13,276
- Total annual retail sales: 151,401 MWh
- Annual Retail Revenue: $27,721,387
- Annual EE expenditures for reporting year: $302,408
- Gross annual savings from reporting year portfolio: 516 MWh



Banning Overview

During FY 2023, Banning spent $302,408 in EE programs, which have provided 515,895 kWh of energy savings. The City of Banning is deemed 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, a significant portion of Public Benefits dollars are utilized to provide low-income assistance through a monthly utility bill credit.

The master-planned community of Atwell continues to grow. To date, approximately 950 homes have been built. Each new home has 2.8 kW of roof-top solar, totaling 2.2 MW of new roof-top solar, and adheres to 2019 Title 24 Construction Standards.

Major Program and Portfolio Changes

One of Banning's new goals for FY 22/23 was to expand energy audits and direct installations of efficiency measures beyond just our commercial customers. There is such a large population of low-income as well as seniors who cannot afford our standard rebate programs. A new program to reach commercial customers, low-income customers, and single-family residences has been added to replace our Business EE Funds "B.E.E.F" program. We have created this new program to serve multiple customers. This new program is called the Synergy Energy Audit Measures "S.E.A.M." program.

During the pandemic, Banning Electric Utility felt the call to step up community outreach and education. This focus on community outreach and programs has led to the creation of our C.O.R.E. Team (community, outreach, relations, and education). Our C.O.R.E. Team actively partners with other City of Banning departments and local organizations to focus on community engagement and social equity. We have had several successful community events and continue evaluating our programs and community-based activities to determine what will eventually constitute a roster of regularly scheduled programs and community-centric events to be held on an annual basis.

One successful program that spurred from a partnership with our Parks and Recreation Department is the new "Keep Your Kool...At the Pool" program. During the summer of 2023, the City of Banning Electric Utility sponsored Friday-night "Dive-In Movies" at the local Repplier Aquatic Center. We compared the number of attendees for Friday-Night swim sessions to Dive-in Movies during the summer of 2022 and discovered the Dive-in Movie nights were at full capacity and often had a line of people waiting to enter. The goal of this program was to shave peak load by enticing residents to leave their homes to cool off in the community pool rather than stay home and use their air conditioners. To ensure we had the highest participation possible we sponsored Dive-In Movies for every Friday night in the summer of 2023. The kWh savings equaled that of three residential customers' usage for an entire month and helped to decrease the risk of Flex Alerts. We are already in the planning stages for the summer of 2024 and look forward to increased peak load reduction.

Banning Electric Utility was proud to partner with the Arbor Day Foundation for our 3rd annual Energy-Saving Tree Event in the Spring of 2023. Customers accessed the Arbor Day Foundation website and reserved up to two trees per household in a Banning Electric portal. A day was scheduled for customers to pick up their reserved trees with planting and care instructions given to ensure the successful growth of the trees. Some environmental impacts from our 2023 tree event are 206,684 lbs. of carbon sequestered, 276 lbs. of air pollution removed, 227,353 gallons of stormwater filtered, and $28,561 cumulative community benefits over 20 years. We hope this will continue to be an annual event for years to come, and we already have a waitlist that was started for the 2024 Energy-Saving Tree event.

Banning Electric Utility was also instrumental in the development of an expanded location for a pallet-home community for the homeless. Entitled "Ramsey Village," this small community for the homeless consisted of portable, energy-efficient, two-person bungalows with heat, AC, and wall-mounted, fold-up beds.

Program and Portfolio Highlights

- Renewable Portfolio Standard: In 2022, the City of Banning's energy portfolio was 81.3% renewable. Steps have been taken to increase our renewable portfolio, which has helped in making the City of Banning Electric Utility one of the most renewable utilities in the state. This accomplishment is one we have worked very diligently to achieve and are very proud of as a small municipal utility.
- Solar 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, coupled with Title 24 Construction Standards, have helped install approximately 6.0 MW of customer-owned solar photovoltaic capacity in the city. Banning previously met the NEM Cap of 2.3 MW in 2018.

Commercial, Industrial & Agricultural Programs

- Synergy Energy Audit Measures "S.E.A.M.": Complementary Energy Audit coupled with complementary measures for commercial customers such as efficiency upgrades and retrofits such as lighting, refrigeration, motors, AC tune-ups, etc.
- Commercial Programs: Monetary incentives for commercial customers to install more energy-efficient equipment such as lighting, signage, or refrigeration. Customized rebate programs have also been adopted when business-specific EE measures are implemented, and kWh and peak demand reduction are demonstrated.
- New Construction: Monetary incentives for new construction projects that exceed the EE above California's Title 24 standards.

Residential Programs

- AC: Monetary incentives to replace an existing central AC unit with a new high-efficiency unit.
- AC Tune-Ups: Monetary incentives for getting AC units tuned up.
- 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.
- Recycling: 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 EE 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 AC.
- Smart Thermostat: Rebates are offered for the installation of a programmable, WIFI-enabled thermostat.
- Summer Savings Program: Rebates created to assist our low-income customers who cannot afford a new air conditioner to cool off in the summer. These rebates are for box fans, ceiling fans, and room a/c units to circulate the air and help stay cool during the hot summer months.

Complementary Programs

- Low-Income Assistance: An electric utility discount for qualified customers. As mentioned above, the majority of Public Benefits funds are spent providing low-income assistance. Currently, we have 1,200 customers on our Low-Income Assistance program with a budget of $345,000 during FY 2023.
- Medical Discount Program: An electric utility discount for qualified customers. This program has approximately 800 customers with a budget of $135,000 during FY 2023.
- Software Updates: Addition of customer portals through SATEC, Milsoft, and use of Text Power to improve communications with our customers regarding outage maintenance and customer programs.

EM&V Studies

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 of Banning Electric Utility will continue with its EM&V programs and practices.

Major Differences or Diversions from California POU TRM for Energy Savings

The City of Banning uses CMUA measures. There are no major differences or diversions.

TABLE Banning-1. EE Program Results by End Use

Summary by End Use	Resource Savings Summary								Cost Test Results		
End Use	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Any	77	233,822	2,338,220	61	187,058	1,870,576	697	$150,453	1.39	1.39	0.097
Appliance & Plug Loads	1	10,651	89,966	1	10,119	85,467	36	$4,250	2.77	3.20	0.060
Building Envelope	21	16,197	319,415	15	9,982	198,366	88	$4,112	9.64	0.70	0.030
HVAC - Cooling	25	32,942	401,258	12	26,335	328,010	129	$82,394	0.86	1.72	0.330
Lighting - Outdoor	0	68,590	823,080	0	54,872	658,464	238	$50,000	1.41	1.41	0.096
Miscellaneous	0	153,692	3,073,840	0	122,954	2,459,072	893	$11,200	23.20	23.20	0.007
EE	124	515,895	7,045,778	89	411,319	5,599,955	2,081	$302,408	2.19	2.11	0.072
EE and Low Income	124	515,895	7,045,778	89	411,319	5,599,955	2,081	$302,408	2.19	2.11	0.072
C&S, T&D and Electrification								$0			
Utility Total	124	515,895	7,045,778	89	411,319	5,599,955	2,081	$302,408	2.19	2.11	0.072

TABLE Banning-2. EE Program Results by Sector

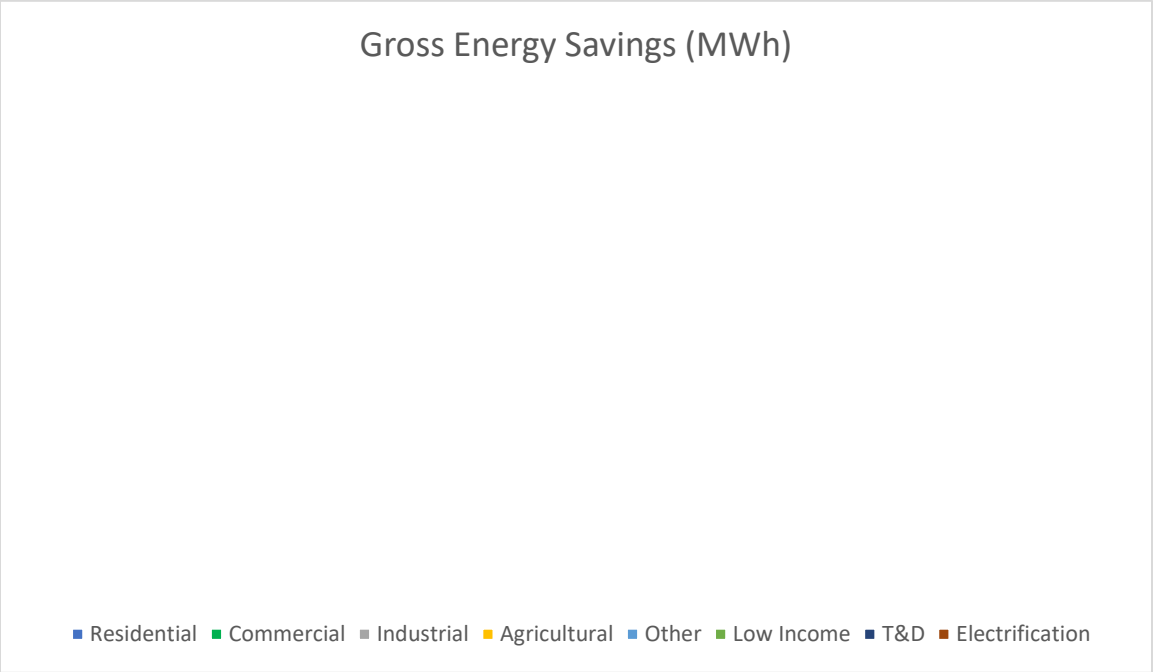
Summary by Sector	Resource Savings Summary								Cost Test Results		
Sector	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Commercial	1	72,564	862,820	1	58,051	690,256	249	$62,632	1.18	1.18	0.114
Residential	122	443,331	6,182,958	88	353,268	4,909,699	1,832	$239,776	2.45	2.35	0.066
EE	124	515,895	7,045,778	89	411,319	5,599,955	2,081	$302,408	2.19	2.11	0.072
EE and Low Income	124	515,895	7,045,778	89	411,319	5,599,955	2,081	$302,408	2.19	2.11	0.072
C&S, T&D and Electrification								$0			
Utility Total	124	515,895	7,045,778	89	411,319	5,599,955	2,081	$302,408	2.19	2.11	0.072

TABLE Banning-3. EE Program Results by Building Type

Summary by Building Type	Resource Savings Summary								Cost Test Results		
Building Type	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Any	80	399,374	5,473,958	64	320,408	4,384,104	1,614	$164,413	2.90	2.92	0.050
Other Commercial	0	68,590	823,080	0	54,872	658,464	238	$50,000	1.41	1.41	0.096
Residential	43	45,208	712,801	25	33,766	526,382	219	$85,955	1.29	1.12	0.225
Residential - Single-Family	0	2,723	35,939	0	2,272	31,005	11	$2,040	1.93	3.87	0.086
EE	124	515,895	7,045,778	89	411,319	5,599,955	2,081	$302,408	2.19	2.11	0.072
EE and Low Income	124	515,895	7,045,778	89	411,319	5,599,955	2,081	$302,408	2.19	2.11	0.072
C&S, T&D and Electrification								$0			
Utility Total	124	515,895	7,045,778	89	411,319	5,599,955	2,081	$302,408	2.19	2.11	0.072

Biggs at a Glance

- Climate Zone: 11
- Customers: 693
- Total annual retail sales: 4,787 MWh
- Annual Retail Revenue: $910,586
- Annual EE expenditures for reporting year: $0
- Gross annual savings from reporting year portfolio: 0 MWh



Biggs Overview

The City of Biggs is primarily a small residential city with one large industrial customer. A significant portion of the City's population is either low-income or senior citizens living on fixed incomes.

Major Program and Portfolio Changes

There have been no major changes in programs offered.

Program and Portfolio Highlights

Commercial, Industrial & Agricultural Programs

Residential Programs

Biggs provided an electric heater rebate. Customers going from gas to electric water heaters could bring in their old gas water heaters and receipts for their new electric water heaters to receive a max rebate of $550.00.

Complementary Programs

Low-Income Programs: Biggs works with Community Action Agency of Butte County to provide Home EAP (HEAP) grants to income-qualified households within our service territory. Complimentary on=site energy audits are performed by our partner, Efficiency Services Group, to resolve high usage complaints.

EM&V Studies

Major Differences or Diversions from California POU TRM for Energy Savings

None.

TABLE Biggs-1. EE Program Results by End Use

Summary by End Use	Resource Savings Summary								Cost Test Results		
End Use	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
HVAC - Cooling	0	0	0	0	0	0	0	$0			0.000
EE	0	0	0	0	0	0	0	$0			0.000
EE and Low Income	0	0	0	0	0	0	0	$0			0.000
C&S, T&D and Electrification								$0			
Utility Total	0	0	0	0	0	0	0	$0			0.000

TABLE Biggs-2. EE Program Results by Sector

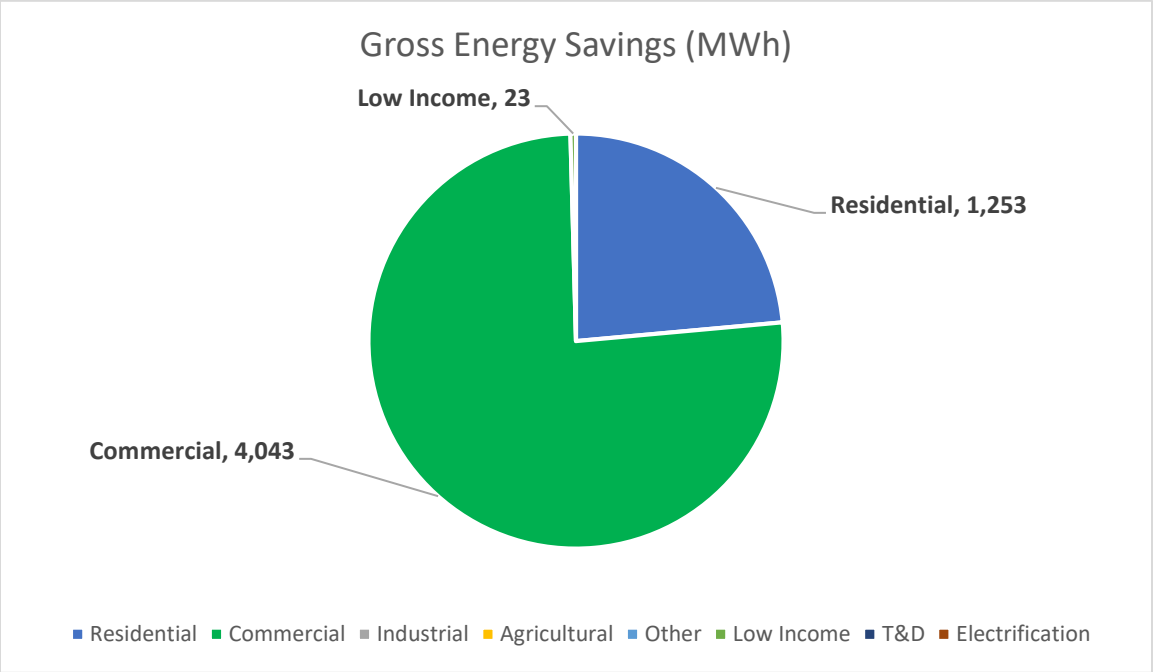
Summary by Sector	Resource Savings Summary								Cost Test Results		
Sector	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Commercial	0	0	0	0	0	0	0	$0			0.000
EE	0	0	0	0	0	0	0	$0			0.000
EE and Low Income	0	0	0	0	0	0	0	$0			0.000
C&S, T&D and Electrification								$0			
Utility Total	0	0	0	0	0	0	0	$0			0.000

TABLE Biggs-3. EE Program Results by Building Type

Summary by Building Type	Resource Savings Summary								Cost Test Results		
Building Type	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Warehouse - Refrigerated	0	0	0	0	0	0	0	$0			0.000
EE	0	0	0	0	0	0	0	$0			0.000
EE and Low Income	0	0	0	0	0	0	0	$0			0.000
C&S, T&D and Electrification								$0			
Utility Total	0	0	0	0	0	0	0	$0			0.000

Burbank Water & Power at a Glance

- Climate Zone: 9
- Customers: 53,729
- Total annual retail sales: 992,900 MWh
- Annual Retail Revenue: $165,416,000
- Annual EE expenditures for reporting year: $1,820,098
- Gross annual savings from reporting year portfolio: 5,319 MWh



Burbank Overview

Burbank Water & Power (BWP) provides essential utility services to its residential and business customers.

Burbank, known as the "Media Capital of the World," houses major entertainment companies such as The Walt Disney Company, Warner Bros Studios, Burbank Studios, Nickelodeon, Cartoon Network, ABC Studios, Netflix, and KCET. There are also numerous small media businesses in the City of Burbank. Furthermore, Burbank features unique shopping and dining neighborhoods like Downtown Burbank and Magnolia Park. The powerhouse Empire Center, the Burbank Town Center, and one of North America's largest IKEAs are also in Burbank. BWP

extends its services to businesses through fiber optic networking, aligning with its commitment to providing sustainable, affordable, and reliable services to the community.

The residential community of Burbank consists of about 22,000 single-family homes that range from post-war bungalows to two-story homes. There are also about 24,000 multi-family dwellings, and the number of multi-family homes continues increasing with infill and high-density development.

The Integrated Resource Plan (IRP), adopted by the Burbank City Council adopted BWP's IRP in December 2018, directs BWP to reduce GHG emissions by beneficial electrification and renewable energy integration.

BWP actively promotes Transportation Electrification (TE) by offering educational initiatives and programs, including the Used EV Rebate Program, Residential EV Charger Rebate Program, and Commercial EV Charger Rebate Program. BWP is also committed to making public charging easy. There are 160 private and public charging ports in Burbank.

Furthermore, BWP implements the Green Choice Program, enabling residential customers to offset 100 percent of their non-renewable electricity by paying a nominal extra fee of 1.8 cents per kWh in addition to the standard residential electric rate. There are 182 participants in the Green Choice Program.

Major Program and Portfolio Changes

During FY 2023, BWP reintroduced the Home Energy Reports program, offering both printed and emailed reports to residential customers detailing their energy usage. These reports are tailored to each household, featuring actionable steps to help in reducing electricity consumption. Alongside these reports, BWP also delivered Weekly Energy Updates (WEU) and High Bill Alerts (HBA) to educate customers with personalized insights.

The WEUs are emailed weekly to inform customers about their energy usage and patterns. Meanwhile, HBAs utilize Automated Metering Infrastructure (AMI) data to analyze consumption trends, alerting customers if they are likely to exceed their usual energy usage for a specific billing period. By offering these insights, HBAs empower customers to proactively manage their consumption before the billing period ends.

Program and Portfolio Highlights

BWP manages a comprehensive portfolio of efficiency programs for residential and commercial customers focusing on EE, peak load reduction, and greenhouse gas mitigation.

Among the efficiency programs, the Home Improvement Program (HIP) continues to be one of the most popular residential programs. This program includes energy-water surveys, installation of energy-water measures, and home weatherization services, available to all single-family and multi-family customers in Burbank. The HIP services are provided at no cost to

BWP customers, with all energy-water efficiency measures prioritized based on their cost-effectiveness.

Commercial, Industrial & Agricultural Programs

- Business Rebates: Businesses in Burbank can receive a rebate from the Business Rebates program by retiring their inefficient equipment and installing new energy-efficient products.
- Business Bucks Program: The program offers small and mid-sized businesses an EE survey and retrofits.
- LED Street Lighting Project: The program provides incentives for replacing inefficient high-pressure sodium (HPS) streetlights with energy-efficient LEDs.

Residential Programs

- AC Replace Before It Breaks Program: The program provides HVAC replacement incentives to residential customers to help them save energy by ensuring that their AC system is operating at the optimal level.
- Home Rewards Rebates Program: BWP provides rebates for purchasing and installing ENERGY STAR® rated appliances and high-efficiency measures.
- Livingwise® Program: The program provides energy and water education services, materials, and conservation kits to sixth-grade students attending public school in Burbank.
- OPower Web Portal: Residential customers can access their electric usage information through the Opower Web Portal to better understand their energy usage and reduce their electricity consumption.
- Home Energy Reports: The program provides energy reports to residential customers on their energy usage and educates them about more energy-efficient usage within a home through feedback and tips.
- Weekly Energy Updates: The program provides a weekly email report to residential customers to inform them about their energy usage patterns and trends.
- High Bill Alerts: The program uses AMI data to help customers save energy and money when they are likely to use more energy than usual.
- Home Improvement Program: The program offers energy-water surveys, energy-water measures installation, and home weatherization services to all Burbank single-family and multi-family customers.
- Shade Tree Program: The program provides complimentary shade trees and arborist consulting services to residential and commercial customers to ensure that the trees are properly sited and planted. When properly sited, mature shade trees provide shade that helps reduce AC costs.

Complementary Programs

- Lifeline Program: Offers a reduced electric rate and an exemption from the monthly Customer Service Charge for income-qualified customers.
- Life Support Program: Offers qualified customers an exemption from the utility user tax.
- Project Share Program: Offers income-qualified customers a one-time yearly stipend towards their electric utility bill.
- Refrigerator Exchange Program: BWP offers income-qualified and Lifeline-approved customers a program to replace an old inefficient refrigerator with a new ENERGY STAR® certified refrigerator at no cost.
- Charging Station Rebates: Residential and commercial customers who install a Level 2 EV charger or DC Fast Charger are eligible for a rebate from BWP. Residential customers can get a reimbursement for up to $1,500 per charging station for their home, and commercial customers can get a rebate for up to $15,000 per charging station for their business.
- Used EV Rebates: The program offers residential customers a $1,000 rebate towards a pre-owned EV purchase to support the adoption of EVs. The program is designed for customers who prefer pre-owned EVs or have income constraints to acquire a new EV.

EM&V Studies

BWP is committed to providing cost-effective, ongoing EM&V efforts for its EE programs. EM&V costs are covered in the individual program budgets. In addition to periodic program audits, BWP performs the following in support of EM&V activities:

- BWP uses a third-party verifier to perform quality inspections for 100% of AC Replace Before It Breaks participants.

Major Differences or Diversions from California POU TRM for Energy Savings

Most energy savings values used to evaluate BWP's programs are sourced from the TRM, developed for California's POUs. In cases where a particular measure is not listed in the TRM, BWP typically relies on a verified utility work paper or custom savings analysis, supplemented by vendor calculations to estimate energy savings.

TABLE BWP-1. EE Program Results by End Use

Summary by End Use	Resource Savings Summary								Cost Test Results		
End Use	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Any	1,292	3,820,916	57,313,740	1,292	3,820,916	57,313,740	18,441	$730,008	14.48	7.02	0.017
Appliance & Plug Loads	2	57,661	653,580	2	57,661	653,580	233	$32,231	2.41	0.40	0.062
Building Envelope	28	26,743	528,821	28	26,743	528,821	1,043	$20,170	13.88	3.29	0.056
HVAC - Cooling	43	113,132	1,792,601	43	113,132	1,792,601	699	$130,904	2.80	0.28	0.104
Lighting - Outdoor	39	198,932	3,978,640	39	198,932	3,978,640	1,837	$50,719	13.81	3.74	0.019
Miscellaneous	325	1,078,752	3,728,698	325	1,078,752	3,728,698	1,449	$740,830	0.71	0.46	0.214
EE	1,728	5,296,136	67,996,080	1,728	5,296,136	67,996,080	23,702	$1,704,862	7.35	2.81	0.033
Appliance & Plug Loads	5	22,792	113,960	5	22,792	113,960	44	$64,696	0.25	0.25	0.619
Low-Income	5	22,792	113,960	5	22,792	113,960	44	$64,696	0.25	0.25	0.619
EE and Low Income	1,732	5,318,928	68,110,040	1,732	5,318,928	68,110,040	23,746	$1,769,558	7.09	2.78	0.035
Codes & Standards	368	1,448,851	7,244,255	368	1,448,851	7,244,255	2,645	$50,540	20.65	20.65	0.008
Codes & Standards	368	1,448,851	7,244,255	368	1,448,851	7,244,255	2,645	$50,540	20.65	20.65	0.008
C&S, T&D and Electrification	368	1,448,851	7,244,255	368	1,448,851	7,244,255	2,645	$50,540	20.65	20.65	0.008
Utility Total	2,100	6,767,779	75,354,295	2,100	6,767,779	75,354,295	26,391	$1,820,098	7.46	2.97	0.031

TABLE BWP-2. EE Program Results by Sector

Summary by Sector	Resource Savings Summary								Cost Test Results		
Sector	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Commercial	1,339	4,043,034	61,501,054	1,339	4,043,034	61,501,054	20,347	$798,297	14.17	6.59	0.017
Residential	389	1,253,102	6,495,026	389	1,253,102	6,495,026	3,355	$906,565	1.34	0.44	0.167
EE	1,728	5,296,136	67,996,080	1,728	5,296,136	67,996,080	23,702	$1,704,862	7.35	2.81	0.033
Residential	5	22,792	113,960	5	22,792	113,960	44	$64,696	0.25	0.25	0.619
Low-Income	5	22,792	113,960	5	22,792	113,960	44	$64,696	0.25	0.25	0.619
EE and Low Income	1,732	5,318,928	68,110,040	1,732	5,318,928	68,110,040	23,746	$1,769,558	7.09	2.78	0.035
Other	368	1,448,851	7,244,255	368	1,448,851	7,244,255	2,645	$50,540	20.65	20.65	0.008
Codes & Standards	368	1,448,851	7,244,255	368	1,448,851	7,244,255	2,645	$50,540	20.65	20.65	0.008
C&S, T&D and Electrification	368	1,448,851	7,244,255	368	1,448,851	7,244,255	2,645	$50,540	20.65	20.65	0.008
Utility Total	2,100	6,767,779	75,354,295	2,100	6,767,779	75,354,295	26,391	$1,820,098	7.46	2.97	0.031

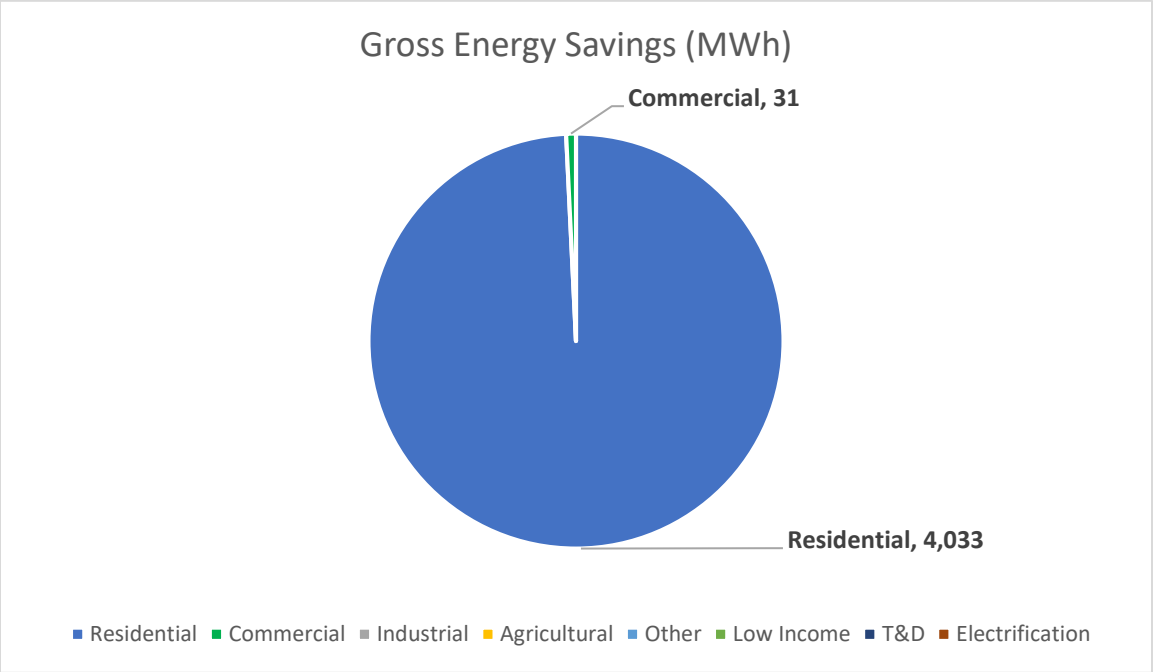
TABLE BWP-3. EE -Program Results by Building Type

Summary by Building Type	Resource Savings Summary								Cost Test Results		
Building Type	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Any	1,339	4,043,034	61,501,054	1,339	4,043,034	61,501,054	20,347	$798,297	14.17	6.59	0.017
Residential	386	1,189,102	5,729,775	386	1,189,102	5,729,775	2,874	$869,500	1.27	0.44	0.180
Residential - Single-Family	3	64,000	765,251	3	64,000	765,251	481	$37,065	3.13	0.53	0.062
EE	1,728	5,296,136	67,996,080	1,728	5,296,136	67,996,080	23,702	$1,704,862	7.35	2.81	0.033
Residential	5	22,792	113,960	5	22,792	113,960	44	$64,696	0.25	0.25	0.619
Low-Income	5	22,792	113,960	5	22,792	113,960	44	$64,696	0.25	0.25	0.619
EE and Low Income	1,732	5,318,928	68,110,040	1,732	5,318,928	68,110,040	23,746	$1,769,558	7.09	2.78	0.035
Any	368	1,448,851	7,244,255	368	1,448,851	7,244,255	2,645	$50,540	20.65	20.65	0.008
Codes & Standards	368	1,448,851	7,244,255	368	1,448,851	7,244,255	2,645	$50,540	20.65	20.65	0.008
C&S, T&D and Electrification	368	1,448,851	7,244,255	368	1,448,851	7,244,255	2,645	$50,540	20.65	20.65	0.008
Utility Total	2,100	6,767,779	75,354,295	2,100	6,767,779	75,354,295	26,391	$1,820,098	7.46	2.97	0.031

COLTON ELECTRIC UTILITY

Colton Electric Utility at a Glance

- Climate Zone: 10
- Customers: 20,465
- Total annual retail sales: 347,652 MWh
- Annual Retail Revenue: $64,063,997
- Annual EE expenditures for reporting year: $995,333
- Gross annual savings from reporting year portfolio: 4,064 MWh



Colton Overview

Colton Electric Utility (CEU) was established by Ordinance 119 on October 17th, 1895. For over 120 years CEU has been committed to provide cost-effective, reliable power and EE programs for the Colton Electric Service territory. CEU proactively pursues new strategies to engage residents and businesses to participate in EE programs. CEU continues to focus on reducing demand on the grid through EE rebates, direct EE installation programs, inter-utility partnerships with SoCalGas, and programs to serve the low income, and education and outreach.

Major Program and Portfolio Changes

CEUs major program change was the end of Appliance Recycling Center of America's (ARCA) refrigerator replacement program. The Company went bankrupt and could no longer support the delivery and recycling of Energy Star® refrigerators. This program allowed online bill financing for customers that were low income. As a result of this program ending CEU created a low-income refrigerator rebate of up to $500.

The Energy Services team continues to provide more online services for a growing population of computer literate customers. After reviewing Environmental Systems Research Institute, Inc.' (ESRI) demographic information, CEUs largest customer base is now between the ages of 25 and 45. This demographic tends to have more computer literacy and prefers to submit rebates and requests online. CEU customers can also submit paper applications in person or by direct mail.

Program and Portfolio Highlights

Tinker, an in the classroom energy and water efficiency program, continues to be a highlight in the Colton Joint Unified School District. Student participants continue to increase every year and the schoolteachers provide enthusiastic support to continue the program. When schools participate in this program students work with their parents to install resource efficiency measures in the home. Students and parents learn to measure preexisting devices to calculate savings generated by the efficiency upgrade. Tinker has proven to be the best behavior change program that provides good savings and fosters future CEU customers to be efficiency stewards of Colton.

Commercial, Industrial & Agricultural Programs

EE Rebates Non-Residential: Commercial and industrial customers participating in lighting and equipment upgrades and custom measures were rebated $0.10 per kWh saved on the projected first year's savings.

- Municipal Direct Install: This program provided direct installation of EE measures throughout City owned facilities.
- Commercial DI: Small business customers with less than 20 kW of demand participated in an energy audit and direct install of EE measures up to $5,000 per business.
- The Commercial/Industrial Energy Rebate Program provides rebates to commercial/industrial customers that install new EE equipment from lighting upgrades to programs specific to the customer's business. The amount of the rebate depends upon the annual energy savings.
- Lighting and Equipment Upgrade Rebates: Commercial and industrial buildings can benefit from substantial rebates given for improving lighting and equipment by increasing EE and lowering consumption. CEU offer $.10 per kWh saved on the projected first year of savings.

- Commercial Energy Audit: Commercial businesses can participate in CEU commercial energy audit ASHRAE I or level II. Businesses who participate in this audit can be eligible for additional direct install opportunities depending on audit recommendations. This is a program to assist businesses who are concerned with their energy consumption and want to learn how they can minimize their usage, shift their load, and save on energy costs.
- Multifamily EE Direct Install Program: apartment complexes throughout CEU territory can apply to have common area EE upgrades in lighting, thermostats, and AC tune-ups.
- Sustainability Partners: Colton Sustainability partners are champions of the environment, stewards of efficiency and are committed to the goals of our community. As a partner a business demonstrates civic pride, a dedication to sustainability and actively seek out incentives that benefit both the business and the community at large. CEU will celebrate the business proactive vision. There are three ways to become a partner:
    - EE – Equipment upgrades, demand-side management, renewables
    - Water Conservation – Drought tolerant landscaping, installation of water efficient devices (such as smart irrigation controllers)
    - Recycling – Participation in the Commercial Recycling Program, innovative implementation of Commercial/Industrial Recycling & Organics program.

Residential Programs

EE Upgrade Rebates: CEU offers a variety of rebates on several home EE improvements. Currently CEU offers rebates on: Occupancy sensors, Energy Star® ceiling fans, pool pumps, solar attic fans, whole house fans, room ACs, evaporative coolers, solar tube lights, Energy Star® clothes washers, Energy Star® dishwasher and Energy Star® refrigerators, and smart thermostats. Customers who participate in the rebate program will experience a reduction in their annual energy costs. Additional programs listed below:

- AC Tune-Up Rebate: This program offers a rebate for preventative maintenance on residential customer AC units up to 5 tons in size. The program requires the customer to select their own licensed AC contractor that will replace filters, check refrigerant levels and adjust the AC unit to minimize seasonal AC costs.
- Air Conditioner Upgrade and Replacement Program: This program offers up to $150/ton rebate to replace a SEER 11 or lower AC system with a SEER 16 or higher AC system. Upgrading AC systems will significantly lower residential customer's energy costs.
- Online Energy Audit: Colton Electric Utility's new online energy assessment tool assists customers find ways to save energy and money. The MyEnergyXpert is easy to use and designed to be completed in just a few minutes. This assessment tool provides an easy-to-follow improvement plan. Residents will also be connected to rebates available through the online platform that also links to the web shop.

- Residential Energy Audit: CEU residential customers with energy usage of over 10,000 kWh annually can qualify to participate in a residential energy audit. Participants can be eligible for additional direct install opportunities depending on audit recommendations. For customers who previously participated in an energy audit in the past two years with over 10,000 kWh of usage they can participate in up to $500 of direct install measured recommendations.
- Residential WebShop: CEU residents can now purchase LED light bulbs, smart power strips, holiday lights and smart thermostats from the comfort of their own home. CEU provides up to $50.00 per FY to buy down the cost of these items and provides free shipping. The customer can order directly from CEU's website, and the items are shipped directly to the customer's home.
- Residential Weatherization Rebates: CEU offers residential customers rebates for installing replacement windows and insulation in their homes. Windows must meet Energy Star® approval with a U-Factor less than 0.35 and SHGC less than 0.30 at a rebate amount of $4.00 per sq. ft. Insulation may be added to the attic, and/or exterior walls. Rebates will also be provided for radiant barriers installed within the attic space. Insulation and radiant barrier must meet the following R-Values:
    - Attic Insulation - Minimum R-30 Rebate is $0.40 per sq. ft.
    - Radiant Barrier - Minimum R-19 Rebate is $0.30 per sq. ft.
    - Exterior Walls - Minimum R-13 Rebate is $0.20 per sq. ft.
- Treebate: CEU residents are offered up to $50.00 a tree to plant an approved tree on their property that would reduce their energy bill by providing shade to their home. Residents have a maximum of 5 trees in a lifetime.

<u>Complementary Programs</u>

- Low-Income Community Solar: Customers who qualify for our low-income assistance program and also have low energy use, may qualify for our new Low Income Community Solar Program. Participants receive a monthly $ credit towards their bill using solar energy provided by the City's Community Solar System.
- Arbor Day Foundation Tree Program: CEU residents are offered up to five shade trees to plant on their property that would reduce their energy bill by providing shade to their home. Residents go online to use an interactive GIS map that illustrates where the highest energy savings is for their home depending on where they plant the tree. Residents preregister online and the trees are picked up at the City's annual Earth Day Event.
- Tinker Program: The Tinker Program provides over 700 EE and water conservation kits to 6th grade Colton Unified School District students. As part of the program students and parents will install resource efficiency measures in their homes. Students and parents learn how to measure pre-existing devices to calculate saving that are

generated by their efficiency upgrade. The goal of the program is to change customer behavior and experience energy savings from their actions.

- Low Income Mobile Home EE (EE) Program: in partnership with SoCalGas (SOLCALGAS), CEU offers mobile home building envelope and lighting retrofits to qualifying customers at the same time as SCGC. SCGC provides gas and water saving efficiency measure direct installation.
- Low-Income Programs: Income qualified applicants were provided a Tier 1 allotment increase of 139 kWh. This brings the Tier 1 allotment from 250 kWh to 389 kWh each month for 12 consecutive months from the date of approval.
- RD&D: CEU participated in an emerging technology demonstration of a solar powered, ductless mini-split AC systems in a commercial setting. CEU places the unit on the City of Colton Water Department outdoor water pumping house. The result of the study is available online at www.coltononline.com.
- EVs: CEU continues to grow its EV program. The utility currently has 18 level II public chargers available, an EV incentive rate which adds 250 kWh to residential 2nd Tier of energy, a used EV rebate of $1000 and a low-income rebate of $1500 and an EV charger rebate of $500 for level II chargers. CEU also installed 7 Level II chargers for fleet and one 50Kw fast charger. CEU continues to work on facilitating the state incentives to expand fleet electric vehicles with participation in LCFS and developing rebate programs to incentivize customers to participate.
- Energy Storage: Colton Electric Utility participates in an energy storage working group through SCPPA. Energy storage is being renewed for future participation. CEU has purchased 8 Ice Bear thermal energy storage units for installation in 2018 as part of a trial project.
- Digital Monthly Newsletter on EE: residential and commercial customers receive a monthly newsletter that provides current information on EE (EE) and energy education. It is emailed in a digital print format but also includes video clips on EE. We also post articles from the newsletter to CEUs social media platforms.
- Electrification incentives: CEU will continue to explore incentive programs to reduce GHG emissions through electrification. Heat pump water heaters are being evaluated for a future incentive. Currently the CEU does have an active forklift rebate program.

EM&V Studies

CEU contracts with Alternative Energy Services Consulting (AESC) annually to complete CEU programs studies of the residential and commercial program and associated savings. Current studies are available on CEU website, (www.ci.colton.ca.us/DocumentCenter/View/3225). CEU 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, budgeting $10,000 per year.

Major Differences or Diversions from California POU TRM for Energy Savings

The sources used to calculate program performance were the TRM and DEER data. The TRM vs. 2.4.4 was utilized for all measures that had not been updated in the 2016 Title 24 code changes.

TABLE CEU-1. EE Program Results by End Use

Summary by End Use	Resource Savings Summary								Cost Test Results		
End Use	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Appliance & Plug Loads	1	4,811	67,809	0	3,261	46,001	18	$414	13.71	2.51	0.012
Building Envelope	2	2,023	40,459	1	566	11,329	17	$159	13.71	0.00	0.021
HVAC - Cooling	892	3,473,940	84,394,635	750	3,441,164	84,066,003	30,170	$664,676	13.71	3.03	0.013
Lighting - Indoor	690	491,761	7,454,635	690	491,761	7,454,635	2,700	$149,016	5.77	1.22	0.027
Lighting - Outdoor	6	23,076	346,140	6	23,076	346,140	124	$169,680	0.21	0.19	0.655
Miscellaneous	1	68,094	680,937	1	68,094	680,937	839	$11,389	13.71	13.68	0.020
EE	1,591	4,063,706	92,984,616	1,448	4,027,922	92,605,044	33,867	$995,333	10.22	0.88	0.017
Lighting - Indoor	0	0	0	0	0	0	0	$0			0.000
Low-Income	0	0	0	0	0	0	0	$0			0.000
EE and Low Income	1,591	4,063,706	92,984,616	1,448	4,027,922	92,605,044	33,867	$995,333	10.22	0.88	0.017
C&S, T&D and Electrification								$0			
Utility Total	1,591	4,063,706	92,984,616	1,448	4,027,922	92,605,044	33,867	$995,333	10.22	0.88	0.017

TABLE CEU-2. EE Program Results by Sector

Summary by Sector	Resource Savings Summary								Cost Test Results		
Sector	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Commercial	15	30,898	541,690	15	30,898	541,690	190	$257,367	0.21	0.15	0.677
Residential	1,576	4,032,808	92,442,926	1,433	3,997,024	92,063,354	33,677	$737,966	13.71	0.90	0.013
EE	1,591	4,063,706	92,984,616	1,448	4,027,922	92,605,044	33,867	$995,333	10.22	0.88	0.017
Residential	0	0	0	0	0	0	0	$0			0.000
Low-Income	0	0	0	0	0	0	0	$0			0.000
EE and Low Income	1,591	4,063,706	92,984,616	1,448	4,027,922	92,605,044	33,867	$995,333	10.22	0.88	0.017
C&S, T&D and Electrification								$0			
Utility Total	1,591	4,063,706	92,984,616	1,448	4,027,922	92,605,044	33,867	$995,333	10.22	0.88	0.017

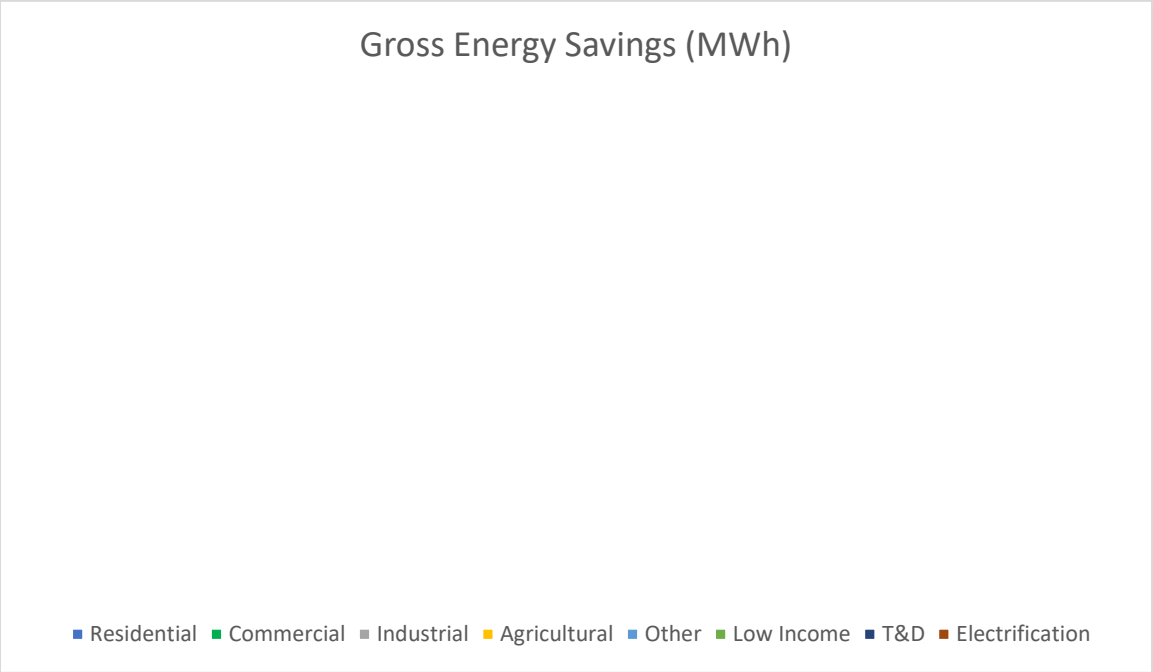
TABLE CEU-3. EE Program Results by Building Type

Summary by Building Type	Resource Savings Summary								Cost Test Results		
Building Type	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Any	1	720	10,800	0	432	6,480	2	$65	13.71	1.40	0.013
Office - Large	9	7,822	195,550	9	7,822	195,550	66	$87,687	0.21	0.11	0.723
Other Commercial	6	23,076	346,140	6	23,076	346,140	124	$169,680	0.21	0.19	0.655
Residential	3	2,982	54,484	1	1,290	22,063	22	$230	13.71	0.49	0.015
Residential - Single-Family	1,573	4,029,106	92,377,642	1,432	3,995,303	92,034,811	33,654	$737,670	13.71	0.90	0.013
EE	1,591	4,063,706	92,984,616	1,448	4,027,922	92,605,044	33,867	$995,333	10.22	0.88	0.017
Any	0	0	0	0	0	0	0	$0			0.000
Low-Income	0	0	0	0	0	0	0	$0			0.000
EE and Low Income	1,591	4,063,706	92,984,616	1,448	4,027,922	92,605,044	33,867	$995,333	10.22	0.88	0.017
C&S, T&D and Electrification								$0			
Utility Total	1,591	4,063,706	92,984,616	1,448	4,027,922	92,605,044	33,867	$995,333	10.22	0.88	0.017

CORONA DEPARETMENT OF WATER & POWER

Corona Department of Water & Power at a Glance

- Climate Zone: 10
- Customers: 1,840
- Total annual retail sales: 81,900 MWh
- Annual Retail Revenue: $11,200,000
- Annual EE expenditures for reporting year: $0
- Gross annual savings from reporting year portfolio: 0 MWh



Corona Overview

- Customers reside in climate zone 10.
- The annual budget for EE programs is $318,900.
- Established in 2001 with unbundled generation services to existing investor-owned utility customers and bundled service to customers that continue to build new facilities located in the designated service territory.
- Peak demand for bundled electric customers was 18.4 megawatts (6.6% more than last year).
- Eighty nine percent of bundled energy sales were to non-residential customers.

- All bundled customers' facilities meet or exceed the applicable Title 24 requirements. The recent age of these facilities provides less EE upgrade opportunities. CUD is in the process of revamping the EE rebate program with plans to advertise new rebates by spring 2024.

Major Program and Portfolio Changes

Planned Programs for 2024:

- Small EE Items – Residential: Provides incentives to improve EE for smaller EE items such as: smart thermostats, fans, air humidifiers and occupancy sensors.
- Major Appliances – Residential: Provides incentives to improve EE for major appliances such as induction stoves, refrigerators, freezers, dishwashers, clothes washers, and clothes dryers.
- HVAC – Residential – Res Cooling: Financial incentives for the replacement of cost-effective energy-savings HVAC units that reduce annual energy usage or load requirements by a specified amount.
- HVAC – Commercial – Non-Res Cooling: Financial incentives for the replacement of cost-effective energy-savings HVAC units that reduce annual energy usage or load requirements by a specified amount.
- Lighting – Commercial – Non-Res Lighting: Provides incentives to improve EE for lighting applications, which reduce energy usage by a specified amount.

Program and Portfolio Highlights

Corona serves municipal facilities that can be interrupted as scheduled.

No EE incentive payments were disbursed to customers.

Commercial, Industrial & Agricultural Programs

- Lighting – Commercial – Non-Res Lighting: Provides incentives to improve EE for lighting applications, which reduce energy usage by a specified amount.
- HVAC – Commercial – Non-Res Cooling: Financial incentives for the replacement of cost-effective energy-savings HVAC units that reduce annual energy usage or load requirements by a specified amount.
- Refrigeration – Industrial – Non-Res Refrigeration: Financial incentives for the replacement of cost-effective energy-savings refrigeration equipment that reduces annual energy usage or load requirements by a specified amount.
- Process – Industrial – Non-Res Process: Financial incentives for the replacement of cost-effective energy-savings motors, pumps, and equipment that reduce annual energy usage by a specified amount.

- Other – Industrial – Non-Res Other: Direct funding for projects on the utility-side of the meter that provide benefits to customers in terms of improved safety, system integrity, EE, conservation, or research and development.

Residential Programs

- Appliances – Residential – Res Clothes Washers: Rebates are provided to customers who purchase and install Energy Star® washing machines.
- Water Heating – Residential – Res Water Heating: Provide EE kits to residential customers that include low flow showerheads and low flow faucet aerators.
- Pool Pumps – Residential – Res Pool Pumps: Provides incentives to improve EE for pool pumps, which reduce energy usage by a specified amount.
- Whole House Fan – Residential – Res Shell: Provides incentives to improve EE for whole house fans, which reduce energy usage by a specified amount.
- Lighting – Residential – Res Lighting: Provides incentives to improve EE for lighting applications, which reduce energy usage by a specified amount.
- HVAC – Residential – Res Cooling: Financial incentives for the replacement of cost-effective energy-savings HVAC units that reduce annual energy usage or load requirements by a specified amount.

Complementary Programs

- 19 customers (combined capacity of 518 kW) billed on Corona's net metering tariff schedule.
- Installed 350 kW of photovoltaic systems.
- Installed eight electric charging vehicle stations.
- Achieved commercial operation for a long-term photovoltaic generating facility power purchase agreement coupled with an 8 MW battery energy storage system.

EM&V Studies

Engineering analysis programs are the basis for energy savings and incentive calculations. The EE Technical Reference Manual provides energy savings estimates for Corona's programs.

Major Differences or Diversions from California POU TRM for Energy Savings

None

TABLE Corona-1. EE Program Results by End Use

Summary by End Use	Resource Savings Summary								Cost Test Results		
End Use	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Lighting - Indoor	0	0	0	0	0	0	0	$0			0.000
EE	0	0	0	0	0	0	0	$0			0.000
EE and Low Income	0	0	0	0	0	0	0	$0			0.000
C&S, T&D and Electrification								$0			
Utility Total	0	0	0	0	0	0	0	$0			0.000

TABLE Corona-2. EE Program Results by Sector

Summary by Sector	Resource Savings Summary								Cost Test Results		
Sector	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Commercial	0	0	0	0	0	0	0	$0			0.000
EE	0	0	0	0	0	0	0	$0			0.000
EE and Low Income	0	0	0	0	0	0	0	$0			0.000
C&S, T&D and Electrification								$0			
Utility Total	0	0	0	0	0	0	0	$0			0.000

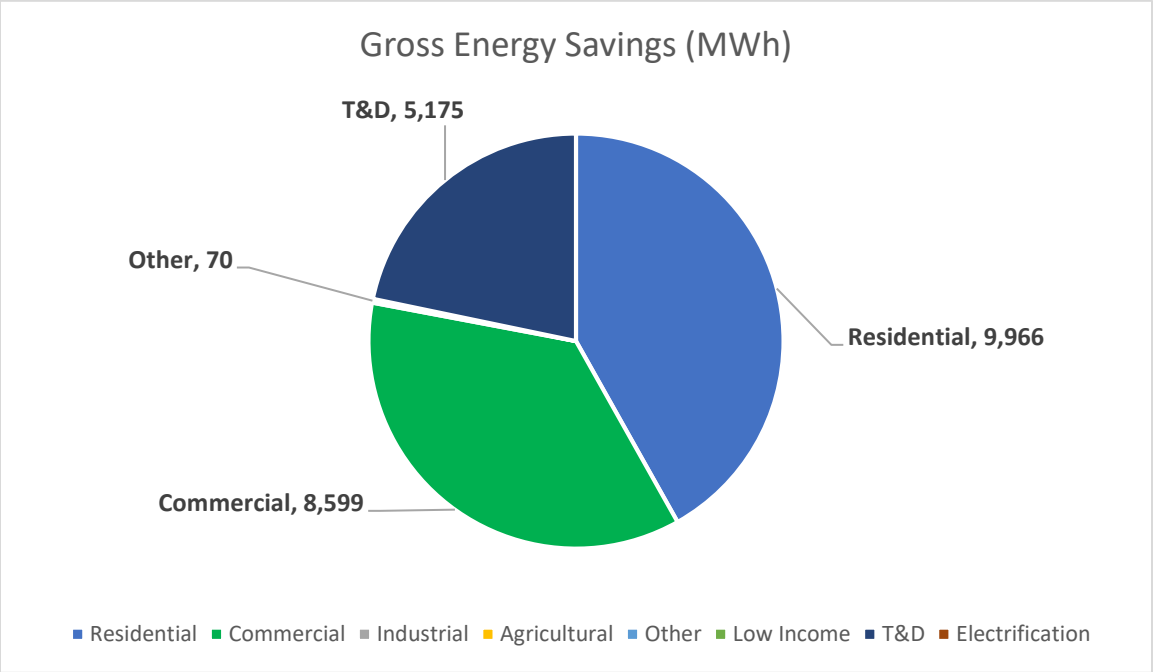
TABLE Corona-3. EE Program Results by Building Type

Summary by Building Type	Resource Savings Summary								Cost Test Results		
Building Type	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Retail - Big Box	0	0	0	0	0	0	0	$0			0.000
EE	0	0	0	0	0	0	0	$0			0.000
EE and Low Income	0	0	0	0	0	0	0	$0			0.000
C&S, T&D and Electrification								$0			
Utility Total	0	0	0	0	0	0	0	$0			0.000

GLENDALE WATER & POWER

Glendale Water & Power at a Glance

- Climate Zone: 9
- Customers: 90,578
- Total annual retail sales: 999,852 MWh
- Annual Retail Revenue: $219,370,000
- Annual EE expenditures for reporting year: $7,017,372
- Gross annual savings from reporting year portfolio: 23,811 MWh



Glendale Overview

Glendale Water & Power (GWP) is a municipal utility that serves the citizens and community of Glendale, California including over 34,000 water customers and 90,000 electric customers. The City of Glendale covers 31 square miles in Climate Zone 9 with a population of 203,000. GWP continues to help residents and businesses become wise stewards of the planet's natural resources and to wisely manage energy costs at home and at work through GWP's Residential Water and EE Programs, Business Programs and Community Programs.

For FY 2023 reporting year, GWP's EE programs and transmission and distribution programs produced a total Net Annual Energy Savings of 23,797 MWh and reduced peak demand by 3.6 MW. With a modernized utility system, GWP will continue to invest significant resources in conservation and EE programs for commercial, industrial, and residential customers. Increasing customer engagement through various innovative programs will enable Glendale customers to be stewards in conservation by giving them the tools to empower them.

Glendale is fully supportive of ensuring a clean energy future for its citizens. On August 16, 2022, Glendale City Council adopted Resolution No. 22-125. This resolution intends for the City of Glendale to achieve 100% clean, renewable, or non-carbon emitting energy excluding renewable biofuels not already permitted or approved, by no later than 2035. The resolution also intends for the City of Glendale to adopt policies and practices designed to reach a goal of having at least 10% of GWP customers adopt solar and energy storage systems by 2027, and develop additional demand management measures, with a minimum total peak dispatchable and peak-load-reducing capacity of 100 MW. Subsequently, in December of 2023, GWP hired a consultant to develop a plan to achieve the goal of having at least 10% of GWP customers adopt solar and energy storage systems, develop additional demand management measures, with a minimum total peak dispatchable and peak-load-reducing capacity of 100 MW, calculate the estimated dispatchable capacity and demand reduction that can be achieved through the developed plan, and perform a cost-benefit analysis for the developed plan.

GWP is supportive of the City's clean energy future and is committed to developing policies and programs to realize such. We continue to invest significant resources in conservation and EE programs for commercial, industrial, and residential customers. Glendale has been and will continue its commitment to transitioning to a low-carbon future through reliable, affordable, and sustainable clean energy projects, establishing GWP as a clean energy leader.

Major Program and Portfolio Changes

In FY 2023 GWP saw increased participation in our direct installation Business Energy Upgrade Program which resulted in significant kWh savings. The Home Energy Reports by OPOWER continued to provide substantial savings. During this reporting year, GWP was able to reopen The In-School Energy and Water Conservation Education Program, which delivered substantial savings. The Smart Home Energy and Water Saving Upgrade program, relaunched in the prior FY, yielded a higher kW and kWh savings for our overall portfolio. We saw a decrease in energy savings from the Business Energy Solutions Program, which can be contributed to the success and popularity of the Business Energy Upgrade Program.

Program and Portfolio Highlights

GWP's Business Energy Upgrade Program, Home Energy Reports, Smart Home Upgrade Program and the In-School E&W Conservation Education Program produced the most energy savings. The Home Energy Reports had the greatest impact on residential customers. The Home Energy Reports program also reached most customers and provided constant communication

and engagement. The Business Energy Upgrade Program provides a free audit and direct installation of EE measures to Glendale businesses and has been meeting and exceeding the program's annual goals. The In-School E&W Conservation Education Program that works on a cooperative basis with Glendale Unified School District and private schools in Glendale to educate 6th grader science students in the areas of energy and water conservation through a "hands on" curriculum that includes in-home installation of conservation devices.

Commercial, Industrial & Agricultural Programs

Becoming EE partners with our C&I customers has always been one of Glendale's priorities.

- Business Energy Solutions (BES) - CMUA award winning program that provides incentives for medium and large businesses to complete pre-approved energy saving retrofit projects. Qualified customers can receive up to $100,000 in incentives per FY. Projects must be cost-effective from the customer's perspective based on the value of total estimated energy savings over the life of the installed measures. Incentives for approved retrofit projects are limited to 40% of eligible project cost or 100% of the incremental costs necessary to bring a remodeling and/or new construction project above the minimum Title 24 energy standard. In no case will an incentive exceed the value saved energy over the life of the measures assuming $0.06 per kWh saved.
- Peak Savings Program – Launched in April of 2021 and implemented by Franklin Energy. This program provides commercial DR. By year four, the program was initially designed to offer up to 4 MW of DR capacity from commercial customers during up to 15 peak load events per year. At the end of FY 2022-2023, a total of 0.360 MW was under control.
- Business Energy Upgrade Program - A seven-year Commercial Direct Install EE Program that will deliver up to 8.3 MW and 36,500 MWh of EE improvements in commercial buildings by the end of the program term, with an expected average 12.5-year life for the installed EE measures. At the end of FY 2022-2023, a cumulative total of 9,307 MWh energy savings were delivered, representing 25% of the 7-year program goal.

Residential Programs

- Home Energy Reports – Provides print and email reports annually to 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. The home energy report includes their Smart Grid data and access to the website where they can review their energy usage. The addition of interval electric usage data has given customers the ability to view their usage in monthly, weekly, daily or hourly intervals.
- High Bill Alerts – These alerts are designed to analyze AMI data to help customers save energy and money when they are likely to consume more energy than usual for a billing

period. Before the end of a billing period, High Bill Alerts inform customers that they are likely to have high energy use, and they provide insights to help customers reduce their consumption before the billing period ends.

- Weekly Energy Updates – A weekly email report sent to customers to inform them of their energy usage patterns, trends, and projected energy usage or costs.
- Smart Home Energy and Water Savings Rebates - Provides incentives to promote the purchase of approved energy and water saving appliances and devices. GWP began to offer rebates for various all-electric home appliances for customers to electrify their home. To facilitate and expedite the application process, GWP offers an easy-to-use web portal for residents to submit their rebate applications online.
- 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 AC use.
- Smart Home Energy and Water Saving Upgrade Program - The Smart Home Energy and Water Saving Upgrades program evaluates the efficiency of customer homes, installs low-cost energy and water saving devices, and makes recommendations regarding additional energy and water measures customers can implement. The program inspects a number of energy and water saving measures, including lighting, HVAC systems, attic insulation, temperature setting for home environment and appliances, and water flow rates at all sinks, showers and toilets. Additionally, the program installs several measures at no cost to the customer, including LED lights, low flow shower heads, faucet aerators, toilet displacement devices and toilet flappers.
- Online Marketplace – An online marketplace that allows Glendale residents to obtain program eligible energy and water saving products easily and quickly without having to visit a retail store nor the need to fill out incentive or rebate applications.
- Residential Peak Savings Program – Customers can purchase a new smart thermostat on the Online Marketplace or bring their own thermostat enroll in this DR program. By enrolling in the program, they agree to an automated management of their energy, helping to reduce demand on the electric grid on peak usage days. Customers receive $100 rebate when purchasing a new smart thermostat or $50 for bringing their own smart thermostat. The annual incentive is $50 on enrollment anniversary.

Complementary Programs

Low-Income Programs:

In FY 2023, 55% of the annual Public Benefit Charge (PBC) expenditure went towards funding the below low-income programs.

- Glendale Care – As of January 1, 2024, this program offers all eligible low-income customers a discount of $20.50 on their electric bills, which is an increase from the previous discount of $17.50.

- Helping Hand - This program provides bill payment and deposit assistance for low-income customers who are experiencing a temporary financial emergency and having trouble paying for their utility services providing up to $150 towards a bill payment or deposit.
- Guardian - This program provides bill discounts for households with special electrically powered medical equipment needs.

Transportation Electrification:

GWP continues to respond to the growing EV demand by investing into EV infrastructure and customer programs.

- EV Infrastructure – GWP is working towards significantly increasing its public charging network to make EV charging more accessible and accommodate a greater number of electric vehicles on the road. GWP plans to install at least 30 new publicly accessible EV chargers per year.
- Residential EV Charging Station Rebates – This program offers rebates of up to $599 for residential customers, who install a new level 2 (240 Volt) EV charging station and an additional $800 for required electric panel upgrades. The rebates are higher for customers enrolled in the Glendale Care bill assistance program.
- Commercial EV Charging Station Rebate – This program provides rebates to commercial and multi-family building customers who install electric vehicle charging stations at their property. Base rebates are the lesser of $50,000 or 50% of the total project cost. Customers who meet one of the following criteria are eligible to receive the lesser of $75,000 or 75% of the total project cost.
- Projects in an income-qualified housing structure that serves at least 80% of low-income residents as identified by the State of California.
- Projects in a disadvantaged community as designated by the California EPA here.
- Projects at a non-profit organization recognized as having tax-exempt status by the Internal Revenue Service.
- Projects that have at least one EV charging station that is publicly accessible.
- Projects that include at least one DC fast charger with a power output of 50 kW or greater.
- Electric Bicycle Rebates - This program provides a rebate of up to $300 to residential customers who purchase a new electric bicycle. The California DMV describes electric bicycles as bicycles equipped with fully operable pedals and an electric motor of less than 750 watts. There are 3 classes of electric bicycles, all of which qualify for a rebate. The rebate is higher for customers enrolled in the Glendale Care bill assistance program.
- Off-Peak EV Charging Rebate Program – Provide a monthly incentive of $12 to EV drivers who set their vehicles to charge during off-peak hours, helping to reduce peak load. This program uses AMI data to verify charging times, making the program available to any

electric vehicle and any EV charger. Over 550 customers are currently enrolled in this program.

- EV Customer Awareness Website – GWP launched its EV Buyer's Guide customer awareness website which provides customers with information on new and used Electric vehicles, incentives, home charging options, EV dealers, and a public charging station map.
- EV Arc – GWP purchased a standalone, transportable, solar-powered EV charger that can charge electric vehicles completely off-grid. The EV Arc can also be used as power source during emergencies where other electricity sources are unavailable. The EV Arc is currently located at a public parking lot and available to the community.

RD&D:

- Conservation Voltage Reduction (CVR) - GWP partnered with Dominion Voltage, Inc. (DVI) to provide their EDGE solution, a conservation voltage reduction (CVR) program. CVR conserves electricity by operating electric customer voltages in the lower half of the ten percent (10%) voltage band required by ANSI equipment standards. The CVR program builds on GWP's investment in Automated Metering Infrastructure (AMI) by using the data generated by smart meters to reduce power costs by increasing the efficiency of GWP's distribution system. During the FY 2023, the program produced energy savings of 5,175 MWh.

EM&V Studies

Glendale Water & Power plans to initiate EM&V analysis of energy efficient programs in FY 2023-24 in support of AB 2021. For FY 2023-24 Glendale has budgeted $50,000 to its EE budget to conduct EM&V studies that will be conducted through the use of a third-party contractor. GWP will select EE programs based on the kWh savings. The purpose of the EM&V study is to ensure that measures are installed as claimed by GWP and to lend credibility to GWP's savings reports as compared to the industry standards that were available at the time of GWP's program processing and implementation. It is Glendale's plan to review all EE programs in terms of cost effectiveness, customer participation and administration.

Currently GWP consistently performs the following in support of EM&V activities:

- A pre- and post-inspection of 100% of all large commercial retrofit projects under the Business Energy Solutions program, including a review of their energy-saving calculations.
- All residential and commercial solar PV installations are field inspected and verified by city personnel for compliance.
- Energy assessments and installations for Glendale's Business Energy Upgrade Program have high inspection rates that are performed by the consultant.

Major Differences or Diversions from California POU TRM for Energy Savings

The sources of energy savings used to calculate program performance was a combination of using the TRM, work papers and third-party EE verification.

TABLE GWP-1. EE Program Results by End Use

Summary by End Use	Resource Savings Summary								Cost Test Results		
End Use	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Appliance & Plug Loads	1	61,578	704,526	1	50,727	569,140	244	$44,168	1.66	2.67	0.097
Building Envelope	4	4,797	61,500	3	4,036	53,890	21	$1,871	7.25	29.31	0.046
Commercial Refrigeration	29	176,290	2,115,480	29	176,290	2,115,480	662	$49,200	5.92	2.53	0.029
HVAC - Cooling	1,667	225,549	2,841,285	1,666	224,913	2,831,827	1,088	$1,416,679	0.78	0.80	0.743
Lighting - Indoor	105	987,579	10,964,219	105	987,579	10,964,219	3,749	$192,546	7.46	4.04	0.022
Miscellaneous	1,776	17,176,384	116,977,374	1,776	17,176,384	116,977,374	38,634	$5,177,134	3.12	3.09	0.054
Service & Domestic Hot Water	0	3,200	32,000	0	1,920	19,200	7	$1,639	1.30	0.75	0.103
EE	3,582	18,635,376	133,696,385	3,581	18,621,848	133,531,130	44,405	$6,883,237	2.77	2.68	0.064
EE and Low Income	3,582	18,635,376	133,696,385	3,581	18,621,848	133,531,130	44,405	$6,883,237	2.77	2.68	0.064
Any	0	5,175,430	5,175,430	0	5,175,430	5,175,430	2,233	$134,134	3.28	3.28	0.026
T&D	0	5,175,430	5,175,430	0	5,175,430	5,175,430	2,233	$134,134	3.28	3.28	0.026
C&S, T&D and Electrification	0	5,175,430	5,175,430	0	5,175,430	5,175,430	2,233	$134,134	3.28	3.28	0.026
Utility Total	3,582	23,810,806	138,871,815	3,581	23,797,278	138,706,560	46,638	$7,017,372	2.78	2.69	0.062

TABLE GWP-2. EE Program Results by Sector

Summary by Sector	Resource Savings Summary								Cost Test Results		
Sector	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Any	1,594	70,143	70,143	1,594	70,143	70,143	30	$1,241,800	0.25	0.25	17.704
Commercial	1,363	8,598,785	103,185,415	1,363	8,598,785	103,185,415	32,288	$4,188,330	3.36	3.15	0.051
Residential	625	9,966,449	30,440,827	624	9,952,921	30,275,572	12,087	$1,453,107	3.23	3.33	0.056
EE	3,582	18,635,376	133,696,385	3,581	18,621,848	133,531,130	44,405	$6,883,237	2.77	2.68	0.064
EE and Low Income	3,582	18,635,376	133,696,385	3,581	18,621,848	133,531,130	44,405	$6,883,237	2.77	2.68	0.064
Residential	0	5,175,430	5,175,430	0	5,175,430	5,175,430	2,233	$134,134	3.28	3.28	0.026
T&D	0	5,175,430	5,175,430	0	5,175,430	5,175,430	2,233	$134,134	3.28	3.28	0.026
C&S, T&D and Electrification	0	5,175,430	5,175,430	0	5,175,430	5,175,430	2,233	$134,134	3.28	3.28	0.026
Utility Total	3,582	23,810,806	138,871,815	3,581	23,797,278	138,706,560	46,638	$7,017,372	2.78	2.69	0.062

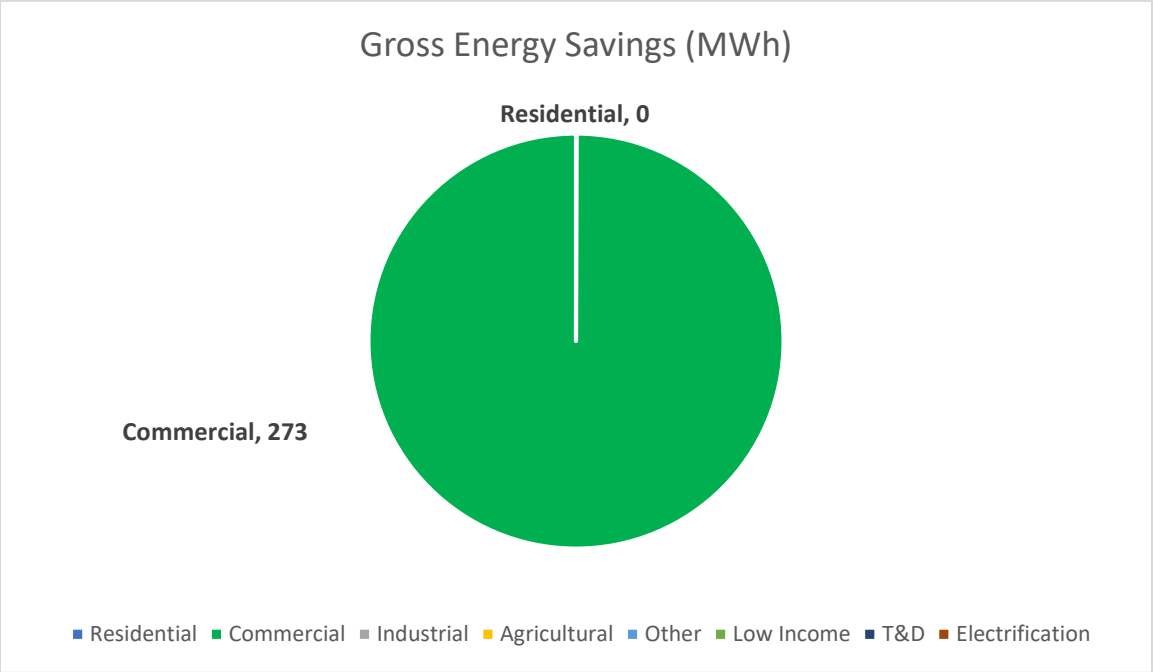
TABLE GWP-3. EE Program Results by Building Type

Summary by Building Type	Resource Savings Summary								Cost Test Results		
Building Type	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Any	554	2,164,166	21,997,199	554	2,162,517	21,980,715	7,857	$720,983	5.13	3.90	0.040
Multiple	2,822	7,948,422	94,609,486	2,822	7,948,422	94,609,486	29,612	$5,255,211	2.50	2.48	0.070
Residential	136	8,418,284	14,882,292	136	8,413,072	14,823,749	6,106	$821,569	1.86	1.89	0.060
Residential - Single-Family	69	104,505	2,207,407	69	97,838	2,117,179	829	$85,475	8.32	11.89	0.065
EE	3,582	18,635,376	133,696,385	3,581	18,621,848	133,531,130	44,405	$6,883,237	2.77	2.68	0.064
EE and Low Income	3,582	18,635,376	133,696,385	3,581	18,621,848	133,531,130	44,405	$6,883,237	2.77	2.68	0.064
Multiple	0	5,175,430	5,175,430	0	5,175,430	5,175,430	2,233	$134,134	3.28	3.28	0.026
T&D	0	5,175,430	5,175,430	0	5,175,430	5,175,430	2,233	$134,134	3.28	3.28	0.026
C&S, T&D and Electrification	0	5,175,430	5,175,430	0	5,175,430	5,175,430	2,233	$134,134	3.28	3.28	0.026
Utility Total	3,582	23,810,806	138,871,815	3,581	23,797,278	138,706,560	46,638	$7,017,372	2.78	2.69	0.062

GRIDLEY MUNICIPAL UTILITY

Gridley Municipal Utility at a Glance

- Climate Zone: 11
- Customers: 2,893
- Total annual retail sales: 31,607 MWh
- Annual Retail Revenue: $704,893
- Annual EE expenditures for reporting year: $100,861
- Gross annual savings from reporting year portfolio: 273 MWh



Gridley Overview

Gridley is a neighborhood community with agricultural roots and a historic downtown. It's located in Butte County, California, United States, 29 miles south of Chico, California, and 56 miles north of Sacramento, California.

Gridley Municipal Utility (GMU) feels a significant responsibility to its community to invest its Public Benefits funds in such a way as to impact both energy savings and financial savings/positive economics in Gridley. GMU offers a comprehensive menu of rebates to all residential, commercial, and industrial customers. GMU's customer demographic has historically resulted in lower customer participation in programs that require capital investment by the customer.

Major Program and Portfolio Changes

There were no major program changes implemented in FY 2023. GMU has offered a comprehensive menu of EE rebate programs for many years. Both customers and local contractors find value in maintaining a consistent program.

Program activity for FY 2023 has decreased from last year. Program activity tends to fluctuate from year to year. In FY 2023, GMU achieved 279% of the annual EE target and 95% of the EE targets for net kWh over the last three years.

Program and Portfolio Highlights

The commercial program is typically responsible for a large percentage of the energy savings. In FY 2023 the commercial program contributed 99.99% of the net annual energy savings. Most of these savings are from a custom new construction project. GMU is pleased to be able to support local businesses with the program and hopes to continue to see increased participation in the future.

Commercial, Industrial & Agricultural Programs

GMU manages a comprehensive EE incentive program for commercial customers focusing on EE and peak load reduction. Rebates are available for upgraded lighting, HVAC, appliances, refrigeration equipment, and electronics, and in cases where an analysis is performed rebates can be offered for additional equipment that reduces energy use and demand. Energy specialists provide on-site energy audits. EE measures are recommended, and additional visits are completed upon request.

- Commercial Lighting Program: GMU offers rebates to business owners who invest in the installation of energy-efficient lighting upgrades. There is a prevalence of inefficient lighting throughout the city and most high bay lighting uses high-intensity discharge fixtures instead of more efficient fluorescent or LED fixtures.
- Commercial HVAC: GMU offers rebates to commercial customers for energy-efficient HVAC upgrades.
- Commercial Refrigeration: Rebates are available to improve the efficiency of commercial refrigeration systems.
- Commercial Appliances: Rebates are available for energy-efficient cooking equipment such as ovens, dishwashers, fryers, griddles, etc.
- Commercial Electronics: GMU offers rebates for uninterrupted power supplies, plug-load occupancy sensors, and smart power strips.
- Commercial Custom Program: 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.

Major Program and Portfolio Changes

There were no major program changes implemented in FY23. GMU has offered a comprehensive menu of EE rebate programs for many years. Both customers and local contractors find value in maintaining a consistent program.

Program and Portfolio Highlights

The commercial program is typically responsible for a large percentage of the energy savings. In FY23 the commercial program contributed almost 100% of the net annual energy savings. Most of these savings are from a custom new construction project. GMU is pleased to be able to support local businesses with the program and hopes to continue to see increased participation in the future.

Commercial, Industrial & Agricultural Programs

GMU manages a comprehensive EE incentive program for commercial customers focusing on EE and peak load reduction. Rebates are available for upgraded lighting, HVAC, appliances, refrigeration equipment, and electronics, and in cases where an analysis is performed rebates can be offered for additional equipment that reduces energy use and/or demand. On-site energy audits are provided by energy specialists. EE measures are recommended, and additional visits are completed upon request.

- Commercial Lighting Program: GMU offers rebates to business owners who invest in the installation of energy-efficient lighting upgrades. There is a prevalence of inefficient lighting throughout the city and most high bay lighting uses high-intensity discharge fixtures instead of more efficient fluorescent or LED fixtures.
- Commercial HVAC: GMU offers rebates to commercial customers for energy-efficient HVAC upgrades.
- Commercial Refrigeration: Rebates are available to improve the efficiency of commercial refrigeration systems.
- Commercial Appliances: Rebates are available for energy-efficient cooking equipment such as ovens, dishwashers, fryers, griddles, etc.
- Commercial Electronics: GMU offers rebates for uninterrupted power supplies, plug-load occupancy sensors, and smart power strips.
- Commercial Custom Program: 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.

Residential Programs

Rebates are offered to residential customers for the installation of various EE measures, such as lighting, HVAC, appliances, and weatherization. On-site energy audits are provided by energy specialists. EE measures are recommended, and additional visits are completed upon request.

- Residential Lighting Program: GMU offers rebates to homeowners who install ENERGY STAR® qualified LED lamps/bulbs, ceiling fans, and LED holiday lights.
- Residential HVAC Program: GMU offers rebates to homeowners who install high-performance heat pumps, central air-conditioners, room air-conditioners, or whole house fans that exceed current state requirements. GMU also offers a rebate for duct sealing when not required by code.
- Residential Equipment Program: GMU offers rebates to homeowners who purchase new ENERGY STAR® -qualified products, including clothes washers, room air conditioners, dishwashers, pool pumps, and refrigerators.
- Residential Weatherization Program: GMU offers rebates to homeowners who invest in weatherizing their homes, including attic and wall insulation, window treatments, window replacement, or air/duct sealing.
- Residential Water Heater Rebate Program: GMU offers rebates to homeowners who purchase a new, energy-efficient electric water heater.

Complementary Programs

When applicable, GMU refers customers to the state-funded Community Action Agency HEAP Program for low-income Butte County residents.

EM&V Studies

Information on GMU's EM&V is available at https://www.cmua.org/.

Major Differences or Diversions from California POU TRM for Energy Savings

GMU has relied heavily on the savings listed in the Technical Resource Manual. Non-residential lighting and custom projects rely on custom savings calculations.

TABLE GMU-1. EE Program Results by End Use

Summary by End Use	Resource Savings Summary								Cost Test Results		
End Use	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Appliance & Plug Loads	0	130	1,816	0	91	1,271	0	$1,845	0.09	0.09	1.902
Commercial Refrigeration	12	132,592	662,960	12	132,592	662,960	251	$38,514	1.82	1.01	0.063
Lighting - Indoor	3	18,731	224,772	3	17,794	213,533	100	$7,834	3.06	1.22	0.046
Lighting - Outdoor	0	117,703	1,412,436	0	111,818	1,341,814	461	$50,215	2.81	0.63	0.047
Whole Building	0	3,846	153,840	0	3,846	153,840	37	$2,452	4.02	1.24	0.033
EE	16	273,002	2,455,824	15	266,141	2,373,419	849	$100,861	2.43	0.76	0.053
EE and Low Income	16	273,002	2,455,824	15	266,141	2,373,419	849	$100,861	2.43	0.76	0.053
C&S, T&D and Electrification								$0			
Utility Total	16	273,002	2,455,824	15	266,141	2,373,419	849	$100,861	2.43	0.76	0.053

TABLE GMU-2. EE Program Results by Sector

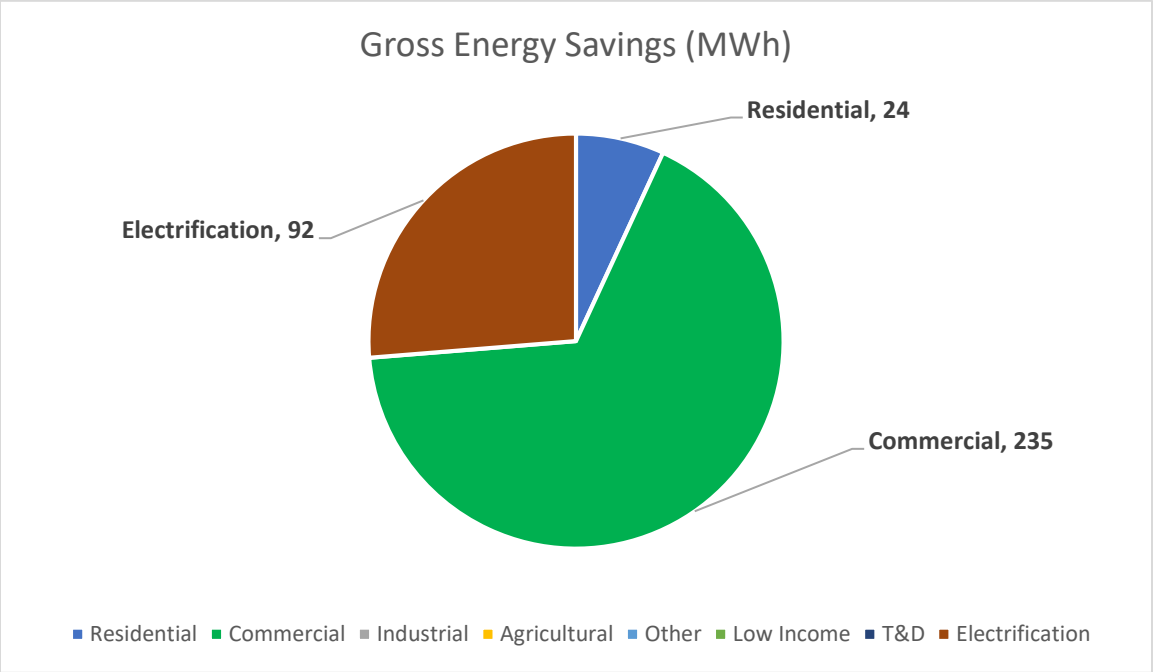
Summary by Sector	Resource Savings Summary								Cost Test Results		
Sector	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Commercial	16	272,872	2,454,008	15	266,050	2,372,148	848	$99,016	2.48	0.76	0.052
Residential	0	130	1,816	0	91	1,271	0	$1,845	0.09	0.09	1.902
EE	16	273,002	2,455,824	15	266,141	2,373,419	849	$100,861	2.43	0.76	0.053
EE and Low Income	16	273,002	2,455,824	15	266,141	2,373,419	849	$100,861	2.43	0.76	0.053
C&S, T&D and Electrification								$0			
Utility Total	16	273,002	2,455,824	15	266,141	2,373,419	849	$100,861	2.43	0.76	0.053

TABLE GMU-3. EE Program Results by Building Type

Summary by Building Type	Resource Savings Summary								Cost Test Results		
Building Type	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Any	3	136,434	1,637,208	3	129,612	1,555,348	560	$58,050	2.85	0.68	0.047
Grocery	12	136,438	816,800	12	136,438	816,800	288	$40,966	1.96	1.03	0.060
Residential - Single-Family	0	130	1,816	0	91	1,271	0	$1,845	0.09	0.09	1.902
EE	16	273,002	2,455,824	15	266,141	2,373,419	849	$100,861	2.43	0.76	0.053
EE and Low Income	16	273,002	2,455,824	15	266,141	2,373,419	849	$100,861	2.43	0.76	0.053
C&S, T&D and Electrification								$0			
Utility Total	16	273,002	2,455,824	15	266,141	2,373,419	849	$100,861	2.43	0.76	0.053

City of Healdsburg at a Glance

- Climate Zone: 2
- Customers: 6,121
- Total annual retail sales: 74,985 MWh
- Annual Retail Revenue: $12,709,826
- Annual EE expenditures for reporting year: $255,873
- Gross annual savings from reporting year portfolio: 351 MWh



Healdsburg Overview

The City of Healdsburg's Electric Department manages a comprehensive EE and greenhouse gas reduction program for residential and commercial customers by incentivizing energy conservation as well as peak load reduction. For residential customers, rebates help to drive installations of a variety of EE and electrification measures. Residential rebates are offered in the following areas: appliances, heating and cooling, weatherization, and pool pumps. Commercial rebates are predominantly for site specific lighting upgrades. For commercial customers, rebates can also be developed as custom programs with analysis demonstrating costs and savings to allow the greatest flexibility and variety of incentives for the end users.

Major Program and Portfolio Changes

During 2022 and 2023, Healdsburg Electric underwent a rebate program review with a consultant to evaluate current rebates, efficiency requirements, and new rebates. A variety of updates were made in Spring 2023 to increase efficiency requirements, simplify rebate amounts, add deemed measures, and promote electrification for residential and commercial customers. The review also included opportunities for income-qualified multi-family efficiency measures, which Healdsburg Electric has continued working to develop a new multi-family program expected in 2024.

Program and Portfolio Highlights

In 2023, the City of Healdsburg adopted its first Climate Mobilization Strategy which includes an Implementation Plan with nearly 60 actions to direct City work in the near term, including many related to Healdsburg Electric. The Climate Mobilization Strategy outlines Strategies and Actions in the Building Energy sector to help reduce greenhouse gas (GHG) emissions in Healdsburg.

Commercial, Industrial & Agricultural Programs

The City of Healdsburg offers the following commercial programs:

- Commercial Lighting Rebates: This program engages local lighting and electrical contractors to promote and install energy efficient lighting upgrades through technical assistance and financial incentives available from the Electric Department.
- Commercial HVAC Rebates: The Electric Department offers commercial customers a variety of HVAC rebates. In 2023, the Electric Department added new rebate offerings for heat pump HVAC systems and heat pump water heaters. The new rebates are intended to promote efficient electric space heating and cooling and water heating.
- Electric Kitchen Equipment: In 2023, the Electric Department added new rebate offerings for efficient electric commercial kitchen equipment. A one-time additional rebate is also available for electrical upgrades needed to switch from a natural gas to an efficient electric appliance.
- Custom EE Programs: The Electric Department will consider custom EE programs for site-specific consumption. The Electric Department requires that its 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 Electric Department retains the sole right to approve or deny custom projects.

Residential Programs

The City of Healdsburg offers the following residential programs:

- Residential Heat Pump Rebates: The Electric Department offers rebates for residential and small business customers who install high performance heat pump HVAC systems and/or heat pump water heaters. Beginning in 2023, higher rebate amounts are

available for replacing an existing natural gas appliance with an efficient electric heat pump. The heat pump water heater rebates were introduced in 2023 as well.

- Weatherization and Building Envelope Rebates: The Electric Department provides financial incentives for property owners who invest in home weatherization such as ceiling insulation, wall insulation, and window replacement projects.
- Laundry Rebates: The Electric Department offers incentives for high performance clothes washers to encourage EE and water conservation. In 2023, clothes dryer rebates were added to further encourage EE and electric clothes drying.
- Device Rebates: The Electric Department also provides rebates for variable speed pool pumps and ENERGY STAR® wifi enabled smart thermostats.
- Electric Stove: In 2023, the Electric Department added an electric stove/cooktop rebate to promote electric cooking. To inform customers regarding electric cooktops, specifically induction cooktops, Healdsburg Electric also offers a free induction cooktop loaner for electric customers interested in cooking with electricity rather than natural gas. The loaner program includes pans compatible with induction cooktops.
- Multi-Family Income-Restricted Properties: In 2023, the Electric Department began development of an appliance replacement program for multi-family income-restricted properties. The program will include replacing old inefficient appliances with efficient electric appliances, starting with dishwashers and refrigerators. The program is currently in development and expected to begin in 2024.

Complementary Programs

The City of Healdsburg offers the following complementary programs:

- Low-Income Programs: The City actively supports a low-income discount for income-qualified customers. This program was expanded during COVID to include customers with income at 80% or below area median income. Currently, this discount supports approximately 550 families, or about 11% of the City's residential customers. Income qualified customers receive 25% off their electric bill through this program.
- EVs: The City offers an EV Discount for residents that drive a battery electric vehicle and switch to the TOU rate. Additionally, the City of Healdsburg maintains 12 public charging stations with discounted charging rates located at City Hall. Healdsburg Electric is hoping to start an EV Managed Charging Program, as well as expand public charging opportunities.
- E-bikes: Healdsburg Electric offers an e-bike rebate for residents that purchase an e-bike to replace driving trips. This program provides various levels of rebates relative to customer income and purchase location to help offset the cost of purchasing an e-bike.
- Technical Consulting on all-electric construction: The City implemented a Reach Code in 2019, which was updated in 2022, requiring electric space and water heating. To assist

customers, the City of Healdsburg offers free technical consulting through a consultant engineering firm to support builders and contractors.

- Green Rate: The Electric Department offers a voluntary opt-in 100% renewable electricity rate for an approximately $0.2 additional charge per kWh. Roughly 8% of the City's electricity usage is attributed to customers enrolled in the Green Rate.
- Renewable Energy Programs: The City continues to see PV solar array installations in both residential and commercial sectors. At the end of 2023, the City had interconnected a total of 6.6 MWac of solar capacity. This includes the City's 4.78 MWdc floating photovoltaic (FPV) system at the City's Water Reclamation Facility. The system provides about 8% of the City's annual electric needs. In 2023, the system generated 5,863 MWh directly into the City's distribution system and offset roughly 1.2 MW of the City's peak coincident demand.
- Water Conservation: The City offers multiple water conservation programs, such as lawn conversion, rain barrels, low-flow toilets, irrigation controllers, and more. During the multi-year drought significantly impacting Healdsburg, the City had increased promotion of these rebates. Customers continued their water conservation in 2023 with an approximately 20% reduction in water consumption, compared to before the drought. Water conservation can help reduce the amount of electricity needed for treating and conveying water.

EM&V Studies

EM&V, previously completed by the City of Healdsburg is available at www.cmua.org.

Major Differences or Diversions from California POU TRM for Energy Savings

In 2023, Healdsburg Electric predominately relied on the California eTRM streamlined values for savings calculations. Fuel substitution calculations used the factor of 29.3 to convert therms into kWh and claim the net kWh savings.

For measures not included in the eTRM, Healdsburg Electric relied on the 2017 CMUA TRM. Savings for the Commercial Lighting Program are calculated based on the actual equipment replaced and installed. Savings for the Custom Water Control Devices are calculated based on water flow rates before and after installation.

TABLE Healdsburg-1. EE Program Results by End Use

Summary by End Use	Resource Savings Summary								Cost Test Results		
End Use	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Appliance & Plug Loads	0	934	10,897	0	364	4,274	3	$1,356	0.60	0.37	0.397
Building Envelope	9	7,203	144,068	8	5,574	111,477	96	$16,836	1.34	0.11	0.222
Commercial Refrigeration	24	218,960	2,189,600	14	131,376	1,313,760	1,010	$79,999	2.52	1.52	0.074
HVAC - Cooling	0	1,373	12,468	0	728	6,608	9	$2,186	0.87	0.79	0.393
HVAC - Heat Pump	1	5,428	81,417	1	3,327	49,903	19	$11,973	0.66	0.60	0.321
Lighting - Indoor	1	21,700	278,404	1	16,585	208,743	74	$9,050	2.31	1.02	0.055
Service & Domestic Hot Water	1	3,270	32,700	0	1,799	17,985	7	$4,135	0.73	0.80	0.278
EE	37	258,868	2,749,554	24	159,752	1,712,750	1,217	$125,535	2.06	0.67	0.091
Service & Domestic Hot Water	0	0	0	0	0	0	25	$4,244	0.73	0.73	0.000
Low-Income	0	0	0	0	0	0	25	$4,244	0.73	0.73	0.000
EE and Low Income	37	258,868	2,749,554	24	159,752	1,712,750	1,241	$129,779	2.02	0.67	0.094
Appliance & Plug Loads	0	1,703	26,318	0	1,703	26,318	10	$6,235	0.66	0.44	0.320
HVAC - Heat Pump	0	82,451	1,236,766	0	82,451	1,236,766	472	$110,719	1.76	0.99	0.120
Service & Domestic Hot Water	0	8,145	81,452	0	8,145	81,452	32	$9,140	1.49	1.56	0.136
Electrification	0	92,299	1,344,535	0	92,299	1,344,535	514	$126,094	1.69	0.99	0.125
C&S, T&D and Electrification	0	92,299	1,344,535	0	92,299	1,344,535	514	$126,094	1.69	0.99	0.125
Utility Total	37	351,167	4,094,089	24	252,051	3,057,285	1,755	$255,873	1.85	0.78	0.107

TABLE Healdsburg-2. EE Program Results by Sector

Summary by Sector	Resource Savings Summary								Cost Test Results		
Sector	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Commercial	25	234,660	2,378,004	15	144,721	1,473,903	1,066	$85,669	2.53	1.45	0.071
Residential	12	24,208	371,550	9	15,031	238,846	151	$39,866	1.04	0.17	0.230
EE	37	258,868	2,749,554	24	159,752	1,712,750	1,217	$125,535	2.06	0.67	0.091
Residential	0	0	0	0	0	0	25	$4,244	0.73	0.73	0.000
Low-Income	0	0	0	0	0	0	25	$4,244	0.73	0.73	0.000
EE and Low Income	37	258,868	2,749,554	24	159,752	1,712,750	1,241	$129,779	2.02	0.67	0.094
Residential	0	92,299	1,344,535	0	92,299	1,344,535	514	$126,094	1.69	0.99	0.125
Electrification	0	92,299	1,344,535	0	92,299	1,344,535	514	$126,094	1.69	0.99	0.125
C&S, T&D and Electrification	0	92,299	1,344,535	0	92,299	1,344,535	514	$126,094	1.69	0.99	0.125
Utility Total	37	351,167	4,094,089	24	252,051	3,057,285	1,755	$255,873	1.85	0.78	0.107

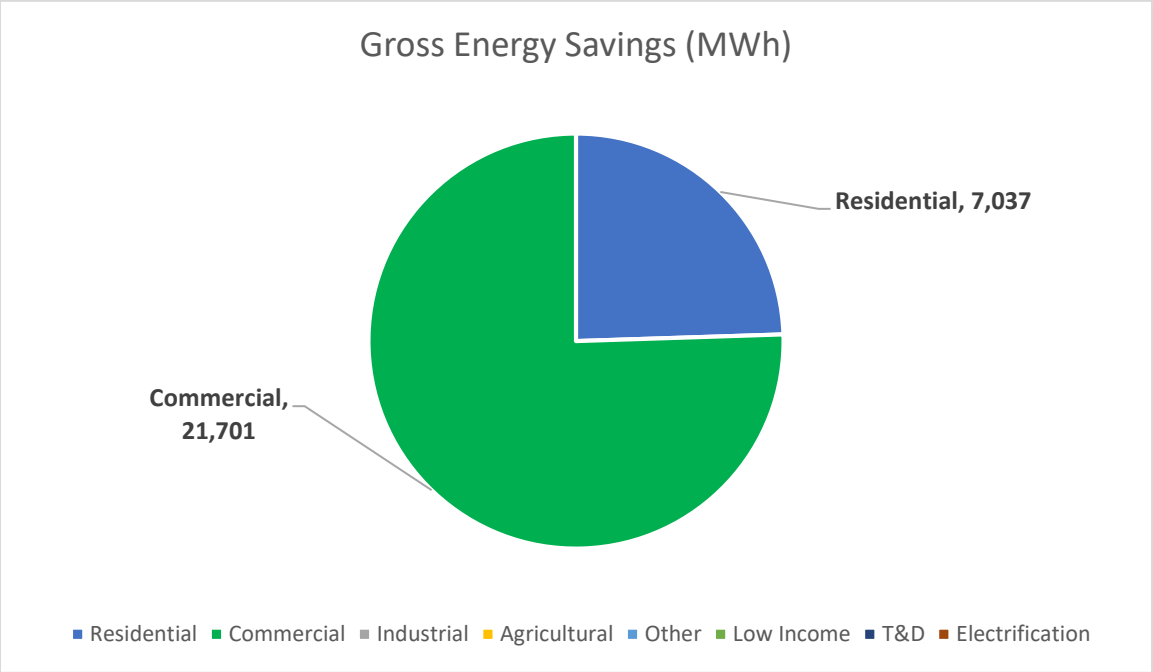
TABLE Healdsburg-3. EE Program Results by Building Type

Summary by Building Type	Resource Savings Summary								Cost Test Results		
Building Type	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Grocery	24	218,960	2,189,600	14	131,376	1,313,760	1,010	$79,999	2.52	1.52	0.074
Other Commercial	1	15,700	188,404	1	13,345	160,143	56	$5,671	2.76	0.92	0.045
Residential	12	24,208	371,550	9	15,031	238,846	151	$39,866	1.04	0.17	0.230
EE	37	258,868	2,749,554	24	159,752	1,712,750	1,217	$125,535	2.06	0.67	0.091
Residential - Multi-Family	0	0	0	0	0	0	25	$4,244	0.73	0.73	0.000
Low-Income	0	0	0	0	0	0	25	$4,244	0.73	0.73	0.000
EE and Low Income	37	258,868	2,749,554	24	159,752	1,712,750	1,241	$129,779	2.02	0.67	0.094
Residential	0	92,299	1,344,535	0	92,299	1,344,535	514	$126,094	1.69	0.99	0.125
Electrification	0	92,299	1,344,535	0	92,299	1,344,535	514	$126,094	1.69	0.99	0.125
C&S, T&D and Electrification	0	92,299	1,344,535	0	92,299	1,344,535	514	$126,094	1.69	0.99	0.125
Utility Total	37	351,167	4,094,089	24	252,051	3,057,285	1,755	$255,873	1.85	0.78	0.107

IMPERIAL IRRIGATION DISTRICT

Imperial Irrigation District at a Glance

- Climate Zone: 15
- Customers: 159,822
- Total annual retail sales: 3,515,689 MWh
- Annual Retail Revenue: $516,535,188
- Annual EE expenditures for reporting year: $6,389,767
- Gross annual savings from reporting year portfolio: 28,738 MWh



Imperial Overview

As the sixth largest utility in California, Imperial Irrigation District (IID) controls more than 1,200 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 158,000 customers in the Imperial Valley and parts of Riverside and San Diego counties.

As a consumer-owned utility, IID works to meet our customers' demands efficiently and effectively 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 EE programs are a key factor in the utility's overall goal. These programs provide a positive impact on utility costs 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 and Portfolio Changes

The program portfolio and rebate levels remained consistent from the previous year. IID's refrigerator recycling and appliance replacement program contractor suspended its services mid-year. This suspension resulted in lower program participation and impacted reportable energy savings. That said, the overall savings impact was more than made up by the heavy participation in other portfolio programs.

Furthermore, the state of California's expected doubling of utilities' EE savings over the next few years has proven to be an interesting, yet demanding task. Some of the challenges at hand are 1) Most cost-effective programs have been in place for years and this leads us closer to market saturation, 2) budgets for programs are reduced to fund other utility projects or matters, 3) the pandemic's impact on customer's disposable income has diminished their ability to participate in EE programs.

Program and Portfolio Highlights

IID reached 140% of its established kWh savings goal, a feat of which we are proud of. IID strives to provide an EE portfolio tailored toward the unique needs of the ratepayers that generates long-term energy savings while maintaining low-cost, reliable power. The district's portfolio offers residential customers with staple programs such as energy assessments and prescriptive rebates and non-residential customers with a customized program that allows flexibility necessary to encourage investments in efficient technologies. The newest rebate for the Energy Rewards program, Gas to Electric HVAC conversion, has also received consistent activity. The CESP program experienced major projects that provided millions in kWh savings. And lastly, the Weatherization program received such a high volume of interest from customers that even with additional funding allocated to it than originally planned, it was fully subscribed prior to year's end.

Commercial, Industrial & Agricultural Programs

Commercial Customer Programs

- Custom Energy Solutions Program (CESP): This program is designed to promote EE by offering financial incentives to commercial customers who install EE equipment. The larger commercial customers that participate generally have their own EE specialists they've consulted with for their upgrades and have identified the details of their project

prior to applying for the rebate. However, for all other commercial customers that may not have access to an EE specialist, IID offers technical expertise to assist them in identifying the EE measures and cost saving opportunities. Measures incentivized include interior and exterior lighting, process loads and HVAC/refrigeration.

- Weatherization: Imperial Irrigation District is pleased to announce its Residential Weatherization Program for 2024 where participating IID electric customers receive energy saving services and equipment that can help reduce heating and cooling costs while boosting their home's comfort level. IID customers currently enrolled in the district's income qualified Residential EAP (REAP) also receive an additional allotment towards installed products and services through the weatherization program. The no-cost services may include Smart programmable thermostats, AC tune-up, High efficiency AC motor, Duct leak sealing, Efficient fan control, Ceiling fan, Smart power strip, LED lighting, Door shoes, Door thresholds, Door weatherstripping.
- Energy Rewards Rebate Program: This program offers commercial customers prescriptive rebates for qualified energy efficient measures. Qualifying measures must retrofit, replace, or upgrade old equipment with new, energy-efficient technologies that meet and/or exceed the Title 24 standards in effect at the time of installation.

Residential Programs

- Energy Rewards Rebate Program: This 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/or exceed the Title 24 standards in effect at the time of installation.
- Refrigerator Recycling: This program is designed to encourage customers to recycle their old refrigerators or freezers rather than using them as a secondary, usually located either in uninsulated garages or outdoors. Through this program, a customer's refrigerator or freezer will be picked up and recycled, in addition to providing them receiving a $50 incentive per unit.
- EV Charger Rebate program (ReCharge): For those who have chosen to go electric, IID offers rebates of up to $500 to customers who purchase and install a Level 2 (240-volt) plug-in electric vehicle charger.

Complementary Programs

Low-Income Programs: As a large number of IID's residential customers participate in its income-qualified programs, a significant portion of revenue generated through the public benefits charge is allocated towards these programs. Back in 2019, IID modified its rate assistance eligibility criteria to allow for greater participation by reducing the age for qualifying seniors and increasing the maximum income level.

- REAP – This program provides customers with a discounted rate on their electric bill. Qualification is based on the number of residents per household and the total gross

income of all the income sources in the home. Qualifying customers may receive a 20 percent discount on their monthly bill. Qualifying seniors 60 or older may apply to receive a 30 percent discount.

- Emergency EAP (EEAP) – This program provides financial assistance to customers in a financial crisis, facing disconnection for nonpayment.
- Medical Equipment EAP (MEEUAP) – This is an assistance program that reduces the electric rate for a defined quantity of electricity used to operate medical equipment by a household that has a full-time resident who requires specific medically necessary electric equipment to sustain life or prevent deterioration of a person's medical condition.

Renewable Energy Programs:

- Net Billing – The Net Billing Program is NEMs successor program and also compensates net-surplus customers in accordance with the Distributive Self-Generation Service Rate
- E-Green Solar Program - in 2019, IID finalized its e-Green Community Solar Program that benefits all of IID's qualified, low-income customers. The program utilizes a 23-year term power purchase agreement with Citizens Energy Corporation for 30 megawatts of solar energy, of which 10 MW has been allocated specifically for the e-Green program. The program allows low-income customers to benefit from renewable clean solar energy without the concern and financial means needed to purchase and install rooftop solar. IID's REAP customers will receive an additional discount on their electric bills under the e-Green program. No enrollment is required and REAP customers will be automatically enrolled onto the program.
- Green Energy Rate Program – Under the green energy rate, customers can designate how much renewable energy they wish to be served with. Customers can elect to be served up 100% of their energy needs with renewables through renewable energy or renewable energy credits.

EM&V Studies

None for year 2023

Major Differences or Diversions from California POU TRM for Energy Savings

IID utilized a combination of savings from the TRM, KEMA 2009 report, utility work papers and custom savings when applicable. Prescriptive rebate programs such as Energy Rewards and Refrigerator Recycling used deemed savings values from credited documents for measures such as HVACs, refrigerators, pool pumps, etc., since the individual efficiency measure's performance characteristics and use conditions were well known and consistent. For the CESP program on the other hand, custom savings were calculated (for categories such as lighting, refrigeration, process loads, and HVAC considering the properties of existing equipment, replacement equipment and future use.

TABLE IID-1. EE Program Results by End Use

Summary by End Use	Resource Savings Summary								Cost Test Results		
End Use	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Appliance & Plug Loads	6	29,260	146,300	4	20,482	102,410	40	$26,868	0.52	0.59	0.289
Building Envelope	0	0	0	0	0	0	0	$402,759			0.000
HVAC - Cooling	94	2,650,014	53,000,280	94	2,650,014	53,000,280	16,751	$336,665	16.00	88.42	0.010
Lighting - Outdoor	1,472	17,064,977	341,299,540	1,472	17,064,977	341,299,540	160,075	$824,983	42.63	88.42	0.004
Miscellaneous	4,080	7,007,789	67,052,367	4,080	7,007,789	67,052,367	27,584	$4,539,244	1.85	2.84	0.093
Water Pumping / Irrigation	0	1,985,843	39,716,860	0	1,985,843	39,716,860	13,849	$165,152	23.70	88.42	0.006
EE	5,652	28,737,883	501,215,347	5,650	28,729,105	501,171,457	218,299	$6,295,670	8.40	13.64	0.019
Appliance & Plug Loads	0	0	0	0	0	0	0	$1,231			0.000
Low-Income	0	0	0	0	0	0	0	$1,231			0.000
EE and Low Income	5,652	28,737,883	501,215,347	5,650	28,729,105	501,171,457	218,299	$6,296,901	8.40	13.64	0.019
Codes & Standards	0	27,105,000	27,105,000	0	27,105,000	27,105,000	11,085	$29,317	129.99	129.99	0.001
Codes & Standards	0	27,105,000	27,105,000	0	27,105,000	27,105,000	11,085	$29,317	129.99	129.99	0.001
Any		0	0		0	0		$63,549			
Electrification		0	0		0	0		$63,549			
C&S, T&D and Electrification	0	27,105,000	27,105,000	0	27,105,000	27,105,000	11,085	$92,866	41.04	41.04	0.003
Utility Total	5,652	55,842,883	528,320,347	5,650	55,834,105	528,276,457	229,384	$6,389,767	8.87	14.28	0.018

TABLE IID-2. EE Program Results by Sector

Summary by Sector	Resource Savings Summary								Cost Test Results		
Sector	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Commercial	1,566	21,700,834	434,016,680	1,566	21,700,834	434,016,680	190,675	$1,328,646	33.47	88.10	0.005
Other	0	0	0	0	0	0	0	$402,759			0.000
Residential	4,086	7,037,049	67,198,667	4,084	7,028,271	67,154,777	27,625	$4,564,265	1.84	2.83	0.093
EE	5,652	28,737,883	501,215,347	5,650	28,729,105	501,171,457	218,299	$6,295,670	8.40	13.64	0.019
Residential	0	0	0	0	0	0	0	$1,231			0.000
Low-Income	0	0	0	0	0	0	0	$1,231			0.000
EE and Low Income	5,652	28,737,883	501,215,347	5,650	28,729,105	501,171,457	218,299	$6,296,901	8.40	13.64	0.019
Residential	0	27,105,000	27,105,000	0	27,105,000	27,105,000	11,085	$29,317	129.99	129.99	0.001
Codes & Standards	0	27,105,000	27,105,000	0	27,105,000	27,105,000	11,085	$29,317	129.99	129.99	0.001
Other		0	0		0	0		$63,549			
Electrification		0	0		0	0		$63,549			
C&S, T&D and Electrification	0	27,105,000	27,105,000	0	27,105,000	27,105,000	11,085	$92,866	41.04	41.04	0.003
Utility Total	5,652	55,842,883	528,320,347	5,650	55,834,105	528,276,457	229,384	$6,389,767	8.87	14.28	0.018

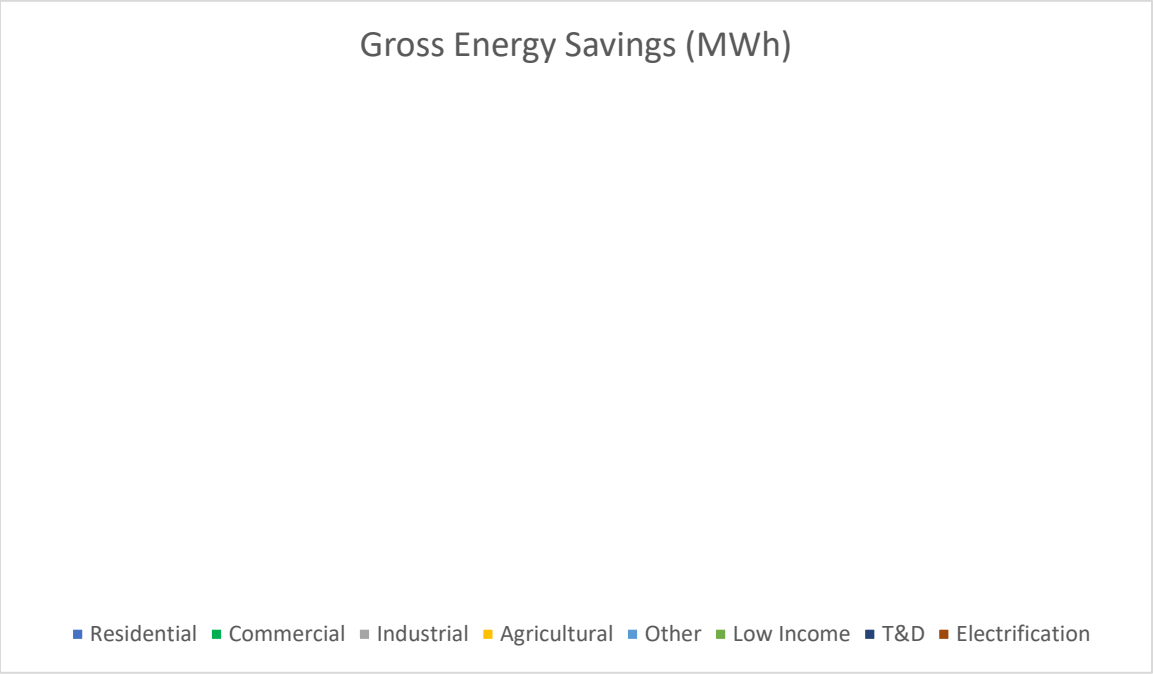
TABLE IID-3. EE Program Results by Building Type

Summary by Building Type	Resource Savings Summary								Cost Test Results		
Building Type	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Any	1,566	21,700,834	434,016,680	1,566	21,700,834	434,016,680	190,675	$1,731,405	25.69	49.00	0.006
Residential - Single-Family	4,086	7,037,049	67,198,667	4,084	7,028,271	67,154,777	27,625	$4,564,265	1.84	2.83	0.093
EE	5,652	28,737,883	501,215,347	5,650	28,729,105	501,171,457	218,299	$6,295,670	8.40	13.64	0.019
Residential	0	0	0	0	0	0	0	$1,231			0.000
Low-Income	0	0	0	0	0	0	0	$1,231			0.000
EE and Low Income	5,652	28,737,883	501,215,347	5,650	28,729,105	501,171,457	218,299	$6,296,901	8.40	13.64	0.019
Any	0	27,105,000	27,105,000	0	27,105,000	27,105,000	11,085	$29,317	129.99	129.99	0.001
Codes & Standards	0	27,105,000	27,105,000	0	27,105,000	27,105,000	11,085	$29,317	129.99	129.99	0.001
Any		0	0		0	0		$63,549			
Electrification		0	0		0	0		$63,549			
C&S, T&D and Electrification	0	27,105,000	27,105,000	0	27,105,000	27,105,000	11,085	$92,866	41.04	41.04	0.003
Utility Total	5,652	55,842,883	528,320,347	5,650	55,834,105	528,276,457	229,384	$6,389,767	8.87	14.28	0.018

INDUSTRY PUBLIC UTILITIES COMMISSION

Industry Public Utilities Commission at a Glance

- Climate Zone: 9
- Customers: 119
- Total annual retail sales: 37,500 MWh
- Annual Retail Revenue: $5,000,000
- Annual EE expenditures for reporting year: $0
- Gross annual savings from reporting year portfolio: 0 MWh



Industry Public Utilities Commission (IPUC) Overview

- Customers reside in climate zone 9.
- Approximately 119 customers.
- Established in 2002 to provide electric service to retail customers that continue to build new facilities located in the designated service territory.
- Peak demand was 8.2 megawatts (6.4% more than last year).
- 99.6% of energy sales were to non-residential customers.
- All customers' facilities meet or exceed the applicable Title 24 requirements. The recent age of these facilities provides less EE upgrade opportunities.

Major Program and Portfolio Changes

None

Program and Portfolio Highlights

- No EE rebates were issued in the current year.
- The IPUC EE Program provides incentives in four program categories: Large General Service Program; General Service Program; Domestic Service Program; and IPU EE measures.

Commercial, Industrial & Agricultural Programs

- Survey – Non-Residential – General Service Customers - Rebates: On-site energy survey, at no cost to the customer, that analyze customer usage and demand to develop recommendations designed to improve operating EE and reduce load requirements. Rebates are available for the installation of specified energy measures, up to $1,000 every two years.
- Audits – Large General Service Customers – Non-Res Audits: On-site energy audits, at no cost to the customer once every two years, that analyze customer usage and demand to develop recommendations designed to improve energy operating efficiency and reduce load requirements. Rebates are available for EE upgrades identified in these audits. Verification services to ensure appropriate installation of recommended measures are also provided.
- Lighting – Large General Service Customers – Non-Res Lighting: Provides incentives to improve EE for lighting applications, which reduce energy usage by a specified amount. Rebates are available based on a rate of $0.059/kWh for one year of energy savings and shall not exceed $50,000 over a two-year budget cycle or 50% of the lighting material costs.
- Customize Projects – Large General Service Customers – Non-Res Customize Projects: Financial incentives for the replacement of equipment/technology that conserves energy and permanently reduces coincident summer/winter peak demand and exceeds state-mandated codes, federal mandated codes, industry accepted standards or other baseline performance standards. The rebate is based on a rate of $0.059/kWh for one year of energy savings and $150/kW for each on-peak kW that has been reduced and shall not exceed or 50% of the total cost associated with the equipment/material.
- New Construction Projects – Large General Service Customers – Non-Res Construction Projects: Financial incentives for new equipment components that exceed state-mandated codes, federal-mandated codes, industry-accepted performance standards, or other baseline energy performance standards by more than 10%. The rebate is based upon the lessor of 25% of the cost difference between standard and upgraded new equipment and/or materials or $50,000 over a two-year budget cycle.

- IPUC EE Measures: Payment for eligible projects must be authorized by the IPU Commission and shall not exceed $10,000 per year.

Residential Programs

- Survey – Residential – Rebates: On-site energy survey, at no cost to the customer, that analyze customer usage and demand to develop recommendations designed to improve energy operating efficiency and reduce load requirements. Rebates are available for approved Energy Star® appliances up to $250 per residence; and program allowance for the installation of specified energy measures, up to $500 every two years.

Complementary Programs

- Renewable Energy Programs: IPU Solar Installations: Industry Metrolink 1,600 kW Photovoltaic-1 Solar project.
- Energy Storage: Achieved commercial operation for a long-term photovoltaic generating facility power purchase agreement coupled with an 4 MW battery energy storage system.

EM&V Studies

The Engineering analysis programs are the basis for energy savings and incentive calculations. The EE Technical Reference Manual provides energy savings estimates for IPU programs.

Major Differences or Diversions from California POU TRM for Energy Savings

None

TABLE IPUC-1. EE Program Results by End Use

Summary by End Use	Resource Savings Summary								Cost Test Results		
End Use	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Any	0	0	0	0	0	0	0	$0			0.000
EE	0	0	0	0	0	0	0	$0			0.000
EE and Low Income	0	0	0	0	0	0	0	$0			0.000
C&S, T&D and Electrification								$0			
Utility Total	0	0	0	0	0	0	0	$0			0.000

TABLE IPUC-2. EE Program Results by Sector

Summary by Sector	Resource Savings Summary								Cost Test Results		
Sector	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Industrial	0	0	0	0	0	0	0	$0			0.000
EE	0	0	0	0	0	0	0	$0			0.000
EE and Low Income	0	0	0	0	0	0	0	$0			0.000
C&S, T&D and Electrification								$0			
Utility Total	0	0	0	0	0	0	0	$0			0.000

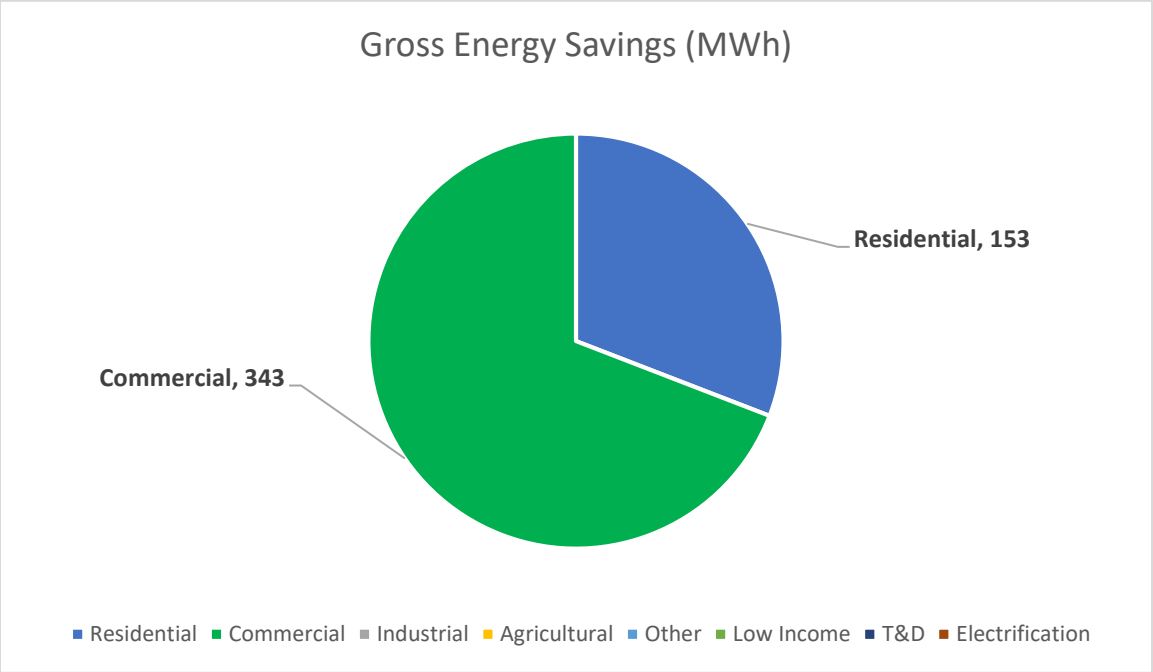
TABLE IPUC-3. EE Program Results by Building Type

Summary by Building Type	Resource Savings Summary								Cost Test Results		
Building Type	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Any	0	0	0	0	0	0	0	$0			0.000
EE	0	0	0	0	0	0	0	$0			0.000
EE and Low Income	0	0	0	0	0	0	0	$0			0.000
C&S, T&D and Electrification								$0			
Utility Total	0	0	0	0	0	0	0	$0			0.000

LASSEN MUNICIPAL UTILITY DISTRICT

Lassen Municipal Utility District at a Glance

- Climate Zone: 16
- Customers: 10,500
- Total annual retail sales: 165,111 MWh
- Annual Retail Revenue: $26,417,836
- Annual EE expenditures for reporting year: $324,841
- Gross annual savings from reporting year portfolio: 497 MWh



Lassen Overview

The Lassen Municipal Utility District (LMUD) remains committed to helping customers manage their energy use through energy education and a comprehensive offering of EE incentives. For residential customers, rebates are offered for the installation of various EE measures. For commercial customers, rebates are available for upgraded lighting, refrigeration equipment, and HVAC equipment, and in cases where an analysis is performed rebates can be offered for additional equipment that reduces energy use and/or demand. Many customers are not able to participate in standard rebate programs that require significant capital investment of their own. To compensate for this, LMUD periodically offers direct installation programs at no cost to commercial and residential customers that provide energy savings and other benefits.

Major Program and Portfolio Changes

LMUD offers a comprehensive menu of EE rebate programs to our residential, commercial and agricultural customers. There were no major changes to the program in FY23. We find that the customers and local contractors value consistency in program offerings.

Program and Portfolio Highlights

LMUD continued the Residential Direct Install Program in FY23. This provided 29% of the gross annual energy savings for the program. Meanwhile, the Prescriptive Commercial Lighting Program, which offers fixtures at no cost to customers, delivered 38% of the gross annual energy savings in FY23. LMUD achieved 130% of the target net annual kWh savings for the last five years.

Commercial, Industrial & Agricultural Programs

LMUD manages a comprehensive EE incentive program for commercial, industrial, and agricultural customers.

- Non-Res Lighting Program: LMUD offers rebates to business owners who invest in the installation of EE lighting upgrades.
- Non-Res HVAC: LMUD offers rebates to commercial customers for energy efficient HVAC upgrades.
- Non-Res Refrigeration: Rebates are available to improve the efficiency of commercial refrigeration systems.
- Non-Res Appliances: Rebates are available for energy efficient cooking equipment such as ovens, dishwashers, fryers, griddles, etc.
- Non-Res Electronics: LMUD offers rebates for uninterrupted power supplies, plug-load occupancy sensors and smart power strips.
- Non-Res Custom Program: LMUD 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.
- Agricultural Custom Program: LMUD offers rebates to agricultural customers to make EE improvements at their sites.

Residential Programs

LMUD manages a comprehensive EE incentive program for residential customers.

- Residential Lighting Program: LMUD offers rebates to homeowners who install ENERGY STAR® -certified LED lamps/bulbs, ceiling fans and LED holiday lights.
- Residential HVAC Program: LMUD offers rebates to homeowners who install high performance heat pumps, central air-conditioners, whole house fans and ground source heat pumps that exceed current state requirements.

- Residential Equipment Program: LMUD offers rebates to homeowners who purchase new ENERGY STAR® -certified products, including clothes washers, room air conditioners, dishwashers, refrigerators, freezers and advanced power strips.
- Residential Water Heater Rebate Program: LMUD offers rebates to customers who purchase new, energy efficient electric water heaters and heat pump water heaters.

Complementary Programs

- Low-Income Programs: LMUD offers two low-income programs. WEAR, Winter Energy Assistance Rate, offers rate assistance, from November through April. EEAP provides a one-time assistance payment to help avoid disconnection in the case of a financial emergency. This program is funded by LMUD's Public Benefits Program and administered by the local Salvation Army Office. LMUD also works with Lassen Economic Development Corporation to identify customers who qualify for state and federal LIHEAP, Low-Income Home EAP.
- Renewable Energy Programs: LMUD offers customers a customer generation rate that pays customers for excess generation. Our NEM limit of 5% total peak load of 25MW was met in 2018. LMUD no longer offers NEM for solar or other distributed generation systems. LMUD now offers a Customer Distributed Generation rate of 0.10 per exported kWh.
- EVs: LMUD offers customers rebates on EV charging stations. Publicly accessible and residential are based on a first-come, first-served basis.

EM&V Studies

Previous EM&V reports are available on the California Municipal Utilities website: https://www.cmua.org/.

Major Differences or Diversions from California POU TRM for Energy Savings

LMUD has relied heavily on the savings listed in the Technical Resource Manual and streamlined eTRM measures. Non-residential lighting, custom projects and non-deemed refrigeration measures use custom savings calculations.

TABLE LMUD-1. EE Program Results by End Use

Summary by End Use	Resource Savings Summary								Cost Test Results		
End Use	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Appliance & Plug Loads	5	32,706	334,469	5	29,420	298,725	107	$66,792	0.60	0.60	0.271
Commercial Refrigeration	14	133,650	1,069,200	8	80,190	641,520	227	$12,685	5.22	1.32	0.023
HVAC - Cooling	3	3,508	12,261	2	2,806	9,809	4	$12,719	0.14	0.02	1.697
HVAC - Heat Pump	0	642	9,623	0	398	5,966	2	$4,890	0.16	0.12	1.096
Lighting - Indoor	24	129,157	1,338,428	22	119,154	1,227,863	461	$63,771	2.37	1.87	0.063
Lighting - Outdoor	0	195,294	2,329,841	0	157,228	1,873,861	865	$160,098	1.58	1.58	0.107
Service & Domestic Hot Water	1	1,774	17,740	0	1,064	10,644	4	$3,886	0.31	0.30	0.441
EE	48	496,730	5,111,561	38	390,261	4,068,388	1,671	$324,841	1.58	1.14	0.098
EE and Low Income	48	496,730	5,111,561	38	390,261	4,068,388	1,671	$324,841	1.58	1.14	0.098
C&S, T&D and Electrification								$0			
Utility Total	48	496,730	5,111,561	38	390,261	4,068,388	1,671	$324,841	1.58	1.14	0.098

TABLE LMUD-2. EE Program Results by Sector

Summary by Sector	Resource Savings Summary								Cost Test Results		
Sector	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Commercial	21	343,399	3,586,187	14	247,989	2,655,110	1,140	$174,552	1.91	1.45	0.081
Residential	26	153,331	1,525,374	24	142,272	1,413,278	531	$150,289	1.21	0.82	0.129
EE	48	496,730	5,111,561	38	390,261	4,068,388	1,671	$324,841	1.58	1.14	0.098
EE and Low Income	48	496,730	5,111,561	38	390,261	4,068,388	1,671	$324,841	1.58	1.14	0.098
C&S, T&D and Electrification								$0			
Utility Total	48	496,730	5,111,561	38	390,261	4,068,388	1,671	$324,841	1.58	1.14	0.098

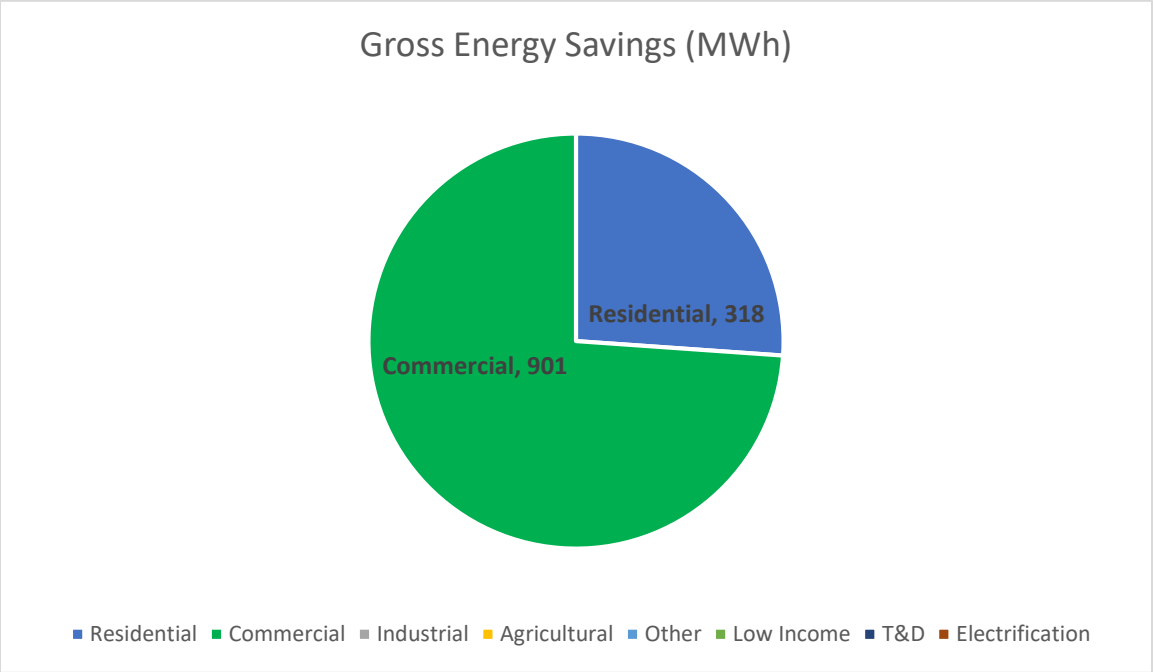
TABLE LMUD-3. EE Program Results by Building Type

Summary by Building Type	Resource Savings Summary								Cost Test Results		
Building Type	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Any	7	210,371	2,522,997	6	168,170	2,017,183	914	$165,344	1.61	1.47	0.103
Grocery	14	133,650	1,069,200	8	80,190	641,520	227	$12,685	5.22	1.32	0.023
Multiple	0	642	9,623	0	398	5,966	2	$4,890	0.16	0.12	1.096
Residential	26	150,416	1,487,741	24	140,325	1,388,116	522	$127,639	1.40	0.90	0.111
Residential - Single-Family	0	1,652	22,000	0	1,179	15,603	6	$14,281	0.15	0.15	1.186
EE	48	496,730	5,111,561	38	390,261	4,068,388	1,671	$324,841	1.58	1.14	0.098
EE and Low Income	48	496,730	5,111,561	38	390,261	4,068,388	1,671	$324,841	1.58	1.14	0.098
C&S, T&D and Electrification								$0			
Utility Total	48	496,730	5,111,561	38	390,261	4,068,388	1,671	$324,841	1.58	1.14	0.098

LODI ELECTRIC UTILITY

Lodi Electric Utility at a Glance

- Climate Zone(s): 12
- Customers: 27,935
- Total annual retail sales (MWh): 447,304
- Annual Retail Revenue: $84,857,616
- Annual EE expenditures for reporting year: $473,506
- Gross annual savings from reporting year portfolio (MWh): 1,219



Lodi Overview

Lodi Electric Utility (LEU) utilizes the EE program to engage with residential customers, bring value to local businesses, and through its commercial EE programming, expand the business relationship with key accounts. The EE program is designed to benefit all customer segments and offers a wide variety of opportunities for participation. Residential programs allow households to not only receive rebates by purchasing energy-efficient appliances, but also encouraging a new way of looking at household energy use, and how making a few simple changes can make a difference in their carbon footprint. In 2023, the median household income in Lodi is $84,627. For the first time in recent years, the percentage of owner-occupied housing units (57%) significantly exceeds the percentage of renter-occupied units (43%). LEU

customers, whether owners or renters, are able to make energy efficient improvements by taking advantage of the many incentives available for households ranging from appliances to home weatherization, and from HVAC units to pool pumps. Business accounts, from small commercial to large industrial, can generate significant operational efficiencies by upgrading lighting, production systems, and equipment with energy-efficient improvements made affordable through rebates offered by Lodi Electric.

Major Program and Portfolio Changes

In FY23, LEU continued to offer a comprehensive selection of programs for commercial, industrial, and residential customers. There were no significant program changes from the previous program year. Reportable energy savings have decreased from last year due to a decrease in commercial and industrial projects. In FY 23, Lodi achieved 117% of net annual energy savings targets. In FY 23, LEU began its third year of successfully partnering with Tree Lodi, a non-profit community-based organization, to preserve, protect and enhance Lodi's urban forest. This all-volunteer organization procures trees from local and regional nurseries, schedules and delivers trees, determines the most appropriate species for planting, evaluates site conditions for homeowners and teaches homeowners how to care for trees. Since the inception of this partnership in FY 21, Tree Lodi has planted over 1650 shade trees in Lodi.

Program and Portfolio Highlights

Residential and Non-Residential

LEU continued to offer the Residential Direct Install and Snapshot Audit program that it started in FY 16. This program offers installation of LEDs (Light Emitting Diode), advanced power strips, thermostatic shower valves, shower heads, and aerators in customer homes at no cost. The intent is to provide a program for residential customers who do not traditionally participate in EE rebate programs. While open to all residential customers, the program specifically targets multi-family and low-income properties, as they are not likely to benefit from traditional EE programs.

The Non-Residential Rebate Program continues to provide a substantial portion of energy savings achieved, accounting for 75% of annual net savings for FY 23. Through key accounts management, the utility maintains a proactive and positive relationship with Lodi's largest energy consumers. These relationships are essential to the stability of Lodi Electric Utility and vital to the overall economic development strategy for the City of Lodi.

Commercial, Industrial & Agricultural Programs

Standard and Custom Rebates

LEU manages a comprehensive EE incentive program for commercial and industrial customers focusing on EE and peak load reduction. Rebates are available for small and large-scale upgraded lighting, HVAC, commercial kitchen appliances, retail refrigeration equipment,

warehouse refrigeration and motorized equipment. In cases where an EE analysis is performed, rebates can be offered for additional equipment not mentioned above that reduces energy use and/or demand. These on-site EE audits, provided by EE advisors, enable recommendations for improvements to achieve EE savings.

LEU offers standard rebates for commercial appliances for Energy Star® -rated appliances based upon industry standards. Other rebates for LED lighting, HVAC improvements, refrigeration, and motorized equipment are based on energy savings as measured in kWhs compared to the baseline measurement or old equipment being replaced. These upgrades are essential to businesses aiming to reduce costs, conserve energy and contribute to environmental sustainability.

The Keep Your Cool program provides direct install energy savings measures for restaurants, convenience stores, and any other commercial application requiring refrigeration. Examples include door closers, anti-sweat heater controls, insulating materials and case lighting.

Over half of all electrical energy consumed in the United States, is used by electric motors. Businesses investing in improved design, materials, and manufacturing techniques enable energy-efficient motors to accomplish more work per unit of electricity consumed. LEU offers rebates on energy-efficient motors based upon number of kWhs saved.

One size does not fit all. LEU encourages businesses to design their own EE upgrades and facility improvements to match business energy needs and importantly, budget.

Lodi Electric provides custom-designed rebates based upon energy savings equal to $0.15 cents per kWh saved capped at 50 percent of the project's total cost, and up to a maximum of $75,000. In addition, LEU offers a zero percent energy financing program that allows commercial customers to install energy-efficient improvements up to $150,000. The loan requirements are easy. Customers in good standing are able to install improvements and pay back the loan over 24 months on their monthly utility bill.

Standard and custom rebate information and applications are available on line at Lodi Electric Utility.

Residential Programs

Rebates and Direct Install Measures

Lodi Electric offers EE incentives or rebates to all residential customers for the purchase of upgraded lighting, home weatherization, and Energy Star® -rated HVAC and other appliances. While rebates vary by appliance or measure purchased, rebates are evaluated on a regular basis to conform to the latest industry standard. Examples of appliances and measures include, but are not limited to LED lamps/bulbs, ceiling fans, holiday lights, and high-performance HVAC equipment that exceed current state requirements. Household appliances ranging from clothes washers to dishwashers, and from refrigerators to energy efficient water heaters account for

the majority of rebates. Residential weatherization materials including attic and wall insulation are also rebated.

The residential Direct Install Program offered by LEU is a no cost energy efficient measure installation program to homeowners and renters who without incentives would likely not make household energy efficient improvements. In many ways, this program begins to unlock the potential of home EE for rate payers and empowers residents to make future decisions to achieve greater conservation and savings. Lodi Electric deploys home energy advisors to assess the home and install smart power strips, LED lighting, faucet aerators, thermostatic shower values, basic pipe insulation and weather-stripping.

Complementary Programs

Payment Assistance for Low-income Households

- Lodi C.A.R.E. Package Program: Provides payment assistance grants to very low-income customers in need of assistance paying their electric utility account. In 2022, CARE Package assistance payments were increased from $110 to $150. Eligible participants may apply for up to $150 in a six-month period.
- Lodi SHARE Discount Rate: LEU provides a rate discount of 30% for qualifying residential customers on their electric utility monthly billing statement; over $433,780 was budgeted in FY 23 for this rate discount from the Lodi Public Benefits Program fund.

Sustainability

- Renewable Energy Programs: LEU offers an Energy Purchase rate tariff for customers interested in installing solar. In addition, LEU funds a portion of its eligible power supply costs from the Public Benefits Program fund each year. For FY 23, this totaled a little over $135,236.
- Electrification: LEU offers rebates for replacing gas ranges and electric resistance cooktops with new induction Ranges and Cooktops.
- EVs: In FY 2023, LEU continued to offer rebates for residential and commercial EV chargers, and rebates for the purchase of new and used zero-emission vehicles including both standard and income-qualifying rebates. Additionally, the City placed seven new, replacement Level 2 EV charging stations throughout downtown Lodi funded in part by CALeVIP and LCFS credits. These new EV chargers replaced Level 1 chargers.
- EE and Conservation Curriculum: In FY 2023, Lodi Electric Utility implemented another successful EE education program within the Lodi middle school educational curriculum designed to teach students about how to use energy responsibly. Energy education efforts include a science-based EE curriculum designed to demonstrate how minor changes in energy use can make a significant impact on overall energy consumption. Beginning in August 2022 to June 2023, educational program highlights included lessons delivered through an in-person and online platform to 486 students across 9 Lodi middle

schools. This content was followed with hands-on activities to enhance learning retention. During the implementation period, teachers, students, and parents were given access to the online Web App. During the final lesson, students completed exercises that required measuring current home energy use and retrofitting home energy use devices with high-efficiency devices from take-home kits. A new component of the FY 23 educational effort included informing parents, students, and teachers about other residential programs and rebates offered by LEU to incentivize energy conservation, including EV.

EM&V Studies

Previously completed EM&V reports are available for review at: www.ncpa.com/policy/reports/emv/.

Major Differences or Diversions from California POU TRM for Energy Savings

LEU relies heavily on the savings listed in the Technical Resource Manual. The Commercial Lighting and Commercial Custom programs use custom savings calculations based on actual pre- and post-equipment specifications.

TABLE LEU-1. EE Program Results by End Use

Summary by End Use	Resource Savings Summary								Cost Test Results		
End Use	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Appliance & Plug Loads	8	72,612	544,489	7	55,683	380,538	141	$88,995	0.55	0.55	0.272
Building Envelope	22	30,648	589,814	11	12,334	240,200	170	$79,848	0.79	0.22	0.486
Commercial Refrigeration	46	314,367	2,527,535	37	244,794	1,970,322	719	$73,413	2.82	1.91	0.043
HVAC - Cooling	15	27,688	237,050	12	20,766	176,512	98	$44,733	1.44	1.26	0.331
HVAC - Heat Pump	1	4,447	61,948	1	2,721	37,967	12	$3,609	1.17	0.82	0.126
Lighting - Indoor	79	572,635	6,535,360	75	542,739	6,189,625	2,742	$149,742	4.62	3.02	0.030
Lighting - Outdoor	0	195,259	2,321,818	0	185,496	2,205,727	758	$31,323	7.32	3.25	0.018
Service & Domestic Hot Water	0	1,744	17,438	0	813	8,126	3	$1,843	0.45	0.37	0.274
EE	172	1,219,398	12,835,453	143	1,065,346	11,209,018	4,643	$473,506	2.76	1.55	0.052
EE and Low Income	172	1,219,398	12,835,453	143	1,065,346	11,209,018	4,643	$473,506	2.76	1.55	0.052
C&S, T&D and Electrification								$0			
Utility Total	172	1,219,398	12,835,453	143	1,065,346	11,209,018	4,643	$473,506	2.76	1.55	0.052

TABLE LEU-2. EE Program Results by Sector

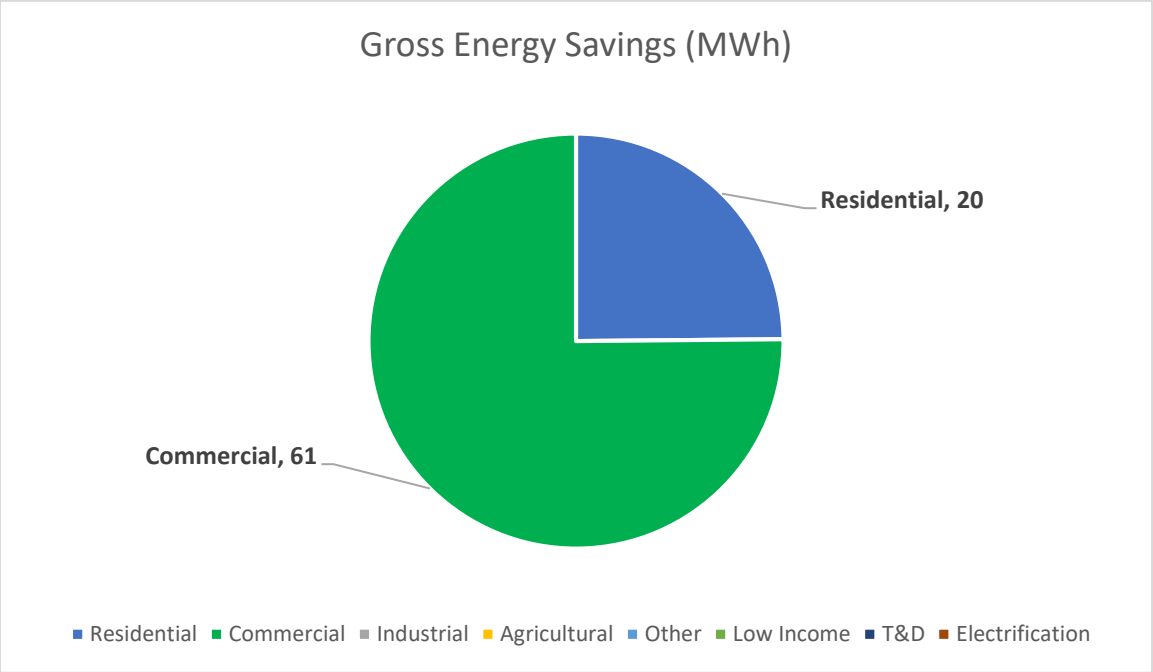
Summary by Sector	Resource Savings Summary								Cost Test Results		
Sector	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Commercial	97	900,977	9,550,246	85	801,553	8,637,319	3,558	$160,773	5.80	3.01	0.023
Residential	75	318,421	3,285,207	58	263,792	2,571,699	1,085	$312,733	1.20	0.70	0.149
EE	172	1,219,398	12,835,453	143	1,065,346	11,209,018	4,643	$473,506	2.76	1.55	0.052
EE and Low Income	172	1,219,398	12,835,453	143	1,065,346	11,209,018	4,643	$473,506	2.76	1.55	0.052
C&S, T&D and Electrification								$0			
Utility Total	172	1,219,398	12,835,453	143	1,065,346	11,209,018	4,643	$473,506	2.76	1.55	0.052

TABLE LEU-3. EE Program Results by Building Type

Summary by Building Type	Resource Savings Summary								Cost Test Results		
Building Type	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Any	95	897,169	9,518,374	84	797,968	8,606,747	3,548	$160,183	5.81	3.00	0.023
Multiple	47	239,180	2,263,133	38	219,828	2,043,534	870	$199,057	1.29	1.10	0.117
Other Commercial	2	5,200	45,792	1	4,420	38,923	14	$2,910	1.38	3.04	0.100
Residential	23	51,281	740,347	16	26,854	352,806	150	$77,220	1.20	0.55	0.305
Residential - Single-Family	6	26,568	267,807	3	16,275	167,007	62	$34,135	0.69	0.18	0.254
EE	172	1,219,398	12,835,453	143	1,065,346	11,209,018	4,643	$473,506	2.76	1.55	0.052
EE and Low Income	172	1,219,398	12,835,453	143	1,065,346	11,209,018	4,643	$473,506	2.76	1.55	0.052
C&S, T&D and Electrification								$0			
Utility Total	172	1,219,398	12,835,453	143	1,065,346	11,209,018	4,643	$473,506	2.76	1.55	0.052

Lompoc Electric Utility at a Glance

- Climate Zone: 5
- Customers: 15,141
- Total annual retail sales: 122,930 MWh
- Annual Retail Revenue: $20,805,151
- Annual EE expenditures for reporting year: $92,042
- Gross annual savings from reporting year portfolio: 81 MWh



Lompoc Overview

Established in 1923, the City of Lompoc's Electric Utility (Lompoc) serves electricity to over 15,000 customers in the Central Coast region of California. Lompoc offers a variety of programs to assist all customer classes by economizing their monthly electricity costs through EE and conservation practices. The local climate, customer base and community demographics largely influence the Lompoc strategy to offer effective energy-saving programs to its customers.

In FY 2023, most of Lompoc's energy savings were achieved through its commercial lighting retrofit program and lighting retrofit projects completed at City-owned facilities, since there is little need for AC in Lompoc's coastal climate and most buildings are heated by gas. Residential customers accounted for 90% of the Lompoc customer base in FY 2023, with an average

residential electricity use of 332 kWh per month. Only 11% of the retail customer connections are commercial and demand customers; however, these customer classes hold most energy savings opportunities within the City's electricity service territory.

The demographics of the Lompoc community also have an impact on the participation rate of EE programs. The average median household income in Lompoc is $66,947 with 17.2% of the population living in poverty (2023 US Census Quick Facts). Many residential customers have limited funds or incentive to make EE improvements to their homes. During FY 2023, numerous small, local businesses within Lompoc's service territory were continuing to recover and resume normal business after the COVID-19 pandemic, leaving little room for owner-led investment in EE upgrades during this time. To assist its customers, Lompoc continued to offer generous rebate and income-qualifying programs for customers.

Major Program and Portfolio Changes

In FY 2023, Lompoc continued seeking new and innovative ways to help its customers reduce energy use while continuing to offer its usual EE and conservation programs. Utilizing its AMR-enabled metering system, high energy-using customers were provided customized energy reduction tips and technical assistance to reduce energy demand and costs. Lompoc also continued offering its LED Lightbulb Replacement and LED Holiday Light Exchange programs, which began in FY 2022. Customers of all classes were able to bring their old, inefficient lightbulbs or holiday light strings into City Hall and replace them with new, efficient light bulbs or holiday lights. The City offered the new equipment, as well as the disposal of hazardous and electronic waste, at no cost to utility customers as both programs were funded with public benefit resources. These programs assisted customers with old, inefficient lighting equipment to replace it without having to incur an upfront purchase cost and lessened the increase in electric utility bills during the holiday season.

Program and Portfolio Highlights

Lompoc realized increased savings in its Commercial Lighting Rebate Program from commercial, industrial, and institutional customers this year and hopes to continue increasing participation in the program in future years. This program is designed to support commercial, industrial, and institutional customers to optimize their energy usage by incentivizing the removal and replacement of old, inefficient light fixtures with more efficient LED fixtures. This program provided 75% of the City's annual energy savings in FY 2023.

Commercial, Industrial & Agricultural Programs

Lompoc offers a number of rebate programs for commercial, industrial and agricultural customers, including rebates for lighting, HVAC, and other energy-efficient equipment upgrades. These customer classes may also apply for rebates on custom energy-saving projects. Lompoc currently classifies industrial and agricultural customers as commercial customers; therefore, there are no specific programs for these sectors.

Residential Programs

Lompoc offers several rebate opportunities for residential customers such as the Energy Star® Appliance Rebate Program, the LED Lighting Replacement Program, and the Holiday Light Replacement Program. While each residential rebate program provided a small percentage of Lompoc's overall energy savings, these programs provide all customers a chance to participate in Lompoc's EE program. It should be noted that clothes washer rebates administered through the Energy Star® Appliance Rebate Program are partly funded from Public Benefit charges, sharing program costs with the City of Lompoc's Water Conservation Fund. Lompoc provides both water and electricity services to its customers, among other services.

To help encourage low-income residential customer participation in EE upgrades, Lompoc continued to offer its Income-Qualified Energy Star® Refrigerator Replacement and Recycle Program in FY 2023. Success of this program can be attributed to an established pre-approval process for participating customers, as well as Lompoc staff working with one small, locally owned appliance dealer who handles the delivery and installation of new energy-efficient refrigerators. The appliance dealer also handles refrigerator-recycling processes for participating customers. This program expedites the process for low-income customers to participate in the EE program and assists Lompoc to ensure that old, inefficient appliances are recycled properly at the Lompoc landfill. Residential customers must meet low-income guidelines established by the Department of Housing and Urban Development (HUD) to participate. Participating customers also pay a portion of the cost back to Lompoc over a year.

Complementary Programs

In addition to the portfolio programs, Lompoc also offers rate assistance, customer energy use auditing, and has been closely evaluating the feasibility of offering electric vehicle charging services. Lompoc provides financial assistance towards electricity charges for customers who have a household income level below the Department of Housing and Urban Development (HUD) Low Income Limits Calculation for the local area.

The Customer Energy Audit Program continues to be highly successful in meeting customers' needs. Using the City's automatic meter reading capabilities, staff can view daily and hourly electric use data. Customers are provided with reports of their electric use which can help them better understand their usage and implement staff suggestions to reduce energy use without making investments in EE upgrades. Audits are also offered over-the-phone and via email to further assist customers who are unable to visit City Hall during business hours. Customers are also offered a watt meter at no cost to measure the energy use of appliances and electronics used at home.

EM&V Studies

Previously completed EM&V reports are available for review at: https://www.cmua.org/emv-reports.

Major Differences or Diversions from California POU TRM for Energy Savings

Lompoc used the CMUA Savings Estimation TRM as the primary source for calculating and reporting annual EE program performance during FY 2023.

TABLE Lompoc-1. EE Program Results by End Use

Summary by End Use	Resource Savings Summary								Cost Test Results		
End Use	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Appliance & Plug Loads	1	15,523	140,605	1	9,420	82,562	35	$71,205	0.15	0.15	1.053
Building Envelope	0	151	1,510	0	42	423	0	$264	0.19	0.19	0.756
Lighting - Indoor	16	52,664	634,082	13	41,948	504,520	165	$8,132	5.87	0.70	0.020
Lighting - Outdoor	16	12,868	127,764	9	9,305	97,261	45	$12,441	0.97	0.61	0.158
EE	34	81,207	903,961	23	60,715	684,766	245	$92,042	0.76	0.45	0.168
EE and Low Income	34	81,207	903,961	23	60,715	684,766	245	$92,042	0.76	0.45	0.168
C&S, T&D and Electrification								$0			
Utility Total	34	81,207	903,961	23	60,715	684,766	245	$92,042	0.76	0.45	0.168

TABLE Lompoc-2. EE Program Results by Sector

Summary by Sector	Resource Savings Summary								Cost Test Results		
Sector	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Commercial	16	61,020	732,246	13	48,816	585,797	203	$4,706	12.20	0.81	0.010
Residential	18	20,186	171,715	10	11,899	98,969	42	$87,337	0.15	0.15	1.069
EE	34	81,207	903,961	23	60,715	684,766	245	$92,042	0.76	0.45	0.168
EE and Low Income	34	81,207	903,961	23	60,715	684,766	245	$92,042	0.76	0.45	0.168
C&S, T&D and Electrification								$0			
Utility Total	34	81,207	903,961	23	60,715	684,766	245	$92,042	0.76	0.45	0.168

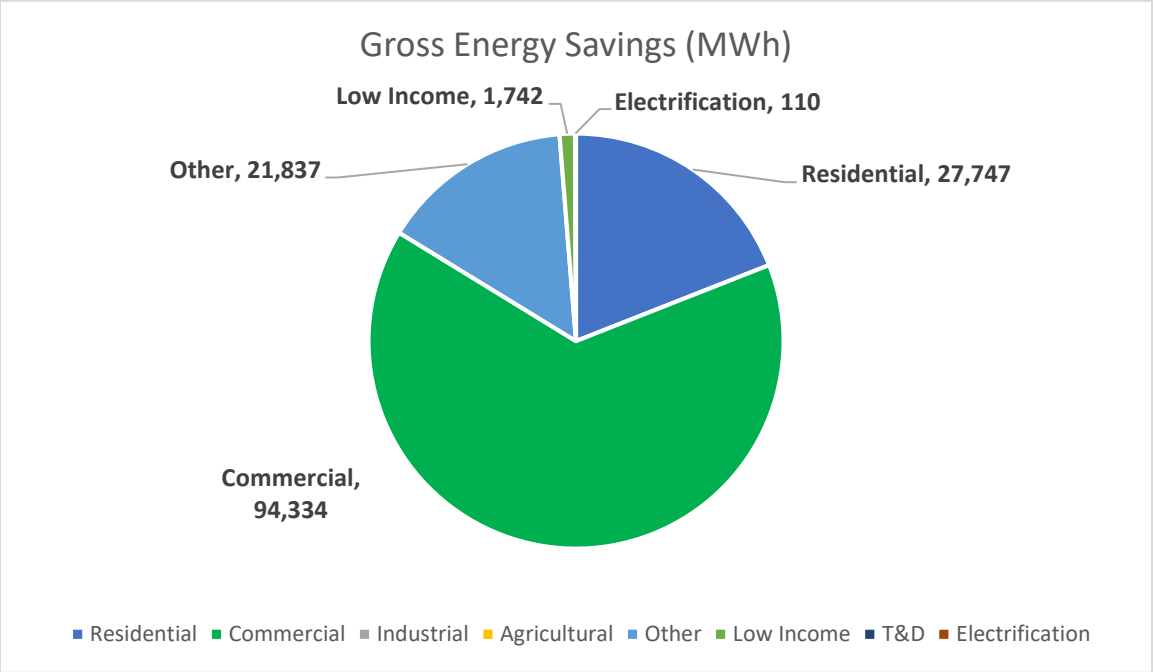
TABLE Lompoc-3. EE Program Results by Building Type

Summary by Building Type	Resource Savings Summary								Cost Test Results		
Building Type	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Any	17	68,601	772,601	14	54,073	613,549	214	$25,516	2.38	0.67	0.052
Multiple	16	3,801	19,005	9	2,053	10,263	4	$10,856	0.12	0.12	1.153
Residential	0	4,373	50,919	0	1,551	18,583	12	$27,179	0.13	0.13	1.849
Residential - Single-Family	0	4,431	61,436	0	3,039	42,371	15	$28,492	0.17	0.17	0.880
EE	34	81,207	903,961	23	60,715	684,766	245	$92,042	0.76	0.45	0.168
EE and Low Income	34	81,207	903,961	23	60,715	684,766	245	$92,042	0.76	0.45	0.168
C&S, T&D and Electrification								$0			
Utility Total	34	81,207	903,961	23	60,715	684,766	245	$92,042	0.76	0.45	0.168

LOS ANGELES DEPARTMENT OF WATER & POWER

Los Angeles Department of Water & Power at a Glance

- Climate Zones: 6, 8, 9, 16
- Customers: 1,565,276
- Total annual retail sales: 21,310,156 MWh
- Annual Retail Revenue: $6,200,000,000
- Annual EE expenditures for reporting year: $138,776,660
- Gross annual savings from reporting year portfolio (MWh): 145,770 MWh



Los Angeles Department of Water & Power Overview

The Los Angeles Department of Water and Power (LADWP) was established in 1902 to deliver water to the City of Los Angeles. LADWP began providing electric service in 1916. LADWP is the largest municipal utility in the nation, providing reliable energy and water services to 4 million residents and 450,000 businesses (1.5 million customer accounts) in four different climate zones: 6,8,9, and 16. LADWP registered a peak demand of 5,993 MW on September 6, 2022.

Major Program and Portfolio Changes

The Home Energy Improvement Program (HEIP) returned to full operation in September 2022. The Residential Lighting Efficiency Program (RLEP) did not return to normal Direct-to-Door

distribution in FY 23, but customers participating in the Refrigerator Exchange Program are provided two LED bulbs at the time the new refrigerator is delivered.

Due to lingering effects from the COVID-19 pandemic, supply chain, computer chip manufacturing shortages and increased unit costs, LADWP has experienced limited participation with certain LADWP programs.

Program and Portfolio Highlights

Refrigerator Turn in & Recycle Program

To increase customer awareness and participation in the program, LADWP continued to offer the increased incentive of $60 per refrigerator/freezer recycled.

External Studies:

LA100 Completion

LADWP has partnered with The National Renewable Energy Lab (NREL) to develop a technology prioritization process as LADWP ramps up its Emerging Technologies efforts. The study, which was published in May 2021, incorporated many of the tools and methods used in LADWP's 100% Renewable study effort (LA100).[17]

The set of tools and methods allows LADWP to assess potential impacts as they relate to building stock for a given technology. The effort culminated in multiple use cases to empower LADWP to provide more accurate potential studies and develop a pipeline of new technology assessments to determine the appropriate intervention required to get maximum benefits. The study quantified achievable contributions towards goals set by state and local energy policies for the lowest cost.

Commercial, Industrial & Agricultural Programs

Comprehensive Affordable Multifamily Retrofits:

The Los Angeles Department of Water and Power's Comprehensive Affordable Multifamily Retrofits (CAMR) program assists L.A.'s low income, multifamily property owners. CAMR will offer multifamily property owners no-cost property assessments to identify efficiency opportunities to help owners and their residents to save energy and reduce costs. In addition, qualified property owners will receive aid with work scope development and the contractor procurement process.

City Plants:

The City Plants (CP) Program provides free shade trees for residents and property owners in Los Angeles to promote tree planting to improve the city's tree canopy, air quality, stormwater

[17] See https://www.ladwp.com/ladwp/faces/ladwp/aboutus/a-power/a-p-cleanenergyfuture/a-p-renewableenergystudy.

retention, and, importantly, building energy efficiency. This program is operated by the City Plants team under the city's Board of Public Works and supported by LADWP.

Through this partnership, City Plants can provide free shade trees for residents and property owners and information on where to plant the trees for maximum energy efficiency benefits. City Plants currently focuses on delivering trees to residential and commercial customers and planting trees on residential parkways, commercial parkways, and other city property (Res Cooling, Res Shell, Commercial Shell).

C&S:

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 concerning 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 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)

Commercial Direct Install:

The Commercial Direct Install Program is a free direct-install program that targets small, medium, and large business customers in the LADWP service territory. LADWP partners with SoCalGas on this program to offer a tri-resource efficiency program aiming to reduce the use of electricity, water, and natural gas. The CDI program is available to qualifying businesses whose average monthly electrical demand is 250 kW or less. (Non-Res Lighting)

Commercial Lighting Incentive Program:

The Commercial Lighting Incentive Program (CLIP) offers customers incentives to install newly purchased and installed energy-efficient lighting and controls. CLIP currently provides incentives to customers whose monthly electrical use is greater than 200 kilowatts (kW). CLIP's calculated savings approach allows customers to tailor their lighting efficiency upgrades to meet their lighting needs better, attain greater energy savings, and receive higher incentives. (Non-Res Lighting)

Commercial Product Marketplace:

The Commercial Product Marketplace (CPM) offers customers the opportunity to research, locate, and purchase energy efficient products online. Customers have the option of purchasing

qualified products from a third-party retailer and submitting a rebate application or purchasing select products directly through the online marketplace and having the rebate applied as an instant discount at the time of purchase.

Custom Performance Program (CPP):

The Custom Performance Program (CPP) provides cash incentives for energy savings achieved through the implementation and installation of various energy efficiency measures and equipment that meet or exceed Title 24 or industry standards. Measures may include but are not limited to equipment controls, industrial process, retro commissioning, chiller efficiency, and/or other innovative energy savings strategies.

CPP's Custom Express fast tracks smaller, less energy-intensive projects with deemed energy savings projections to help expedite application processing and get customers paid faster, while CPP's Custom Calculated conducts an in-depth energy savings analysis to custom calculate customers' individual efficiency projects' energy savings. By utilizing our customers' existing facility conditions as the baseline, CPP's Custom Calculated maximized our customers' savings potential! (Non-Res Cooling, Non-Res Comprehensive, Non-Res Motors, Non-Res Lighting, Non-Res Refrigeration)

Food Service:

The Food Service Program (FSP) offers incentives to encourage retrofit measures and technologies to reduce energy consumption in supermarkets, liquor stores, convenience stores, restaurants, etc. Rebates are offered for ovens, griddles, steam cookers, holding cabinets, glass and solid door refrigerators/freezers, ice makers, dishwashers and handwrappers. (Non-Res Refrigeration, Non-Res Cooking)

LADWP Facilities:

The LADWP Facilities Upgrade Program strives to improve EE throughout LADWP's facilities through lighting efficiency upgrades. It identifies and assists those LADWP facilities to reduce energy, which results in a reduction in energy consumption and procurement expense for LADWP that would otherwise be borne by LADWP customers. (Non-Residential Lighting)

Los Angeles Unified School District Direct Install:

The Los Angeles Unified School District (LAUSD) DI Program is designed to improve energy and water efficiency throughout LAUSD's facilities through upgrades in electric and water systems. This program provides energy efficiency design assistance, project management experience, and retrofitting installation, utilizing LADWP's Power Construction Maintenance (PCM) and Commercial Direct Install (CDI) program to assist LAUSD facilities reducing energy usage and corresponding utility expenses. (Non-Res Lighting)

Multi-Family Whole Building (MFWB):

The MFWB program offers energy consultation, audit, and incentives for energy-efficient electric, water, and natural gas upgrades to owners of existing multi-family properties. The incentives apply to measures in individual residential units as well as common areas throughout the property, including no- and low-cost measures, modifications to system controls and building automation, operational changes, and potential capital upgrades. MFWB offers efficiency upgrades for both individual residential units and common areas throughout the property.

Savings by Design / Zero by Design:

The Savings By Design (SBD) Program was a California statewide non-residential new construction program, in which LADWP partnered with SoCalGas to offer a uniform, multi-faceted program designed to consistently serve the needs of the commercial building community. SBD encouraged energy-efficient building design and construction practices, promoting the efficient use of energy by offering up-front design assistance, owner incentives, design team incentives, and energy design resources. On January 1, 2021, SBD transitioned to Zero By Design (ZBD) without the SoCalGas partnership.

LADWP ZBD is LADWP's non-residential new construction incentive program. Launched on January 1, 2021, LADWP ZBD replaces the California-statewide SBD program that was held in partnership with SoCalGas. LADWP ZBD encourages energy-efficient building design and construction practices by promoting the efficient use of energy by offering up-front design assistance, owner incentives, design team incentives, and energy design resources. (Non-Res Comprehensive)

Upstream HVAC:

The nonresidential Upstream HVAC Program is a market transformation-oriented program. This program offers incentives to upstream market actors who sell qualifying high-efficiency HVAC equipment. The logic that underscores this program's design is that a small number of upstream market actors can impact thousands of customers and influence their choice of equipment by increasing the stocking and promotion of high-efficiency HVAC equipment.

The upstream model cost-effectively leverages this market structure and existing relationships. The program added additional upstream market actors to expand its coverage of the Los Angeles market. The upstream program is designed to adapt to market changes. Therefore, LADWP will continue working with relevant industry players to enhance the program to include new beyond-code upstream incentives continually. (Commercial Cooling)

Residential Programs

California Advanced Homes:

The California Advanced Home Program (CAHP) is a statewide residential construction incentive program in which LADWP participated through a partnership with the Southern California Gas

Company. CAHP incentivized builders and designers to create environmentally friendly, energy-efficient communities for potential home buyers. CAHP was available to single and multi-family residential new construction projects and helped builders prepare for future code changes by encouraging them to build homes that exceed code, ultimately driving new homes to Zero Net Energy (ZNE). The program partnership ended in December 2019. (Res Comprehensive)

Consumer Rebate Program:

The Consumer Rebate Program (CRP) offers incentives to its residential customers to promote and advance comprehensive energy efficiency measures, including whole-house solutions, plug load efficiency, performance standards, and integration opportunities. 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)

Efficient Product Marketplace:

The Efficient Product Marketplace (EPM) offers customers the opportunity to research, locate, and purchase energy efficient products online. Residential customers can also apply for rebates on qualifying ENERGY STAR® products, including refrigerators, room air conditioners, LED lighting, and televisions. Rebates are also available for Wi-Fi enabled thermostats and advanced power strips. Customers have the option of purchasing qualified products from a third-party retailer and submitting a rebate application or purchasing select products directly through the online marketplace and having the rebate applied as an instant discount at the time of purchase. (Res Cooling, Res Lighting, Res Refrigeration)

Energy Savings Assistance Program:

The Energy Savings Assistance Program (ESAP) is a program that offers, free of charge, energy-efficient electric, water, and natural gas upgrades to income-qualified multi-family (MF) residential customers. ESAP offers efficiency measures for the individual residential units. (Res Comprehensive).

Home Energy Improvement Program:

The Home Energy Improvement Program (HEIP) is a comprehensive direct install whole-house retrofit program that offers residential customers a full suite of free products and services to improve the home's energy and water efficiency by upgrading/retrofitting the home's envelope and core systems. While not limited to low-income customers, in FY 2020-2021, HEIP expanded to serve disadvantaged communities and residential customers by including the multi-family segment. (Res Shell, Res Lighting)

HVAC Optimization Program:

The AC Optimization Program provides services by certified, professional heating, ventilation, and air conditioning (HVAC) technicians to analyze cooling systems and provide basic maintenance to maximize system efficiency. This service is offered to eligible residential and

commercial LADWP customers at no cost. This program also offers a programmable, Wi-Fi enabled thermostat free of charge to residential customers. (Res Cooling)

Refrigerator Exchange / Window AC:

The Refrigerator Exchange Program (REP) 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 as well as Multi-Residential or Non-Profit customers. The program was expanded to include the following entities, multi-family or mobile home communities, civic, community, faith-based organizations, and educational institutions. This Program leverages a 3rd Party Contractor, ARCA (Appliance Recycling Centers of America), to administer the program's delivery and provide new, energy-saving ENERGY STAR® rated refrigerators for this customer segment to replace qualifying older, inefficient, but operational models. Additionally, customers can pair the REP with the Window Air Conditioner Recycling Program, which offers a $25 rebate to residential customers to turn in their old window air conditioners. Eligible units must be fully operational and satisfy certain age and size requirements. (Res Refrigeration)

Refrigerator Turn-In & Recycle:

The Refrigerator Turn-in and Recycle Program offers a $60 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 program's delivery. (Res Refrigeration)

Residential Lighting Efficiency Program:

The Residential Lighting Efficiency Program (RLEP) provides light-emitting diode (LED) lamps to customers to reduce their home electrical use. The primary channel for distributing the LED lamps is by way of Direct-to-Door to residential customers within LADWP's service territory. Lamps are also distributed at community events and by community-based organizations. Alternative and additional distribution campaigns continue to be evaluated. (Res Lighting)

Complementary Programs

Low-Income Programs:

Refrigerator Exchange Program, Home Energy Improvement Program, Energy Savings Assistance Program and Commercial DI Program are key programs offered to the community, small business customers, hard to reach customers, low-income customers, and multi-unit dwellings.

Emerging Technologies Program:

The LADWP Emerging Technologies Program (ETP) 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 and institutional barriers, this program's ultimate goal is to increase the probability that promising energy and water efficiency technologies will be commercialized and adopted throughout Los Angeles.

As a non-resource program for LADWP and focused on promoting the development and implementation of new technologies in the LADWP community, ETP provides energy and water savings that are ultimately captured in LADWP's resource programs. In this way, ETP plays a vital role in positioning LADWP as a state and national leader in energy and water efficiency.

Green Power for a Green L.A. Program:

The Green Power for a Green L.A. program gives Los Angeles residents, businesses, and governmental agencies a stake in preserving and protecting our environment through their voluntary contribution to support additional renewable energy. Customers who sign up for Green Power choose to have all, or a portion, of their electricity needs generated from renewable energy sources.

Program Outreach & Community Partnerships Program

The Program Outreach & Community Partnerships Program is an advocacy program that strives to improve customer awareness among LADWP's "hard-to-reach" customers of electric efficiency and water conservation programs through community-based activities organizations. This program offers grants to local non-profit organizations that are awarded through a competitive selection process to work in one of the fifteen Los Angeles City Council Districts, or, on an at-large basis, to improve community and customer awareness of LADWP's core energy efficiency and water conservation programs and free services customers can take to reduce energy and water use. The program has expanded to focus on other topics such as financial assistance, community solar, water quality, and electric vehicles.

RD&D:

LADWP is involved in various internal energy storage studies and projects using various technologies and use cases, including lithium-ion, flow batteries, compressed air, thermal energy storage at levels of the power system, including generation, transmission, distribution, and behind the meter. Some of these studies are performed in collaboration with EPRI.

EV Charger Rebate Program:

LADWP introduced the EV Charger Rebate Program, "Charge Up L.A.!" to encourage the installation of convenient EV charging stations at residential and commercial locations to support the purchase and use of EVs. This program benefits the environment and helps EV users save on fuel costs at the same time. The rebate is offered to qualifying commercial customers who purchase and install Level 2 (240-volt) chargers at their business place. Customers who choose to install an optional dedicated TOU meter will qualify for the LADWP's

EV discount of 2.5 cents per kWh. This dedicated service will add additional cost to the installation process but will yield lower electricity costs for off-peak charging.

EM&V Studies

The total not-to-exceed budget for the round of EM&V over the 3-year contract period is $4,895,135, which is equivalent to approximately 1% of the total portfolio budget annually.

This evaluation will review past impact savings from FY 16 thru FY 20 while simultaneously reviewing impact savings as it occurs (concurrently), from FY 21 thru FY 23. The process evaluation portion of the scope will only review the concurrent period. The new round of LADWP EM&V activities started the third quarter of 2020 to capture impact evaluation for retrospective years. Both impact and process evaluation will be evaluated for concurrent years.

Like prior years, the current round of EM&V contract will also have a contract term duration of 3 years. With comparable budgets as proportioned to the portfolio savings.

LADWP has opted to evaluate its programs and activities from a holistic standpoint, emphasizing the effects of energy efficiency programs. Beyond the core impact and process evaluation findings, the new EM&V efforts will build upon the preliminary Market Transformation (MT) evaluation plan reported in prior years. One of the MT evaluation results will be to quantify the incremental energy savings potential due to market intervention introduced by the City of Los Angeles and a plan to track market indicators to re-calibrate early projections moving forward.

Retrospective (2015-2020) Impact Evaluation Scope results and reports were delivered June 2021. With comprehensive concurrent (2020-2023) final results and report provided by December of 2023.

LADWP will publish all past and future reports on the LADWP atwww.ladwp.com/reports.

Major Differences or Diversions from California POU TRM for Energy Savings

Sources of energy savings include custom engineering calculations using building simulation modeling software such as EnergyPro and eQuest, Openstudio/Energyplus, and simple engineering calculations in spreadsheet format. LADWP's Custom Performance Program and Commercial Lighting incentive Programs apply these methods, respectively. For direct install and residential programs, deemed savings supported by a combination of the latest Technical Reference Manual and utility workpapers are used. Examples of programs using this approach include the Commercial Direct Install, Consumer Rebate Program, the Food Service Program, Refrigerator Exchange, and Refrigerator Recycling Programs.

LADWP is currently transitioning towards leveraging the CalTF eTRM for its deemed savings references. Moving forward, all new additions and updates will be referring to the eTRM as the primary source.

For the current FY 23 SB 1037 portfolio submission, all gross savings claims are Ex-Post EM&V verified and adjusted. Details of EM&V results, methodologies and overall findings can be found in the latest EM&V report as referenced in the EM&V studies section above.

TABLE LADWP-1. EE Program Results by End Use

Summary by End Use	Resource Savings Summary								Cost Test Results		
End Use	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Appliance & Plug Loads	196	1,259,836	7,174,963	196	1,259,836	7,174,963	365	$749,648	0.68	0.72	0.118
Building Envelope	3,742	7,960,610	155,587,200	3,742	7,960,610	155,587,200	6,352	$7,468,015	3.83	4.30	0.070
Commercial Refrigeration	281	2,113,411	42,293,558	281	2,113,411	42,293,558	1,550	$858,539	3.30	2.10	0.030
Food Service	8	56,290	674,647	8	56,290	674,647	23	$81,396	0.59	0.18	0.152
HVAC - Cooling	9,685	30,630,102	290,922,105	9,685	30,630,102	290,922,105	11,715	$31,244,744	1.21	0.94	0.133
HVAC - Heating	0	-873,131	-13,096,968	0	-873,131	-13,096,968	-567	($151,725)	2.51	1.99	0.015
Lighting - Indoor	10,236	66,495,272	466,104,337	10,236	66,495,272	466,104,337	22,417	$61,153,810	0.55	1.31	0.151
Lighting - Outdoor	477	9,561,376	65,810,118	477	9,561,376	65,810,118	4,697	$5,758,137	0.51	1.32	0.100
Miscellaneous	0	0	0	0	0	0	0	$2,695,019			0.000
Process	630	3,057,219	39,432,409	630	3,057,219	39,432,409	1,434	$1,509,566	2.41	0.25	0.049
Service & Domestic Hot Water	-51	-450,939	-7,037,823	-51	-450,939	-7,037,823	-249	$517,086	-0.81	-0.70	-0.097
Water Pumping / Irrigation	3,727	23,971,147	349,063,878	3,727	23,971,147	349,063,878	12,861	$2,314,620	11.06	14.32	0.009
Whole Building	21	137,242	1,372,420	21	137,242	1,372,420	65	$66,785	1.52	1.52	0.059
EE	28,952	143,918,434	1,398,300,845	28,952	143,918,434	1,398,300,845	60,663	$114,265,640	1.18	1.40	0.102
Appliance & Plug Loads	261	1,680,724	23,530,133	261	1,680,724	23,530,133	921	$2,052,039	0.84	2.35	0.114
Building Envelope	1	1,621	32,422	1	1,621	32,422	1	$22,345	0.35	0.36	1.014
HVAC - Cooling	0	182	2,723	0	182	2,723	0	$838	0.59	0.67	0.411
Lighting - Indoor	6	49,135	737,028	6	49,135	737,028	31	$6,324	7.47	50.31	0.011
Water Pumping / Irrigation	2	10,669	106,689	2	10,669	106,689	4	$11,756	0.68	0.89	0.133
Low-Income	271	1,742,330	24,408,995	271	1,742,330	24,408,995	956	$2,093,300	0.85	2.33	0.112
EE and Low Income	29,222	145,660,765	1,422,709,840	29,222	145,660,765	1,422,709,840	61,619	$116,358,941	1.17	1.41	0.102
Appliance & Plug Loads	0	16	256	0	16	256	0	($350)	-0.06	-0.06	-1.865
HVAC - Heat Pump	40	109,555	636,697	40	109,555	636,697	35	$1,170,244	0.09	1.05	2.084
Electrification	40	109,571	636,953	40	109,571	636,953	35	$1,169,893	0.09	1.06	2.082
Any	239	1,819,619	23,211,360	239	1,819,619	23,211,360	894	$10,146	149.28	149.28	0.001
Appliance & Plug Loads	5,248	34,378,278	515,674,168	5,248	34,378,278	515,674,168	21,761	$263,144	149.28	149.28	0.001
Building Envelope	2,058	6,743,554	101,153,312	2,058	6,743,554	101,153,312	3,309	$87,865	149.28	149.28	0.001
Commercial Refrigeration	585	4,999,220	74,988,306	585	4,999,220	74,988,306	2,867	$31,237	149.28	149.28	0.001
Food Service	2	13,740	206,107	2	13,740	206,107	8	$89	149.28	149.28	0.001
HVAC - Cooling	6,406	28,094,857	421,422,852	6,406	28,094,857	421,422,852	13,824	$327,266	149.28	149.28	0.001
Lighting - Indoor	9,845	66,706,992	1,000,604,873	9,845	66,706,992	1,000,604,873	35,784	$477,539	149.28	149.28	0.001
Miscellaneous	258	1,830,221	27,453,310	258	1,830,221	27,453,310	977	$19,651,639	0.09	0.09	0.957
Process	6	42,893	643,391	6	42,893	643,391	23	$284	149.28	149.28	0.001

Service & Domestic Hot Water	200	4,214,822	63,222,325	200	4,214,822	63,222,325	2,533	$18,567	149.28	149.28	0.000
Whole Building	8,056	50,802,695	762,040,432	8,056	50,802,695	762,040,432	28,633	$380,049	149.28	149.28	0.001
Codes & Standards	32,903	199,646,891	2,990,620,437	32,903	199,646,891	2,990,620,437	110,611	$21,247,826	11.30	11.30	0.009
C&S, T&D and Electrification	32,943	199,756,462	2,991,257,390	32,943	199,756,462	2,991,257,390	110,646	$22,417,719	10.71	11.25	0.010
Utility Total	62,165	345,417,227	4,413,967,230	62,165	345,417,227	4,413,967,230	172,265	$138,776,660	2.72	3.18	0.041

TABLE LADWP-2. EE Program Results by Sector

Summary by Sector	Resource Savings Summary								Cost Test Results		
Sector	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Any	3,417	21,837,477	327,562,155	3,417	21,837,477	327,562,155	12,067	$4,510	5,316.64	5,316.64	0.000
Commercial	15,148	94,333,603	773,676,380	15,148	94,333,603	773,676,380	35,067	$70,569,811	0.92	0.99	0.109
Residential	10,387	27,747,354	297,062,310	10,387	27,747,354	297,062,310	13,528	$43,691,320	1.05	1.49	0.193
EE	28,952	143,918,434	1,398,300,845	28,952	143,918,434	1,398,300,845	60,663	$114,265,640	1.18	1.40	0.102
Residential	271	1,742,330	24,408,995	271	1,742,330	24,408,995	956	$2,093,300	0.85	2.33	0.112
Low-Income	271	1,742,330	24,408,995	271	1,742,330	24,408,995	956	$2,093,300	0.85	2.33	0.112
EE and Low Income	29,222	145,660,765	1,422,709,840	29,222	145,660,765	1,422,709,840	61,619	$116,358,941	1.17	1.41	0.102
Commercial	0	437	2,185	0	437	2,185	0	$3,336	0.12	1.05	1.664
Residential	40	109,134	634,768	40	109,134	634,768	35	$1,166,558	0.09	1.06	2.084
Electrification	40	109,571	636,953	40	109,571	636,953	35	$1,169,893	0.09	1.06	2.082
Any	239	1,819,619	23,211,360	239	1,819,619	23,211,360	894	$10,146	149.28	149.28	0.001
Commercial	23,007	142,439,494	2,136,592,410	23,007	142,439,494	2,136,592,410	74,101	$8,335,160	20.36	20.36	0.005
Industrial	224	1,577,456	23,661,847	224	1,577,456	23,661,847	839	$10,574	149.28	149.28	0.001
Residential	9,432	53,810,321	807,154,821	9,432	53,810,321	807,154,821	34,778	$12,891,946	5.22	5.22	0.021
Codes & Standards	32,903	199,646,891	2,990,620,437	32,903	199,646,891	2,990,620,437	110,611	$21,247,826	11.30	11.30	0.009
C&S, T&D and Electrification	32,943	199,756,462	2,991,257,390	32,943	199,756,462	2,991,257,390	110,646	$22,417,719	10.71	11.25	0.010
Utility Total	62,165	345,417,227	4,413,967,230	62,165	345,417,227	4,413,967,230	172,265	$138,776,660	2.72	3.18	0.041

TABLE LADWP-3. EE Program Results by Building Type

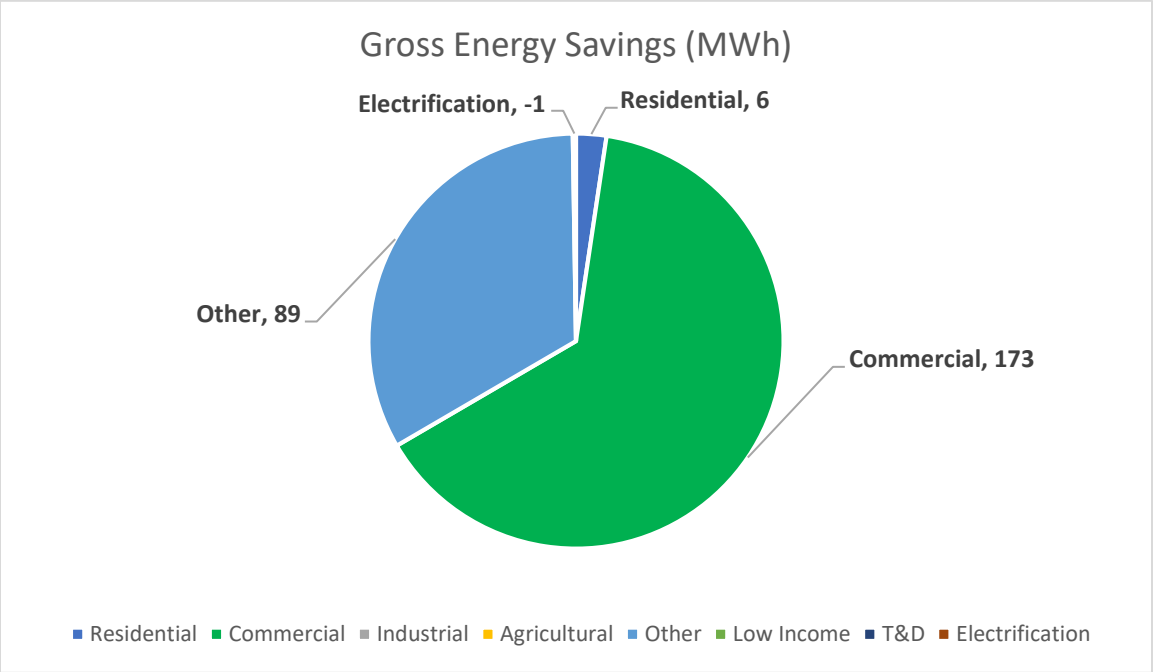
Summary by Building Type	Resource Savings Summary								Cost Test Results		
Building Type	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Any	6,691	29,353,555	476,035,129	6,691	29,353,555	476,035,129	18,169	$4,467,509	11.29	31.46	0.013
Assembly	276	4,141,490	29,686,965	276	4,141,490	29,686,965	1,976	$1,790,104	0.92	1.74	0.070
Education - Community College	38	200,422	2,859,666	38	200,422	2,859,666	102	$61,449	3.96	5.45	0.029
Education - Primary School	836	3,899,730	51,454,479	836	3,899,730	51,454,479	1,773	$12,003,557	0.36	0.68	0.301
Education - Secondary School	904	3,819,683	28,497,056	904	3,819,683	28,497,056	1,127	$2,219,053	1.23	1.00	0.091
Education - University	1,167	6,121,348	50,439,680	1,167	6,121,348	50,439,680	2,372	$3,082,453	1.32	1.57	0.073
Grocery	317	2,398,244	45,002,347	317	2,398,244	45,002,347	1,621	$995,626	3.34	2.50	0.032
Health/Medical - Hospital	2,137	14,470,754	92,845,303	2,137	14,470,754	92,845,303	4,787	$11,015,332	0.63	2.20	0.134
Health/Medical - Nursing Home	24	85,679	1,137,230	24	85,679	1,137,230	42	$38,157	3.08	0.15	0.043
Lodging - Hotel	281	1,399,812	10,731,607	281	1,399,812	10,731,607	491	$1,022,846	0.99	2.48	0.112
Lodging - Motel	1,390	9,701,886	57,926,505	1,390	9,701,886	57,926,505	3,059	$7,964,443	0.51	1.82	0.153
Manufacturing Biotech	217	1,108,877	13,258,777	217	1,108,877	13,258,777	461	$402,522	3.53	0.90	0.038
Manufacturing Light Industrial	3	11,557	178,762	3	11,557	178,762	6	$2,635	7.08	7.08	0.020
Office - Large	2,449	15,245,624	125,844,881	2,449	15,245,624	125,844,881	5,587	$7,938,948	1.40	0.47	0.075
Office - Small	261	1,516,567	16,451,075	261	1,516,567	16,451,075	643	$906,983	1.78	3.48	0.070
Other Commercial	2,768	16,749,024	143,910,833	2,768	16,749,024	143,910,833	5,948	$11,378,509	1.16	0.87	0.095
Other Industrial	320	4,470,288	29,673,885	320	4,470,288	29,673,885	2,046	$2,062,748	0.72	1.42	0.078
Residential	0	0	0	0	0	0	0	$2,320			0.000
Residential - Mobile Home	33	73,721	368,606	33	73,721	368,606	22	$99,670	0.66	1.04	0.295
Residential - Multi-Family	4,225	11,938,353	70,009,364	4,225	11,938,353	70,009,364	3,947	$21,809,971	0.44	0.77	0.352
Residential - Single-Family	3,091	9,791,563	93,152,407	3,091	9,791,563	93,152,407	4,170	$20,081,494	0.55	0.64	0.267
Restaurant - Fast-Food	815	4,538,253	27,354,312	815	4,538,253	27,354,312	1,326	$3,290,736	0.66	1.83	0.134
Restaurant - Sit-Down	16	80,015	653,706	16	80,015	653,706	26	$69,455	0.96	1.85	0.128
Retail - Large	318	1,094,371	14,375,862	318	1,094,371	14,375,862	410	$692,991	3.00	3.71	0.062
Retail - Small	86	439,676	3,363,235	86	439,676	3,363,235	135	$267,282	1.39	3.05	0.094
Storage - Conditioned	168	750,335	9,261,863	168	750,335	9,261,863	264	$281,382	4.41	5.41	0.040
Storage - Unconditioned	49	389,197	2,325,501	49	389,197	2,325,501	115	$250,598	0.60	1.82	0.120
Warehouse - Refrigerated	72	128,408	1,501,810	72	128,408	1,501,810	37	$66,867	4.29	3.82	0.056
EE	28,952	143,918,434	1,398,300,845	28,952	143,918,434	1,398,300,845	60,663	$114,265,640	1.18	1.40	0.102
Any	6	49,135	737,028	6	49,135	737,028	31	$6,324	7.47	50.31	0.011
Residential - Multi-Family	141	907,487	12,705,256	141	907,487	12,705,256	497	$1,114,738	0.84	2.34	0.115
Residential - Single-Family	123	785,709	10,966,710	123	785,709	10,966,710	429	$972,239	0.83	2.20	0.116
Low-Income	271	1,742,330	24,408,995	271	1,742,330	24,408,995	956	$2,093,300	0.85	2.33	0.112
EE and Low Income	29,222	145,660,765	1,422,709,840	29,222	145,660,765	1,422,709,840	61,619	$116,358,941	1.17	1.41	0.102

Other Commercial	0	437	2,185	0	437	2,185	0	$3,336	0.12	1.05	1.664
Residential - Mobile Home	0	239	1,193	0	239	1,193	0	$3,156	0.06	1.03	2.883
Residential - Multi-Family	2	9,444	53,324	2	9,444	53,324	3	$78,191	0.06	1.02	1.651
Residential - Single-Family	38	99,452	580,251	38	99,452	580,251	32	$1,085,211	0.09	1.06	2.122
Electrification	40	109,571	636,953	40	109,571	636,953	35	$1,169,893	0.09	1.06	2.082
Any	32,903	199,646,891	2,990,620,437	32,903	199,646,891	2,990,620,437	110,611	$1,608,304	149.28	149.28	0.001
Other Commercial	0	0	0	0	0	0	0	$7,198,272			0.000
Residential	0	0	0	0	0	0	0	$12,441,251			0.000
Codes & Standards	32,903	199,646,891	2,990,620,437	32,903	199,646,891	2,990,620,437	110,611	$21,247,826	11.30	11.30	0.009
C&S, T&D and Electrification	32,943	199,756,462	2,991,257,390	32,943	199,756,462	2,991,257,390	110,646	$22,417,719	10.71	11.25	0.010
Utility Total	62,165	345,417,227	4,413,967,230	62,165	345,417,227	4,413,967,230	172,265	$138,776,660	2.72	3.18	0.041

MERCED IRRIGATION DISTRICT

Merced Irrigation District at a Glance

- Climate Zone: 13
- Customers: 12,816
- Total annual retail sales: 503,809 MWh
- Annual Retail Revenue: $96,771,985
- Annual EE expenditures for reporting year: $226,620
- Gross annual savings from reporting year portfolio: 268 MWh



Merced Overview

For more than 75 years, the Merced Irrigation District (MeID) has been in the business of generating wholesale electrical power. MeID provides electric services to thousands of customers in Eastern Merced County including the cities of Livingston, Winton, Atwater, and Merced as well as Castle Airport and Aviation Development Center.

A large percentage of our EE savings have traditionally come from our large industrial customers. Those customers only make up approximately 15% of our customer base. We differ from other utilities in that almost all our residential customer base is made up of relatively new construction.

Major Program and Portfolio Changes

Over the preceding year, our team has made considerable advancements in the augmentation of both residential and custom rebates. In the area of residential rebates, we have identified and implemented a variety of measures, ensuring an alignment of incentives with the energy savings potential inherent in appliances and equipment. This effort involved an adjustment of incentive values to reflect the impact of energy-efficient choices more accurately. Transitioning to custom commercial and industrial rebates, MeID initially instituted a rate of $0.07 per kWh reduced in 2022, devoid of any incentives for demand reduction. Subsequently, in 2023, we underwent a substantial transformation in the methodology for calculating incentives related to energy and demand reduction. The incentives now exhibit a range from $0.10 per kWh to $500 per KW, contingent upon the end-use framework.

In the current year, we introduced rebates tailored specifically for our commercial and industrial clienteles. Recognizing that the modification of these programs is merely one facet of the overall strategy, we are actively engaged in communicating these initiatives to our customers. Our emphasis extends beyond mere awareness; we are committed to fostering active participation in our energy savings programs.

Program and Portfolio Highlights

Turning our attention to the highlights of our programs and portfolio, after an extended period without new additions, MeID has more than doubled the number of residential rebates, expanding from six to an impressive total of fourteen EE rebates in 2023. Concurrently, we have undertaken a comprehensive overhaul of the program's visual identity, introducing a fresh and user-friendly application format for the first time in over a decade. These changes emphasize our dedication not only to staying abreast of industry standards but also to ensuring a more robust and accessible EE experience for our valued customers.

Commercial, Industrial & Agricultural Programs

In the domain of commercial, industrial, and agricultural programs, the Customized/Industrial Retrofit Program allows qualifying customers to seek financial incentives for more specialized and comprehensive energy-saving measures that fall outside the scope of the Commercial Lighting Program. Each application for this program is evaluated and approved on an individual basis. Financial incentives for qualifying customer projects are disbursed based on annual kWh savings within a one-year period or demand savings on completed and approved projects—whichever is greater, be it kWh reduced, or kW reduced if a demand component applies.

Residential Programs

Within the residential programs, in addition to the substantial increase in the number of rebates offered in 2023, we have introduced various measures aligned with the eTRM (Energy Technology Reference Manual) for our residential customers. Furthermore, we are planning the inclusion of additional incentives specifically tailored for our low-income customers.

Complementary Programs

Complementing these initiatives, Merced Irrigation District's Residential EAP (CARE) has been providing discounts on energy bills for income-qualifying low-income families since the year 2000. The Medical Baseline Program, an integral part of this assistance framework, offers an additional 500 kWhs to a customer's base energy quantity on their monthly bill if they have a qualifying medical condition. These programs stand as pillars of our commitment to the well-being and energy affordability of our diverse customer base.

EM&V Studies

Merced Irrigation District partnered with Modesto and Turlock into one evaluation effort for EM&V that was conducted by Anchor Blue. The three Irrigation Districts of Modesto, Turlock, and Merced (MTM) are all located in California's Central Valley near one another.

Major Differences or Diversions from California POU TRM for Energy Savings

TABLE MeID-1. EE Program Results by End Use

Summary by End Use	Resource Savings Summary								Cost Test Results		
End Use	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Any	7	89,267	1,339,565	4	56,257	843,852	311	$104,837	0.91	0.95	0.166
Appliance & Plug Loads	4	6,238	85,566	2	3,744	50,685	17	$17,398	0.29	0.49	0.448
Lighting - Indoor	0	172,716	1,727,160	0	103,630	1,036,296	317	$102,036	0.85	0.92	0.119
EE	11	268,221	3,152,291	7	163,630	1,930,833	645	$224,271	0.83	0.92	0.147
EE and Low Income	11	268,221	3,152,291	7	163,630	1,930,833	645	$224,271	0.83	0.92	0.147
HVAC - Heat Pump	0	-670	-10,050	0	-670	-10,050	19	$2,349	0.65	0.21	-0.312
Electrification	0	-670	-10,050	0	-670	-10,050	19	$2,349	0.65	0.21	-0.312
C&S, T&D and Electrification	0	-670	-10,050	0	-670	-10,050	19	$2,349	0.65	0.21	-0.312
Utility Total	11	267,551	3,142,241	7	162,960	1,920,783	664	$226,620	0.83	0.89	0.149

TABLE MeID-2. EE Program Results by Sector

Summary by Sector	Resource Savings Summary								Cost Test Results		
Sector	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Any	7	89,155	1,337,325	4	56,257	843,852	311	$104,562	0.91	0.95	0.166
Commercial	0	172,716	1,727,160	0	103,630	1,036,296	317	$102,036	0.85	0.92	0.119
Residential	4	6,350	87,806	2	3,744	50,685	17	$17,673	0.28	0.49	0.455
EE	11	268,221	3,152,291	7	163,630	1,930,833	645	$224,271	0.83	0.92	0.147
EE and Low Income	11	268,221	3,152,291	7	163,630	1,930,833	645	$224,271	0.83	0.92	0.147
Residential	0	-670	-10,050	0	-670	-10,050	19	$2,349	0.65	0.21	-0.312
Electrification	0	-670	-10,050	0	-670	-10,050	19	$2,349	0.65	0.21	-0.312
C&S, T&D and Electrification	0	-670	-10,050	0	-670	-10,050	19	$2,349	0.65	0.21	-0.312
Utility Total	11	267,551	3,142,241	7	162,960	1,920,783	664	$226,620	0.83	0.89	0.149

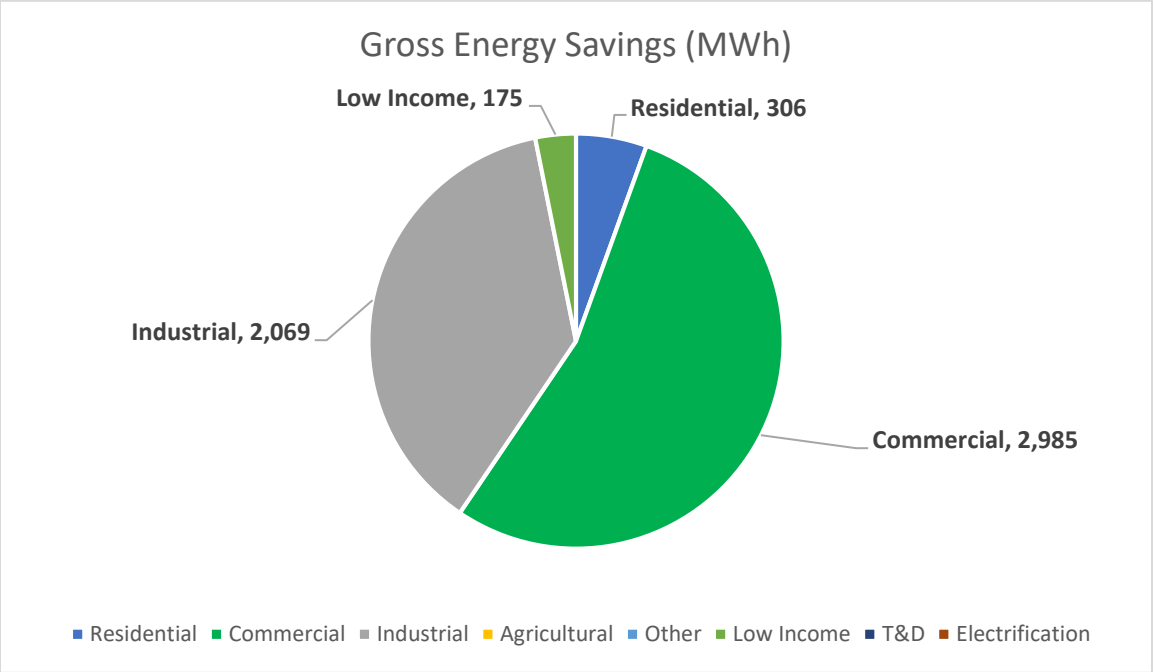
TABLE MeID-3. EE Program Results by Building Type

Summary by Building Type	Resource Savings Summary								Cost Test Results		
Building Type	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Any	7	262,396	3,069,261	4	160,411	1,884,924	630	$207,377	0.88	0.94	0.139
Residential - Single-Family	4	5,825	83,031	2	3,219	45,909	15	$16,894	0.26	0.46	0.486
EE	11	268,221	3,152,291	7	163,630	1,930,833	645	$224,271	0.83	0.92	0.147
EE and Low Income	11	268,221	3,152,291	7	163,630	1,930,833	645	$224,271	0.83	0.92	0.147
Multiple	0	-670	-10,050	0	-670	-10,050	19	$2,349	0.65	0.21	-0.312
Electrification	0	-670	-10,050	0	-670	-10,050	19	$2,349	0.65	0.21	-0.312
C&S, T&D and Electrification	0	-670	-10,050	0	-670	-10,050	19	$2,349	0.65	0.21	-0.312
Utility Total	11	267,551	3,142,241	7	162,960	1,920,783	664	$226,620	0.83	0.89	0.149

MODESTO IRRIGATION DISTRICT

Modesto Irrigation District at a Glance

- Climate Zone: 12
- Customers: 132,803
- Total annual retail sales: 2,583,074 MWh
- Annual Retail Revenue: $395,102,689
- Annual EE expenditures for reporting year: $1,602,972
- Gross annual savings from reporting year portfolio: 5,535 MWh



Modesto Overview

The Modesto Irrigation District (MID) was formed in 1887 to provide irrigation water within a service area of over 100,000 acres. MID began providing electric service in 1923 within an original service area of 160 square miles, which was expanded by 7.5 square miles in 2001. Since 1996, MID has also provided non-exclusive electric service in an adjacent 400 square mile area. In 1994, MID began providing treated domestic water to the City of Modesto on a wholesale basis.

MID's 2023 annual retail electric sales by customer class are: 36.2% residential, 26.5% commercial, 32.5% industrial, 4.5% agricultural and pumping, 0.4% other. For 2023 load growth was -1.9% (based on Total System Input GWH).

MID has robust EE program offerings, but savings can fluctuate year to year independent of changes to the programs or to the economic outlook. A key contributor is multi-year construction cycles for EE projects of large industrial customers. Typically, when lower energy savings are reported in the current year, we anticipate a surge in the following year as projects complete.

Major Program and Portfolio Changes

MID did not have any changes for 2023.

Program and Portfolio Highlights

MID continued to promote low to moderate income EE programs by providing staff presentations on EE to non-profit agencies and low-income advocacy groups in our area in 2023. Social media promotions have improved customer awareness of MID programs.

Commercial, Industrial & Agricultural Programs

Programs offered are Business, Business Custom and Business New Construction. See MID website (www.mid.org) for program details.

Residential Programs

MID offers a variety of residential rebates. See MID website (www.mid.org) for program details.

Complementary Programs

- Energy Audits – MID energy specialists provide free virtual and on-site energy audits that include usage analysis, identification, and recommendation of energy conservation measures to reduce load and improve EE.
- CARES Program – Income qualifying households will receive a 60 percent reduction on their fixed monthly charge and a 23 percent discount on the first 850 kWhs each billing cycle. The MID CARES discount is also applicable to group residences where low-income people are accommodated without a rental charge by a non-profit agency.
- Medical Life Support Rate – Customers who need electricity for life-sustaining devices or who have a condition that requires special heating or AC may qualify for 50 percent off the first 500 kWhs used during each residential billing cycle.
- Weatherization – Our Weatherization program provides energy efficient measures to income qualified households to help reduce their energy consumption. Energy savings from the weatherization program are included in the results for the SB1037 report. However, MID continues to facilitate new partnerships with other organizations and agencies to increase its outreach and provide additional weatherization services to low-income customers.
- Good Neighbor Program – Each month, many MID customers seek emergency assistance to help pay their electric bills. With MID's Good Neighbor Program, customers

can donate money to a designated fund for MID customers that seek assistance. MID works with the Salvation Army to ensure that 100% of the donations go only to those MID customers who are experiencing hardships.

EM&V Studies

MID continued its ongoing efforts to obtain independent, third-party review of its EE programs, which is employed as part of the review and approval process for selected projects as well as after the fact for the overall portfolio.

Anchor Blue Consulting conducted M&V on the 2022 EE portfolio. A review of the 2023 portfolio will be done in 2024.

MID's annual budget for EM&V work is $75,000 and completed studies can be found at: https://www.cmua.org/emv-reports.

Major Differences or Diversions from California POU TRM for Energy Savings

None.

TABLE MID-1. EE Program Results by End Use

Summary by End Use	Resource Savings Summary								Cost Test Results		
End Use	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Any	20	728,739	10,931,080	16	582,991	8,744,864	2,983	$163,830	6.50	4.38	0.025
Appliance & Plug Loads	9	175,043	1,710,125	6	109,377	1,067,519	329	$50,100	2.49	1.60	0.057
Building Envelope	60	50,570	903,661	35	28,245	507,247	237	$42,654	3.89	0.95	0.121
HVAC - Cooling	43	78,824	1,135,500	29	46,576	684,469	409	$139,578	1.34	0.58	0.277
Lighting - Indoor	420	3,860,291	57,904,351	336	3,088,233	46,323,481	15,738	$823,442	7.32	2.18	0.024
Lighting - Outdoor	0	464,610	6,969,147	0	371,688	5,575,318	2,073	$95,850	7.17	2.23	0.023
Service & Domestic Hot Water	0	1,780	17,800	0	1,780	17,800	6	$709	3.45	2.77	0.048
EE	553	5,359,856	79,571,664	422	4,228,891	62,920,698	21,775	$1,316,162	6.28	2.12	0.028
Appliance & Plug Loads	4	26,031	364,440	4	26,031	364,440	131	$64,136	0.79	0.79	0.231
Building Envelope	5	14,676	160,236	5	14,676	160,236	53	$42,937	0.65	0.65	0.331
HVAC - Cooling	5	32,707	167,299	5	32,707	167,299	85	$52,974	0.71	0.71	0.347
Lighting - Indoor	11	81,452	1,303,237	11	81,452	1,303,237	485	$105,493	1.85	1.85	0.110
Miscellaneous	0	12,822	186,414	0	12,822	186,414	67	$18,208	1.28	1.28	0.130
Service & Domestic Hot Water	1	7,154	71,540	1	7,154	71,540	25	$3,060	3.21	3.21	0.052
Low-Income	26	174,842	2,253,165	26	174,842	2,253,165	846	$286,809	1.20	1.20	0.167
EE and Low Income	580	5,534,699	81,824,829	449	4,403,733	65,173,863	22,621	$1,602,972	5.37	2.06	0.033
C&S, T&D and Electrification								$0			
Utility Total	580	5,534,699	81,824,829	449	4,403,733	65,173,863	22,621	$1,602,972	5.37	2.06	0.033

TABLE MID-2. EE Program Results by Sector

Summary by Sector	Resource Savings Summary								Cost Test Results		
Sector	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Commercial	178	2,985,458	44,779,328	143	2,388,429	35,824,156	12,227	$636,602	7.04	2.54	0.024
Industrial	262	2,068,812	31,032,180	210	1,655,050	24,825,744	8,576	$446,953	7.39	2.13	0.024
Residential	113	305,586	3,760,156	70	185,412	2,270,798	972	$232,608	2.05	0.83	0.133
EE	553	5,359,856	79,571,664	422	4,228,891	62,920,698	21,775	$1,316,162	6.28	2.12	0.028
Residential	26	174,842	2,253,165	26	174,842	2,253,165	846	$286,809	1.20	1.20	0.167
Low-Income	26	174,842	2,253,165	26	174,842	2,253,165	846	$286,809	1.20	1.20	0.167
EE and Low Income	580	5,534,699	81,824,829	449	4,403,733	65,173,863	22,621	$1,602,972	5.37	2.06	0.033
C&S, T&D and Electrification								$0			
Utility Total	580	5,534,699	81,824,829	449	4,403,733	65,173,863	22,621	$1,602,972	5.37	2.06	0.033

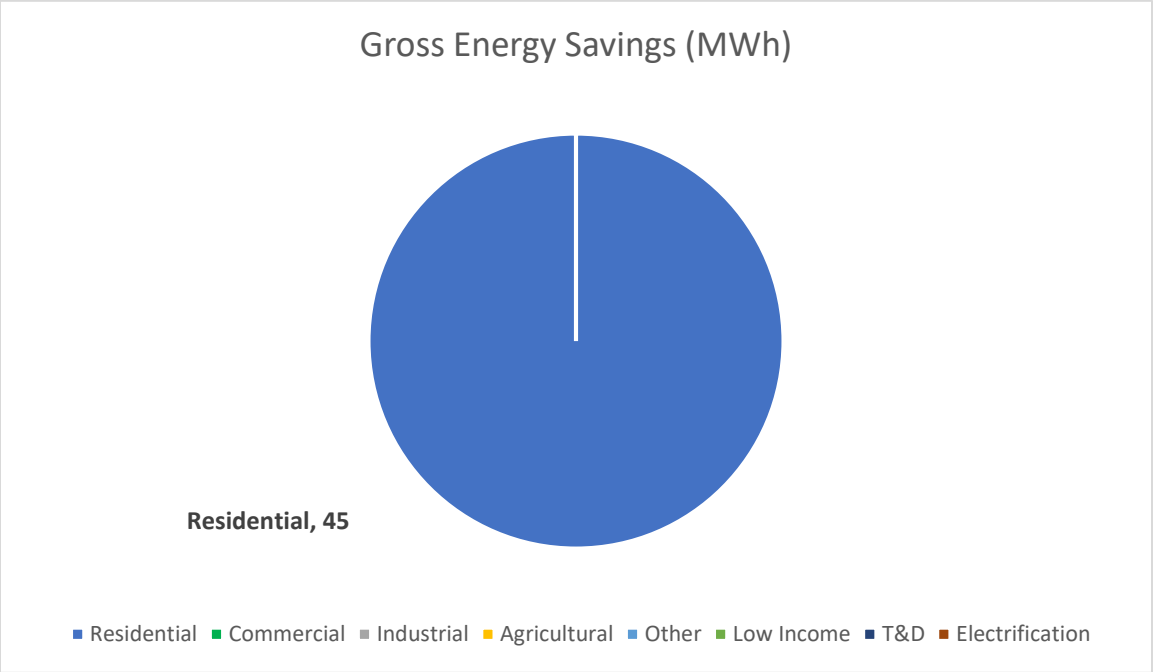
TABLE MID-3. EE Program Results by Building Type

Summary by Building Type	Resource Savings Summary								Cost Test Results		
Building Type	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Any	422	4,336,119	64,932,021	338	3,467,899	51,941,150	17,834	$926,322	7.26	2.19	0.024
Manufacturing Light Industrial	20	728,739	10,931,080	16	582,991	8,744,864	2,983	$163,830	6.50	4.38	0.025
Multiple	0	30,450	277,005	0	16,138	146,813	148	$17,067	1.76	1.41	0.138
Residential	36	57,769	933,497	23	38,532	603,944	272	$123,110	1.20	0.51	0.279
Residential - Multi-Family	1	641	12,819	1	353	7,050	2	$1,011	2.07	0.38	0.211
Residential - Single-Family	74	206,139	2,485,242	45	122,977	1,476,877	537	$84,823	3.45	1.15	0.074
EE	553	5,359,856	79,571,664	422	4,228,891	62,920,698	21,775	$1,316,162	6.28	2.12	0.028
Multiple	2	12,416	135,758	2	12,416	135,758	39	$18,468	0.94	0.94	0.168
Residential	16	126,237	1,651,706	16	126,237	1,651,706	635	$178,815	1.43	1.43	0.144
Residential - Multi-Family	3	21,048	276,929	3	21,048	276,929	100	$44,311	0.88	0.88	0.207
Residential - Single-Family	5	15,142	188,773	5	15,142	188,773	72	$45,216	0.71	0.71	0.307
Low-Income	26	174,842	2,253,165	26	174,842	2,253,165	846	$286,809	1.20	1.20	0.167
EE and Low Income	580	5,534,699	81,824,829	449	4,403,733	65,173,863	22,621	$1,602,972	5.37	2.06	0.033
C&S, T&D and Electrification								$0			
Utility Total	580	5,534,699	81,824,829	449	4,403,733	65,173,863	22,621	$1,602,972	5.37	2.06	0.033

MORENO VALLEY ELECTRIC UTILITY

Moreno Valley Electric Utility at a Glance

- Climate Zone: 10
- Customers: 7,723
- Total annual retail sales: 236,133 MWh
- Annual Retail Revenue: $51,165,020
- Annual EE expenditures for reporting year: $809,260
- Gross annual savings from reporting year portfolio: 45 MWh



Moreno Valley Overview

Moreno Valley Utility (MVU), municipally owned, was founded in 2001 and has been providing services to customers since 2004. MVU has experienced notable load growth, reaching a peak of just over 53 megawatts. However, during the pandemic years, MVU saw a decline in EE (EE) projects from its largest customers. Our energy savings goals have primarily been driven by the energy audit and direct install programs.

Major Program and Portfolio Changes

MVU has increased its EE programs annual funding (and customer participation) for the residential energy audits and direct install program to ensure that we meet all Senate Bill requirements are met.

Program and Portfolio Highlights

MVU's residential direct installation program has demonstrated exceptional success in achieving our energy savings goals during this review period. With increased funding, we have expanded our offerings of energy-efficient items.

Commercial, Industrial & Agricultural Programs

- Lighting Retrofits – rebates are available to commercial customers for LED lighting retrofits, other energy efficient lighting replacements, and for LED or photo-luminescent exit signs.
- Commercial EE Program – this Direct Install program provides small to medium-sized customers with an onsite energy audit and energy saving measures at no cost to the customer.
- Commercial HVAC Retrofits – customers that install new high SEER HVAC units or replace older inefficient units can participate in this rebate program. The installation of new chillers that exceed Title 24 requirements or load-shifting Thermal Energy Storage (TES) systems may also qualify for rebates.
- Motor Replacements – commercial customers that install premium efficiency motors are eligible for rebates under this program. Motors covered under this program must be new, three1phase induction motors (1hp to 200hp in size) and operate for at least 2,000 hours per year.
- New Construction and Major Tenant Renovation – this program offers incentives for projects exceeding Title 24 by at least ten percent. Eligible customers are responsible for providing documentation of energy savings using energy modeling software and all calculations must be signed by a licensed mechanical engineer.
- Outreach Programs – the utility contracts with Automated Energy to provide the largest commercial customers with detailed energy usage information to help efficiently manage their energy consumption and evaluate potential EE projects.

Residential Programs

- Residential Energy Audit & Direct Install – this program targets very high energy use customers and participants in our Low-Income Program. The program provides eligible residential customers with a full in-home energy audit and specific recommendations for their home plus a fixed set of EE upgrades, including the Nest thermostat, at no cost to the customer.
- EnergyStar® Appliance Rebates – customers who purchase EnergyStar® Qualified appliances can apply for a fixed rebate amount under this program.

- Weatherization – rebates are available for energy efficient windows, doors, attic insulation, and high SEER AC and heat pumps.
- Building Electrification - MVU offers rebates for electric heat pump water heaters for those customers who want to remove their natural gas appliances.

Complementary Programs

- Low-Income Programs: MVU's Energy Bill Assistance Program provides income qualified residents with a 12% or 20% discount on monthly energy charges; this year's expenditure was over $145,000.
- COVID-19 Assistance Program: this temporary program was created to provide relief to customers affected by the pandemic and provided over $98,000 in bill assistance.
- DR: MVU continues to maintain and operate 15 commercial Ice Bear units on both city and customer facilities.
- RD&D: Nothing new this reporting period.
- EVs: MVU is experiencing increased interest and activity both for workplace charging and home charging. MVU installed additional EV charging stations at its Annex location across from City Hall.
- Energy Storage: A few Tesla Powerwalls and other battery types have been installed with solar at residential homes. In the future MVU expects greater interest and activity in solar plus battery installations as the electric rates have moved to TOU.
- Educational Program: MVU has contracted with Franklin Energy, formerly ResourceAction, in partnership with SoCal Gas to provide teachers, students, and their families with a school-based EE program.

EM&V Studies

Engineering analysis programs such as Department of Energy -2 (DOE-2_ are the basis for calculated energy savings and incentive calculations. MVU requires both pre-inspections and post inspections for all projects that result in a commercial rebate of over $5,000.

Sources of Energy Savings

MVU relied primarily on the values from the new CET/RP model but also used reported energy savings from trusted engineering contractors to calculate program performance.

- Commercial Codes & Standards – this reporting year MVU will not record its share of the energy savings that are attributable to the State's Building Codes and Appliance Standards (Title-24) to the Energy Commission.

Major Differences or Diversions from California POU TRM for Energy Savings

None

TABLE MVU-1. EE Program Results by End Use

Summary by End Use	Resource Savings Summary								Cost Test Results		
End Use	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Appliance & Plug Loads		0	0		0	0	0	$770,878			0.000
Miscellaneous	8	45,388	453,880	6	36,310	363,104	132	$37,345			0.128
Energy Efficiency	8	45,388	453,880	6	36,310	363,104	132	$808,224			2.695
EE and Low Income	8	45,388	453,880	6	36,310	363,104	132	$808,224			2.695
C&S, T&D and Electrification								$0			
Utility Total	8	45,388	453,880	6	36,310	363,104	132	$808,224			2.695

TABLE MVU-2. EE Program Results by Sector

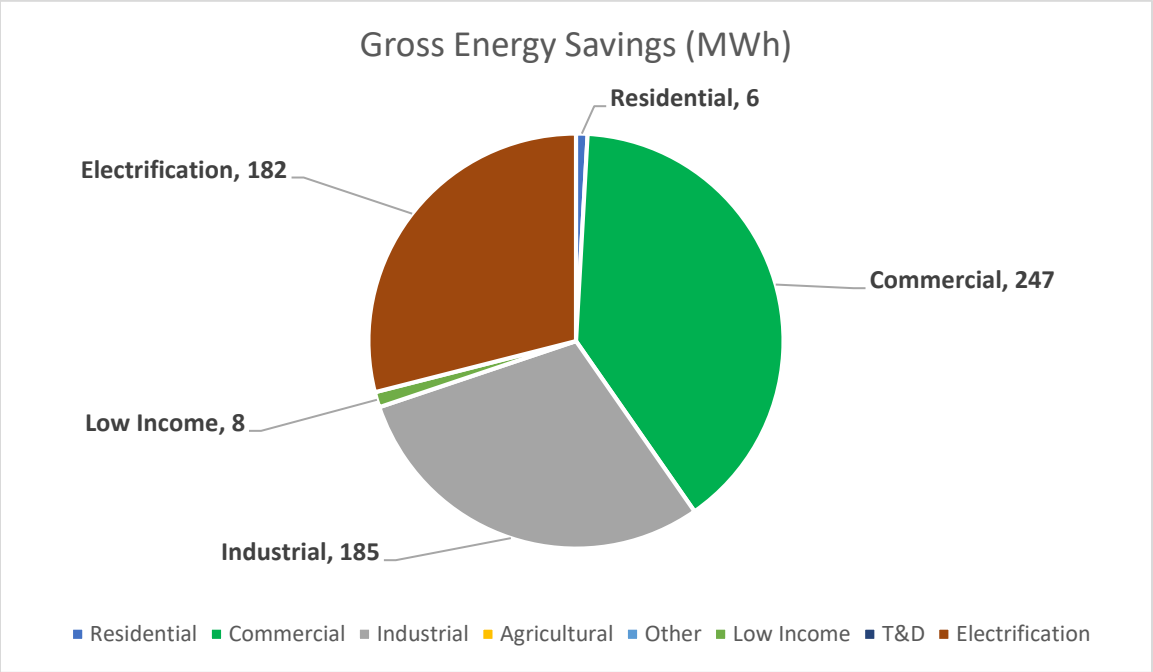
Summary by Sector	Resource Savings Summary								Cost Test Results		
Sector	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Residential	8	45,388	453,880	6	36,310	363,104	132	$808,224			2.695
Energy Efficiency	8	45,388	453,880	6	36,310	363,104	132	$808,224			2.695
EE and Low Income	8	45,388	453,880	6	36,310	363,104	132	$808,224			2.695
C&S, T&D and Electrification								$0			
Utility Total	8	45,388	453,880	6	36,310	363,104	132	$808,224			2.695

TABLE MVU-3. EE Program Results by Building Type

Summary by Building Type	Resource Savings Summary								Cost Test Results		
Building Type	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Residential - Single-Family	8	45,388	453,880	6	36,310	363,104	132	$808,224			2.695
Energy Efficiency	8	45,388	453,880	6	36,310	363,104	132	$808,224			2.695
EE and Low Income	8	45,388	453,880	6	36,310	363,104	132	$808,224			2.695
C&S, T&D and Electrification								$0			
Utility Total	8	45,388	453,880	6	36,310	363,104	132	$808,224			2.695

City of Palo Alto Utilities at a Glance

- Climate Zone: 4
- Customers: 30,002
- Total annual retail sales: 825,306 MWh
- Annual Retail Revenue: $160,549,574
- Annual EE expenditures for reporting year: $1,239,758
- Gross annual savings from reporting year portfolio: 627 MWh



Palo Alto Overview

The City of Palo Alto Utilities (CPAU) has implemented a variety of EE programs since the 1970s. In 1998, in response to California's landmark energy legislation (AB 1890), CPAU established the Electric Public Benefits (PB) Program and increased the Electric PB program budget to 2.85 percent of projected annual revenue to fund EE programs. CPAU's electric efficiency program budget can be supplemented with supply funds to meet state requirements that publicly owned electric utilities, in procuring energy, first acquire all available EE and demand reduction resources that are cost effective, reliable and feasible.

CPAU is committed to supporting environmental sustainability through promoting efficiency programs, promoting distributed renewable generation, and influencing consumer demand

through incentives and education. In March 2013, Palo Alto City Council approved a Carbon Neutral Electric Resource Plan, committing CPAU to a carbon-neutral electric portfolio beginning in 2013. Since July 2017, CPAU has also maintained a carbon neutral natural gas portfolio by purchasing carbon offsets; this serves as a bridge strategy to meeting the City's greenhouse gas reduction goal. Palo Alto is committed to reducing fossil fuel use and helping residents and businesses to pursue electrification opportunities in the building and transportation sectors.

In May 2022, Palo Alto City Council approved a set of annual electric EE (EE) goals for 2022-2031. The EE goal for FY 2023 is set at 0.5% of forecast electric load, increasing to 0.75% in FY 2026 when the conservation voltage reduction program can be implemented. The gradual ramp-up of these goals reflect staff's anticipation that EE savings levels will take time to recover following the economic downturn. These EE goals are based on the results of an EE potential model that considers planned program offerings, expenditures, market saturation of energy efficient technologies, load forecast, and a planned conservation voltage reduction program following the city-wide deployment of Advanced Metering Infrastructure (AMI).

For FY 2023, CPAU fell short of its electricity savings targets, achieving 0.05% versus its goal of 0.50%. Various factors contributed to below-target achievements. The slow rate of large commercial EE project completion continued from FY 2022. EE gains attributed to these large projects are inconsistent rather than incremental resulting in some years with big achievements and other years with very little EE achieved. CPAU also updated the way that Green Building Ordinance (GBO) savings are being reported to more accurately reflect the impact that local energy reach codes are having on EE in new construction and retrofit projects in Palo Alto. These methodology changes resulted in significantly lower GBO savings in FY 2023 than previous years.

This FY 2023 report is the first time that CPAU has included the efficiency savings from electrification projects by converting avoided therms to kWh equivalent and subtracting the new kWh usage of the electric appliance. CPAU continues to focus on developing and promoting electrification programs, and this report is now reflective of the positive impact these efficient electrification measures have on energy use.

Major Program and Portfolio Changes

In FY 2023 CPAU continued efforts on building-electrification activities and supporting installation of EV charging equipment while also launching a new Heat Pump Water Heater Pilot Program focused on making it easy and affordable for residential customers to electrify their water heating equipment. CPAU also continued to promote and implement two programs that focus on commercial building electrification and efficiency. The Business Energy Advisor (BEA) program and the Business Electrification Technical Assistance Program (BETAP) launched near the end of FY 2022 but have not yet completed any projects to report on. The Business Advantage Program (BAP), launched in March 2021 to provide HVAC control systems at no cost

to small and medium businesses, ended in FY 2023. The MultiFamily Plus program is still ongoing but did not have any completed projects in FY 2023. CPAU, for the seventh year, continued to claim savings associated with Palo Alto's energy reach code requirements as part of the City's Green Building Ordinance. However, as mentioned in the overview section, the calculation for determining savings attributable to the reach code has been adjusted.

Program and Portfolio Highlights

The highlight of CPAU's FY 2023 portfolio is the new Heat Pump Water Heater program that launched in early 2023. The program was only active for a few months of the FY and targets exclusively residential customers, but it was still able to generate energy savings comparable to CPAU's commercial programs. The HPWH program team continues to work on expanding the program and energy savings are expected to continue to grow in subsequent years. The program was expensive to develop and implement, but costs should fall as the program matures and requires less hands-on management.

Commercial, Industrial & Agricultural Programs

- Business Customer Rebates (BCR): Incentives are offered to commercial customers for investments in efficiency, lighting, motors, HVAC and custom projects that target gas, peak demand and energy reductions. In FY 2023, the BCR program resulted in annual electric savings of 203,137 kWh.
- Commercial and Industrial EE Program (CIEEP): This program provides Key Account customers with access to an engineering consulting firm to evaluate and implement EE projects. In FY 2023, the CIEEP program produced annual electric savings of 178,732 kWh.
- Business Advantage Program (BAP): This program focuses on EE savings from the small and medium commercial sector and targets energy management systems and air filter replacements to help businesses recovering from COVID-19. The BAP program was launched in FY 2021 and saw strong uptake that continued through FY 2022. In FY 2023, the BAP program produced annual electric savings of 62,747 kWh. The BAP was retired in FY 2023 mostly due to repeated customer issues with the smart thermostat technology that was being installed as part of the program.
- Business Energy Advisor (BEA) program: This program dispatches trained energy professionals to evaluate energy equipment such as lighting, heating, ventilation, and AC (HVAC) systems, hot water systems, refrigeration and more at small to medium business customers. Their customized assessments pinpoint exactly where businesses can benefit from efficiency by identifying electric, gas and water use equipment that is ready for upgrades and/or retrofits. Energy Advisors review assessment reports with customers and explain where they can reduce energy or water use. This program was launched in late FY 2022 and did not yet yield any reportable savings for FY 2023.

Residential Programs

- MultiFamily Plus: This program provides no-cost, direct installation of EE (EE) measures to multifamily residences with four or more units including hospices, care centers, and rehab facilities. These properties are typically very difficult to engage in and unlikely to implement EE measures on their own. In FY 2023, the MultiFamily Plus program did not have any new project savings to report.
- Home Efficiency Genie: The Home Efficiency Genie is CPAU's flagship residential program. Launched in June 2015, residents can call the program's Efficiency Advisor to receive free utility bill reviews and phone consultations. This program has a high educational value for Palo Alto residents and offers personalized consultation services for all utilities-related questions, including topics such as improving the quality of a home's building envelope, installation of rooftop solar and battery storage, electric vehicle (EV) charging, heat pump technologies for water heating and HVAC systems, and smart home devices. At a highly subsidized cost, residents have the option to receive an in-depth home assessment which includes air leakage testing, duct inspections, insulation analysis, energy modeling and a one-on-one review of assessment reports with an energy expert. This package is followed up with guidance and support throughout home improvement projects. During FY 2023, the Home Efficiency Genie program resulted in annual electric savings of 4,588 kWh.
- Residential EAP (REAP): This program provides weatherization and equipment replacement services to low-income residents and those with certain medical conditions, at no cost to the residents. This program has an equal focus on efficiency and comfort. As a program serving income and medically qualified residents, it is not meant to be cost-effective, and neither costs nor savings are included in CPAU's calculation of EE portfolio cost effectiveness. In FY 2023, the Residential EAP resulted in annual electric savings of 7,503 kWh.
- Heat Pump Water Heater (HPWH) program: This program offers customers a full-service option to replace their gas water heater with an efficient electric heat pump water heater; this includes a prescreened contractor, zero-interest financing, attractive pricing with CPAU subsidies, and more. Customers can also choose their own contractor for their project and apply for a rebate after the HPWH is installed. The program was launched in early 2023 with 50 installations completed and rebated by the end of the FY. In FY 2023, the HPWH program produced annual energy savings equivalent to 163,515 kWh.

Complementary Programs

- C&S: Green Building Ordinance: Since 2008, as part of the Green Building Ordinance the City of Palo Alto has enforced energy reach codes that are more stringent than the state's Title 24 building energy standards. The energy reach code requirements apply to both new residential and commercial buildings. In FY 2023, 6,747 kWh of savings were

attributable to the city's Green Building Ordinance. As of January 2023, City of Palo Alto requires that all new construction projects be all-electric, with no local energy reach code requirements.

- Community Resource Education Programs: CPAU offers free EE advice and energy education programs to the community. Activities include residential energy workshops on topics such as the SunShares solar group-buy program and tabling at neighborhood association events, local fairs and various special events throughout the city.
- Low-Income Program: Rate Assistance Program (RAP): CPAU offers a 25% discount on gas and/or electricity charges for residents with qualifying financial or medical needs. All households receiving Social Security Income, Temporary Assistance to Needy Families or Food Stamps automatically qualify for this rate discount which began in FY 1993.
- Public School Program: CPAU provides an annual grant of up to $50,000 to the Palo Alto Unified School District (17 schools with 12,000 students total) to support teacher training programs and the development of curriculums and education projects promoting renewable energy and energy and water efficiency. CPAU participates in quarterly sustainable schools committee meetings and gives educational presentations to classes on EE, renewable energy, and safety.
- Customer-Side Renewable Energy: The PV Partners Program: This program provided rebates for installations of rooftop solar, including 5-year performance-based incentive payments to customers who installed solar photovoltaic (PV) systems greater than 30 kW and up to 1,000 kW. Program funds were fully reserved in April 2016. The last PV installations were completed in 2018 and the last performance-based payment was issued in 2023.
- SunShares Solar Discount Programs: Palo Alto has participated in regional group-buy solar programs since 2015. These programs are administered by a non-profit agency and offer discounted prices for residential solar PV systems from a few pre-qualified contractors. Palo Alto was the top outreach partner of all cities participating in the 2023 Bay Area SunShares solar group-buy program both in terms of the number of solar contracts signed and the number of kilowatts of rooftop solar capacity that will be installed through the program.

EM&V Studies

In FY 2023, CPAU hired ADM Associates to conduct EM&V studies for its Commercial and Industrial EE Program (CIEEP). Two customer projects were evaluated, and it was determined that the initial savings and rebates calculated for the projects were acceptable.

Major Differences or Diversions from California POU TRM for Energy Savings

The energy savings data used for most of CPAU's programs were taken from the 2017 California POU Technical Resources Manual or the California Electronic Technical Reference Manual

(eTRM). All savings data claimed by CPAU was vetted by staff and relies on conservative assumptions.

TABLE CPAU-1. EE Program Results by End Use

Summary by End Use	Resource Savings Summary								Cost Test Results		
End Use	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Appliance & Plug Loads	1	2,968	29,680	1	2,523	25,228	10	$44,743	0.05	0.05	2.124
BROs	18	247,807	4,956,142	15	210,636	4,212,721	1,683	$272,156	1.45	1.39	0.093
Codes & Standards	1	6,747	134,939	1	5,735	114,698	51	$3,516	3.11	3.11	0.044
Lighting - Indoor	16	180,352	1,803,520	14	153,299	1,532,992	710	$240,881	0.60	0.55	0.188
Water Pumping / Irrigation	0	0	0	0	0	0	3	$5,265	0.05	0.05	0.000
EE	35	437,874	6,924,281	30	372,193	5,885,639	2,457	$566,562	0.98	0.92	0.132
Appliance & Plug Loads	0	893	8,930	0	759	7,591	3	$2,922	0.25	0.25	0.461
Building Envelope	0	1,857	37,137	0	1,578	31,567	89	$26,839	0.39	0.39	1.227
HVAC - Heating	0	423	8,456	0	359	7,188	12	$40,199	0.04	0.04	8.071
Lighting - Indoor	1	3,857	38,572	0	3,279	32,786	12	$6,737	0.46	0.46	0.246
Lighting - Outdoor	0	390	3,900	0	332	3,315	1	$942	0.33	0.33	0.340
Miscellaneous	0	0	0	0	0	0	1	$5,819	0.02	0.02	0.000
Service & Domestic Hot Water	0	0	0	0	0	0	4	$5,814	0.07	0.07	0.000
Water Pumping / Irrigation	0	83	1,016	0	71	863	20	$3,083	0.68	0.68	4.500
Low-Income	1	7,503	98,011	1	6,377	83,309	142	$92,354	0.20	0.20	1.442
EE and Low Income	36	445,377	7,022,292	31	378,570	5,968,948	2,598	$658,916	0.87	0.83	0.151
Service & Domestic Hot Water	36	181,592	2,179,102	31	154,353	1,852,236	735	$580,842	0.30	0.23	0.390
Electrification	36	181,592	2,179,102	31	154,353	1,852,236	735	$580,842	0.30	0.23	0.390
C&S, T&D and Electrification	36	181,592	2,179,102	31	154,353	1,852,236	735	$580,842	0.30	0.23	0.390
Utility Total	72	626,969	9,201,394	61	532,923	7,821,185	3,333	$1,239,758	0.60	0.51	0.212

TABLE CPAU-2. EE Program Results by Sector

Summary by Sector	Resource Savings Summary								Cost Test Results		
Sector	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Commercial	24	247,191	3,156,501	20	210,112	2,683,026	1,466	$364,490	0.76	0.72	0.176
Industrial	10	185,060	3,701,200	9	157,301	3,146,020	953	$126,590	2.13	1.94	0.058
Residential	1	5,623	66,580	1	4,780	56,593	38	$75,481	0.09	0.09	1.686
EE	35	437,874	6,924,281	30	372,193	5,885,639	2,457	$566,562	0.98	0.92	0.132
Residential	1	7,503	98,011	1	6,377	83,309	142	$92,354	0.20	0.20	1.442
Low-Income	1	7,503	98,011	1	6,377	83,309	142	$92,354	0.20	0.20	1.442
EE and Low Income	36	445,377	7,022,292	31	378,570	5,968,948	2,598	$658,916	0.87	0.83	0.151
Commercial	0	18,077	216,922	0	15,365	184,383	67	$10,283	1.63	0.91	0.069
Residential	36	163,515	1,962,180	31	138,988	1,667,853	668	$570,559	0.27	0.21	0.426
Electrification	36	181,592	2,179,102	31	154,353	1,852,236	735	$580,842	0.30	0.23	0.390
C&S, T&D and Electrification	36	181,592	2,179,102	31	154,353	1,852,236	735	$580,842	0.30	0.23	0.390
Utility Total	72	626,969	9,201,394	61	532,923	7,821,185	3,333	$1,239,758	0.60	0.51	0.212

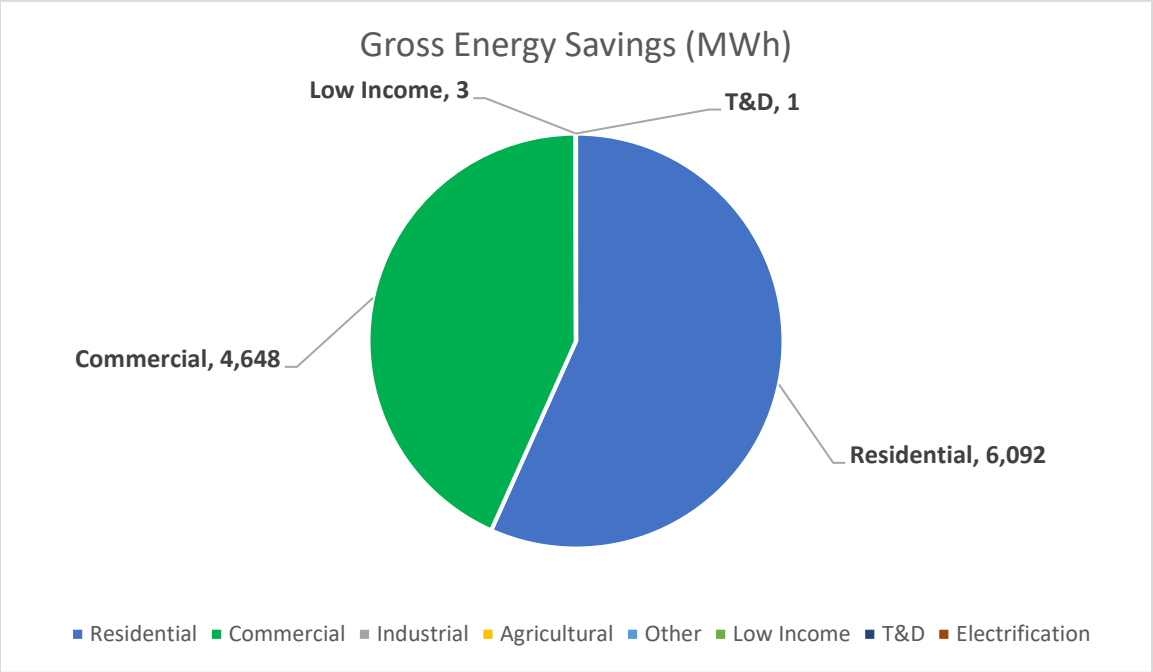
TABLE CPAU-3. EE Program Results by Building Type

Summary by Building Type	Resource Savings Summary								Cost Test Results		
Building Type	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Education - Primary School	0	2,488	49,760	0	2,115	42,296	16	$9,089	0.40	0.40	0.310
Health/Medical - Hospital	0	2,488	49,760	0	2,115	42,296	16	$4,951	0.74	0.74	0.169
Lodging - Hotel	0	3,094	61,880	0	2,630	52,598	22	$5,388	0.89	0.89	0.148
Manufacturing Light Industrial	1	4,976	99,520	1	4,230	84,592	32	$16,722	0.44	0.44	0.285
Office - Large	10	185,060	3,701,200	9	157,301	3,146,020	953	$126,590	2.13	1.94	0.058
Office - Small	1	5,712	114,240	1	4,855	97,104	251	$19,945	1.53	1.53	0.296
Other Commercial	1	9,985	199,699	1	8,487	169,744	65	$9,517	1.58	1.58	0.081
Residential	0	1,035	20,700	0	880	17,595	20	$1,052	2.82	2.82	0.086
Residential - Single-Family	1	4,588	45,880	1	3,900	38,998	18	$74,430	0.05	0.05	2.285
Restaurant - Sit-Down	2	25,877	517,542	2	21,996	439,911	266	$62,725	0.77	0.77	0.206
Retail - Large	16	178,732	1,787,320	13	151,922	1,519,222	704	$216,460	0.67	0.60	0.171
Retail - Small	2	13,839	276,780	2	11,763	235,263	94	$19,694	1.07	1.07	0.121
EE	35	437,874	6,924,281	30	372,193	5,885,639	2,457	$566,562	0.98	0.92	0.132
Residential - Multi-Family	0	1,097	11,678	0	932	9,926	7	$9,569	0.14	0.14	1.179
Residential - Single-Family	1	6,406	86,333	1	5,445	73,383	134	$82,785	0.21	0.21	1.481
Low-Income	1	7,503	98,011	1	6,377	83,309	142	$92,354	0.20	0.20	1.442
EE and Low Income	36	445,377	7,022,292	31	378,570	5,968,948	2,598	$658,916	0.87	0.83	0.151
Assembly	0	18,077	216,922	0	15,365	184,383	67	$10,283	1.63	0.91	0.069
Residential - Single-Family	36	163,515	1,962,180	31	138,988	1,667,853	668	$570,559	0.27	0.21	0.426
Electrification	36	181,592	2,179,102	31	154,353	1,852,236	735	$580,842	0.30	0.23	0.390
C&S, T&D and Electrification	36	181,592	2,179,102	31	154,353	1,852,236	735	$580,842	0.30	0.23	0.390
Utility Total	72	626,969	9,201,394	61	532,923	7,821,185	3,333	$1,239,758	0.60	0.51	0.212

PASADENA WATER AND POWER

Pasadena Water and Power at a Glance

- Climate Zone: 9
- Customers: 66,355
- Total annual retail sales: 1,100,000 MWh
- Annual Retail Revenue: $215,436,000
- Annual EE expenditures for reporting year: $2,851,971
- Gross annual savings from reporting year portfolio: 10,743 MWh



Pasadena Water and Power (PWP) Overview

Major Program and Portfolio Changes

Program and Portfolio Highlights

Commercial, Industrial & Agricultural Programs

Residential Programs

PWP has seven residential offerings that fall into three distinct categories, rebates, direct-install and behavioral programs.

- The Home Energy Rebate program provides rebates on the purchase of Energy Star® certified appliances, qualifying variable speed pool pumps, efficient AC/heat pump equipment and various building shell improvements that include wall and ceiling insulation.
- The appliance-recycling program is a free service that encourages PWP electric customers to recycle their old refrigerator/freezer (functioning) and purchase a newer, more efficient model.
- The ESAP is a partnership with SoCalGas that provides no cost direct install services to qualifying income qualified customers. As part of the program, eligible residential customers will receive various efficiency upgrades to help improve the comfort of their home while lowering energy/water consumption. Measures include attic insulation, AC Tune-up, LED light bulbs, smart power strips, smart thermostats, smart irrigation controllers, low-flow toilets and much more.
- The Home Improvement Program provides no cost direct install services to all residential electric customers. As part of the program, eligible residential customers will receive various efficiency upgrades to help improve the comfort and efficiency of their home. Measures include attic insulation, duct sealing, AC Tune-up, smart thermostats, smart irrigation controllers and much more.
- The income qualified refrigerator exchange program provides Energy Star® certified refrigerators at no cost to eligible customers. Eligible participants must have a functioning refrigerator that can be swapped out with the new Energy Star® certified model.
- The Home Energy Report is a residential behavioral program that is mailed to approximately 40,000 customers on a quarterly basis, helping residents better understand their energy consumption and how it compares with similar households in the vicinity. The report also has customizable sections that help promote other PWP efficiency programs that may be of interest.
- The Public Benefits fund also help share the cost of the utility's education programs for school-aged children. In particular, this involves educational field trips for students of the Pasadena Unified School District ("PUSD"), scholarship for high school seniors, the Living wise green curriculum, and the Solar Cup through the Metropolitan Water District. On average, the utility is able to reach about 5,000 students each year. In particular, the green curriculum is available to all 2nd grade PUSD students and emphasizes ways to incorporate sustainability as part of their daily lifestyles.

Complementary Programs

- Income Qualified Rate Assistance Programs: PWP has offered electric rate assistance programs to eligible low-income customers for several decades. The Electric Utility Assistance Program ("EUAP") became effective in 2006 and provides monthly assistance to customers between the ages of 18-61 that meets the established income guidelines.

The CARES and CARES Plus program provides additional assistance for low-income seniors (ages 62 and up), plus customers with a permanent disability that meets the established income guidelines. Project APPLE ("Assisting Pasadena People with Limited Emergencies") provides a one-time utility bill payment assistance program that provides eligible income qualified customers who are at risk of power shut off, up to $200 per year. Project APPLE is primarily funded by PBC revenues, plus donations from PWP customers as well. In addition, PWP also offers added services to eligible low-income customers which includes bonus rebates on qualifying efficiency products offered through the Home Energy Rebates program, no-cost direct installation of energy and water efficiency services, and much more.

- PWP also offers a Green Power Program, where customers can opt to pay a premium on their electricity bill for clean, renewable power. This program is open to both residential and commercial customers.
- RD&D: While there were no RD&D projects in FY23, PWP continues to seek out a variety of new opportunities that aligns with current utility objectives.
- Transportation Electrification: PWP continues to encourage the private sector to build additional charging sites for public and private fleet use through a robust incentive program offering rebates of up to $50,000 per commercial electric account. Commercial customers that install charging infrastructure are eligible to receive $3,000 per unit, which doubles to $6,000 if the chargers are in DAC locations. Incentives are also in place to encourage Pasadena residents to buy or lease an EV and EV charger to enable charging at home. In particular, PWP residential electric customers can receive up to $1,500 for a new or used EV and up to $600 for a new Wi-Fi enabled L2 EV charger.

FY 2023 was another strong year for commercial EV charger rebates, providing $81,000 in incentives for 21 new level 2 charging ports. On the residential side, the utility provided $144,250 in rebates for 482 EVs and $57,616 in rebates for 110 residential L2 EV chargers.

EM&V Studies

Major Differences or Diversions from California POU TRM for Energy Savings

PWP relies on the latest version of the CMUA TRM or California Technical Forum e-Technical Reference Manual ("CTF eTRM") data, supplemented by best available technical information from independent engineering analysis or approved utility work papers, when e-TRM measures are not available. For commercial programs, as discussed above, PWP may rely on independent engineering analysis conducted by PWP's third-party engineering consultant and/or an online rebate estimator with industry accepted models and simulations. Customized commercial efficiency offerings like the "CIP" provide commercial electric customers with the ability to participate with any proven technology that can produce above code energy savings, provided it meets the existing program requirements at the time.

TABLE PWP-1. EE Program Results by End Use

Summary by End Use	Resource Savings Summary								Cost Test Results		
End Use	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Any	51	210,283	1,682,264	51	210,283	1,682,264	644	$880,178	0.31	0.31	0.617
Appliance & Plug Loads	15	58,076	461,074	10	39,436	312,673	120	$50,669	1.04	1.04	0.198
BROs	1,335	5,522,698	5,522,698	1,335	5,522,698	5,522,698	2,314	$391,718	1.89	1.89	0.071
Building Envelope	118	115,705	2,289,463	40	38,789	767,140	315	$18,637	15.96	15.43	0.037
Commercial Refrigeration	12	103,672	1,208,960	12	103,672	1,208,960	435	$34,954	3.88	5.14	0.037
HVAC - Cooling	17	32,509	206,739	11	26,620	159,234	60	$159,918	0.26	0.26	1.162
HVAC - Heat Pump	4	18,752	281,275	4	18,336	275,036	88	$32,317	1.20	1.20	0.162
Lighting - Indoor	466	4,002,176	31,886,737	466	4,002,176	31,886,737	10,694	$1,165,850	3.04	15.64	0.043
Miscellaneous	84	676,078	2,449,061	84	676,078	2,449,061	909	$66,824	4.42	4.42	0.033
Whole Building	0	0	0	0	0	0	0	$29,700			0.000
EE	2,101	10,739,948	45,988,270	2,012	10,638,088	44,263,803	15,578	$2,830,765	1.91	2.88	0.074
Any	1	2,552	28,072	1	2,552	28,072	11	$8,078	0.56	0.56	0.363
Low-Income	1	2,552	28,072	1	2,552	28,072	11	$8,078	0.56	0.56	0.363
EE and Low Income	2,102	10,742,500	46,016,342	2,012	10,640,640	44,291,875	15,588	$2,838,843	1.91	2.87	0.075
Codes & Standards	168	1,350,937	1,350,937	168	1,350,937	1,350,937	521	$4,455	29.28	29.28	0.003
Codes & Standards	168	1,350,937	1,350,937	168	1,350,937	1,350,937	521	$4,455	29.28	29.28	0.003
Appliance & Plug Loads	0	0	0	0	0	0	0	$5,590			0.000
Service & Domestic Hot Water	0	0	0	0	0	0	0	$3,000			0.000
Electrification	0	0	0	0	0	0	0	$8,590			0.000
Transmission & Distribution	0	875	24,500	0	875	24,500	9	$83	29.28	29.28	0.006
T&D	0	875	24,500	0	875	24,500	9	$83	29.28	29.28	0.006
C&S, T&D and Electrification	168	1,351,812	1,375,437	168	1,351,812	1,375,437	529	$13,128	10.12	10.36	0.010
Utility Total	2,269	12,094,312	47,391,779	2,180	11,992,452	45,667,312	16,118	$2,851,971	1.95	2.92	0.072

TABLE PWP-2. EE Program Results by Sector

Summary by Sector	Resource Savings Summary								Cost Test Results		
Sector	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Commercial	542	4,648,182	33,936,796	542	4,648,182	33,936,796	11,423	$1,406,833	2.68	8.20	0.049
Residential	1,559	6,091,766	12,051,474	1,470	5,989,906	10,327,007	4,155	$1,423,932	1.16	1.16	0.153
EE	2,101	10,739,948	45,988,270	2,012	10,638,088	44,263,803	15,578	$2,830,765	1.91	2.88	0.074
Residential	1	2,552	28,072	1	2,552	28,072	11	$8,078	0.56	0.56	0.363
Low-Income	1	2,552	28,072	1	2,552	28,072	11	$8,078	0.56	0.56	0.363
EE and Low Income	2,102	10,742,500	46,016,342	2,012	10,640,640	44,291,875	15,588	$2,838,843	1.91	2.87	0.075
Commercial	168	1,350,937	1,350,937	168	1,350,937	1,350,937	521	$4,455	29.28	29.28	0.003
Codes & Standards	168	1,350,937	1,350,937	168	1,350,937	1,350,937	521	$4,455	29.28	29.28	0.003
Residential	0	0	0	0	0	0	0	$8,590			0.000
Electrification	0	0	0	0	0	0	0	$8,590			0.000
Commercial	0	875	24,500	0	875	24,500	9	$83	29.28	29.28	0.006
T&D	0	875	24,500	0	875	24,500	9	$83	29.28	29.28	0.006
C&S, T&D and Electrification	168	1,351,812	1,375,437	168	1,351,812	1,375,437	529	$13,128	10.12	10.36	0.010
Utility Total	2,269	12,094,312	47,391,779	2,180	11,992,452	45,667,312	16,118	$2,851,971	1.95	2.92	0.072

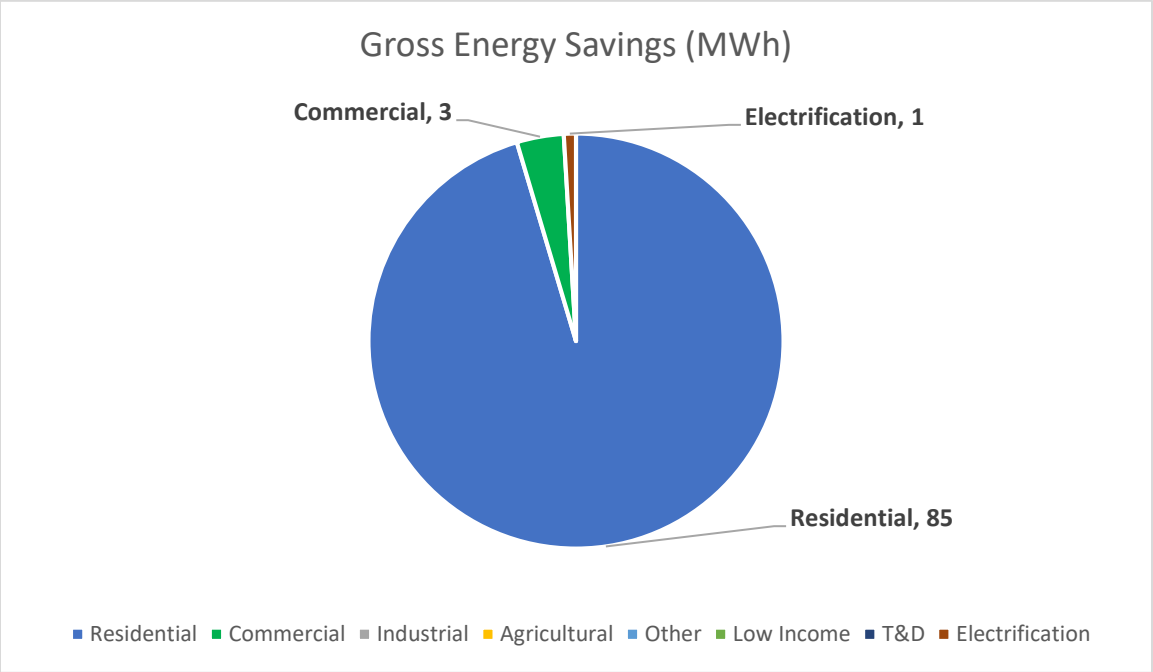
TABLE PWP-3. EE Program Results by Building Type

Summary by Building Type	Resource Savings Summary								Cost Test Results		
Building Type	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Any	550	4,681,957	34,104,020	548	4,671,824	34,053,852	11,469	$1,415,100	2.67	8.10	0.049
Residential	1,544	6,038,418	11,662,186	1,461	5,956,413	10,098,282	4,068	$1,394,608	1.15	1.15	0.153
Residential - Single-Family	7	19,573	222,064	3	9,850	111,669	41	$21,057	0.98	0.97	0.241
EE	2,101	10,739,948	45,988,270	2,012	10,638,088	44,263,803	15,578	$2,830,765	1.91	2.88	0.074
Residential	1	2,552	28,072	1	2,552	28,072	11	$8,078	0.56	0.56	0.363
Low-Income	1	2,552	28,072	1	2,552	28,072	11	$8,078	0.56	0.56	0.363
EE and Low Income	2,102	10,742,500	46,016,342	2,012	10,640,640	44,291,875	15,588	$2,838,843	1.91	2.87	0.075
Any	168	1,350,937	1,350,937	168	1,350,937	1,350,937	521	$4,455	29.28	29.28	0.003
Codes & Standards	168	1,350,937	1,350,937	168	1,350,937	1,350,937	521	$4,455	29.28	29.28	0.003
Residential	0	0	0	0	0	0	0	$8,590			0.000
Electrification	0	0	0	0	0	0	0	$8,590			0.000
Any	0	875	24,500	0	875	24,500	9	$83	29.28	29.28	0.006
T&D	0	875	24,500	0	875	24,500	9	$83	29.28	29.28	0.006
C&S, T&D and Electrification	168	1,351,812	1,375,437	168	1,351,812	1,375,437	529	$13,128	10.12	10.36	0.010
Utility Total	2,269	12,094,312	47,391,779	2,180	11,992,452	45,667,312	16,118	$2,851,971	1.95	2.92	0.072

PLUMAS-SIERRA RURAL ELECTRIC COOPERATIVE

Plumas-Sierra Rural Electric Cooperative at a Glance

- Climate Zone: 16
- Customers: 8,182
- Total annual retail sales: 143,854 MWh
- Annual Retail Revenue: $32,902,162
- Annual EE expenditures for reporting year: $163,516
- Gross annual savings from reporting year portfolio: 89 MWh



Plumas-Sierra Overview

Plumas-Sierra Rural Electric Cooperative (PSREC) is a member-owned, not-for-profit utility located in the eastern Sierras of Northern California. PSREC provides electricity to more than 8,100 rural residents in portions of Plumas, Sierra and Lassen counties in California and part of Washoe County, Nevada.

PSREC's service territory encompasses more than 1,700 square miles with more than 1,300 miles of transmission and distribution power line. PSREC serves just six members per mile of line, compared to the average of 34 customers per mile of line for investor-owned utilities.

The goal of PSREC's EE programs is to help members understand and control their energy use.

Major Program and Portfolio Changes

There were no major changes to the PSREC programs or portfolios in 2023.

Program and Portfolio Highlights

Most of the energy savings for the CY23 program were provided by the residential sector.

Commercial, Industrial & Agricultural Programs

PSREC provides free energy audits to businesses to assist with energy conservation and troubleshooting high energy consumption. This program has been successful in assisting business owners in making decisions in efficiency upgrades and conservation.

PSREC offers rebates for commercial and industrial members who perform efficiency upgrades including lighting and other custom measures.

To encourage the installation of energy efficient equipment in agricultural irrigation systems PSREC offers rebates for pump tests and efficiency improvements.

Residential Programs

- Geothermal Heating/Cooling Loans: 0% interest ground source heat pump loop loans available for installation of ground-source heat pumps.
- 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 will contribute to increased comfort in homes while helping to reduce overall energy use.
- ENERGY STAR® Rebates: Rebates available for the purchase of an ENERGY STAR® refrigerator, dishwasher or clothes washer.
- Appliance Recycling: Rebates offered for recycling a non-essential freezer or refrigerator.
- ENERGY STAR® ® Lighting Rebates: Offers rebates for the purchase and installation of LED lamps.
- LED Holiday Light Rebate: Provides an incentive to replace incandescent holiday light strands with qualified new ENERGY STAR LED holiday light strands.
- Water Heater Sales and Rebates: Discounted sales of, and rebates for the purchase of high-efficiency electric water heaters, including heat pump water heaters.
- Weatherization Rebates: PSREC offers members rebates for upgrading windows and insulation in their homes. By retrofitting a home to above-code R-Values, and upgrading windows to double-pane high-performance windows, members not only realize the added comfort, but also gain increased home values. PSREC encourages members to invest in weatherization measures prior to, or in addition to, investing in a new heating source for energy conservation.

- Annual Member Meeting Efficiency Giveaways: PSREC provides members who attend the annual meeting with efficiency items such as LED lights, low-flow showerheads, faucet aerators, etc.
- Efficiency Education: PSREC provides EE and conservation information, as well as kilowatt meters, 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 Education - Energy Audits: PSREC provides free comprehensive energy audits to assist members with energy conservation and troubleshooting high energy consumption in their home. This program has been successful in educating members about efficiency and conservation and assisting in reduction of energy use, especially in low-income homes.

Complementary Programs

- 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, and efficiency information is provided to assist members with energy conservation.
- Net Metering Program: PSREC offers net metering for members who install renewable energy generation systems.
- Community Shared Solar: PSREC offers solar energy shares to our members who currently cannot install solar on their homes or businesses due to cost, location or ownership status.
- Lending Library and Resource Center: Provides EE and renewable energy resources to members through a book lending library and resource center in our office lobby.
- Electric Vehicle Rebate: PSREC offers a $500 rebate for the purchase of an electric vehicle.
- RD&D: PSREC is researching electric vehicle charging infrastructure and other program options to encourage the adoption of electric vehicles in its service area.

EM&V Studies

PSREC performs a yearly internal review to evaluate program effectiveness and improvement areas. PSREC has committed to seeking third-party evaluation of its programs every five years, depending upon the budget.

Major Differences or Diversions from California POU TRM for Energy Savings

PSREC uses the CMUA TRM and the eTRM as the primary sources for most reported energy savings. Savings for the commercial lighting program are custom calculations based on the specific equipment replaced.

TABLE PSREC-1. EE Program Results by End Use

Summary by End Use	Resource Savings Summary								Cost Test Results		
End Use	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Appliance & Plug Loads	1	9,256	89,540	0	5,076	47,185	17	$22,498	0.28	0.28	0.585
Building Envelope	1	4,079	97,948	1	2,609	61,998	27	$13,067	0.57	0.13	0.333
HVAC - Cooling	1	599	6,334	0	390	4,256	2	$3,441	0.17	0.22	1.008
HVAC - Heat Pump	32	72,312	1,084,681	19	43,917	658,750	252	$117,054	0.75	0.19	0.237
Lighting - Indoor	0	165	2,265	0	89	1,223	0	$696	0.24	0.19	0.753
Service & Domestic Hot Water	2	2,235	22,350	1	1,295	12,953	5	$3,643	0.44	0.45	0.340
EE	37	88,646	1,303,119	23	53,376	786,364	303	$160,399	0.65	0.19	0.274
EE and Low Income	37	88,646	1,303,119	23	53,376	786,364	303	$160,399	0.65	0.19	0.274
HVAC - Heat Pump	0	845	12,675	0	845	12,675	19	$3,117	1.07	0.44	0.329
Electrification	0	845	12,675	0	845	12,675	19	$3,117	1.07	0.44	0.329
C&S, T&D and Electrification	0	845	12,675	0	845	12,675	19	$3,117	1.07	0.44	0.329
Utility Total	37	89,491	1,315,794	23	54,221	799,039	322	$163,516	0.66	0.19	0.275

TABLE PSREC-2. EE Program Results by Sector

Summary by Sector	Resource Savings Summary								Cost Test Results		
Sector	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Commercial	0	3,272	81,802	0	1,963	49,081	15	$8,368	0.51	0.10	0.275
Residential	37	85,374	1,221,316	22	51,413	737,282	288	$152,031	0.66	0.20	0.274
EE	37	88,646	1,303,119	23	53,376	786,364	303	$160,399	0.65	0.19	0.274
EE and Low Income	37	88,646	1,303,119	23	53,376	786,364	303	$160,399	0.65	0.19	0.274
Residential	0	845	12,675	0	845	12,675	19	$3,117	1.07	0.44	0.329
Electrification	0	845	12,675	0	845	12,675	19	$3,117	1.07	0.44	0.329
C&S, T&D and Electrification	0	845	12,675	0	845	12,675	19	$3,117	1.07	0.44	0.329
Utility Total	37	89,491	1,315,794	23	54,221	799,039	322	$163,516	0.66	0.19	0.275

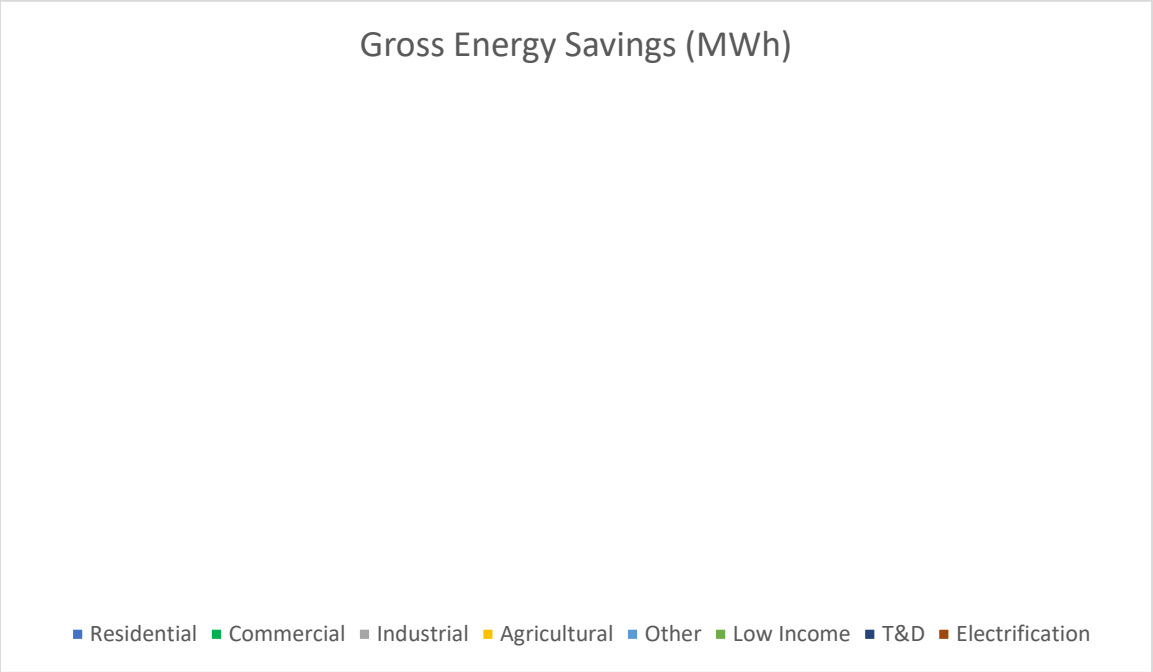
TABLE PSREC-3. EE Program Results by Building Type

Summary by Building Type	Resource Savings Summary								Cost Test Results		
Building Type	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Any	1	3,507	19,565	0	2,411	13,273	5	$6,700	0.28	0.29	0.560
Multiple	5	27,832	410,264	3	17,183	253,642	97	$37,617	0.90	0.74	0.198
Other Commercial	0	3,272	81,802	0	1,963	49,081	15	$8,368	0.51	0.10	0.275
Residential	21	24,424	349,404	13	13,845	202,212	84	$60,854	0.47	0.10	0.401
Residential - Single-Family	10	29,611	442,083	6	17,974	268,155	102	$46,861	0.76	0.21	0.233
EE	37	88,646	1,303,119	23	53,376	786,364	303	$160,399	0.65	0.19	0.274
EE and Low Income	37	88,646	1,303,119	23	53,376	786,364	303	$160,399	0.65	0.19	0.274
Multiple	0	845	12,675	0	845	12,675	19	$3,117	1.07	0.44	0.329
Electrification	0	845	12,675	0	845	12,675	19	$3,117	1.07	0.44	0.329
C&S, T&D and Electrification	0	845	12,675	0	845	12,675	19	$3,117	1.07	0.44	0.329
Utility Total	37	89,491	1,315,794	23	54,221	799,039	322	$163,516	0.66	0.19	0.275

PORT OF OAKLAND

Port of Oakland at a Glance

- Climate Zone: 3
- Customers: 127
- Total annual retail sales: 114,014 MWh
- Annual Retail Revenue: $17,369,677
- Annual EE expenditures for reporting year: $13,692
- Gross annual savings from reporting year portfolio: 0 MWh



Port of Oakland Overview

The Port of Oakland (the Port) oversees the Oakland seaport, Oakland International Airport, and 20 miles of waterfront. Together with its business partners, the Port supports more than 84,000 jobs in the region and nearly 827,000 jobs nationwide. The Port exemplifies a unique combination of public/private endeavors. It encompasses a world-class container port, a thriving airport, an array of retail and commercial buildings, and acres of recreational and open space. The Port has approximately 167 commercial electric customers.

Major Program and Portfolio Changes

Although no customers completed projects in FY 2023, the Port offered incentives for EE projects.

Program and Portfolio Highlights

In FY 2020, Port provided incentives for EE projects at a refrigerated warehouse facility.

Commercial, Industrial & Agricultural Programs

- Energy Audits: The Port provides Energy Audits that focus on five major energy-saving retrofit/improvement projects that will result in load reduction and more efficient use of energy.
- Energy Saving Measures Exceeding Title 24 Standards: The 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 facilities must reduce energy usage by a minimum of 10% compared to the standard Title 24 facility.
- Energy Saving Equipment Retrofits/Improvements Rebates: The Port has implemented a program that provides rebates and solid technical support for the installation of new EE equipment/improvements by our commercial customers.
- Lighting Retrofit: A program providing rebates for the installation of EE lighting upgrades.

Residential Programs

The Port does not have any residential customers.

Complementary Programs

The Port recognizes the unique opportunities available in renewable energy, energy storage, and electric vehicles due to our customer base. We are working with customers to identify needs and assess the potential for renewable energy, storage, EV adoption, and EV charging infrastructure programs and investments.

EM&V Studies

Go to https://www.cmua.org/ for more information on EM&V.

Major Differences or Diversions from California POU TRM for Energy Savings

Reported savings are custom calculations based on actual equipment replaced and installed.

TABLE PORT-1. EE Program Results by End Use

Summary by End Use	Resource Savings Summary								Cost Test Results		
End Use	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Lighting - Indoor	0	0	0	0	0	0	0	$13,692			0.000
EE	0	0	0	0	0	0	0	$13,692			0.000
EE and Low Income	0	0	0	0	0	0	0	$13,692			0.000
C&S, T&D and Electrification								$0			
Utility Total	0	0	0	0	0	0	0	$13,692			0.000

TABLE PORT-2. EE Program Results by Sector

Summary by Sector	Resource Savings Summary								Cost Test Results		
Sector	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Commercial	0	0	0	0	0	0	0	$13,692			0.000
EE	0	0	0	0	0	0	0	$13,692			0.000
EE and Low Income	0	0	0	0	0	0	0	$13,692			0.000
C&S, T&D and Electrification								$0			
Utility Total	0	0	0	0	0	0	0	$13,692			0.000

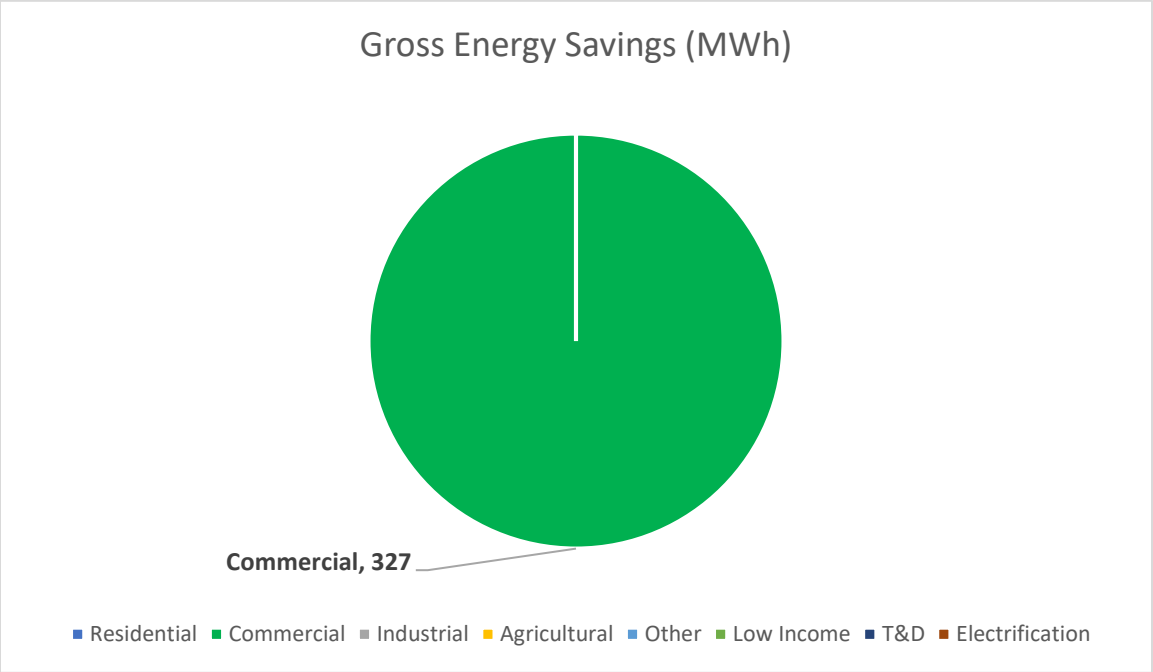
TABLE PORT-3. EE Program Results by Building Type

Summary by Building Type	Resource Savings Summary								Cost Test Results		
Building Type	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Any	0	0	0	0	0	0	0	$13,692			0.000
EE	0	0	0	0	0	0	0	$13,692			0.000
EE and Low Income	0	0	0	0	0	0	0	$13,692			0.000
C&S, T&D and Electrification								$0			
Utility Total	0	0	0	0	0	0	0	$13,692			0.000

RANCHO CUCAMONGA MUNICIPAL UTILITY

Rancho Cucamonga Municipal Utility at a Glance

- Climate Zone: 10
- Customers: 2,979
- Total annual retail sales: 104,816 MWh
- Annual Retail Revenue: $16,072,223
- Annual EE expenditures for reporting year: $65,480
- Gross annual savings from reporting year portfolio: 327 MWh



Rancho Cucamonga Overview

The Rancho Cucamonga Municipal Utility (RCMU) began providing electric service in 2004 to primarily commercial customers. Since then, RCMU has grown and expanded to residential and industrial customers and new developments. Interest and participation in EE programs continue to have low demand due to the existing customer base and new growth coming from new construction that meets or exceeds Title 24 requirements.

Major Program and Portfolio Changes

There were no major program changes implemented in FY 2023.

Program and Portfolio Highlights

In previous years, the greatest participation in EE programs has been attained by the commercial EE rebate program. Replacing inefficient lamp fixtures with LEDs continues to be the trend for EE rebates. Programs and EE practices are promoted online, and free energy audits are continuing to be offered to educate customers on energy savings and potential upgrades on existing equipment.

Commercial, Industrial & Agricultural Programs

In previous years, the greatest participation in EE programs has been attained by the commercial EE rebate program. Replacing inefficient lamp fixtures with LEDs continues to be the trend for EE rebates. Programs and EE practices are promoted online, and free energy audits are continuing to be offered to educate customers on energy savings and potential upgrades on existing equipment.

- EE Program: Non-Res Lighting, Non-Res Refrigeration: RCMU has adopted an "Express Solution" model for EE rebates. Customers receive a rebate for estimated kWh savings for the first year in the following categories: Lighting, Interior LED, Exterior LED, Delamping, HVAC, Motors and Refrigeration.
- Direct Savings Program: Non-Res Lighting: To encourage and assist small and medium sized businesses to reduce their energy usage, RCMU will pay and install up to $1,500 of recommended retrofit items that are determined from the complimentary energy audit. Any cost above the $1,500 limit is paid by the customer.

Residential Programs

During this reporting period, the RCMU residential customer base expanded from primarily leasing multi-family tenants to include single family-owned residences. With the growth coming from new developments that meet or exceed Title 24, there is the continued challenge to find interest for EE improvements among the residential customers. The homes are built with LED lighting fixtures, energy efficient appliances and many include solar PV systems. Although it is anticipated residential rebate requests will have extremely low demand, a residential rebate application for energy efficient equipment is now available. Staff has received a couple of questions regarding the offerings. To date, there have not been any residential requests for EE programs. Staff will continue to explore innovative ways to tailor the programs to increase participation.

Complementary Programs

Complementary Programs

- Energy Audits: RCMU offers free, customized energy audits including lighting, HVAC and equipment assessment and a review of energy usage. Specific cost-effective recommendations to improve EE and reduce energy use are provided.

- Low Income: The program is intended to assist customers with their bills and is funded by the RCMU Public Benefit Fund. The household size and gross income requirements is based off the San Bernardino County Income Limits and Documentation system.
- Medical Support Assistance Program: The program will assist eligible residential customers where a full-time resident of the household regularly requires the use of essential medical support equipment. An application with supporting documentation from the patient's doctor is required to receive the credit each month.

EM&V Studies

Major Differences or Diversions from California POU TRM for Energy Savings

TABLE RCMU-1. EE Program Results by End Use

Summary by End Use	Resource Savings Summary								Cost Test Results		
End Use	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
HVAC - Cooling	1	3,246	48,690	1	2,759	41,387	15	$5,419	0.80	1.65	0.180
Lighting - Indoor	52	71,989	935,648	52	71,989	935,648	313	$15,847	6.11	11.52	0.023
Lighting - Outdoor	80	251,272	2,512,719	80	251,272	2,512,719	902	$44,214	6.05	11.52	0.022
EE	133	326,507	3,497,057	133	326,020	3,489,753	1,229	$65,480	5.63	10.76	0.024
EE and Low Income	133	326,507	3,497,057	133	326,020	3,489,753	1,229	$65,480	5.63	10.76	0.024
C&S, T&D and Electrification								$0			
Utility Total	133	326,507	3,497,057	133	326,020	3,489,753	1,229	$65,480	5.63	10.76	0.024

TABLE RCMU-2. EE Program Results by Sector

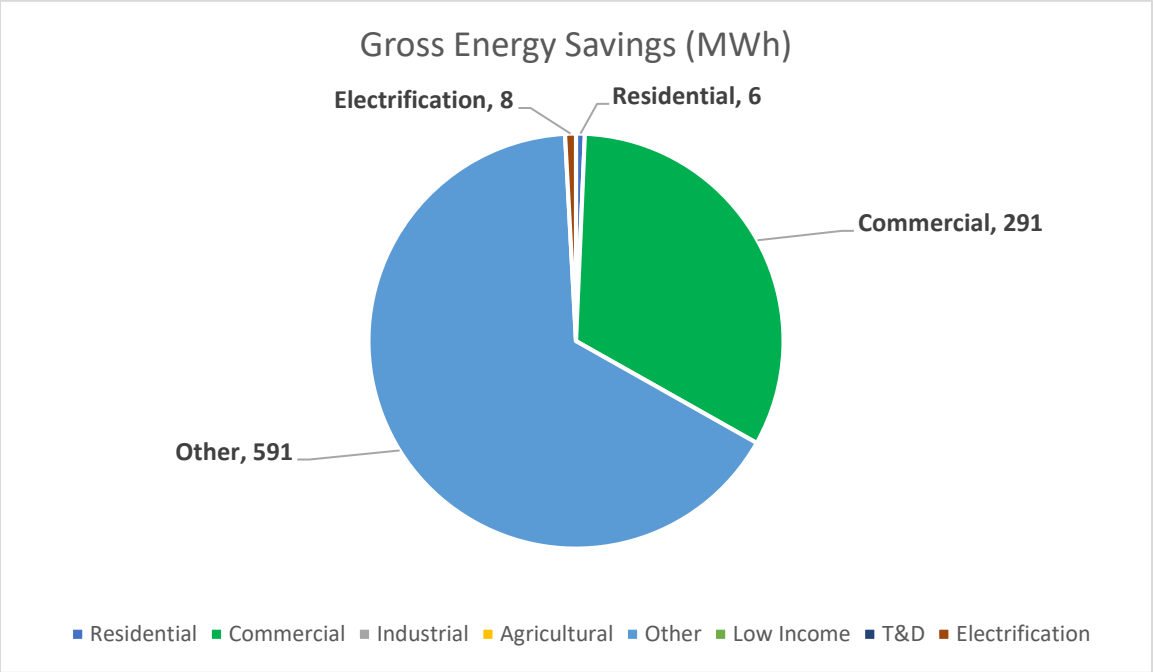
Summary by Sector	Resource Savings Summary								Cost Test Results		
Sector	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Commercial	133	326,507	3,497,057	133	326,020	3,489,753	1,229	$65,480	5.63	10.76	0.024
EE	133	326,507	3,497,057	133	326,020	3,489,753	1,229	$65,480	5.63	10.76	0.024
EE and Low Income	133	326,507	3,497,057	133	326,020	3,489,753	1,229	$65,480	5.63	10.76	0.024
C&S, T&D and Electrification								$0			
Utility Total	133	326,507	3,497,057	133	326,020	3,489,753	1,229	$65,480	5.63	10.76	0.024

TABLE RCMU-3. EE Program Results by Building Type

Summary by Building Type	Resource Savings Summary								Cost Test Results		
Building Type	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Any	118	287,301	2,873,007	118	287,301	2,873,007	1,031	$51,280	5.96	11.52	0.022
Office - Large	1	3,246	48,690	1	2,759	41,387	15	$5,419	0.80	1.65	0.180
Retail - Large	13	35,960	575,360	13	35,960	575,360	183	$8,781	6.67	11.52	0.021
EE	133	326,507	3,497,057	133	326,020	3,489,753	1,229	$65,480	5.63	10.76	0.024
EE and Low Income	133	326,507	3,497,057	133	326,020	3,489,753	1,229	$65,480	5.63	10.76	0.024
C&S, T&D and Electrification								$0			
Utility Total	133	326,507	3,497,057	133	326,020	3,489,753	1,229	$65,480	5.63	10.76	0.024

Redding Electric Utility at a Glance

- Climate Zone: 11
- Customers: 44,433
- Total annual retail sales: 762,423 MWh
- Annual Retail Revenue: $129,020,479
- Annual EE expenditures for reporting year: $2,705,259
- Gross annual savings from reporting year portfolio: 896 MWh



Redding Overview

Redding Electric Utility (REU) total sales for FY 2023 were 762,423 MWh – a 3.24% increase compared to FY 2022. Redding attributes the increase in retail sales due to increased activities from new construction of commercial buildings, and an increase in EV adoption and EV charging infrastructure. Redding continuously develops electric sales forecasts, especially as the utility expects to see sustained increases in sales attributed to economic growth and increased building and transportation electrification.

Due to Redding's hot summer climate and high residential load, REU's peak demand typically occurs in the summer between 4:00-5:00 p.m. and is more than double the peak demand during non-cooling months.

Redding has committed much of our Cap-and-Trade (C&T) auction proceeds to efforts that reduce greenhouse gas emissions, combat poverty, and achieve reliable energy savings. However, Redding does not expect additional funding from C&T auction proceeds and is actively ramping down greenhouse gas-funded programs over the next few years. There are no plans for new programs utilizing cap-and-trade auction proceeds.

Major Program and Portfolio Changes

REU continuously evaluates and makes changes to the public benefits programs to maximize the benefits to the community and maintain compliance with State and Federal Regulations.

In September 2021, Redding's City Council approved Redding's Demand-Side Management Integrated Resource Plan (DSM-IRP) report. The DSM-IRP concluded that EE measures were not cost-effective for ratepayers due to Redding's low avoided costs and the impact of lost revenue for providing programs that inherently reduce load (i.e. EE). In contrast, electrification programs are cost-effective for all ratepayers (not just participants), provide a positive revenue source to help sustain Public Benefits funding, and are a cost-effective way to save carbon. As a result, Redding City Council approved terminating all EE rebate programs paid through Public Benefits, replacing them with a new suite of building electrification programs beginning in FY2023. The approved DSM-IRP report is available on the City of Redding's website.[18]

Redding implemented several electrification programs effective July 1st, 2022, including:

- Residential Electrification Rebates
    - Heat Pump Water Heaters
    - Heat Pump Clothes Dryers
- Commercial Electrification Rebates
    - Heat Pump Water Heaters
- New Construction Residential Rebates
    - Heat Pump Space and Water Heating Package

REU has two remaining EE savings programs, including the EE Economic Recovery Plan (EEE-RP) for upgrades to City facilities and the LED Streetlight replacement project. The Affordable Housing program, which included upgrades to income-based housing, was closed out in FY 2023 due to funding being exhausted. These programs are funded by C&T auction proceeds.

Program and Portfolio Highlights

[18] See (http://reddingcityca.iqm2.com/Citizens/Detail_LegiFile.aspx?Frame=&MeetingID=3604&MediaPosition=&ID=7641&CssClass).

For the commercial sector in FY 2023, REU's LED Streetlight Replacement Program accounted for 66% of total annual energy savings, but saw a decrease from FY 2022 levels by 47% or 0.533 million kWh (net). This was expected as the program has replaced nearly all streetlights with LED. REU anticipates the program to be completed by FY 2024.

Redding's City EE Economic Response Program accounted for 32.5% of annual energy savings, or 0.291 million kWh (net). This was an increase of 127% or 0.162 kWh from FY23 due to two large lighting retrofit projects.

On the residential side, the Residential Electrification Rebates Program accounted for 0.84% of total annual energy savings for the year, or 0.008 million kWh (net). Participation has been lower than expected, but Redding continues to conduct marketing and outreach efforts to increase participation in the new electrification programs.

Commercial, Industrial & Agricultural Programs

Water Heaters – Deemed rebates for converting from fossil-fueled water heaters to heat pump technology.

City Facilities EE – Funding from C&T auction proceeds provide updates to City of Redding facilities, including LED streetlight replacement, lighting retrofits, and upgrades to energy-efficient equipment. Retrofit lighting projects are calculated using a custom calculator to determine savings based on existing equipment, retrofit equipment, and hours of operation.

Residential Programs

Water Heater Electrification – Deemed rebates for converting from fossil-fueled water heaters to heat pump technology.

Clothes Dryer Electrification – Deemed rebates for converting from fossil-fueled clothes dryers to heat pump technology.

Single-Family New Construction Electrification – Deemed rebates for installing heat pump space and water heating equipment (in lieu of fossil-fuel appliances) and Wi-Fi capable thermostats in new construction single-family homes.

Affordable Housing – Custom rebate for the "Block 7" affordable housing project that include HVAC, building shell, and lighting measures for improvements above the building code at the time of development.

Complementary Programs

Low-Income Programs – Low-income assistance spending (through the CARES Program and Residential Energy Discount) continues to be the second-largest area of our Public Benefits Program expenditures. During FY 2023, rate discounts represented about $1.89 million, and assistance programs represented about $0.05 million paid with public benefits funds. Low-

income programs have been most beneficial to a significant portion of our customer base that has limited situational and/or financial means to participate in other EE programs.

EV and Charging Infrastructure – Redding offers Transportation Electrification (TE) vouchers towards the purchase or lease of electric vehicles or electric bikes (E-Bikes) for low-income residential ratepayers, and DC fast chargers for commercial ratepayers through Low Carbon Fuel Standard (LCFS) funding.

Residential Education – Redding offers a variety of in-home services through the Residential Energy Advisor program. This includes guiding customers through the rebate programs while educating them with energy-saving tips.

Commercial Education – Redding offers a variety of in-business services through the Commercial Energy Advisor program. This includes guiding customers through the rebate programs while educating them with energy-saving tips.

EM&V Studies

The results of Redding EM&V reports are available on CMUA's website: https://www.cmua.org/emv-reports.

In addition to these activities, rebate processing includes technical reviews on 100% of the rebate applications submitted to ensure that projects align with program requirements. Furthermore, REU performs pre- and post-field inspections on large projects that account for most savings.

Major Differences or Diversions from California POU TRM for Energy Savings

For the vast amount of its EE programs, REU uses the standard measures as constructed within the Energy Services Platform's (ESP) reporting tool. For REU's unique programs (Low Income EE + Electrification, Streetlights, City EE), REU used the custom measure feature in ESP to represent the energy and demand impacts of those programs. REU utilizes custom calculation for Commercial Lighting, lighting retrofit projects in the City EE programs, and the Low-Income Electrification measures.

TABLE REU-1. EE Program Results by End Use

Summary by End Use	Resource Savings Summary								Cost Test Results		
End Use	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Lighting - Indoor	54	176,898	1,447,688	54	176,898	1,447,688	683	$154,831	0.78	0.74	0.116
Lighting - Outdoor	0	705,067	6,612,815	0	705,067	6,612,815	3,106	$2,068,460	0.26	1.00	0.342
Whole Building	0	6,140	92,106	0	6,140	92,106	34	$309,317	0.02	0.06	5.124
EE	54	888,105	8,152,609	54	888,105	8,152,609	3,823	$2,532,608	0.25	0.81	0.353
EE and Low Income	54	888,105	8,152,609	54	888,105	8,152,609	3,823	$2,532,608	0.25	0.81	0.353
Service & Domestic Hot Water	0	7,544	75,440	0	7,544	75,440	28	$69,637	0.09	0.09	1.007
Electrification	0	7,544	75,440	0	7,544	75,440	28	$69,637	0.09	0.09	1.007
C&S, T&D and Electrification	0	7,544	75,440	0	7,544	75,440	28	$69,637	0.09	0.09	1.007
Utility Total	54	895,649	8,228,049	54	895,649	8,228,049	3,851	$2,602,246	0.25	0.76	0.359

TABLE REU-2. EE Program Results by Sector

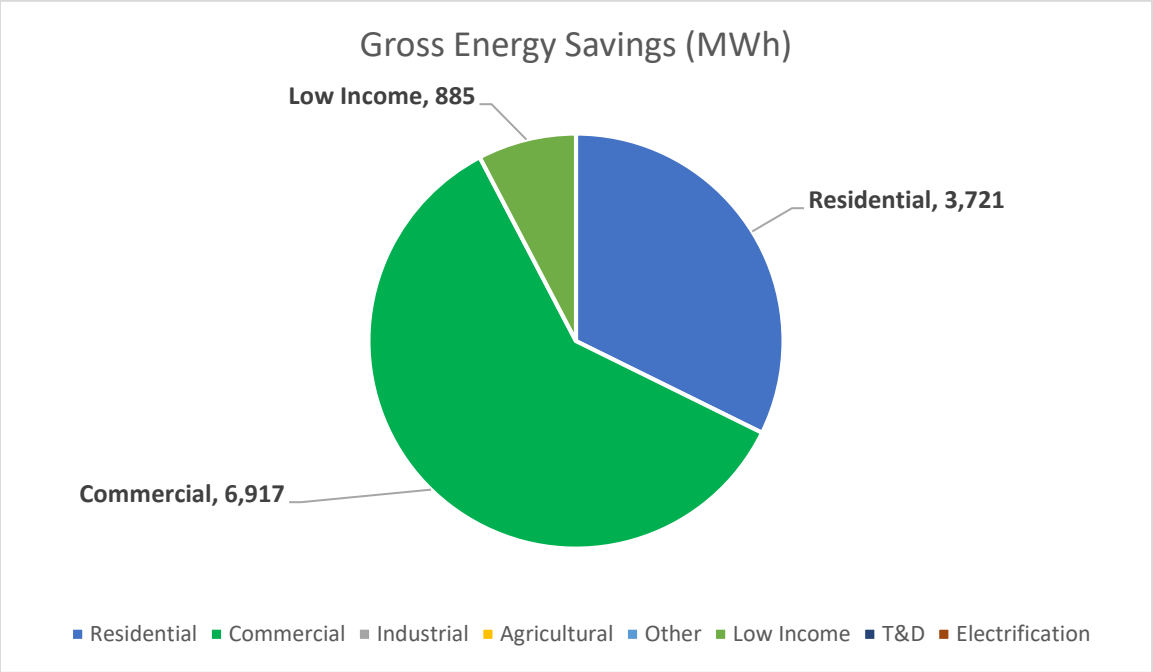
Summary by Sector	Resource Savings Summary								Cost Test Results		
Sector	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Commercial	54	290,971	2,150,563	54	290,971	2,150,563	1,020	$1,741,841	0.10	0.80	0.883
Other	0	590,994	5,909,940	0	590,994	5,909,940	2,769	$481,450	1.00	1.00	0.089
Residential	0	6,140	92,106	0	6,140	92,106	34	$309,317	0.02	0.06	5.124
EE	54	888,105	8,152,609	54	888,105	8,152,609	3,823	$2,532,608	0.25	0.81	0.353
EE and Low Income	54	888,105	8,152,609	54	888,105	8,152,609	3,823	$2,532,608	0.25	0.81	0.353
Residential	0	7,544	75,440	0	7,544	75,440	28	$69,637	0.09	0.09	1.007
Electrification	0	7,544	75,440	0	7,544	75,440	28	$69,637	0.09	0.09	1.007
C&S, T&D and Electrification	0	7,544	75,440	0	7,544	75,440	28	$69,637	0.09	0.09	1.007
Utility Total	54	895,649	8,228,049	54	895,649	8,228,049	3,851	$2,602,246	0.25	0.76	0.359

TABLE REU-3. EE Program Results by Building Type

Summary by Building Type	Resource Savings Summary								Cost Test Results		
Building Type	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Other Commercial	54	881,965	8,060,503	54	881,965	8,060,503	3,789	$2,223,291	0.30	0.94	0.301
Residential - Multi-Family	0	6,140	92,106	0	6,140	92,106	34	$309,317	0.02	0.06	5.124
EE	54	888,105	8,152,609	54	888,105	8,152,609	3,823	$2,532,608	0.25	0.81	0.353
EE and Low Income	54	888,105	8,152,609	54	888,105	8,152,609	3,823	$2,532,608	0.25	0.81	0.353
Residential - Single-Family	0	7,544	75,440	0	7,544	75,440	28	$69,637	0.09	0.09	1.007
Electrification	0	7,544	75,440	0	7,544	75,440	28	$69,637	0.09	0.09	1.007
C&S, T&D and Electrification	0	7,544	75,440	0	7,544	75,440	28	$69,637	0.09	0.09	1.007
Utility Total	54	895,649	8,228,049	54	895,649	8,228,049	3,851	$2,602,246	0.25	0.76	0.359

Riverside Public Utilities at a Glance

- Climate Zone: 10
- Customers: 112,752
- Total annual retail sales: 2,161,322 MWh
- Annual Retail Revenue: $350,547,090
- Annual EE expenditures for reporting year: $5,687,438
- Gross annual savings from reporting year portfolio: 11,523 MWh



Riverside Overview

The City of Riverside is the 12th largest city in California. Riverside Public Utilities (RPU) has been providing efficient, reliable water and electric services throughout the city since 1895. RPU is committed to providing the highest quality services at the lowest possible rates to benefit customers and the community.

RPU remains committed to helping customers manage energy use through energy education and comprehensive offerings of EE incentives. In FY (FY) 2023 RPU reached 49% of the kWh savings goal of 1% of retail sales as adopted by the Board of Public Utilities in 2021.

Major Program and Portfolio Changes

RPU continues to enhance and expand its EE program portfolio for the benefit of its customers and the community. Staff continues to review the program portfolio and offers recommendations on incentive level adjustments for consideration.

RPU is experiencing leveled participation in EE rebate and incentive programs. Overall program participation has remained stable over the past 10 years.

During FY 2023, the RPU team reintroduced the Medium and Large Business Outdoor Lighting Program, Small Business Direct Installation Program and Small Business Refrigerator Load Program.

Program and Portfolio Highlights

In FY 2023 RPU Energy Delivery Division contracted a major streetlight LED conversion with a resulted EE savings of 1,571 MWh. RPU had 37,826 participations in all programs.

RPU has focused considerable EE outreach efforts towards commercial customers as they represent approximately 12% of the customer base but account for approximately 65% of the RPU's entire load.

Commercial, Industrial & Agricultural Programs

- AC Incentives – Rebates for replacement of energy inefficient AC units.
- Business Outdoor Lighting Program – Program provides direct installation for medium and large business with outdoor lighting conversion to efficient LED.
- Key Account EE Program (KEEP) – Program targeting RPU's largest TOU Customers and includes the top 300 RPU customers in terms of consumption. KEEP is intended to provide Key Account customers with a comprehensive EE plan including a priority list of recommended EE measures along with an estimated return on investment and applicable utility incentives.
- Lighting Incentive – Rebates for kWh savings on installation of more energy efficient lighting and controls.
- Performance Based Incentive – Rebates for customers who can demonstrate a kWh savings based on custom EE measures.
- Refrigerator Load Program - Program offers the direct installation of EE measures such as air curtains, cooler gaskets, automatic door closures, LED case lighting retrofits and high-efficiency motor upgrades.
- Small Business Direct Install Program (SBDI) - Program provides small and medium-sized businesses with energy audits, and direct installation of EE measures such as lighting upgrades and controls, HVAC tune-ups, exit and open/closed signs, advanced power strips and weatherization.
- Weatherization – Rebates for installation of insulation, window film and cool roofs.

Residential Programs

- AC Incentives – Rebates for replacing Central Air Conditioners with a SEER rating of 15 above and HVAC tune-up.
- Appliance Recycling – Free recycling service for old inefficient refrigerators and freezers.
- Energy Savings Assistance Program (ESAP) – Direct installation program targeting low-income customers, offered in partnership and cooperation with SCGC. Measures include lighting efficiency upgrades, HVAC tune-ups, smart power strips, and refrigerator recycling (low-income assistance, Res Lighting, Res Cooling, Res Refrigeration).
- Energy Star® Appliances – Rebates for purchase of Energy Star® -rated refrigerators, dishwashers, clothes washers, room air conditioners, ceiling fans, and televisions.
- Pool Saver – Rebates for purchase and installation of high efficiency, variable speed, or multi-flow pool pump motors.
- Tree Power – Rebates for purchasing and planting of up to five qualifying shade trees per year and one free qualifying shade tree coupon printed on the March back of the bill.
- Weatherization – Rebates for installing attic insulation or wall insulation, standard rebates for duct replacement, duct testing/sealing, window film, solar and standard attic fans, whole house fans, and cool roofs.
- Used EV Rebate - Get up to a $1,000 rebate for a used Battery Electric or Plug-In Hybrid vehicle if purchased or leased after January 1, 2023. Qualified low-income customers enrolled in RPU's SHARE program are eligible to receive an increased rebate of up to $2,500.
- EV Level 2 - Residential Charger Rebate Electric vehicle drivers who install a Level 2 (240-Volt AC) plug-in charger at their residence in the service territory of Riverside Public Utilities, on or after July 1, 2021, are eligible for up to a $500 rebate.
- TOU EV Rate Meter Rebate - RPU customers have an opportunity to charge their electric vehicles using a separate TOU(TOU) meter provided by RPU. Eligible customers can receive up to a $805 rebate to cover the cost of the EV meter adapter installation, in addition to, incentives available for the EV Level 2 Residential Charger Rebate.

Complementary Programs

- SHARE – This low-income assistance program credits $250 toward the electric deposit or as an emergency payment on delinquent balances and/ or assists with a $16 monthly bill payment for qualified low-income applicants annually. Program assisted 5,355 customers during FY 2023. RPU has a facility in a low-income area of the city in an effort to make the program more accessible to our low-income customers.

- ESAP - In partnership with SoCal Gas, ESAP is designed to help lower monthly bills to income-qualified renters and homeowners, making homes more energy efficient through professional no-cost energy-saving home improvements by RPU's authorized contractor Synergy. Participation of ESAP for FY 2023 was 709 with 13,601 different EE measures installed.
- RD&D – RPU continues to invest in RD&D programs through partnerships with both businesses and local higher education institutions. RPU has expended over $1,000,000 in public benefit funds over the last ten years through its Energy Innovation Grant Program (see description below) to support energy research at local institutions of higher learning. Additional RD&D funding is provided to local commercial customers under the Custom Energy Technology Grant Program (see description below). RPU also participates in SCPPA-directed RD&D efforts and will continue to explore future RD&D opportunities as they occur on a case-by-case basis.
- Custom Energy Technology Grants – Grants awarded for RD&D of EE and renewable energy projects that are unique to the business or manufacturing process and can demonstrate energy savings, demand reduction or renewable power generation (RD&D Program).
- Energy Innovation Grants – Grants available to public or private universities within RPU's service territory for the purpose of RD&D of EE, renewable energy, energy storage, strategic energy research, and electric transportation (RD&D Program).
- DR – RPU continues to manage a highly successful voluntary (non-NERC certified) DR program. This program, known as Power Partners, was developed in partnership with RPU's largest commercial customers. These important Key Account customers represent approximately 10 MW of possible load shedding capability during peak summer months of June-September if it is deemed necessary to call on this resource by RPU in cooperation with the CAISO.
- Pool Pump Timer Credit Load Shift Program – This program offers a bill credit of $5 per month for customers who agree to install and program their residential pool pump timer so that the pump operates only during off-peak hours.

EM&V Studies

RPU is committed to providing cost-effective, ongoing evaluation, measurement, and verification (EM&V) efforts for its EE programs. EM&V costs are covered in the individual program budgets.

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

- An onsite inspection rate of a selection of randomly selected residential program participants, performed by RPU staff and contractors.

- A pre-and post-inspection of 100% of large commercial rebate participants, including a review of historical energy usage, energy-saving calculations, and post-measure bill analysis.
- Audits and installations performed by third-party contractors for RPU direct installation programs have high inspection rates that are performed by both the contractor and RPU staff.
- Refrigerator recycling program administered by A&G Recycling Angels assures full inspection when the contractor picks up old appliances.

Major Differences or Diversions from California POU TRM for Energy Savings

None noted.

TABLE RPU-1. EE Program Results by End Use

Summary by End Use	Resource Savings Summary								Cost Test Results		
End Use	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Any	0	741,078	7,410,783	0	741,078	7,410,783	2,518	$129,626	6.35	9.65	0.021
Appliance & Plug Loads	222	733,637	4,555,333	211	695,222	4,310,233	1,609	$239,504	2.15	8.08	0.064
Building Envelope	180	202,630	3,835,448	162	182,641	3,456,007	1,348	$145,110	5.09	8.87	0.061
Commercial Refrigeration	0	206,177	2,498,607	0	206,177	2,498,607	902	$432,624	0.62	9.65	0.220
HVAC - Cooling	1,740	3,577,558	83,998,621	1,444	2,735,765	62,423,810	23,469	$2,037,911	5.69	8.53	0.052
Lighting - Indoor	3	3,148,589	31,485,888	3	3,148,589	31,485,888	10,698	$597,473	5.85	9.65	0.023
Lighting - Outdoor	0	38,674	386,738	0	38,674	386,738	183	$44,611	0.94	9.65	0.140
Miscellaneous	3	1,983,280	19,538,710	3	1,983,125	19,538,089	6,756	$1,422,400	1.50	9.64	0.088
Service & Domestic Hot Water	1	6,584	80,792	1	6,255	76,752	28	$1,820	3.82	8.96	0.030
EE	2,147	10,638,207	153,790,920	1,822	9,737,524	131,586,907	47,512	$5,051,077	3.88	8.88	0.052
HVAC - Cooling	0	288,144	4,003,542	0	288,144	4,003,542	1,579	$399,035	2.21	9.65	0.132
Lighting - Indoor	0	596,718	8,950,770	0	596,718	8,950,770	3,420	$237,326	4.11	9.65	0.035
Low-Income	0	884,862	12,954,312	0	884,862	12,954,312	4,999	$636,361	2.92	9.65	0.065
EE and Low Income	2,147	11,523,069	166,745,232	1,822	10,622,386	144,541,219	52,511	$5,687,438	3.78	8.94	0.054
C&S, T&D and Electrification								$0			
Utility Total	2,147	11,523,069	166,745,232	1,822	10,622,386	144,541,219	52,511	$5,687,438	3.78	8.94	0.054

TABLE RPU-2. EE Program Results by Sector

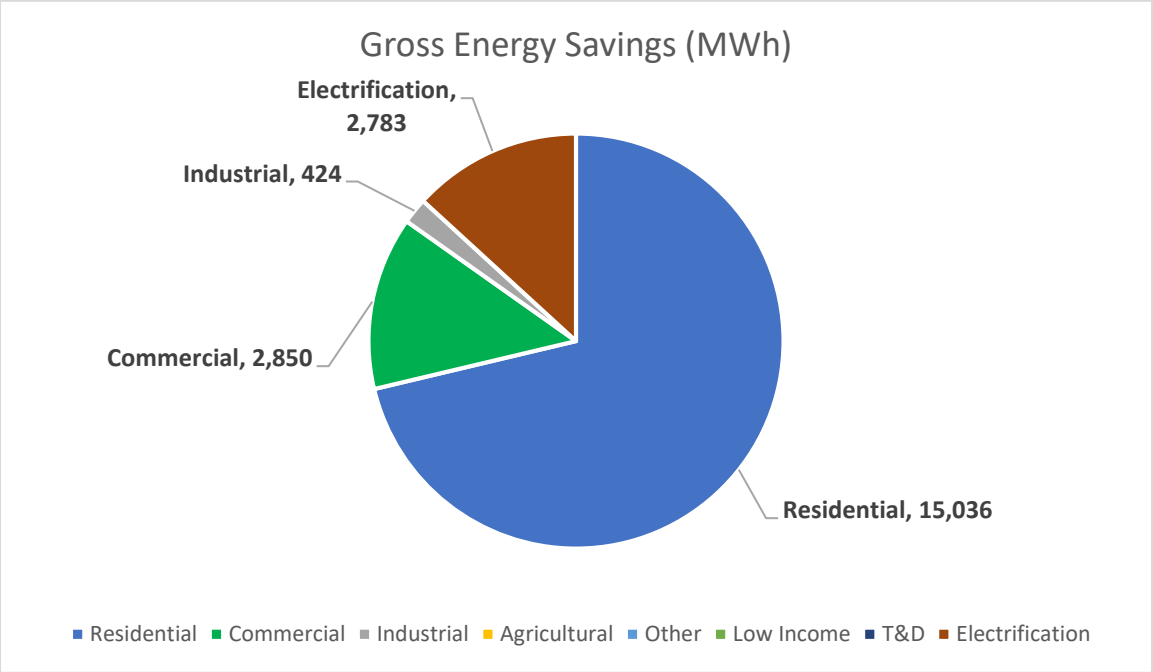
Summary by Sector	Resource Savings Summary								Cost Test Results		
Sector	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Commercial	792	6,917,389	73,473,465	714	6,830,521	72,170,323	24,470	$2,406,686	3.29	9.58	0.041
Residential	1,355	3,720,818	80,317,455	1,108	2,907,003	59,416,584	23,042	$2,644,392	4.42	8.46	0.070
EE	2,147	10,638,207	153,790,920	1,822	9,737,524	131,586,907	47,512	$5,051,077	3.88	8.88	0.052
Residential	0	884,862	12,954,312	0	884,862	12,954,312	4,999	$636,361	2.92	9.65	0.065
Low-Income	0	884,862	12,954,312	0	884,862	12,954,312	4,999	$636,361	2.92	9.65	0.065
EE and Low Income	2,147	11,523,069	166,745,232	1,822	10,622,386	144,541,219	52,511	$5,687,438	3.78	8.94	0.054
C&S, T&D and Electrification								$0			
Utility Total	2,147	11,523,069	166,745,232	1,822	10,622,386	144,541,219	52,511	$5,687,438	3.78	8.94	0.054

TABLE RPU-3. EE Program Results by Building Type

Summary by Building Type	Resource Savings Summary								Cost Test Results		
Building Type	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Any	793	6,183,475	66,181,390	714	6,096,358	64,875,008	21,913	$1,406,185	5.07	9.58	0.027
Other Commercial	0	738,898	7,356,867	0	738,898	7,356,867	2,581	$1,001,762	0.80	9.65	0.167
Residential	1,354	3,715,834	80,252,663	1,108	2,902,269	59,355,032	23,019	$2,643,130	4.42	8.46	0.070
EE	2,147	10,638,207	153,790,920	1,822	9,737,524	131,586,907	47,512	$5,051,077	3.88	8.88	0.052
Residential	0	884,862	12,954,312	0	884,862	12,954,312	4,999	$636,361	2.92	9.65	0.065
Low-Income	0	884,862	12,954,312	0	884,862	12,954,312	4,999	$636,361	2.92	9.65	0.065
EE and Low Income	2,147	11,523,069	166,745,232	1,822	10,622,386	144,541,219	52,511	$5,687,438	3.78	8.94	0.054
C&S, T&D and Electrification								$0			
Utility Total	2,147	11,523,069	166,745,232	1,822	10,622,386	144,541,219	52,511	$5,687,438	3.78	8.94	0.054

Roseville Electric Utility at a Glance

- Climate Zone: 11
- Customers: 67,536
- Total annual retail sales: 1,177,173 MWh
- Annual Retail Revenue: $176,856,713
- Annual EE expenditures for reporting year: $5,181,882
- Gross annual savings from reporting year portfolio: 21,093 MWh



Roseville Overview

The City of Roseville is a summer peaking utility located in climate zone 11 and forecast zone 4. Summers are hot and include several days over 100 degrees. Winters are mild with daily highs often in the 50s and 60s, and overnight lows only occasionally dropping into the 30s, but rarely below 32 degrees.

Roseville is the largest city in Placer County and significantly influences the economy as the retail destination for the Sacramento region.

Municipal owned Roseville Electric Utility offers affordable electric rates and reliable power to 60,306 residential accounts and 7,230 commercial accounts.

In FY 2023 Roseville issued 1,107 single family building construction permits. For Multi family, Roseville issued new construction permits for 896 new units and 323 retrofit projects. As for commercial, Roseville issued 42 new construction permits and 733 retrofit project permits.

Development of industrial land has increased, and vacancy rates remain at historic lows of 3.7 percent. Commercial development has also increased primarily related to the construction of restaurants, retail space, and other personal service uses. Office space vacancies are down at a rate of 12.9 percent.

The median household income in Roseville is $97,097 and 43% of residents over 25 have a bachelor's degree or higher.

Roseville aims to provide a broad portfolio of programs for both residential, and commercial customers to allow for high engagement in EE installations throughout the customer base. Roseville makes concerted efforts to rebate products that will mitigate high energy usage during the summer months, which is when our customers are most likely to experience higher bills.

In FY 2023, Roseville's rebate offerings were successful in that we were able to both exceed our energy savings targets as well as garner enough participation to exceed our Public Benefits spending target for the year. (2.85% of retail sales)

Roseville's customer base has embraced new technology such as smart thermostats, heat pump HVACs, Heat Pump Water Heaters, and Electric Vehicles. Interest in rooftop solar is also high amongst our customers.

The utility has maintained a focus of assisting low-income customers through rate assistance. The Low-Income program includes a 15% discount on electric service, which has now been maintained with eligibility criteria adjusted to 200% of the Federal Poverty Level. Additionally, Roseville Electric Utility offers a specialized rate for those who qualify for medical rate assistance. This program includes up to a 50% discount on a customer's first 500 kWh and a 15% discount on all other kWh usage. While in February of 2023 Roseville implemented a temporary 8% energy cost surcharge due to increased power costs, Roseville has been able to cover this surcharge for all customers enrolled in a rate assistance program. This has resulted in a 36% increase in rate assistance expenditures compared to the previous year.

Major Program and Portfolio Changes

While Roseville Electric has now been incentivizing electrification for a few years, the most significant change in the 2023 portfolio involved our phasing out incentivizing energy efficient appliances that would require a natural gas component. By year end, Roseville's portfolio offered incentives exclusively for appliances that bring buildings towards electrification.

In the residential retrofit space this included phasing out our traditional HVAC incentives to promote Electrification with more emphasis. Heat Pump HVACs were incentivized first at $900 a ton but dropped down to a $600 a ton incentive in the final quarter.

In Residential New Construction, incentives for mixed fuel EE options were phased out and we ran our program exclusively incentivizing all electric buildings. This included $3,000 incentives per single family lot and $4,000 per all Electric home when an induction cooktop was provided. The program also included incentive options for fully electric builds in Multifamily Housing, Affordable Housing, and Accessory Dwelling Units (ADUs). Some of these categories expect to complete their builds in later years.

As our customers gravitated heavily towards Electrification options we also phased out some of our less impactful measures such as ceiling fans, windows, and solar screens in the later part of the year.

We also placed some stricter requirements around permitting for our Commercial Lighting Program.

The pandemic recovery era program "Reopen Energy Smart" which provided increased incentives for small to medium businesses installing LED lighting and smart thermostats as well as energy efficient food service products was phased out for new enrollment in 2022. However, several projects that were reserved in the previous year completed their final installations and were paid out their rebate in FY 2023.

Program and Portfolio Highlights

FY 2023 presented a boom in participation in our collective electrification programs. Over 2 million dollars was spent on retrofit and new construction electrification producing 2,783 MWh of annual energy savings.

Residential Electrification:

We've continued to see increases in participation for Heat Pump HVAC retrofits even after reducing our incentives from $900 a ton to $600 a ton during the last quarter of the year.

While we are also seeing an interest in Heat Pump Water Heaters, this interest has not yet matched the Heat Pump HVAC market. This market seems to be more affected by changes in incentive levels as we saw several months of decreased participation after reducing our incentive from $3,000 a unit to $2,000 a unit. As additional rebates become available to stack, we believe participation in fuel switching in the water heater market will increase again.

Part of our residential promotion of Electrification included assistance with panel replacements which more customers took advantage of as part of their water heater installation. Participation in heat pump dryers was minimal, but interest in induction cooktops was a bit higher, and continues to moderately increase.

Commercial Electrification:

While we completed a few pilot projects in commercial Electrification, these projects returned minimal energy savings for our claims and in some cases chosen products did not allow for any energy savings claims. Further, while for most of the year we included mixed fuel offerings in our commercial HVAC program, our transition to offering electrification options followed by exclusively electrification options produced only minimal interest in HVAC electrification for Roseville's commercial sector. At this time our commercial customers are seeing that the additional inspections that these projects trigger, as well as the overall project costs, and expected appliance performance does not yet match the typical project budget constraints and needs of our commercial buildings.

New Construction Electrification:

Area builders responded quickly to our new construction program incentivizing all electric homes. Within a few months our program was fully reserved through the end of calendar year 2025.

Commercial Lighting – High Performer:

Though FY 2023 saw some declines in participation in Commercial Lighting, this program continues to produce the largest energy savings of any single rebate program both in the commercial category and in the portfolio as a whole. While the total kWh savings achieved through all Electrification rebates is also high, it should be noted that on a dollar spent per annual kWh basis, the Commercial Lighting program requires about one quarter of the spending to produce kWh savings.

Tune Ups and Thermostats Produce High-Res Engagement:

Our HVAC Tune Up and Smart Thermostat offerings continue to drive the most engagement with our residential customers in terms of rebate offerings. In FY 2023 we were able to rebate 1,209 HVAC tune ups and 931 Smart Thermostats.

Home Energy Reports – Highest Performer and Most Cost Effective

Residential Home Energy Reports continue to be the largest contributor to our annual kWh savings having captured more annual kWh savings than all other rebate programs combined. Not only has this program continued to achieve the highest savings, but it has also remained as the most cost-effective program in Roseville's portfolio.

Commercial, Industrial & Agricultural Programs

Commercial LED and Other Lighting: Offers business customers a wide variety of energy efficient LED interior and exterior LED lighting retrofits and control options for updating their facilities.

- Commercial HVAC: Includes package and split system retrofits, smart thermostats and HVAC tune ups. This year's offerings also included incentives for all electric systems.
- Commercial Custom: Customer driven rebate option targets projects that reduce peak loads and energy consumption and offers unlimited EE technology opportunities for the large and key account customers.
- Small to Medium Business Direct Installs: This program targeted small and medium businesses and was able to provide direct installation of LED lighting and smart thermostats.

Residential Programs

- Low-Income Rate Assistance: Roseville Electric assisted approximately 2,037 customers in rate reduction for their utility bills in FY23. Additionally, Roseville works with local agencies and supports the local Low-Income Home Energy Assistance Program (LIHEAP) program.
- Residential Windows: Program for retrofit Windows must be Energy Star® rated with a U-value of .30 and a Solar Heat Gain Coefficient (SHGC) of .25 or less and bear the National Fenestration Rating Council label.
- Residential Whole House Fan: Program offering a rebate to customers installing a permanently fixed 2000 cubic feet per minute (cfm) (or greater) whole house fan.
- Residential Home Energy Reports: Industry-recognized, contractor-managed EE behavior program providing education, feedback, and tips to residential customers.
- Residential HVAC: Provides rebates to customers installing higher efficiency systems upon retrofit, performing annual HVAC tune-ups and installing smart thermostats.
- Residential Shade Tree: Rebate program designed to incentivize and educate customers to plant drought-tolerant shade trees to keep their home cool. A local urban forester recommends trees. EE savings for the trees was obtained from an EM&V performed in 2010.
- Residential Pool Pump: Rebate program designed to incentivize customers to upgrade from a single speed to a variable speed pool pump.
- Residential New Construction: Mixed fuel and all-electric home program, including ADUs, offering incentives to builders designed to be consistent with new construction programs from neighboring utilities. Savings estimates are obtained from HERS energy reports and reviewed by the third-party administrator.
- Residential Sunscreens: Rebate program designed to incent customers to install permanent sunscreens on their windows to reduce air conditioner runtime.
- Residential Retrofit Electrification: Roseville incentivized switching from gas to all electric appliances with rebates for heat pump HVACs, heat pump water heaters, heat pump dryers, induction cooktops and assistance with panel upgrades.

Complementary Programs

Electric Vehicle Program:

Roseville Electric participates in California Air Resource Board's (CARB) Low Carbon Fuel Standard (LCFS) Program. Proceeds from the sale of LCFS credits go to fund electric vehicle incentive programs.

In FY2023, residential customers purchasing new and used electric vehicles and motorcycles were eligible for incentives for vehicles, plug in chargers and panel replacements. An increased rebate was also available for income qualified customers as part of our EV equity program.

In addition to rebates for residential vehicles and chargers, funding was used to assist commercial customers with level 2 chargers for workplace charging and fleet charging. Rebates were also available for fleet vehicles and increased incentives were available for non-profit customers. Commercial customers were also able to request a free EV site assessment.

Additionally, funding was used to promote electric vehicle adoption through outreach and education.

Roseville Electric also worked with Plug in America to educate and incentivize Roseville auto dealers.

In FY2023, Roseville added rebates for infrastructure upgrades for all commercial customers and DC fast charging for multifamily and non-profits. Roseville also increased the focus on equity in commercial charging projects.

In FY 2023, an update to the independent assessment of the potential impact of electric vehicles to the City of Roseville Electric grid was completed for Roseville Electric Utility. This report provided recommendations for a strategic approach to address the electrification of the transportation industry. Roseville staff are using this report and other industry research to identify opportunities for improvements and expansion of our existing EV program.

Community Solar:

Roseville introduced a 986-kW community solar project, Roseville Solective, to residential households in March 2019. A portion of the program was set aside for low-income customers. The project is funded by the participants and the energy contributes to the Utility RPS requirements. The objective is to explore options for customers who rent or otherwise choose not to install solar on their own homes.

City of Roseville Utility Exploration Center:

Roseville Electric continues to support and promote EE and conservation education at this 4000 sq. ft. educational facility which saw 32,295 visitors last year. The mission of this facility is to

educate visitors of all ages with information about water and energy conservation and achieving a sustainable lifestyle.

The Utility Exploration Center has developed targeted education and outreach programs for all age ranges and hosts regionally attended special events.

Age Specific Programming Includes:

- Stem Story Time for Preschoolers (788 attendees) – Offering stories and activities that highlight the work done by Electric employees and ways for residents to partner in conservation.
- Kindergarten and 1st grade field trips exploring EE (1364 students and 372 adults chaperones)
- League of Explorers for 7–11-year-olds, including monthly take home kits and live lab. (350 3rd-5th grade students)
- 3rd Grade electricity education magnet kits (1,627 students and 75 teachers)
- 4th Grade class visits and traveling trunks including information on renewable energy and conducting energy audits. (11 teachers and 1148 students)
- 8th Grade EE school and home investigation program and community EE video contest. (299 students)
- Electric Field Day for High schoolers exploring how the Electric Utility operates and the career paths available to pursue (76 Attendees)

In partnership with our Utility Exploration Center Roseville also offered education workshops for adults both in person and online with topics such as solar, electric vehicles and whole home electrification.

EM&V Studies

Because Roseville's EE programs have had EM&Vs conducted within the last few years, and because our programs have not changed in design, we opted to not EM&V any programs during FY 2023. We plan to EM&V our Electrification programs in 2024 once they have had a full year of operation in place. Selection of the programs to review is prioritized by the dollars spent and savings claimed for the program or when a provisional or custom measure is introduced to our customers.

The budget for pre- and post-EM&V is determined by the program selected for review and can vary from $20,000 up to $150,000. The budget depends on the extent of field measurement or customer surveys required to evaluate the program within the guidelines established by the California Energy Commission.

All third-party EM&V and M&V reports are published on California Municipal Utility Associations website under resources in the document library.

Recent Reports include:

- EM&V- Residential Home Energy Reports (2019)
- EM&V-Commercial Exterior Lighting (2017)
- EM&V- Residential HVAC, Pool Pump, Whole House Fan and Sunscreen (2016)
- M&V- Smart Thermostats (2018)
- M&V- HVAC Tune Ups (2018)

Major Differences or Diversions from California POU TRM for Energy Savings

Roseville Electric's avoided costs are entered to the 1037 reporting model and are calculated based on energy prices, transmission losses and distribution losses. All modeling is performed using these costs.

Roseville Electric relies on the savings documented in the California Public Utilities Technical Resource Manual (TRM). If not available, the measure is entered to the 1037 reporting model as a custom measure. When a custom program is entered to the model, the source of energy savings is documented as coming from an industry approved method (Energy Reports), a published industry white paper or published EM&V. HERS reports are provided by Builders for new construction programs and reviewed by a third-party consultant. Some measures utilize calculation for watts reduction with calculations for kW and kWh performed with standard industry hours of use data. Savings calculations for residential electrification were produced by a custom study completed for Roseville Electric by Energia in 2020. Savings for commercial electrification were provided by a custom calculator developed by DNV specifically for Roseville Electric Utility.

TABLE Roseville-1. EE Program Results by End Use

Summary by End Use	Resource Savings Summary								Cost Test Results		
End Use	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Appliance & Plug Loads	14	73,057	726,375	13	44,289	441,060	158	$36,043	0.97	0.42	0.098
BROs	0	13,791,112	13,791,112	0	9,102,134	9,102,134	3,798	$450,684	1.79	1.79	0.050
Building Envelope	169	383,455	7,553,325	129	237,219	4,711,968	2,222	$265,275	1.54	0.46	0.081
Commercial Refrigeration	52	388,800	5,443,200	52	388,800	5,443,200	1,918	$148,169	2.50	0.97	0.035
HVAC - Cooling	78	882,836	5,716,772	69	815,495	5,345,723	2,523	$418,785	1.28	1.14	0.093
HVAC - Heat Pump	1	6,393	95,895	1	5,114	76,716	35	$11,265	0.60	0.25	0.193
Lighting - Indoor	292	1,233,992	13,603,472	263	1,110,296	12,229,220	4,204	$441,325	2.01	2.95	0.044
Lighting - Outdoor	366	1,125,290	12,378,190	330	1,012,761	11,140,371	5,197	$424,748	1.91	2.63	0.046
Miscellaneous	48	424,158	8,483,164	48	424,158	8,483,164	2,867	$178,757	3.02	0.91	0.030
Service & Domestic Hot Water	0	1,175	17,625	0	940	14,100	5	$753	1.26	0.39	0.070
EE	1,021	18,310,268	67,809,129	905	13,141,206	56,987,656	22,927	$2,375,804	1.85	1.26	0.051
EE and Low Income	1,021	18,310,268	67,809,129	905	13,141,206	56,987,656	22,927	$2,375,804	1.85	1.26	0.051
Appliance & Plug Loads	0	2,134	31,908	0	1,714	25,608	10	$8,942	0.22	0.09	0.458
HVAC - Heat Pump	0	2,414,808	36,222,121	0	2,372,737	35,591,050	16,626	$2,484,228	1.30	1.16	0.092
Service & Domestic Hot Water	0	365,781	5,486,715	0	365,781	5,486,715	2,018	$312,909	1.18	0.95	0.075
Electrification	0	2,782,723	41,740,744	0	2,740,232	41,103,373	18,653	$2,806,078	1.29	1.12	0.090
C&S, T&D and Electrification	0	2,782,723	41,740,744	0	2,740,232	41,103,373	18,653	$2,806,078	1.29	1.12	0.090
Utility Total	1,021	21,092,991	109,549,873	905	15,881,438	98,091,028	41,579	$5,181,882	1.55	1.19	0.066

TABLE Roseville-2. EE Program Results by Sector

Summary by Sector	Resource Savings Summary								Cost Test Results		
Sector	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Commercial	778	2,850,233	32,048,136	706	2,605,901	29,405,929	11,504	$1,070,635	1.98	2.07	0.045
Industrial	48	424,158	8,483,164	48	424,158	8,483,164	2,867	$178,757	3.02	0.91	0.030
Residential	195	15,035,877	27,277,829	151	10,111,147	19,098,563	8,556	$1,126,413	1.55	0.93	0.067
EE	1,021	18,310,268	67,809,129	905	13,141,206	56,987,656	22,927	$2,375,804	1.85	1.26	0.051
EE and Low Income	1,021	18,310,268	67,809,129	905	13,141,206	56,987,656	22,927	$2,375,804	1.85	1.26	0.051
Commercial	0	3,644	54,660	0	3,644	54,660	17	$44,231	0.09	0.10	1.062
Residential	0	2,779,079	41,686,083	0	2,736,588	41,048,712	18,636	$2,761,847	1.31	1.14	0.088
Electrification	0	2,782,723	41,740,744	0	2,740,232	41,103,373	18,653	$2,806,078	1.29	1.12	0.090
C&S, T&D and Electrification	0	2,782,723	41,740,744	0	2,740,232	41,103,373	18,653	$2,806,078	1.29	1.12	0.090
Utility Total	1,021	21,092,991	109,549,873	905	15,881,438	98,091,028	41,579	$5,181,882	1.55	1.19	0.066

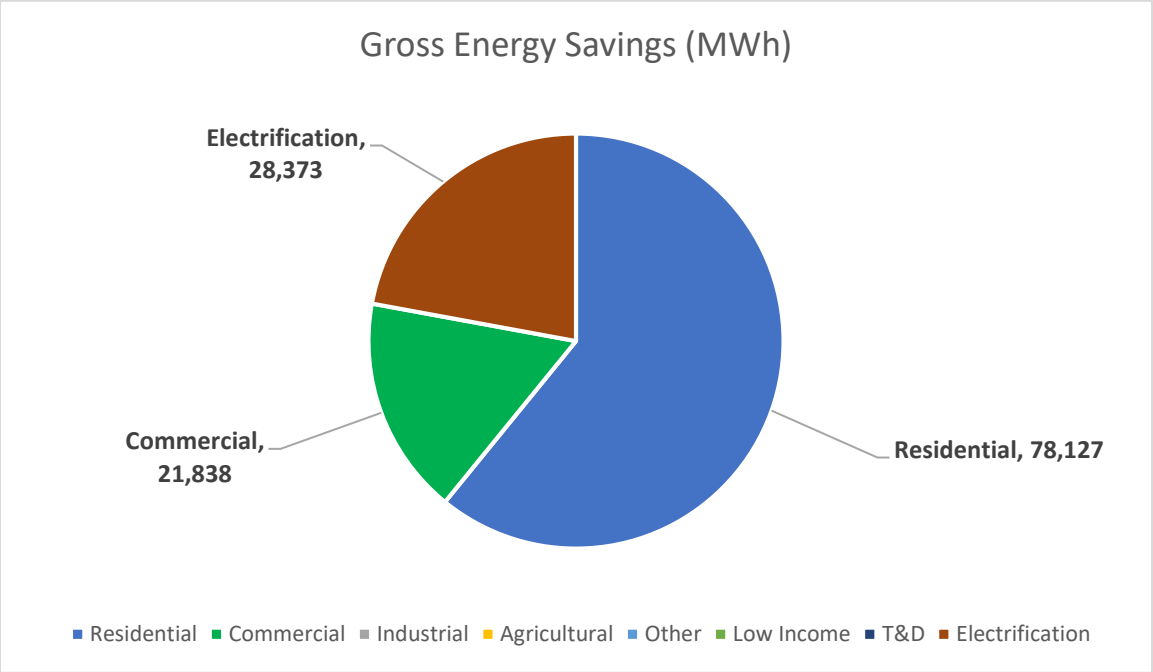
TABLE Roseville-3. EE Program Results by Building Type

Summary by Building Type	Resource Savings Summary								Cost Test Results		
Building Type	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Education - Primary School	60	68,392	205,177	54	61,553	184,660	62	$14,310	1.14	1.99	0.081
Grocery	52	388,800	5,443,200	52	388,800	5,443,200	1,918	$148,169	2.50	0.97	0.035
Lodging - Hotel	2	750	11,250	2	750	11,250	3	$1,659	0.50	5.23	0.194
Other Commercial	664	2,392,291	26,388,509	598	2,154,798	23,766,819	9,520	$906,497	1.90	2.74	0.046
Other Industrial	48	424,158	8,483,164	48	424,158	8,483,164	2,867	$178,757	3.02	0.91	0.030
Residential	26	14,314,102	21,748,852	20	9,503,349	14,702,548	6,455	$841,526	1.58	1.25	0.063
Residential - Single-Family	169	721,775	5,528,978	131	607,798	4,396,015	2,101	$284,887	1.47	0.51	0.082
EE	1,021	18,310,268	67,809,129	905	13,141,206	56,987,656	22,927	$2,375,804	1.85	1.26	0.051
EE and Low Income	1,021	18,310,268	67,809,129	905	13,141,206	56,987,656	22,927	$2,375,804	1.85	1.26	0.051
Multiple	0	3,117	46,753	0	3,117	46,753	17	$3,503	0.91	0.91	0.098
Other Commercial	0	0	0	0	0	0	0	$7,200			0.000
Residential		34	408		34	408	0	$256	0.12	0.04	0.779
Residential - Single-Family	0	2,775,928	41,638,922	0	2,733,437	41,001,551	18,619	$2,758,087	1.31	1.14	0.088
Retail - Large	0	3,644	54,660	0	3,644	54,660	17	$37,031	0.11	0.10	0.889
Electrification	0	2,782,723	41,740,744	0	2,740,232	41,103,373	18,653	$2,806,078	1.29	1.12	0.090
C&S, T&D and Electrification	0	2,782,723	41,740,744	0	2,740,232	41,103,373	18,653	$2,806,078	1.29	1.12	0.090
Utility Total	1,021	21,092,991	109,549,873	905	15,881,438	98,091,028	41,579	$5,181,882	1.55	1.19	0.066

SACRAMENTO MUNICIPAL UTILITY DISTRICT

Sacramento Municipal Utility District at a Glance

- Climate Zone: 12
- Customers: 651,135
- Total annual retail sales: 10,662,294 MWh
- Annual Retail Revenue: $1,615,907,298
- Annual EE expenditures for reporting year: $41,039,953
- Gross annual savings from reporting year portfolio: 128,338 MWh



Sacramento Overview

Sacramento Municipal Utility District (SMUD) is planning program changes to respond to the following industry trends, utility direction and changing customer expectations:

- In July of 2020, the SMUD Board declared a climate emergency and set a goal of delivering carbon neutral electricity by 2030.
- Diversity, Equity, Inclusion, and Belonging (DEIB) is a stated goal in SMUD culture. Many of our programs have included Equity components to help ensure Inclusion. In addition, SMUD Board of Directors issued funding for a new Sustainable Communities Equity program offerings to ensure access to decarbonization offerings.

- EE, building electrification, transportation electrification, solar and storage will continue to converge toward complete energy solutions, customized to meet the needs of the customer and the utility.

Major Program and Portfolio Changes

Major Program and Portfolio Changes

SMUD continued long-term reduction in the overall EE budget, with an ensuing reduction in the energy and peak savings achieved in prior years. This was both a planned reduction as SMUD's focus shifted towards its 2030 Zero Carbon plan goals and a decrease in commercial program activity resulting from economic conditions. Major program changes include the following:

- Initiated two new residential load flexibility programs: My Energy Optimizer™ (MEO) Partner+ (battery storage) and Peak Conserve™ (air conditioner switch) load flexibility program.
- The Advanced Homes program conducted delivery coordination with the statewide California TECH program, which provided incentives for heat pump water and space heating conversions.

Program and Portfolio Highlights

Program and Portfolio Highlights

On July 17, 2020, the SMUD Board of Directors adopted a climate emergency declaration. The SMUD Board of Directors adopted a climate emergency declaration that commits to working toward an ambitious goal of delivering carbon neutral electricity by 2030. The declaration recognizes the immediate risks to our community and demands bold action to achieve results.

As SMUD charts the process to decarbonize our electricity supply, we recognize there is a need to help our customers decarbonize their lives also through EE, building electrification and transportation electrification. Building and transportation electrification will both place strain on the distribution grid and force a larger carbon free electricity supply. Managing the load and grid in 2030 will encourage SMUD to operate the supply and grid differently.

Due to these expected changes, SMUD is changing many of their existing programs and developing new programs to prepare SMUD and our customers to this new future. As we move forward, this will encourage more bundling of programs and care to develop programs that aid us to a carbon free future.

For 2023, SMUD spent $37.7 million for residential and commercial EE programs, compared to a budget of $38.3 million. All expenditures are public goods funded. These programs delivered 14 megawatts (MW) of peak-load reduction and 90 million kWhs of annual energy savings.

Commercial, Industrial & Agricultural Programs

Commercial, Industrial & Agricultural Programs

Expenditures for commercial/industrial EE retrofit programs for existing buildings and facilities were $8.9 million, with delivery of 22.0 GWh in annual energy savings.

- Customized EE 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 retro-commissioning, 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, and food-service equipment. Incentives are targeted to the contractor/supplier 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 administrator performs comprehensive energy audits of small and medium-sized businesses. Customer receives a customized report detailing recommended energy improvements, estimated savings, estimated cost and payback. Third party administrator then assists customer in hiring a contractor to complete the project.
- Integrated Design Solutions: Provides incentives to builders and their design teams to design new commercial and industrial buildings energy efficient than required by Title 24 (or typical new construction in the case of Title 24-exempt buildings and processes).
- Multifamily Retrofit: Provides incentives to apartment owners and managers to complete energy retrofits.
- Smart Homes: Provides incentives to builders and their design teams to design efficient all electrics homes and apartments.

Residential Programs

Residential Programs

Expenditures for residential EE programs for existing homes were $18.1 million and achieved 23.9 GWh in annual energy savings.

- Advanced Homes: Provides rebates for qualifying (Energy Star®, Consortium for EE, and/or other high-efficiency levels) efficiency improvements, which include mini split heat pump, heat pump space heaters and heat pump water heaters.
- Low Income Decarbonization: Direct install weatherization program supporting the adoption of heat pump water and space heating.

- Home Energy Reports: Emailed energy reports to support more energy efficient usage within a home.
- Appliance Efficiency Program: Included in this program are induction cooking rebates, Refrigerator/Freezer Recycling, SHIFT, and the Retail Partnership Program.
- Induction Cooking Rebates provides incentives for both electric replacement and gas conversions.
- Refrigerator/Freezer Recycling provides incentives to recyclers and partners to complete environmental recycling of old refrigerators and freezers.
- Retail Partnership Program is an upstream program that works with big box retailers to pay retailer incentives for all the EE items they sell in their stores.
- SHIFT is an upstream program that works with big box retailers to pay retailer incentives to shift adoption away from high volume non-Energy Star® models.

Complementary Programs

Information/Education Programs

SMUD provides residential and commercial educational events, classes and seminars through its Energy & Technology center. These activities provide information on a wide range of distributed energy resources, including EE, building electrification, electric transportation, solar, and battery storage.

Demand-Reduction Programs

- Peak Corps and Peak Conserve(Residential Air Conditioner Load Management Program): Peak Corp is a legacy program in which radio-controlled cycling devices were installed on customers' central air conditioners to send a radio signal to switch, or cycle, off their air conditioners to reduce peak load on the electric-system. In the late 1990's the program was transitioned into maintenance mode with no new installations. In 2010 the program was modified for emergency use only and all service and maintenance related work was discontinued. Operators have the ability to activate the entire ACLM cycling program within a 3-minute time span, but the program has not been activated since 2000. In 2023, Peak Conserve was launched as a successor program with new two-way switches utilizing SMUD's mesh communication network. This program will be used for both economic and emergency dispatch, with 5 events occurring in 2023.
- Power Direct (Automated DR 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.
- My Energy Optimizer Thermostat: Continuing from 2022, this program utilizes smart thermostat devices for economic load curtailment events. A portion of customers were also enrolled into the Critical Peak Pricing (CPP) Rate.

- My Energy Optimizer Battery: All MEO Suite of incentives launched in PowerClerk on March 1, 2022, to align with the Solar & Storage Rate launch. The program is currently composed of two levels: Starter which offers incentives for rate optimization and Partner+ which offers greater incentives and performance payments for event-based battery utilization.

Other Complimentary Programs

- 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.
- Low-Income Programs: SMUD provides a low-income rate subsidy, a medical assistance rate subsidy, and no-cost weatherization and electrification services to our low-income customers.
- EVs: In 2022, SMUD's Drive Electric program continued to promote adoption of plug-in electric vehicles through special PEV rate offerings, participation in educational events, and educational offerings through our website SMUD.org/PEV.
- Renewable Energy Programs: During 2022, SMUD worked closely with our community to develop a new Solar & Storage rate for our customers. This new Solar & Storage rate has now joined our voluntary green pricing programs including SolarShares, which supports expansion of distributed PV; and commercial and residential REC purchase programs.
- Codes & Standards: SMUD continues to pursue the development and implementation of codes and standards (e.g. T24, T20, etc.) as the most cost-effective source of Energy Savings. SMUD participates in several working groups, drives code compliance through programs, assists with workforce training, conducts research, and develops data management systems to improve tracking and reporting. SMUD is claiming 51 net GWh energy savings associated with the Statewide Codes and Standards Team for 2023.
- RD&D: SMUD has a centralized research and development program that conducts public good research across the electricity enterprises from the supply side to demand side. Research is conducted in eight research areas which include renewable energy, electric transportation, climate change, distributed generation, EE, DR, 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.

EM&V Studies

Evaluation studies are managed through SMUD's Finance & Strategy division's Enterprise & Risk business unit. Studies are selected based on its importance to SMUD's Enterprise Strategy pillars, which covers a wide range of initiatives, including Environmental Leadership activities.

For 2023, evaluation studies included:

- My Energy Optimizer Partner Thermostat Summer 1 – completed.
- My Energy Optimizer Partner Thermostat Summer 2 – est. 2024 completion.
- My Energy Optimizer Partner+ Battery – est. 2025 completion.
- Peak Conserve Summer 1 – est. 2024 completion.
- Advanced Commercial Solutions (Integrated Design Solutions and Customized Efficiency) – est. 2024 completion.
- Commercial EV Rate – est. 2024 completion.

In 2024, the following evaluation studies will begin:

- Advanced Homes Solutions HVAC – est. 2024 completion.
- PowerDirect – est. 2025 completion.
- Peak Conserve Summer 2 - est. 2025 completion.
- Low Income EE & Electrification Direct Install - est. 2025 completion.
- Multifamily Retrofit - est. 2025 completion.

Major Differences or Diversions from California POU TRM for Energy Savings

To determine energy savings, programs may rely on several sources: the California Technical Reference Manual, Energy Modeling Software, or specific studies conducted by utilities or recognized working groups. The goal is to use the most current studies/workpapers which best represent CZ12 and SMUD customers.

TABLE SMUD-1. EE Program Results by End Use

Summary by End Use	Resource Savings Summary								Cost Test Results		
End Use	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Any	843	6,119,598	85,674,366	590	4,283,718	59,972,056	1,598	$1,088,363	0.69	1.21	0.026
Appliance & Plug Loads	1,543	7,291,781	91,808,963	1,096	5,237,357	67,104,072	1,786	$1,350,349	0.68	0.12	0.029
Codes & Standards	7,949	51,000,000	765,000,000	6,359	40,800,000	612,000,000	14,947	$1,310,106	5.98	5.98	0.003
Commercial Refrigeration	1	5,712	85,681	1	4,570	68,545	2	$2,053	0.41	0.05	0.044
Food Service	1	8,512	127,680	1	6,810	102,144	3	$2,514	0.47	0.21	0.036
HVAC - Cooling	1,531	15,065,269	213,333,396	1,237	10,014,159	140,283,299	3,570	$5,465,642	0.24	0.15	0.056
HVAC - Heat Pump	81	213,728	3,205,920	49	137,242	2,058,624	46	$360,940	0.14	0.12	0.259
Lighting - Indoor	877	5,202,838	36,419,866	700	4,129,794	28,908,556	1,483	$1,520,758	0.40	0.12	0.063
Lighting - Outdoor	527	3,871,488	27,100,419	36	252,629	1,768,405	93	$517,310	0.06	0.05	0.348
Service & Domestic Hot Water	13	141,405	1,414,050	8	84,843	848,430	29	$49,196	0.21	0.29	0.075
Whole Building	1,620	11,044,750	165,671,250	1,534	10,463,130	156,946,956	3,850	$2,657,571	0.74	0.09	0.025
EE	14,984	99,965,081	1,389,841,591	11,611	75,414,252	1,070,061,088	27,408	$14,324,803	0.94	0.28	0.020
EE and Low Income	14,984	99,965,081	1,389,841,591	11,611	75,414,252	1,070,061,088	27,408	$14,324,803	0.94	0.28	0.020
Any	539	3,399,992	67,999,835	539	3,399,992	67,999,835	1,250	$4,451,566	0.17	0.13	0.110
Appliance & Plug Loads	27	118,251	1,182,506	27	118,251	1,182,506	39	$553,002	0.03	0.02	0.605
HVAC - Cooling	4,485	15,281,016	198,653,208	4,485	15,281,016	198,653,208	5,218	$10,785,759	0.40	0.65	0.076
HVAC - Heat Pump	987	4,949,290	58,461,243	913	4,675,451	54,826,556	1,612	$6,110,435	0.16	0.18	0.152
Service & Domestic Hot Water	397	3,934,803	51,067,616	390	3,891,551	50,418,836	1,351	$3,464,301	0.16	0.12	0.096
Whole Building	97	689,453	10,341,800	96	685,173	10,277,600	259	$1,350,088	0.10	0.12	0.194
Electrification	6,532	28,372,806	387,706,208	6,451	28,051,434	383,358,542	9,729	$26,715,150	0.25	0.28	0.100
C&S, T&D and Electrification	6,532	28,372,806	387,706,208	6,451	28,051,434	383,358,542	9,729	$26,715,150	0.25	0.28	0.100
Utility Total	21,516	128,337,886	1,777,547,800	18,061	103,465,686	1,453,419,629	37,137	$41,039,953	0.49	0.28	0.041

TABLE SMUD-2. EE Program Results by Sector

Summary by Sector	Resource Savings Summary								Cost Test Results		
Sector	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Commercial	3,296	21,837,781	254,972,104	2,483	16,199,361	207,931,026	5,923	$5,106,587	0.57	0.09	0.035
Residential	11,688	78,127,300	1,134,869,487	9,128	59,214,891	862,130,062	21,486	$9,218,216	1.15	0.62	0.016
EE	14,984	99,965,081	1,389,841,591	11,611	75,414,252	1,070,061,088	27,408	$14,324,803	0.94	0.28	0.020
EE and Low Income	14,984	99,965,081	1,389,841,591	11,611	75,414,252	1,070,061,088	27,408	$14,324,803	0.94	0.28	0.020
Commercial	157	1,123,035	16,845,521	145	1,038,115	15,571,730	390	$1,940,450	0.10	0.11	0.184
Residential	6,375	27,249,771	370,860,687	6,306	27,013,319	367,786,812	9,339	$24,774,700	0.27	0.29	0.097
Electrification	6,532	28,372,806	387,706,208	6,451	28,051,434	383,358,542	9,729	$26,715,150	0.25	0.28	0.100
C&S, T&D and Electrification	6,532	28,372,806	387,706,208	6,451	28,051,434	383,358,542	9,729	$26,715,150	0.25	0.28	0.100
Utility Total	21,516	128,337,886	1,777,547,800	18,061	103,465,686	1,453,419,629	37,137	$41,039,953	0.49	0.28	0.041

TABLE SMUD-3. EE Program Results by Building Type

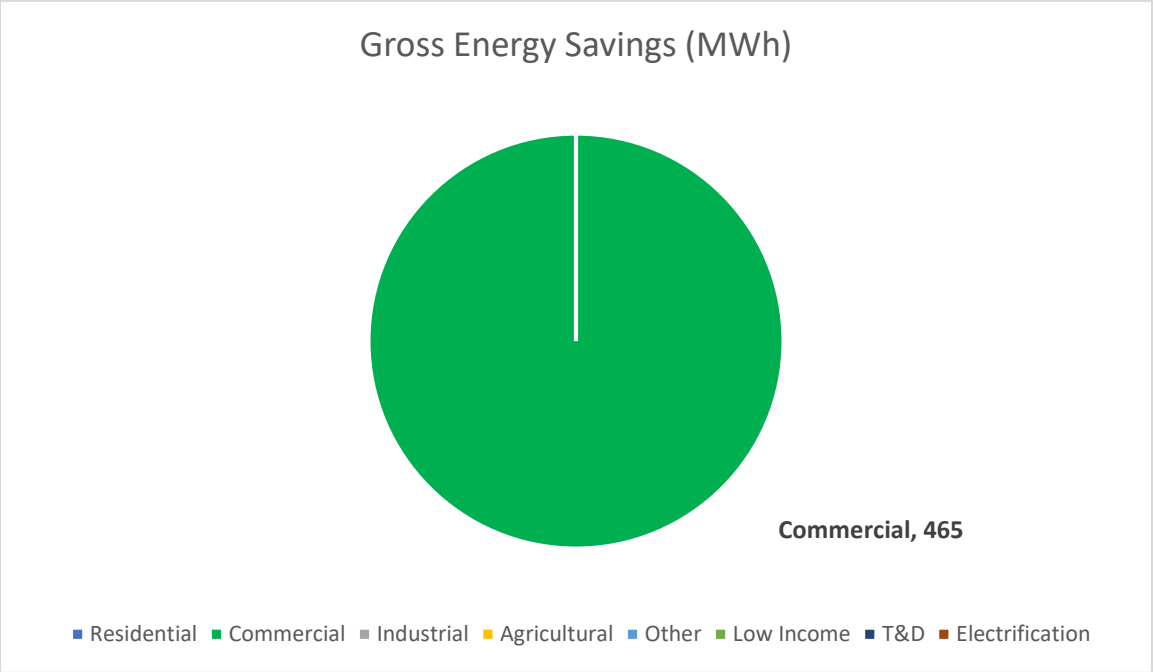
Summary by Building Type	Resource Savings Summary								Cost Test Results		
Building Type	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Any	7,949	51,000,000	765,000,000	6,359	40,800,000	612,000,000	14,947	$1,310,106	5.98	5.98	0.003
Assembly	28	193,314	2,231,528	25	169,101	2,001,965	62	$48,745	0.56	0.38	0.034
Education - Primary School	62	551,002	3,857,012	50	440,801	3,085,610	156	$191,757	0.26	0.02	0.074
Education - Secondary School	26	191,700	2,875,500	24	174,447	2,616,705	64	$47,978	0.67	0.01	0.027
Education - University	8	191,223	2,540,297	6	146,039	2,187,954	61	$19,782	1.09	1.52	0.013
Grocery	98	757,401	10,814,634	93	721,907	10,391,499	267	$170,848	0.76	0.39	0.024
Health/Medical - Hospital	3	22,512	337,680	3	22,512	337,680	8	$36,845	0.11	0.09	0.161
Lodging - Hotel	157	993,312	13,864,315	126	797,320	11,131,499	290	$299,603	0.56	0.42	0.039
Lodging - Motel	56	444,136	6,662,040	45	355,309	5,329,632	135	$124,708	0.51	0.44	0.035
Manufacturing Biotech	47	321,700	4,825,500	44	303,691	4,555,365	112	$60,918	0.90	0.02	0.020
Manufacturing Light Industrial	556	3,761,166	54,445,123	535	3,606,418	52,518,379	1,324	$646,049	1.05	1.17	0.018
Office - Large	290	2,026,025	18,670,252	242	1,685,512	15,906,580	639	$533,222	0.48	0.10	0.044
Office - Small	169	1,148,318	13,008,312	139	960,192	11,029,713	359	$222,257	0.71	0.03	0.028
Other Agricultural	489	3,307,900	49,618,500	445	3,010,189	45,152,835	1,107	$543,824	1.02	0.10	0.018
Other Commercial	702	5,063,805	44,563,413	205	1,400,214	18,644,773	515	$1,363,038	0.18	0.28	0.105
Residential - Multi-Family	354	2,159,050	32,385,746	283	1,727,240	25,908,596	640	$531,198	0.64	0.76	0.030
Residential - Single-Family	3,385	24,968,250	337,483,742	2,486	16,687,652	224,221,466	5,898	$7,376,913	0.32	0.16	0.047
Restaurant - Fast-Food	3	18,163	172,841	2	14,531	138,272	5	$7,679	0.28	0.10	0.073
Restaurant - Sit-Down	36	201,337	2,409,161	31	174,951	2,135,549	62	$45,282	0.68	0.01	0.030
Retail - Large	457	1,898,692	18,853,479	382	1,619,368	16,589,002	539	$567,885	0.60	0.55	0.046
Retail - Small	57	343,469	2,404,286	46	274,776	1,923,429	98	$84,679	0.42	0.34	0.052
Storage - Conditioned	29	238,300	1,668,098	23	190,640	1,334,478	71	$54,966	0.44	0.40	0.049
Storage - Unconditioned	17	130,706	914,942	13	104,565	731,954	39	$26,287	0.50	0.09	0.043
Warehouse - Refrigerated	5	33,599	235,193	4	26,879	188,154	9	$10,232	0.53	0.28	0.065
EE	14,984	99,965,081	1,389,841,591	11,611	75,414,252	1,070,061,088	27,408	$14,324,803	0.94	0.28	0.020
EE and Low Income	14,984	99,965,081	1,389,841,591	11,611	75,414,252	1,070,061,088	27,408	$14,324,803	0.94	0.28	0.020
Assembly	50	356,152	5,342,283	40	284,922	4,273,826	105	$444,433	0.11	0.10	0.154
Education - Primary School	0	4,086	61,295	0	4,086	61,295	2	$8,176	0.08	0.05	0.197
Education - Secondary School	8	66,034	990,514	8	63,991	959,861	24	$177,181	0.07	0.06	0.273
Grocery	3	26,298	394,470	3	26,298	394,470	10	$44,035	0.10	0.06	0.165
Manufacturing Light Industrial	5	32,800	492,000	4	28,520	427,800	11	$140,447	0.04	0.08	0.485
Office - Large	62	434,900	6,523,500	62	434,900	6,523,500	165	$681,725	0.12	0.14	0.154
Office - Small	3	20,597	308,959	2	16,478	247,167	6	$53,646	0.06	0.04	0.321

Other Agricultural	3	21,720	325,800	3	21,720	325,800	8	$177,316	0.02	0.12	0.804
Other Commercial	20	144,217	2,163,250	20	144,217	2,163,250	55	$186,669	0.14	0.14	0.127
Residential - Multi-Family	231	1,272,445	23,724,404	231	1,272,445	23,724,404	467	$1,833,896	0.16	0.06	0.127
Residential - Single-Family	6,144	25,977,326	347,136,283	6,075	25,740,874	344,062,408	8,873	$22,940,805	0.27	0.36	0.095
Retail - Small	3	16,230	243,450	2	12,984	194,760	5	$26,821	0.09	0.13	0.203
Electrification	6,532	28,372,806	387,706,208	6,451	28,051,434	383,358,542	9,729	$26,715,150	0.25	0.28	0.100
C&S, T&D and Electrification	6,532	28,372,806	387,706,208	6,451	28,051,434	383,358,542	9,729	$26,715,150	0.25	0.28	0.100
Utility Total	21,516	128,337,886	1,777,547,800	18,061	103,465,686	1,453,419,629	37,137	$41,039,953	0.49	0.28	0.041

SAN FRANCISCO PUBLIC UTILITIES DISTRICT

San Francisco Public Utilities District at a Glance

- Climate Zone: 3
- Customers: 6,200
- Total annual retail sales: 916,902 MWh
- Annual Retail Revenue: $155,962,876
- Annual EE expenditures for reporting year: $347,266
- Gross annual savings from reporting year portfolio: 465 MWh



San Francisco Overview

Hetch Hetchy Power manages a portfolio of electric generation, which includes the SFPUC's Hetch Hetchy Water and Power System, which generates an average of 1.6 million MWh of clean hydroelectric power each year, 28 municipal solar photovoltaic installations (8.5 MW), and a biogas cogeneration facility (2.0 MW). Hetch Hetchy Power has made a commitment to EE as its highest priority resource.

Historically, Hetch Hetchy Power's EE programs have mainly targeted its municipal customers, and most of its programs have been provided at no charge to these civic agencies. Hetch Hetchy Power also now offers programs for its growing residential and commercial customer sectors.

Major Program and Portfolio Changes

This year's energy savings are primarily derived from direct install lighting projects at St. Mary's Recreation Center, Upper Noe Recreation Center, 190 9th Street, and San Bruno County Jails - Phase 1.

Program and Portfolio Highlights

EE has been an essential component of Hetch Hetchy Power's resource portfolio for more than a decade. In the current reporting period, FY 2022-23, completed EE projects and programs are estimated to save 465 MWh (net savings) of electricity per year, at a utility cost of $190 thousand. Hetch Hetchy Power's EE projects and programs also achieve significant natural gas savings each year, which are accounted for separately from this report.

Program highlights for FY 2022-23 include:

- High bay gym lighting retrofit at St. Mary's Recreation Center
- High bay gym lighting retrofit at Upper Noe Recreation Center
- Interior lighting retrofit at 190 9th Street
- Lighting retrofit at San Bruno County Jails - Phase 1

Commercial, Industrial & Agricultural Programs

Hetch Hetchy Power's EE programs are generally tailored to each customer (almost all of which are other City departments), because most of these customers are large and have varied property characteristics. These programs include:

- General Fund Program: This program provides complete retrofit services and customized incentives to targeted municipal customers. The program focuses on City agencies that are funded primarily through local tax receipts, fees, and federal/state-funded programs. These customers are considered hard-to-reach (due to limited access to capital and engineering, as well as insufficient price signals).
- Civic Center Sustainability District: Through a partnership with the Clinton Global Initiative, this program demonstrates green, renewable and energy efficient technologies as a national model for sustainability in historic districts. For EE projects, the program provides free energy audits, design, construction management, construction services, and full funding to buildings in the City's Civic Center historic district.
- 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 FY 22-23, Power Enterprise released its eleventh annual report benchmarking the energy performance of San Francisco's municipal buildings.

- Upgrade for Savings: Hetch Hetchy Power offers customized cash incentives and technical support to help customers make significant upgrades to energy-efficient equipment, systems, and operational practices.
- Blueprint for Savings: This new construction EE program offers design assistance and cash payments to building owners and design teams planning to construct highly energy efficient buildings 50,000 square feet or larger.

Residential Programs

Hetch Hetchy Power primarily serves municipal loads. Hetch Hetchy Power provides distribution service to the former military installations at Treasure Island and Hunters Point, both of which are in the process of being redeveloped to residential/commercial uses. Additional EE activities for this new residential use are limited as these new units are being built to the latest code and EE standards. New programs are under development to serve these customers.

Complementary Programs

Hetch Hetchy Power offers several related programs, among them:

Renewable Energy Programs:

- Municipal Renewable Program: Under this program, Hetch Hetchy Power directly installs, maintains, and operates solar PV systems on municipal buildings throughout the City and County of San Francisco; and
- GoSolarSF: This program provides incentive payments to San Francisco 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.

EM&V Studies

Historically, most of the EE retrofit projects funded by Hetch Hetchy Power have included an individual M&V study following the International Performance Measurement and Verification Protocol (IPMVP). These projects have included an M&V plan with a sampling plan, a logging plan, an approach to data recovery and analysis, and a written report.

Major Differences or Diversions from California POU TRM for Energy Savings

Hetch Hetchy Power's mostly direct-install EE portfolio allows it to report energy savings based on site-specific engineering studies with detailed ex ante savings estimates. These studies base savings on on-site collected data for hours of operation, nameplate data for replaced equipment, and detailed site-specific costs. As such, Hetch Hetchy Power assumes an "existing conditions" baseline for energy savings calculations, and accordingly, Hetch Hetchy Power does not separately claim savings from code advocacy.

TABLE SFPUC-1. EE Program Results by End Use

Summary by End Use	Resource Savings Summary								Cost Test Results		
End Use	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
HVAC - Heat Pump	0	69,910	1,048,650	0	69,910	1,048,650	1,333	$52,188	4.07	4.07	0.067
Lighting - Indoor	55	395,518	5,932,770	55	395,518	5,932,770	2,013	$295,078	1.98	1.75	0.066
EE	55	465,428	6,981,420	55	465,428	6,981,420	3,346	$347,266	2.30	2.07	0.066
EE and Low Income	55	465,428	6,981,420	55	465,428	6,981,420	3,346	$347,266	2.30	2.07	0.066
C&S, T&D and Electrification								$0			
Utility Total	55	465,428	6,981,420	55	465,428	6,981,420	3,346	$347,266	2.30	2.07	0.066

TABLE SFPUC-2. EE Program Results by Sector

Summary by Sector	Resource Savings Summary								Cost Test Results		
Sector	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Commercial	55	465,428	6,981,420	55	465,428	6,981,420	3,346	$347,266	2.30	2.07	0.066
EE	55	465,428	6,981,420	55	465,428	6,981,420	3,346	$347,266	2.30	2.07	0.066
EE and Low Income	55	465,428	6,981,420	55	465,428	6,981,420	3,346	$347,266	2.30	2.07	0.066
C&S, T&D and Electrification								$0			
Utility Total	55	465,428	6,981,420	55	465,428	6,981,420	3,346	$347,266	2.30	2.07	0.066

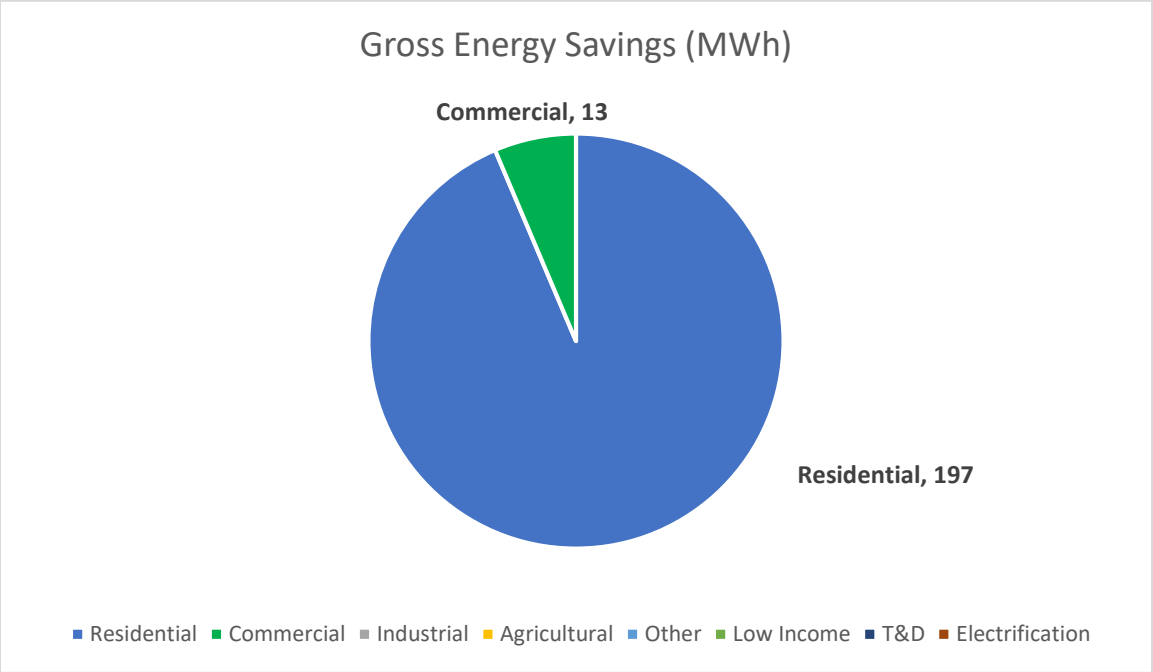
TABLE SFPUC-3. EE Program Results by Building Type

Summary by Building Type	Resource Savings Summary								Cost Test Results		
Building Type	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Office - Small	0	69,910	1,048,650	0	69,910	1,048,650	1,333	$52,188	4.07	4.07	0.067
Other Commercial	55	395,518	5,932,770	55	395,518	5,932,770	2,013	$295,078	1.98	1.75	0.066
EE	55	465,428	6,981,420	55	465,428	6,981,420	3,346	$347,266	2.30	2.07	0.066
EE and Low Income	55	465,428	6,981,420	55	465,428	6,981,420	3,346	$347,266	2.30	2.07	0.066
C&S, T&D and Electrification								$0			
Utility Total	55	465,428	6,981,420	55	465,428	6,981,420	3,346	$347,266	2.30	2.07	0.066

CITY OF SHASTA LAKE

City of Shasta Lake at a Glance

- Climate Zone: 11
- Customers: 4,605
- Total annual retail sales: 218,105 MWh
- Annual Retail Revenue: $34,505,022
- Annual EE expenditures for reporting year: $194,754
- Gross annual savings from reporting year portfolio: 211 MWh



Shasta Lake Overview

The City of Shasta Lake (CSL) is in Shasta County north of Redding. CSL invests its Public Benefit funds to promote positive community impacts by promoting electricity-saving measures. CSL utilizes a comprehensive set of traditional rebate programs available to all customers under retrofit projects.

Major Program and Portfolio Changes

Reportable savings tend to fluctuate dramatically from year to year. In the last five years, CSL has achieved 113% of net kWh savings targets.

Program and Portfolio Highlights

The Residential Lighting Direct Install Program provided 88% of the gross annual savings in FY 2023. The program provides instant energy savings measures at no cost to the customer.

Commercial, Industrial & Agricultural Programs

CSL manages a comprehensive EE incentive program for commercial customers focusing on EE and peak load reduction. Rebates are available for upgraded lighting, HVAC (Heating, Ventilation, and AC), appliances, refrigeration equipment, and electronics, and in cases where an analysis is performed rebates can be offered for additional equipment that reduces energy use and/or demand. On-site energy audits are provided by CSL energy specialists. EE measures are recommended, and additional visits are completed upon request.

- Small Business Exterior Lighting Program: CSL will cover 100% of the equipment cost for qualifying businesses that install energy-efficient exterior lighting projects. A free evaluation of the business's existing lighting is taken to determine eligibility and potential energy savings from retrofit lighting upgrade opportunities. Businesses either contract with an installation company or use their in-house staff to upgrade inefficient shoebox, canopy, wall-mounted, screw-in, and fluorescent tube lighting with program qualifying Light Emitting Diode (LED) technology.
- Commercial/Industrial Lighting Program: CSL offers rebates to business owners who invest in the installation of EE lighting upgrades. There is a prevalence of inefficient lighting throughout the city and most high bay lighting uses high-intensity discharge fixtures instead of more efficient fluorescent or LED fixtures.
- Commercial HVAC: CSL offers rebates to commercial customers for energy-efficient HVAC upgrades.
- Commercial Refrigeration: Rebates are available to improve the efficiency of commercial refrigeration systems.
- Commercial Appliances: Rebates are available for energy-efficient cooking equipment such as ovens, dishwashers, fryers, griddles, etc.
- Commercial Electronics: CSL offers rebates for uninterrupted power supplies, plug-load occupancy sensors, and smart power strips.
- Commercial/Industrial Custom Program: CSL 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.

Residential Programs

CSL manages a comprehensive EE incentive program for residential customers. Rebates are offered for the installation of various EE measures, such as lighting, HVAC, appliances, and

weatherization. On-site energy audits are provided by CSL energy specialists. EE measures are recommended, and additional visits are completed upon request.

- Residential Direct Install Program: CSL offers free to participating customers the direct installation of ENERGY STAR®-certified LED lamps/bulbs, High-Performance Showerheads, Thermostatic Shower Valves, Kitchen and Bath Faucet Aerators, and Advanced Power Strips for instant energy and water savings in customers' homes.
- Residential Lighting Program: CSL offers rebates to homeowners who install ENERGY STAR®-certified LED lamps/bulbs, ceiling fans, and LED holiday lights.
- Residential HVAC Program: CSL offers rebates to homeowners who install high-performance heat pumps, central air-conditioners, room air-conditioners, or whole-house fans that exceed current state requirements. CSL also offers a rebate for duct sealing when not required by code.
- Residential Equipment Program: CSL offers rebates to homeowners who purchase new ENERGY STAR® -certified products, including clothes washers, room air conditioners, dishwashers, pool pumps, and refrigerators.
- Residential Weatherization Program: CSL offers rebates to homeowners who invest in weatherizing their homes, including attic and wall insulation, and window treatments/replacement.
- Residential Water Heater Rebate Program: CSL offers rebates to homeowners who purchase a new, energy-efficient electric water heater.

Complementary Programs

- Low-Income Programs: Lifeline monthly rate discount program and one-time bill assistance known as SHARE.
- Renewable Energy Programs: Focus on customized solar projects that benefit the CSL.
- RD&D: Focuses on LED lighting in various applications, community solar charging station(s) and the latest HVAC applications in City owned facilities.

EM&V Studies

EM&V reports for CSL are posted on the California Municipal Utility Association website.

Major Differences or Diversions from California POU TRM for Energy Savings

CSL has relied heavily on the savings listed in the Technical Resource Manual and the eTRM. Non-residential lighting, custom projects and non-deemed measures utilize custom savings calculations.

TABLE CSL-1. EE Program Results by End Use

Summary by End Use	Resource Savings Summary								Cost Test Results		
End Use	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Appliance & Plug Loads	3	23,797	139,782	3	21,465	119,287	44	$51,409	0.26	0.26	0.482
Building Envelope	1	1,401	27,466	1	601	11,860	8	$12,900	0.20	0.16	1.597
HVAC - Cooling	2	6,660	75,543	2	5,328	60,435	24	$31,611	0.35	0.40	0.699
HVAC - Heat Pump	0	398	5,965	0	247	3,698	2	$4,032	0.25	0.28	1.457
Lighting - Indoor	30	169,452	1,716,649	28	159,304	1,610,155	561	$89,487	1.92	7.04	0.067
Lighting - Outdoor	0	3,534	42,306	0	2,823	33,827	16	$3,282	1.16	1.15	0.122
Service & Domestic Hot Water	2	5,616	56,157	1	5,277	52,772	18	$2,033	2.64	2.66	0.047
EE	39	210,857	2,063,868	35	195,045	1,892,034	672	$194,754	1.08	1.64	0.125
EE and Low Income	39	210,857	2,063,868	35	195,045	1,892,034	672	$194,754	1.08	1.64	0.125
C&S, T&D and Electrification								$0			
Utility Total	39	210,857	2,063,868	35	195,045	1,892,034	672	$194,754	1.08	1.64	0.125

TABLE CSL-2. EE Program Results by Sector

Summary by Sector	Resource Savings Summary								Cost Test Results		
Sector	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Commercial	4	13,454	161,445	3	10,763	129,156	49	$13,089	1.06	1.06	0.128
Residential	35	197,403	1,902,423	32	184,282	1,762,878	624	$181,664	1.08	1.71	0.125
EE	39	210,857	2,063,868	35	195,045	1,892,034	672	$194,754	1.08	1.64	0.125
EE and Low Income	39	210,857	2,063,868	35	195,045	1,892,034	672	$194,754	1.08	1.64	0.125
C&S, T&D and Electrification								$0			
Utility Total	39	210,857	2,063,868	35	195,045	1,892,034	672	$194,754	1.08	1.64	0.125

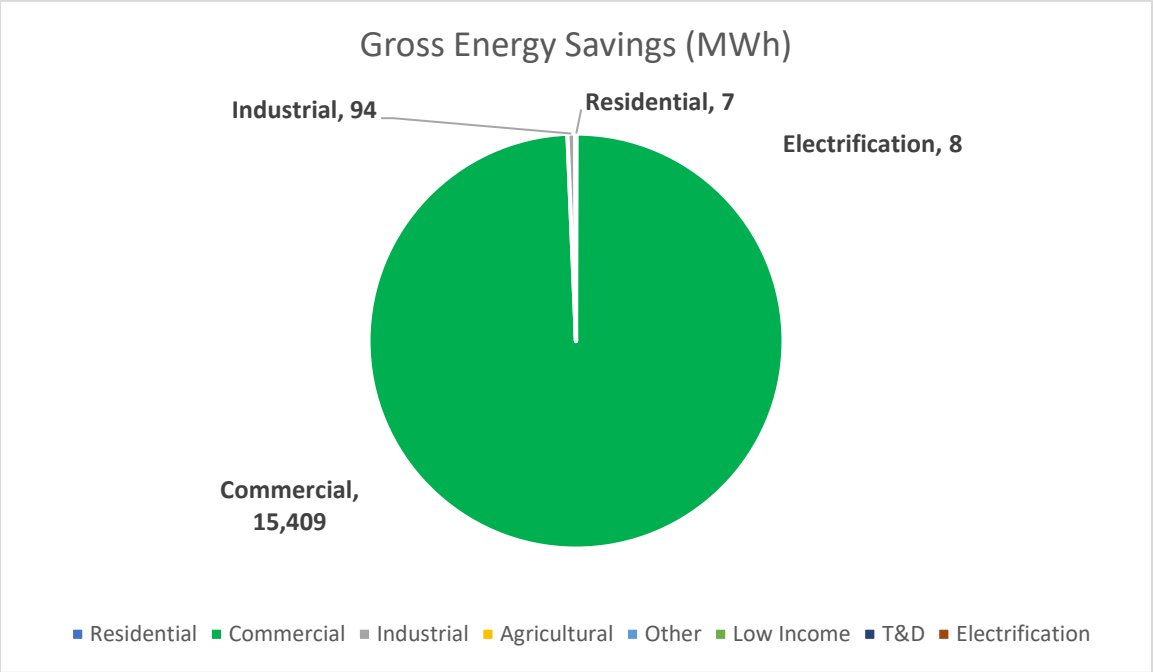
TABLE CSL-3. EE Program Results by Building Type

Summary by Building Type	Resource Savings Summary								Cost Test Results		
Building Type	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Any	4	13,816	164,995	3	10,979	131,281	49	$15,625	0.90	0.91	0.150
Multiple	32	186,319	1,763,873	30	176,644	1,669,532	588	$118,646	1.52	3.30	0.085
Residential	2	8,809	105,289	2	6,131	71,396	28	$43,559	0.30	0.32	0.814
Residential - Single-Family	0	1,914	29,711	0	1,291	19,824	7	$16,924	0.14	0.13	1.156
EE	39	210,857	2,063,868	35	195,045	1,892,034	672	$194,754	1.08	1.64	0.125
EE and Low Income	39	210,857	2,063,868	35	195,045	1,892,034	672	$194,754	1.08	1.64	0.125
C&S, T&D and Electrification								$0			
Utility Total	39	210,857	2,063,868	35	195,045	1,892,034	672	$194,754	1.08	1.64	0.125

SILICON VALLEY POWER

Silicon Valley Power at a Glance

- Climate Zone: 4
- Customers: 59,803
- Total annual retail sales: 4,414,158 MWh
- Annual Retail Revenue: $548,506,963
- Annual EE expenditures for reporting year: $3,960,845
- Gross annual savings from reporting year portfolio: 15,518 MWh



Silicon Valley Power Overview

Silicon Valley Power (SVP) is unique in its mix of customers. While 85% of the customers are residential, 94% of the utility retail sales are to commercial, industrial, and municipal customers. Over 75% of our electric load is attributable to our largest "Key" Customers and more than half comes from data centers. 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 annual energy savings. Our unique customer mix and mild climate results in very little energy savings in the residential sector. This is because we do not have a high residential AC load which often makes up a large percentage of energy portfolio savings in other climate zones.

Major Program and Portfolio Changes

- EE Grant for Small Businesses impacted by COVID-19 mandates: This program provided a grant of up to $10,000 per eligible small business to improve the EE of its facilities to lower ongoing operating costs. As business has returned to normal, this program was ended.
- Business Electrification Rebates: the business electrification rebates were expanded to include bonus incentives for electrifying commercial cooking equipment, adding a rebate for Commercial heat pump water heaters with a bonus for electrifying a gas water heater and the launch of a Customer Directed Electrification Rebate. This is similar to the Customer Directed Rebate program in that it will allow incentives for the installation of efficient equipment not covered by our other standard programs but is focused on fuel switching from natural gas to efficient electric equipment.

Program and Portfolio Highlights

In FY 2023, Silicon Valley Power customers completed a total of 20 custom incentive projects under the Customer Directed Rebate and Date Center Rebate programs. These projects contributed almost 13 million kWh in gross energy savings to the program's overall goal.

The Customer Directed Rebate and Data Center Rebate programs were developed years ago in recognition of the unique customer base served by Silicon Valley Power. The programs provide opportunities for EE projects that may not otherwise fit into the utility's standard rebate and customer assistance offerings. Any EE project that decreases energy consumption at a facility in Santa Clara and is not already covered under one of our other rebate programs may qualify. Customers must provide a measurement and verification plan that is approved by Silicon Valley Power before work can begin. Pre- and post-inspection and validation of energy savings is required. Under the data center program, performance payments are made annually to ensure savings are achieved, as data centers do not always build out as planned and occupancy can vary. The performance incentive component has been well-received by Silicon Valley Power's customers, as the rebate is paid to the facility's operating budget annually after the initial capital project is closed. This was a benefit to the customer that utility staff did not anticipate, and the performance incentive is now used for building controls and any custom project where energy savings have a high level of uncertainty. Lighting retrofits are the second largest contributor to Silicon Valley Power's EE goals with over 2 million kWh in energy savings.

Commercial, Industrial & Agricultural Programs

- Business Rebates: Encourages businesses to install energy efficient lighting, air conditioners, motion sensors, programmable thermostats, food service equipment, etc. The programs are occasionally changed to match statewide programs.
- Emerging Technologies Grant: The program provides grants to encourage businesses to develop new energy-related technologies. The incentive is paid in two installments. The first payment of 50% of the incentive will be paid upon completion of the project and the second payment of 50% will be paid upon verification of energy savings. This is

intended to encourage customers to implement innovative EE projects and minimize some of the risks involved if the savings do not materialize as expected, which has been one of the barriers to program adoption. SVP reviews emerging technologies and reaches out to customers to inform them about the program and appropriate emerging technologies for their business.

- Commercial New Construction Rebate: This program provides a rebate to customers who exceed Title 24 by 10% for the measure being incentivized, in line with our other prescriptive rebates for retrofit projects. A tiered Design Team Incentive is provided up to $50,000.
- Business Energy Audits: Provides free EE audits to business customers. Energy & Resource Solutions administers this and other business PBC programs.
- Enhanced Ventilation Controls Rebate: This program provides an incentive per ton for adding enhanced ventilation controls to HVAC rooftop packaged units 15 tons or smaller.
- Small Business Efficiency Services Program: This program is targeted at small business customers, and provides assistance in identifying EE projects, selecting and managing contractors, and help with filling out rebate application paperwork. The program also provides a 35% incentive for lighting and HVAC rebates, provided that customers to install the lighting measures within 6 months of program enrollment and HVAC measures within 12 months of enrollment in order to receive the additional incentive.
- Controls Program: This program is available for projects where at least 80% of the savings come from the control strategies. Incentives are paid on a performance basis with 6 payments made over 5 years, capped at 65% of total project cost. The first payment is made upon project completion and each additional annual payment will be subject to commissioning of the controls system and validation of persistent energy savings.
- Public Facilities' EE Program: SVP provides technical assistance and financial incentives for the expansion, remodel, and new construction of City of Santa Clara buildings.

Small Business Exterior Lighting Program: This program provides a free snapshot audit of exterior lighting efficiency opportunities. It then provides free LED exterior lights to eligible small businesses. The businesses are responsible for the installation cost and can use their own staff, the contractor of their choice, or one of the contractors working with the program provider. This program was implemented under contract with a third-party program provider and ended in June 2023.

- Data Center Efficiency Program: This program targets data centers with IT server load greater than 350 kW or cooling load greater than 100 tons. The incentive is paid as a performance incentive, where the customer will receive five annual payments based on actual measured energy savings, with the first payment made three months after project completion.

- Customer Directed Rebate: This program provides incentives based on actual energy saved for EE measures that do not fall into SVP's standard business rebate programs.
- EE Grant Program for Nonprofit Organizations: Organizations registered as a 501c3 are eligible for a grant up to $25,000 to fund EE upgrades in their facilities. The grant requires a 20% matching funds contribution through cash, other grant funding, donations, or some other documented means.
- Commercial Electrification Rebates: Silicon Valley Power offers commercial electrification rebates including a custom rebate for conversion to heat recovery chillers, a custom rebate for heat pump pool heaters, a rebate for heat pump air conditioners, bonus incentives for electrification of food service equipment and a rebate for installation of heat pump water heaters. The heat pump air conditioner rebate program also offers an incentive to help cover the cost of infrastructure improvements needed to accommodate the new equipment.

Residential Programs

- Residential Pool Pump Rebate: This program provides a rebate to residential customers installing a new variable speed pool pump with a qualifying controller.
- ENERGY STAR® Residential Heat Pump Electric Water Heater Rebate: SVP offers a rebate for the purchase of an ENERGY STAR® -qualified electric heat pump water heater. The rebate is tiered to provide higher incentives based on income eligibility for income-qualified customers.
- Residential In-Home Energy Audits, Education, and Hot Line: The program encourages residents to become more energy efficient and reduce their energy bills. Staff members visit homes and provide information and energy saving items. Also, the SVP information booth will continue to be displayed at several City events, providing education on EE and solar electric generation systems to residents.
- Residential Electric Dryer Rebate Program: This program provides a rebate for any ENERGY STAR® -qualified electric clothes dryer having a Combined Energy Factor (CEF) of 4.3 or higher.
- SVP Marketplace: Online marketplace where customers can purchase energy efficient products. The marketplace includes instant rebates on equipment such as ENERGY STAR® room air cleaners and electric yard care equipment. Manufacturer rebates are also provided for a variety of products including smart thermostats and various types of LED light bulbs.

Complementary Programs

- Financial Rate Assistance Program (FRAP) – This program provides a discount ranging from 25-40% discount on the electric portion of utility bills for income-qualified residential customers, up to the first 800 kWh of use per month. Discounts are tiered based on income levels.

- Low Income EV Charging Station Grant for Multi-family properties – Under its low-income programs, SVP offers a grant of up to $1,000 per charging station for multi-family properties where a specified percentage of customers residing at the property qualify for SVP's low-income programs. This is in addition to the rebate program the utility offers to all multifamily complexes in Santa Clara.
- Low Income Solar Grant Program – Silicon Valley Power offers a grant up to $10,500 to install solar photovoltaic (PV) systems on the homes of low-income residents that will offset nearly 100% of their annual energy consumption.
- EV Charging Infrastructure Rebate - This program provides a rebate up to $550 per residential electric vehicle charger installed at residences receiving electricity from Silicon Valley Power. Multifamily housing can receive a rebate up to $3,000 per Level 2 charger installed, and schools and non-profit organizations can receive up to $5,000 per Level 2 charging station installed.
- Low Income Electric Vehicle Rebate – this program provides a $1500 rebate to income qualified customers for the purchase of an all-electric vehicle and a $1000 rebate for the purchase of a plug-in hybrid electric vehicle (PHEV).
- Electric Bicycle Rebate – This program provides a rebate of 10% of the purchase price of an electric bicycle, up to $300. Income-qualified customers can receive a bonus incentive of $200.
- Smart Electric Panel Rebates – Silicon Valley Power provides a rebate of $2000 for residential customers who upgrade their electric panel to a smart panel and install an EV charger or a home electrification measure. A bonus incentive of $1000 is available to income-qualified customers. Customers meeting LIHEAP income guidelines receive an additional $1000 for a total of $4000.
- Multifamily Boiler Electrification Pilot Program – This program provides up to $100,000 in funding for the conversion of a natural gas boiler to an electric boiler at multifamily complexes with at least 25 dwelling units. The program covers up to 100% of the incremental cost of replacing the gas boiler with an efficient boiler.
- Heat Pump Water Heater Electrification Program – Silicon Valley Power provides funding for a regional midstream heat pump water heater electrification program through BayREN where enrolled contractors receive a $1000 incentive for installing an electric heat pump water heater in place of a natural gas water heater.
- Educational Outreach in Schools - Silicon Valley Power sponsors the Santa Clara Unified School District's annual STEAM Festival and is an active participant in the Festival. Silicon Valley Power also contracts with Tinker Teach to provide online EE education modules for 4th and 10th grade classrooms located within the city of Santa Clara. Tinker Teach works with teachers at the schools to provide the modules, training materials and the opportunity to earn mini grants for classroom supplies. Students can compete for points and earn prizes based on completion of the modules. Content is tailored to showcase examples relevant to the local electric utility.

- Induction Cooking Demonstration Classes – Silicon Valley Power retrofitted the Santa Clara Unified School District's Adult Education Cooking Classroom with six induction cooktops and new cookware. The utility sponsors monthly cooking classes for Santa Clara residents to cook on induction cooktops and provides educational materials about the benefits of induction cooktops. Classes are fully funded by Silicon Valley Power and the School District charges a small fee to ensure those who enroll show up for the class.

EM&V Studies

Silicon Valley Power regularly conducts EM&V studies of its rebate programs. The most current study will kick off in February 2023 and will be available in the fall. All past EM&V studies conducted on behalf of Silicon Valley Power can be found on the CMUA website. https://www.cmua.org/emv-reports

Major Differences or Diversions from California POU TRM for Energy Savings

Silicon Valley Power uses the California eTRM for most of its energy savings and uses the California Publicly Owned Utilities Technical Reference Manual (TRM) for measures not included in the eTRM. Where no savings value exists, Silicon Valley Power uses actual savings verified through metering or an approved measurement and verification plan. In the case of lighting projects, Silicon Valley Power uses a lighting calculator that utilizes actual operating hours. A copy of the calculator can be found at siliconvalleypower.com/businesses/rebates.

TABLE SVP-1. EE Program Results by End Use

Summary by End Use	Resource Savings Summary								Cost Test Results		
End Use	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Appliance & Plug Loads	1	6,704	43,133	1	5,698	36,663	7	$222,423	0.02	0.02	7.151
Commercial Refrigeration	12	94,178	1,130,136	10	80,051	960,616	198	$17,739	6.66	1.76	0.023
HVAC - Cooling	1,799	11,803,033	176,792,616	1,529	10,032,578	150,273,724	31,233	$2,267,723	8.30	1.06	0.020
Lighting - Indoor	283	2,575,094	15,917,369	241	2,188,830	13,529,764	2,705	$919,344	1.68	0.59	0.078
Lighting - Outdoor	0	18,642	62,260	0	15,846	52,921	11	$14,638	0.43	0.43	0.291
Process	116	1,012,268	15,184,020	98	860,428	12,906,417	2,683	$114,201	14.16	7.24	0.012
EE	2,211	15,509,918	209,129,534	1,879	13,183,431	177,760,104	36,837	$3,556,067	6.22	1.06	0.026
EE and Low Income	2,211	15,509,918	209,129,534	1,879	13,183,431	177,760,104	36,837	$3,556,067	6.22	1.06	0.026
Appliance & Plug Loads	0	7,934	79,340	0	6,744	67,439	13	$404,777	0.02	0.02	7.259
Electrification	0	7,934	79,340	0	6,744	67,439	13	$404,777	0.02	0.02	7.259
C&S, T&D and Electrification	0	7,934	79,340	0	6,744	67,439	13	$404,777	0.02	0.02	7.259
Utility Total	2,211	15,517,852	209,208,874	1,879	13,190,175	177,827,543	36,850	$3,960,845	5.59	1.04	0.029

TABLE SVP-2. EE Program Results by Sector

Summary by Sector	Resource Savings Summary								Cost Test Results		
Sector	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Commercial	2,198	15,409,037	207,956,265	1,868	13,097,681	176,762,825	36,632	$3,139,710	7.01	1.08	0.023
Industrial	12	94,178	1,130,136	10	80,051	960,616	198	$17,739	6.66	1.76	0.023
Residential	1	6,704	43,133	1	5,698	36,663	7	$398,618	0.01	0.01	12.817
EE	2,211	15,509,918	209,129,534	1,879	13,183,431	177,760,104	36,837	$3,556,067	6.22	1.06	0.026
EE and Low Income	2,211	15,509,918	209,129,534	1,879	13,183,431	177,760,104	36,837	$3,556,067	6.22	1.06	0.026
Residential	0	7,934	79,340	0	6,744	67,439	13	$404,777	0.02	0.02	7.259
Electrification	0	7,934	79,340	0	6,744	67,439	13	$404,777	0.02	0.02	7.259
C&S, T&D and Electrification	0	7,934	79,340	0	6,744	67,439	13	$404,777	0.02	0.02	7.259
Utility Total	2,211	15,517,852	209,208,874	1,879	13,190,175	177,827,543	36,850	$3,960,845	5.59	1.04	0.029

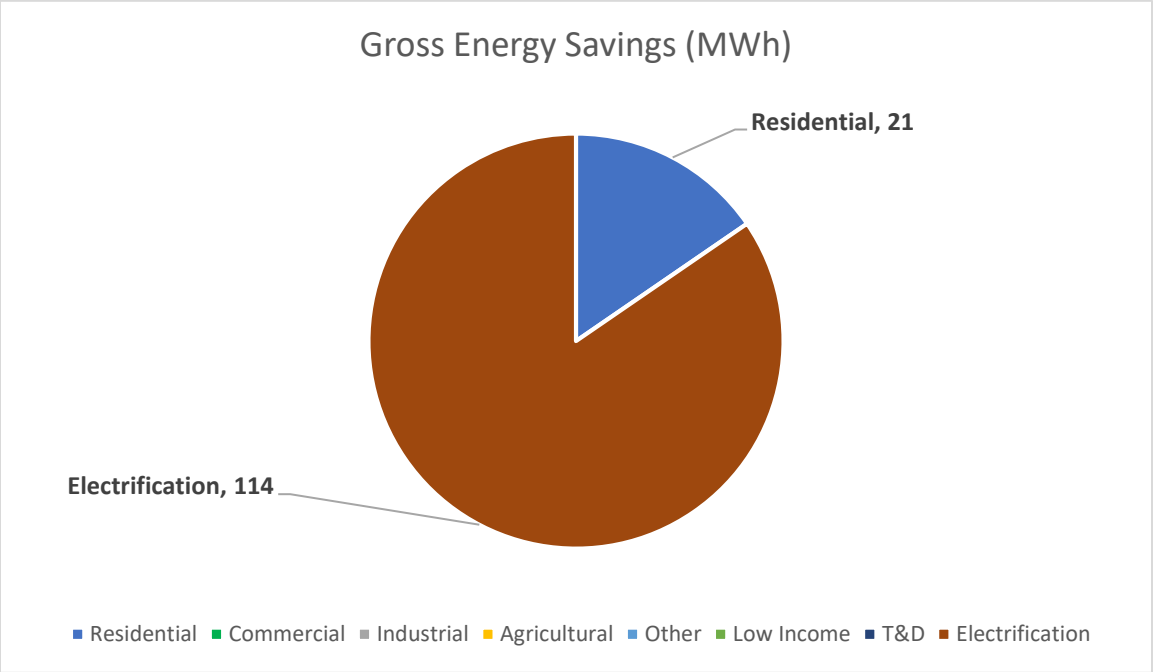
TABLE SVP-3. EE Program Results by Building Type

Summary by Building Type	Resource Savings Summary								Cost Test Results		
Building Type	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Any	55	308,298	4,600,792	47	262,053	3,910,673	813	$275,260	1.78	0.48	0.094
Grocery	12	94,178	1,130,136	10	80,051	960,616	198	$17,739	6.66	1.76	0.023
Multiple	2,028	14,092,579	188,209,395	1,724	11,978,692	159,977,986	33,143	$2,948,558	6.75	1.03	0.024
Other Industrial	116	1,012,268	15,184,020	98	860,428	12,906,417	2,683	$114,201	14.16	7.24	0.012
Residential	0	0	0	0	0	0	0	$176,196			0.000
Residential - Single-Family	0	2,595	5,191	0	2,206	4,412	1	$24,115	0.02	0.02	5.586
EE	2,211	15,509,918	209,129,534	1,879	13,183,431	177,760,104	36,837	$3,556,067	6.22	1.06	0.026
EE and Low Income	2,211	15,509,918	209,129,534	1,879	13,183,431	177,760,104	36,837	$3,556,067	6.22	1.06	0.026
Residential	0	7,934	79,340	0	6,744	67,439	13	$404,777	0.02	0.02	7.259
Electrification	0	7,934	79,340	0	6,744	67,439	13	$404,777	0.02	0.02	7.259
C&S, T&D and Electrification	0	7,934	79,340	0	6,744	67,439	13	$404,777	0.02	0.02	7.259
Utility Total	2,211	15,517,852	209,208,874	1,879	13,190,175	177,827,543	36,850	$3,960,845	5.59	1.04	0.029

TRUCKEE DONNER PUBLIC UTILITY DISTRICT

Truckee Donner Public Utility District at a Glance

- Climate Zone: 16
- Customers: 14,780
- Total annual retail sales: 166,385 MWh
- Annual Retail Revenue: $33,149,412
- Annual EE expenditures for reporting year: $440,123
- Gross annual savings from reporting year portfolio: 135 MWh



Truckee Donner Overview

Truckee Donner Public Utility District (TDPUD) 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 transitioning towards renewable energy sources (more than our Renewable Portfolio Standard requirements), keeping rates stable, and investing in accessible, cost-effective, EE programs.

Major Program and Portfolio Changes

This year marks the second full program year during which The District programs maintained a heavier focus on beneficial electrification. No significant changes have been made in 2023 following our portfolio revision(s) in 2021. Some minor changes included:

- TDPUD has expanded our remote energy audit pilot offering for our residential customers in which District staff engage customers via a virtual face-to-face interview and tour of the customer's home. The audits conclude with a detailed audit report and energy conservation and decarbonization recommendations. The audit also includes an EE "kit" with weatherization and water conservation measures.
- TDPUD expanded its Energy Savings Partners program offerings for income qualified customers to include cooking classes in which induction cooktops/ranges are used to exemplify the technology and provide a positive experience with it.

Program and Portfolio Highlights

TDPUD's Residential Energy Survey's has historically been a very popular program with customers. In 2022 TDPUD piloted an updated version of this program which leverages interactive video conferencing software to facilitate face-to-face interaction and remote data collection. This proved convenient for both the customer and the TDPUD staff executing the energy audit on many levels. In 2023 TDPUD is looking to expand this pilot to additional customers and is still looking into how to fully launch to all customers. TDPUD continued to offer complimentary energy audits to commercial customers on an ad hoc basis (upon request).

The 2023 program year was the second full year offering for TDPUD's new electrification focused measure offerings (namely heat pumps for space heating and induction cooktops as TDPUD has offered rebates for EV charging and heat pump water heaters in the past). Traditional programs, such as residential appliances and water efficient toilets, continued to perform well – though TDPUD no longer offers rebates for many Energy Star® appliances (e.g. refrigerators, washer/dryers, dishwashers, etc.) due to technology saturation. In 2023 TDPUD continued to see new interest in its programs compared to previous years as the local economy recovers from not only COVID impacts but also significant wild-fires which occurred in subsequent years.

Commercial, Industrial & Agricultural Programs

Commercial Custom Rebate (Non-Res Process): Provides incentives to commercial electric customers for replacing inefficient plant equipment with high efficiency equipment. Customers receive a rebate proportional to the projected first year energy savings. No activity occurred for this program in 2023.

Commercial Energy Survey: TDPUD provides ad hoc energy surveys to commercial customers upon request, and subject to staff resources. These energy surveys provide customers with analysis of their energy use patterns and an on-site review of their facilities and equipment. The complimentary survey delivers a set of no-capitol, low-capital, and high-capitol recommendations for business owners to follow up on.

Residential Programs

- Residential Appliance Rebate (Appliance): Provides increasing incentives to customers to purchase more energy efficient appliances as identified by Energy Star®. Due to the saturation of Energy Star® appliance purchases this program now only provides rebates for Induction cook-tops and Energy Star® air purifiers.
- Heat Pump Water Heater (Res Electric Water Heater): Provides a $750 rebate for electric water heaters with a UEF > 2.85, and $1,000 for gas to electric conversions.
- Residential Building Efficiency Rebates (Res Shell): Provides an incentive of up to $200 each for building envelope and/or duct air leakage tests and up to $500 (50% of project cost) each for building envelope or duct leakage mitigation.
- Thermally Efficient Windows Rebate (Res Shell): Provides an incentive of $3.50 per square foot of window to replace qualifying single-pane windows. The primary heating source must be a permanent electric space heating system.
- Water-Efficient Toilet Rebate (Non-Res Process): Encourages customers to replace high-water use toilets with low water use toilets (1.28 and 1.6 GPF) by providing increasing incentives for more efficient toilets. Rebates range from $25 to $100.
- EV Charger Rebates: This rebate pays up to $950 for any (new) EV smart charger installed at a customer's home with proof of an EV registered at the address. Lower rebates are available if the EV charger is not “SMART” but is Energy Star® listed.
- Heat Pumps (Space Heating): Heat pumps replace existing gas furnaces or older (inefficient) heat pumps as the main source of heat for the customer. Rebates are tiered based on the efficiency of the unit(s) being installed and scale with the size of the system (in Tons). Rebates span from $250 per Ton for an 8.5 HSPF system replacing a pre-existing heat pump to $800 per Ton for a 10 HSPF unit replacing a gas furnace.

Complementary Programs

- Residential Energy Survey: RES (Res comprehensive): Provides free residential energy surveys and free energy and water-saving measures energy efficient LED bulbs, low-flow shower heads, faucet aerators, weather stripping, and pipe insulation at the time of survey. Customers are also informed about TDPUD conservation programs and good EE habits that they may benefit from and provided with associated literature.
- Commercial Energy Survey: TDPUD provides ad hoc energy surveys to commercial customers upon request, and subject to staff resources. These energy surveys provide customers with analysis of their energy use patterns and an on-site review of their

facilities and equipment. The complimentary survey delivers a set of no-capitol, low-capital, and high-capitol recommendations for business owners to follow up on.

- Payment Assistance Program Income-Qualified (Res Comprehensive): Provides an annual 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 two-times their highest energy charge in the past 12-months upon completion of the required Residential Energy Survey (RES). The requirement of the RES has been suspended during the COVID-19 crisis and all participants will be offered the RES when re-instated.
- 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.
- School Conservation Education (Res Comprehensive): 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.
- Renewable Energy Generation: TDPUD helps buy down the cost of additional renewable generation components within its energy portfolio. This increases our renewables within our RPS while maintaining low rates for our customers.

EM&V Studies

EM&V was completed for the last program cycle and results made public via TDPUD's website. EM&V is completed every other year and will be done for the 2024 program cycle.

Major Differences or Diversions from California POU TRM for Energy Savings

Energy savings were predominately derived from the California eTRM and in some cases were pulled from the CMUA TRM or from the Pacific Northwest Regional Technical Forum (RTF). One notable exception is found in the embedded energy value applied to our water-energy nexus measures. The embedded energy content for water-energy nexus measures was derived by our EM&V consultant in 2014 using actual water pumping data provided by the District.

TABLE TDPUD-1. EE Program Results by End Use

Summary by End Use	Resource Savings Summary								Cost Test Results		
End Use	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Any	0	605	9,252	0	480	6,761	5	$39,681	0.03	0.03	8.232
Appliance & Plug Loads	0	320	3,346	0	176	1,840	1	$9,066	0.03	0.02	6.023
HVAC - Heating	0	66	592	0	36	326	2	$443	0.58	0.31	1.613
Process	2	19,768	395,370	2	16,803	336,064	127	$333,535	594.27	616.25	1.460
EE	2	20,759	408,559	2	17,495	344,991	135	$382,726	517.89	528.17	1.629
EE and Low Income	2	20,759	408,559	2	17,495	344,991	135	$382,726	517.89	528.17	1.629
Any	0	0	0	0	0	0	0	$10,584			0.000
Appliance & Plug Loads	0	26,479	393,652	0	14,564	216,508	137	$17,225	2.05	2.00	0.106
HVAC - Heating	1	87,316	1,309,736	0	24,448	366,726	224	$29,589	1.99	1.38	0.108
Electrification	2	113,795	1,703,388	1	39,012	583,235	361	$57,397	1.64	1.57	0.131
C&S, T&D and Electrification	2	113,795	1,703,388	1	39,012	583,235	361	$57,397	1.64	1.57	0.131
Utility Total	4	134,554	2,111,947	3	56,507	928,225	496	$440,123	450.57	455.35	0.655

TABLE TDPUD-2. EE Program Results by Sector

Summary by Sector	Resource Savings Summary								Cost Test Results		
Sector	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Residential	2	20,759	408,559	2	17,495	344,991	135	$382,726	517.89	528.17	1.629
EE	2	20,759	408,559	2	17,495	344,991	135	$382,726	517.89	528.17	1.629
EE and Low Income	2	20,759	408,559	2	17,495	344,991	135	$382,726	517.89	528.17	1.629
Residential	2	113,795	1,703,388	1	39,012	583,235	361	$57,397	1.64	1.57	0.131
Electrification	2	113,795	1,703,388	1	39,012	583,235	361	$57,397	1.64	1.57	0.131
C&S, T&D and Electrification	2	113,795	1,703,388	1	39,012	583,235	361	$57,397	1.64	1.57	0.131
Utility Total	4	134,554	2,111,947	3	56,507	928,225	496	$440,123	450.57	455.35	0.655

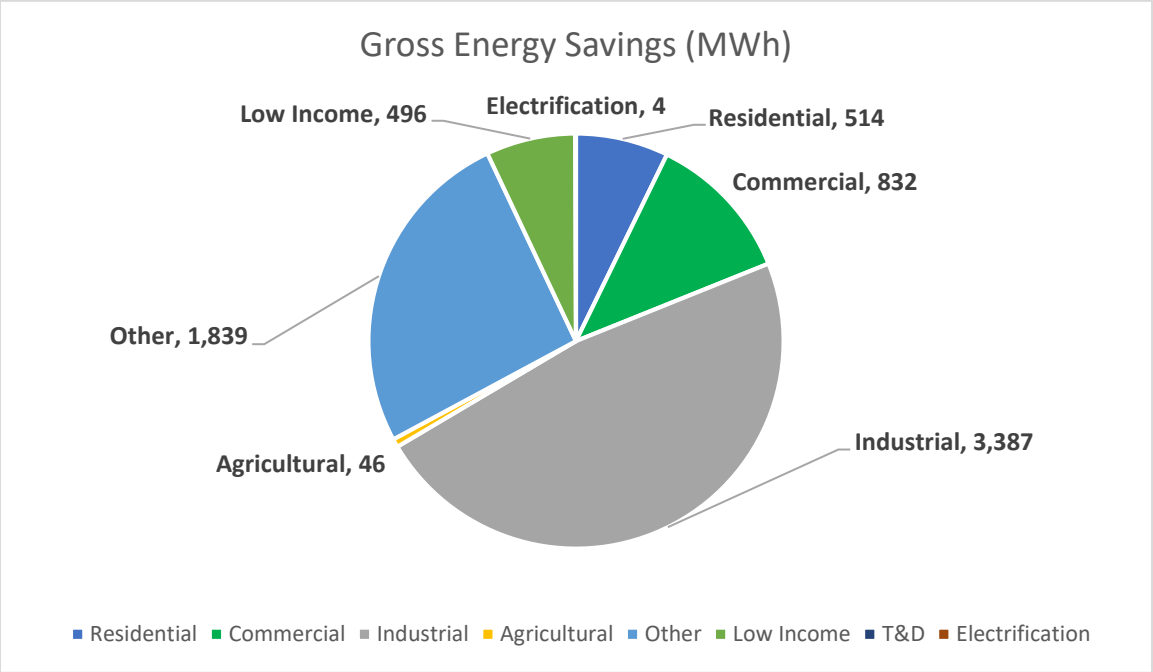
TABLE TDPUD-3. EE Program Results by Building Type

Summary by Building Type	Resource Savings Summary								Cost Test Results		
Building Type	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Any	2	20,759	408,559	2	17,495	344,991	135	$382,726	517.89	528.17	1.629
EE	2	20,759	408,559	2	17,495	344,991	135	$382,726	517.89	528.17	1.629
EE and Low Income	2	20,759	408,559	2	17,495	344,991	135	$382,726	517.89	528.17	1.629
Any	2	113,795	1,703,388	1	39,012	583,235	361	$57,397	1.64	1.57	0.131
Electrification	2	113,795	1,703,388	1	39,012	583,235	361	$57,397	1.64	1.57	0.131
C&S, T&D and Electrification	2	113,795	1,703,388	1	39,012	583,235	361	$57,397	1.64	1.57	0.131
Utility Total	4	134,554	2,111,947	3	56,507	928,225	496	$440,123	450.57	455.35	0.655

TURLOCK IRRIGATION DISTRICT

Turlock Irrigation District at a Glance

- Climate Zone: 12
- Customers: 95,044
- Total annual retail sales: 2,162,323 MWh
- Annual Retail Revenue: $323,140,690
- Annual EE expenditures for reporting year: $1,914,178
- Gross annual savings from reporting year portfolio: 7,119 MWh



Turlock Overview

Turlock Irrigation district (TID) continues to help customers achieve energy savings through the implementation and promotion of a variety of EE programs for all rate classes. Many programs provide rebate opportunities to encourage customers to conserve energy. A significant portion of the EE measures adopted by our customers were implemented by industrial and commercial segments. 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.

Major Program and Portfolio Changes

TID launched the Residential HVAC Tuneup rebate program, offering customers a rebate incentive during the months of April through September when they had a tuneup performed on their heating & cooling systems. During this time, we saw more than 400 customers take advantage of this promotional rebate.

TID also continued our "Powering Our Communities" grant, giving local non-profits and municipalities the opportunity to apply for funding to help lower the cost for EE projects.

Program and Portfolio Highlights

TID's Custom rebate accounted for 90% of the total program savings in 2023. This was driven by lighting projects completed by our non-residential customers. We had one large industrial customer that converted all of their lighting to LED and we were able to capture net savings of 3,081,811 for the first year kWh savings.

Commercial, Industrial & Agricultural Programs

- Commercial LED rebate programs: TID offers our non-residential customers a lighting rebate that is paid based on first-year kWh savings.
- Commercial and Industrial HVAC: TID offers a prescriptive rebate for heating and cooling measures that, as a summer peaking utility, can greatly benefit our customers.
- Multi-Family Direct Install Program: TID has contracted to provide weatherization services for residents who live in multi-family complexes. The program enables customers to reduce their energy bills by implementing feasible measures to make their homes more energy efficient.

Residential Programs

TID offers many rebates for Heating & Cooling, Appliances and General Improvements. During 2023, we put together a rebate offering to our residential customers for performing an HVAC tune up at their residence as a pilot program. We marketed both to our customers and local HVAC contractors to promote the new pilot program. We found this program to be successful.

Complementary Programs

ASSISTANCE PROGRAMS:

- TID CARES Program: An EAP for qualified customers to receive a discount on their monthly energy bills. The CARES program reduces the monthly customer charge of $17 to $6, a savings of $11, and provides a 15% discount on the first 800 kWh energy charges.
- Medical Rate Assistance: TID 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.

EM&V Studies

Our 2022 EM&V is available at:

https://www.cmua.org/emv-reports

Major Differences or Diversions from California POU TRM for Energy Savings

TID continues to calculate the savings for each individual project. To capture actual savings for our lighting rebates, paid by first year kWh savings, we administer a pre-inspection for each project to establish a baseline usage. We also administer a post-inspection to confirm the number of fixtures that were upgraded, installed and de-lamped. In doing this we can confirm actual savings as precisely as possible.

TABLE TID-1. EE Program Results by End Use

Summary by End Use	Resource Savings Summary								Cost Test Results		
End Use	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Appliance & Plug Loads	1	73,191	755,734	1	36,682	362,948	141	$21,650	1.97	1.10	0.072
Building Envelope	3	4,020	49,884	1	1,387	19,197	7	$4,436	0.49	0.22	0.310
HVAC - Cooling	406	470,383	5,025,536	243	280,405	3,004,188	1,113	$162,787	2.65	0.66	0.069
Lighting - Indoor	570	4,053,203	60,722,652	561	4,009,643	60,103,930	19,541	$661,741	8.61	3.89	0.015
Lighting - Outdoor	0	1,900,316	28,617,344	0	1,889,990	28,462,454	9,824	$500,602	6.05	1.19	0.024
Miscellaneous	2	12,320	61,600	2	8,624	43,120	15	$7,888	0.57	0.65	0.199
Process	10	40,111	601,668	4	16,044	240,667	84	$1,052	23.28	1.22	0.006
Service & Domestic Hot Water	11	34,443	344,433	7	20,192	201,920	69	$7,785	2.70	2.51	0.047
Water Pumping / Irrigation	1	659	9,892	1	396	5,935	2	$555	1.14	0.18	0.125
Whole Building	33	30,271	605,424	28	25,731	514,611	262	$16,314	4.50	4.50	0.047
EE	1,037	6,618,919	96,794,167	847	6,289,094	92,958,969	31,059	$1,384,811	6.74	1.96	0.020
Any	4	10,584	116,424	1	2,964	32,599	14	$14,721	0.51	0.70	0.557
Appliance & Plug Loads	1	8,173	151,844	0	4,129	80,265	37	$71,966	0.12	0.12	1.308
Building Envelope	3	96,398	1,091,986	1	26,991	305,756	116	$81,068	0.48	0.50	0.330
HVAC - Cooling	150	286,650	1,508,824	82	163,703	862,388	368	$160,844	1.20	1.63	0.206
Lighting - Indoor	3	46,949	704,235	2	25,352	380,287	141	$36,077	1.18	1.27	0.127
Lighting - Outdoor	0	62	930	0	33	502	0	$65	0.88	0.88	0.172
Miscellaneous	15	47,379	947,580	8	26,058	521,169	241	$52,839	1.09	1.09	0.149
Low-Income	176	496,195	4,521,823	94	249,232	2,182,965	916	$417,579	0.84	0.95	0.239
EE and Low Income	1,213	7,115,113	101,315,989	941	6,538,325	95,141,934	31,975	$1,802,390	5.37	1.88	0.025
Appliance & Plug Loads	6	778	11,769	4	544	8,238	5	$20,018	0.06	0.08	3.256
HVAC - Cooling	0	942	8,664	0	754	6,931	4	$45,994	0.04	0.03	8.278
HVAC - Heat Pump	0	1,096	10,960	0	877	8,768	5	$39,603	0.05	0.02	5.462
Service & Domestic Hot Water	0	800	8,000	0	480	4,800	2	$6,173	0.09	0.10	1.555
Electrification	7	3,616	39,393	5	2,655	28,738	17	$111,787	0.05	0.03	4.877
C&S, T&D and Electrification	7	3,616	39,393	5	2,655	28,738	17	$111,787	0.05	0.03	4.877
Utility Total	1,219	7,118,729	101,355,382	946	6,540,980	95,170,672	31,992	$1,914,178	5.06	1.82	0.027

TABLE TID-2. EE Program Results by Sector

Summary by Sector	Resource Savings Summary								Cost Test Results		
Sector	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Agricultural	17	46,188	692,827	17	45,925	688,870	238	$8,429	9.25	1.26	0.016
Any	0	1,838,895	27,583,429	0	1,828,569	27,428,539	9,350	$288,947	10.10	3.31	0.014
Commercial	131	832,155	11,822,537	131	801,260	11,668,059	3,751	$321,782	3.29	0.55	0.037
Industrial	464	3,387,468	50,812,020	438	3,312,252	49,683,776	16,321	$557,335	8.59	3.00	0.015
Residential	425	514,212	5,883,354	261	301,088	3,489,725	1,399	$208,319	2.33	1.63	0.077
EE	1,037	6,618,919	96,794,167	847	6,289,094	92,958,969	31,059	$1,384,811	6.74	1.96	0.020
Commercial	16	60,648	1,177,800	9	34,020	659,301	296	$123,573	0.59	0.59	0.273
Residential	159	435,547	3,344,023	85	215,212	1,523,664	620	$294,006	0.94	1.14	0.227
Low-Income	176	496,195	4,521,823	94	249,232	2,182,965	916	$417,579	0.84	0.95	0.239
EE and Low Income	1,213	7,115,113	101,315,989	941	6,538,325	95,141,934	31,975	$1,802,390	5.37	1.88	0.025
Residential	7	3,616	39,393	5	2,655	28,738	17	$111,787	0.05	0.03	4.877
Electrification	7	3,616	39,393	5	2,655	28,738	17	$111,787	0.05	0.03	4.877
C&S, T&D and Electrification	7	3,616	39,393	5	2,655	28,738	17	$111,787	0.05	0.03	4.877
Utility Total	1,219	7,118,729	101,355,382	946	6,540,980	95,170,672	31,992	$1,914,178	5.06	1.82	0.027

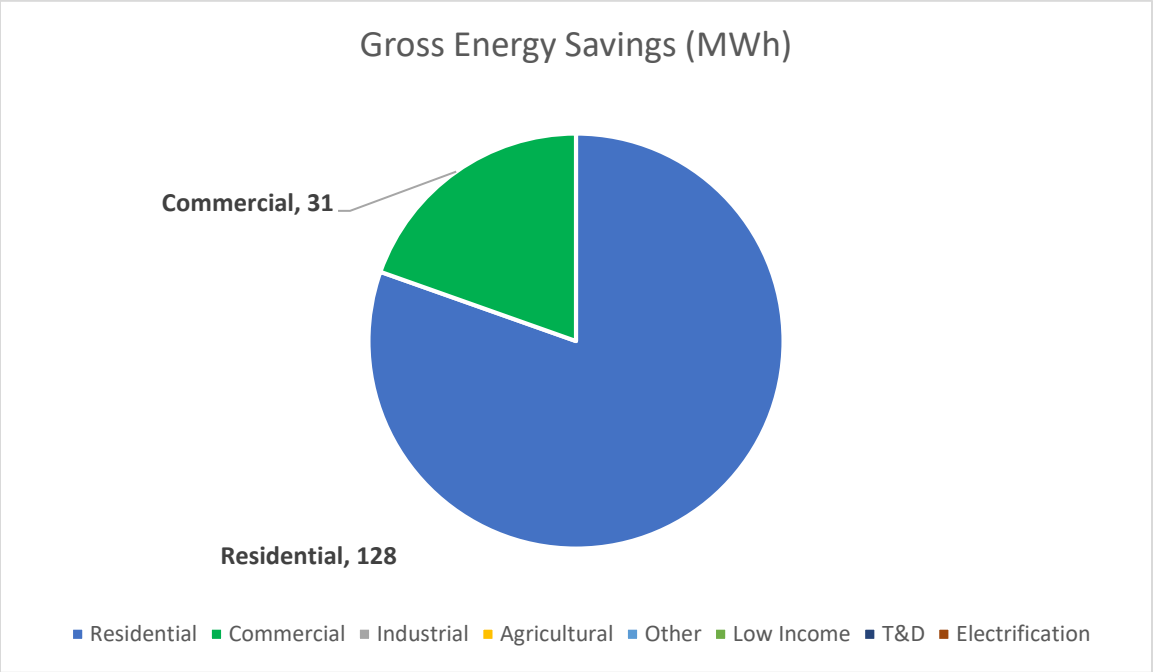
TABLE TID-3. EE Program Results by Building Type

Summary by Building Type	Resource Savings Summary								Cost Test Results		
Building Type	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Any	19	5,808	26,007	10	3,622	15,985	6	$3,476	0.55	0.70	0.234
Assembly	4	6,378	95,670	4	6,378	95,670	33	$1,086	9.61	1.76	0.015
Education - Secondary School	0	11,260	281,500	0	11,260	281,500	125	$57,557	0.51	0.02	0.330
Manufacturing Light Industrial	40	175,580	2,633,700	40	175,580	2,633,700	910	$29,030	9.55	2.91	0.015
Office - Small	5	24,353	365,295	5	24,353	365,295	124	$4,074	9.36	3.02	0.015
Other Agricultural	11	40,771	611,560	4	16,440	246,603	86	$1,607	15.64	1.06	0.009
Other Commercial	0	127,400	1,138,610	0	96,504	984,132	461	$155,877	0.71	0.28	0.201
Other Industrial	50	1,966,769	29,501,538	30	1,905,294	28,579,404	9,719	$323,008	9.47	2.24	0.015
Residential	66	314,469	4,217,329	39	176,380	2,388,368	899	$143,161	2.01	1.48	0.079
Residential - Single-Family	340	193,934	1,640,017	212	121,087	1,085,372	493	$61,681	3.17	1.96	0.072
Restaurant - Fast-Food	1	11,510	172,655	1	11,510	172,655	58	$1,975	9.71	0.98	0.015
Retail - Small	0	2,243	33,645	0	2,243	33,645	11	$379	9.49	2.59	0.015
Storage - Conditioned	369	3,081,811	46,227,165	369	3,081,811	46,227,165	15,145	$498,865	8.90	4.34	0.014
Storage - Unconditioned	129	642,146	9,632,187	129	642,146	9,632,187	2,929	$98,655	8.13	3.40	0.014
Warehouse - Refrigerated	4	14,486	217,288	4	14,486	217,288	58	$4,379	6.42	1.23	0.027
EE	1,037	6,618,919	96,794,167	847	6,289,094	92,958,969	31,059	$1,384,811	6.74	1.96	0.020
Other Commercial	16	60,648	1,177,800	9	34,020	659,301	296	$123,573	0.59	0.59	0.273
Residential	7	159,514	1,669,079	3	60,771	629,338	227	$158,768	0.46	0.45	0.315
Residential - Multi-Family	152	276,033	1,674,944	82	154,440	894,326	393	$135,238	1.50	2.49	0.171
Low-Income	176	496,195	4,521,823	94	249,232	2,182,965	916	$417,579	0.84	0.95	0.239
EE and Low Income	1,213	7,115,113	101,315,989	941	6,538,325	95,141,934	31,975	$1,802,390	5.37	1.88	0.025
Residential	0	1,742	16,664	0	1,234	11,731	6	$52,167	0.05	0.03	5.477
Residential - Single-Family	6	1,874	22,729	4	1,421	17,006	11	$59,621	0.06	0.03	4.450
Electrification	7	3,616	39,393	5	2,655	28,738	17	$111,787	0.05	0.03	4.877
C&S, T&D and Electrification	7	3,616	39,393	5	2,655	28,738	17	$111,787	0.05	0.03	4.877
Utility Total	1,219	7,118,729	101,355,382	946	6,540,980	95,170,672	31,992	$1,914,178	5.06	1.82	0.027

CITY OF UKIAH

City of Ukiah at a Glance

- Climate Zone: 2
- Customers: 7,879
- Total annual retail sales: 107,293 MWh
- Annual Retail Revenue: $19,954,243
- Annual EE expenditures for reporting year: $142,373
- Gross annual savings from reporting year portfolio: 159 MWh



Ukiah Overview

The City of Ukiah is located in Mendocino County on Highway 101 approximately 100 miles north of San Francisco. Ukiah is committed to helping customers manage energy use through energy education and a comprehensive menu of EE incentives. Ukiah also provides funding to assist income-qualified customers.

Major Program and Portfolio Changes

There were no major program changes in FY 2023. Ukiah started a Low-Income Direct Install Program in FY 2023 and is considering a Commercial Lighting Direct Install program. Ukiah achieved 82% of the target energy savings for the past five reporting years.

Program and Portfolio Highlights

The Residential Direct Install Program delivered the greatest percentage of savings in FY 2023, accounting for 73% of the total savings. Ukiah achieved 82% of the target energy savings for the past five reporting years.

Commercial, Industrial & Agricultural Programs

Ukiah provides comprehensive EE incentive program offerings for commercial and industrial customers focusing on EE and peak load reduction. Rebates are available for upgraded lighting, HVAC, appliances, refrigeration equipment, and electronics, and in cases where an analysis is performed rebates can be offered for additional equipment that reduces energy use and demand. Energy specialists provide on-site energy audits. EE measures are recommended, and additional visits are completed upon request.

- Non-Res Lighting: Ukiah offers rebates to business owners who invest in the installation of energy-efficient lighting upgrades. There is a prevalence of inefficient lighting throughout the city instead of more efficient fluorescent or LED fixtures.
- Non-Res HVAC: Ukiah offers rebates to commercial customers for energy-efficient HVAC upgrades.
- Non-Res Refrigeration: Rebates are available to improve the efficiency of commercial refrigeration systems.
- Non-Res Appliances: Rebates are available for energy-efficient cooking equipment such as ovens, dishwashers, fryers, griddles, etc.
- Non-Res Electronics: Ukiah offers rebates for uninterrupted power supplies, plug-load occupancy sensors, and smart power strips.
- Non-Res Custom: Ukiah 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.

Residential Programs

Ukiah provides comprehensive EE incentive program offerings for residential customers. Rebates are offered for the installation of various EE measures, such as lighting, HVAC, appliances, and weatherization. Energy specialists provide on-site energy audits. EE measures are recommended, and additional visits are completed upon request.

- Residential Lighting: Ukiah offers rebates to homeowners who install ENERGY STAR® qualified LED lamps/bulbs, ceiling fans, and LED holiday lights.
- Residential HVAC: Ukiah offers rebates to homeowners who install high-performance heat pumps and air-conditioners that exceed current state requirements. Ukiah also offers a rebate for duct sealing when not required by code.

- Residential Equipment: Ukiah offers rebates to homeowners who purchase new ENERGY STAR® -certified products, including clothes washers, dishwashers, pool pumps, refrigerators, and advanced power strips. Rebates are also available for refrigerator and freezer recycling.
- Residential Weatherization: Ukiah offers rebates to homeowners who invest in weatherizing their homes, including attic and wall insulation, window treatments/replacement, solar attic fans, and air sealing.
- Residential Water Heater Rebate: Ukiah offers rebates to homeowners who purchase a new, energy-efficient electric water heater.

Complementary Programs

- Low-Income Programs: Ukiah offers a low-income bill assistance program to eligible customers.
- Renewable Energy Program: Ukiah offers net metering agreements to customers wishing to install Solar PV.
- Electric Vehicles: In addition to the 8 Tesla Fast Charging stations, Ukiah has installed four Level II chargers in the downtown area and is reviewing additional locations throughout Ukiah. Ukiah has also received approval to offer a rebate for installation of a Level 2 EV charger in customer homes and up to $4,000 for public or workplace Level 2 chargers.

EM&V Studies

EM&V information for Ukiah can be found at www.cmua.org.

Major Differences or Diversions from California POU TRM for Energy Savings

Ukiah has relied heavily on the savings listed in the California Municipal Utilities Technical Resource Manual. The Commercial Lighting and Commercial Custom programs use custom savings calculations.

TABLE Ukiah-1. EE Program Results by End Use

Summary by End Use	Resource Savings Summary								Cost Test Results		
End Use	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Appliance & Plug Loads	3	25,360	144,593	3	23,026	125,315	51	$41,009	0.61	0.61	0.364
Building Envelope	0	0	133,024	0	0	37,247	100	$22,529	0.82	0.84	0.890
HVAC - Cooling	6	33,423	189,560	3	20,481	120,133	44	$19,326	0.91	0.69	0.183
HVAC - Heat Pump	0	15	221	0	9	137	0	$334	0.12	0.15	3.268
Lighting - Indoor	14	87,150	871,840	13	82,765	827,830	322	$48,219	3.11	3.10	0.070
Lighting - Outdoor	1	273	2,030	1	147	1,096	0	$8,102	0.02	0.02	8.056
Service & Domestic Hot Water	3	13,174	131,736	1	4,545	45,452	17	$2,856	2.64	2.00	0.076
EE	27	159,395	1,473,004	22	130,973	1,157,210	535	$142,373	1.53	1.47	0.147
EE and Low Income	27	159,395	1,473,004	22	130,973	1,157,210	535	$142,373	1.53	1.47	0.147
C&S, T&D and Electrification								$0			
Utility Total	27	159,395	1,473,004	22	130,973	1,157,210	535	$142,373	1.53	1.47	0.147

TABLE Ukiah-2. EE Program Results by Sector

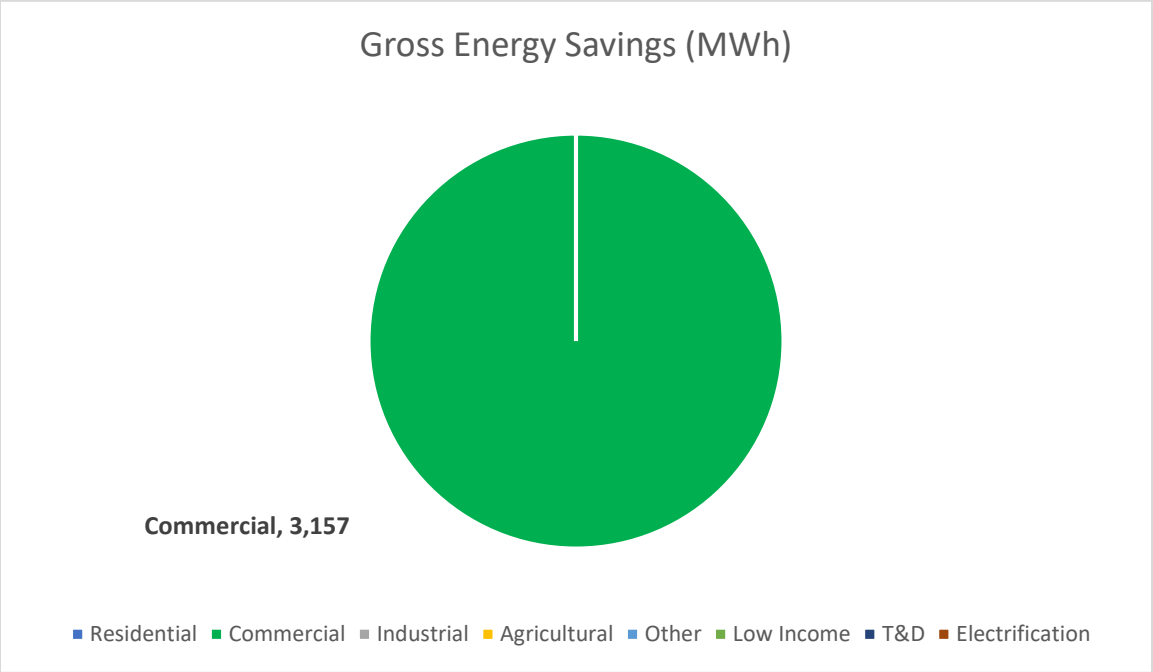
Summary by Sector	Resource Savings Summary								Cost Test Results		
Sector	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Commercial	5	31,216	156,082	3	18,730	93,649	32	$8,304	1.21	0.74	0.097
Residential	22	128,178	1,316,922	19	112,243	1,063,561	502	$134,069	1.55	1.54	0.152
EE	27	159,395	1,473,004	22	130,973	1,157,210	535	$142,373	1.53	1.47	0.147
EE and Low Income	27	159,395	1,473,004	22	130,973	1,157,210	535	$142,373	1.53	1.47	0.147
C&S, T&D and Electrification								$0			
Utility Total	27	159,395	1,473,004	22	130,973	1,157,210	535	$142,373	1.53	1.47	0.147

TABLE Ukiah-3. EE Program Results by Building Type

Summary by Building Type	Resource Savings Summary								Cost Test Results		
Building Type	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Any	1	621	5,510	1	356	3,184	1	$9,522	0.04	0.04	3.485
Multiple	20	120,971	1,096,397	17	107,640	968,726	380	$75,126	2.37	2.38	0.093
Residential	1	5,004	185,230	1	3,207	75,815	106	$38,604	0.67	0.65	0.697
Residential - Single-Family	0	1,582	29,786	0	1,040	15,836	16	$10,816	0.34	0.34	0.894
Retail - Large	5	31,216	156,082	3	18,730	93,649	32	$8,304	1.21	0.74	0.097
EE	27	159,395	1,473,004	22	130,973	1,157,210	535	$142,373	1.53	1.47	0.147
EE and Low Income	27	159,395	1,473,004	22	130,973	1,157,210	535	$142,373	1.53	1.47	0.147
C&S, T&D and Electrification								$0			
Utility Total	27	159,395	1,473,004	22	130,973	1,157,210	535	$142,373	1.53	1.47	0.147

Vernon Public Utilities at a Glance

- Climate Zone: 9
- Customers: 1,833
- Total annual retail sales: 1,106,200 MWh
- Annual Retail Revenue: $174,192,000
- Annual EE expenditures for reporting year: $239,428
- Gross annual savings from reporting year portfolio: 3,157 MWh



Vernon Overview

The City of Vernon, located in climate zone 8, is an industrial city of 5.2 square miles located southeast of Downtown Los Angeles. Founded in 1905 as the first exclusively industrial city in the Southwestern United States, Vernon currently houses more than 1,800 businesses that employ approximately 50,000 people, serving as a vital economic engine in the region. Vernon is the home to industries including food and agriculture, apparel, steel, plastics, logistics and home furnishings.

Vernon Public Utilities (VPU) is an essential resource for the City's ever-growing and evolving business community. As such, the current and future EE portfolio of VPU is designed to align with the utility's goal of serving its predominantly commercial and industrial customer base with high-quality, reliable competitive and stable utility rates.

The EE targets from FY 2025 called for 2,567 MWh in annual energy savings and 0.34 MW in annual demand reduction. VPU has consistently met or exceeded the annual EE targets, which can be attributed to several VPU incentive programs that are available to support its customer base. VPU funds all EE programs through revenues generated by the Public Benefits surcharge (2.85%).

Looking ahead, VPU aims to continue to implement existing EE programs, including customer education and outreach, while evaluating new offerings to meet the future needs of its customers. VPU also plans to collaborate with various city departments to perform EE upgrades on all city-owned facilities as needed.

Major Program and Portfolio Changes

VPU did not implement any major programs and portfolio changes for FY 2023 but continues to educate its business community on the importance of efficiency through its no-cost energy audit services. Over the years, businesses have successfully leveraged VPU's complimentary energy audit services to identify various efficiency opportunities, ranging from operational adjustments that involve refrigeration controls to large scale LED lighting retrofits. VPU has been a key partner as customers continue to embrace sustainability and identify options to lower operating costs.

With a customer base that is comprised mainly of large commercial and industrial customers, one of the ongoing challenges faced by VPU is the limited types of efficiency measures and projects can be implemented by the customer each year, which directly impacts the utility's ability to meet annual efficiency targets. Any complex EE project implemented by a business requires proper financial planning, corporate approval for the allocation of funds, and proactive budgeting for capital improvements. Depending on the business needs at a given time, implementation of EE projects may or may not be a priority.

Program and Portfolio Highlights

As it relates to portfolio highlights, VPU customers that are in the cold storage and food processing sectors continue to explore refrigeration control upgrades to achieve energy savings. The optimization of refrigeration controls often involves system hardware and software upgrades to maximize efficiency. To help support these complex EE projects, VPU works with a third-party engineering consultant to conduct evaluation, measurement and verification studies to confirm the validity of the savings generated. In addition, LED Lighting retrofits continue to account for most energy savings through VPU's customized incentive program. Customers with 24/7 operations and large warehouses can see significant savings by

upgrading from non-LED to LED lighting technology, For FY23, VPU's EE programs generated 3,157 MWh of energy savings. The utility's longstanding Customer Incentive Program continues to lead the way in providing incentives for any commercial electric customer that implements efficiency upgrades that produces above code savings.

Commercial, Industrial & Agricultural Programs

VPU's Commercial and Industrial programs are comprised of the following:

- Customer Incentive Program (CIP); The CIP provides incentives for the implementation of energy efficient technologies and equipment, such as LED lighting, variable speed drives, air compressors, motors, refrigeration controls, and AC upgrades.
- Energy Audit Program: As part of this program, VPU provides no-cost on-site energy audits for commercial and industrial businesses. The comprehensive energy audit includes a detailed billing analysis of energy usage and costs, identification of EE measures, recommended actions, and referral to VPU's incentive programs.
- Customer Directed Program (CDP): The CDP provides incentives for custom projects that demonstrate energy savings. Customers are required to contribute a portion of the total project cost and are only eligible if the proposed EE project does not qualify for any of the other programs.
- Commercial EV Charger Incentive Program (CEVSE): VPU commercial electric customers are eligible to receive a rebate (per port), for the installation of qualifying Level 2 EV Chargers and Level 3 Direct Current (DC) Fast Chargers.
- Commercial Electric Forklift Incentive Program (CEF): VPU commercial electric customers are eligible to receive a rebate towards the lease or purchase of a qualifying electric forklift.

Residential Programs

VPU's Residential programs are comprised of the following:

- Residential Electric Vehicle (EV) Rebate Program: VPU's residential electric customers are eligible to receive incentives for the purchase or lease of a qualifying, new or used EV.
- Residential EV Charger Rebate Program: VPU's residential electric customers are eligible to receive incentives for the installation of a qualifying, smart Level 2 EV Charger.

Complementary Programs

VPU's complementary programs and services are comprised of the following:

- Energy Education and Outreach Services: VPU hosts meetings on a regular basis to provide businesses with an update of the utility's latest offerings, which encompasses EE programs. In addition, VPU also has a dedicated newsletter and bill inserts that goes

out to utility customers to increase overall awareness on various initiatives that are spearheaded by different city departments.

- TOU Rate Plans: VPU customers that meet the electrical demand threshold are eligible to enroll in TOU rate plans that help businesses manage energy costs by taking advantage of lower rates during off-peak periods and avoided higher on-peak rates when energy resources are in demand.

EM&V Studies

VPU had one custom EE projects in FY 2023 that required EM&V studies to ensure the accuracy of proposed energy savings. The EM&V study was conducted for a large food processing company that produces cooked deli meat products and assembled frozen foods. The company implemented an energy management plan with specific adjustments to refrigeration racks to save energy, which involved added controls to evaporator fans and reduced hours of operation for freezers. VPU plans to continue to leverage third party engineering consultants to conduct EM&V studies for complex EE projects implemented by its large commercial and industrial customer base.

Major Differences or Diversions from California POU TRM for Energy Savings

Due to VPU's unique customer base that is comprised of almost all industrial and large commercial customers, VPU relies on customized energy savings calculations that are derived from an independent, third-party engineering analysis. The engineering analysis may reference California investor-owned utility work papers or other reputable industry sources where appropriate. VPU may also utilize the California Technical Forum, E-Technical Reference Manual ("CalTF eTRM") for energy savings on certain deemed measures when the opportunity arises. As opposed to the California POU TRM, which provides "deemed" energy savings, customized commercial EE offerings like the VPU's "Custom Incentive Program" provides commercial electric customers with the ability to participate with any proven technology that can produce "above code" energy savings, provided it meets the program requirements established during that that time.

TABLE VPU-1. EE Program Results by End Use

Summary by End Use	Resource Savings Summary								Cost Test Results		
End Use	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Commercial Refrigeration	56	1,210,200	17,995,345	56	1,210,200	17,995,345	5,645	$85,096	22.63	12.35	0.007
Lighting - Indoor	470	1,947,056	13,393,693	470	1,947,056	13,393,693	4,399	$154,332	10.72	2.92	0.013
EE	526	3,157,256	31,389,038	526	3,157,256	31,389,038	10,044	$239,428	14.95	4.95	0.010
EE and Low Income	526	3,157,256	31,389,038	526	3,157,256	31,389,038	10,044	$239,428	14.95	4.95	0.010
C&S, T&D and Electrification								$0			
Utility Total	526	3,157,256	31,389,038	526	3,157,256	31,389,038	10,044	$239,428	14.95	4.95	0.010

TABLE VPU-2. EE Program Results by Sector

Summary by Sector	Resource Savings Summary								Cost Test Results		
Sector	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Commercial	526	3,157,256	31,389,038	526	3,157,256	31,389,038	10,044	$239,428	14.95	4.95	0.010
EE	526	3,157,256	31,389,038	526	3,157,256	31,389,038	10,044	$239,428	14.95	4.95	0.010
EE and Low Income	526	3,157,256	31,389,038	526	3,157,256	31,389,038	10,044	$239,428	14.95	4.95	0.010
C&S, T&D and Electrification								$0			
Utility Total	526	3,157,256	31,389,038	526	3,157,256	31,389,038	10,044	$239,428	14.95	4.95	0.010

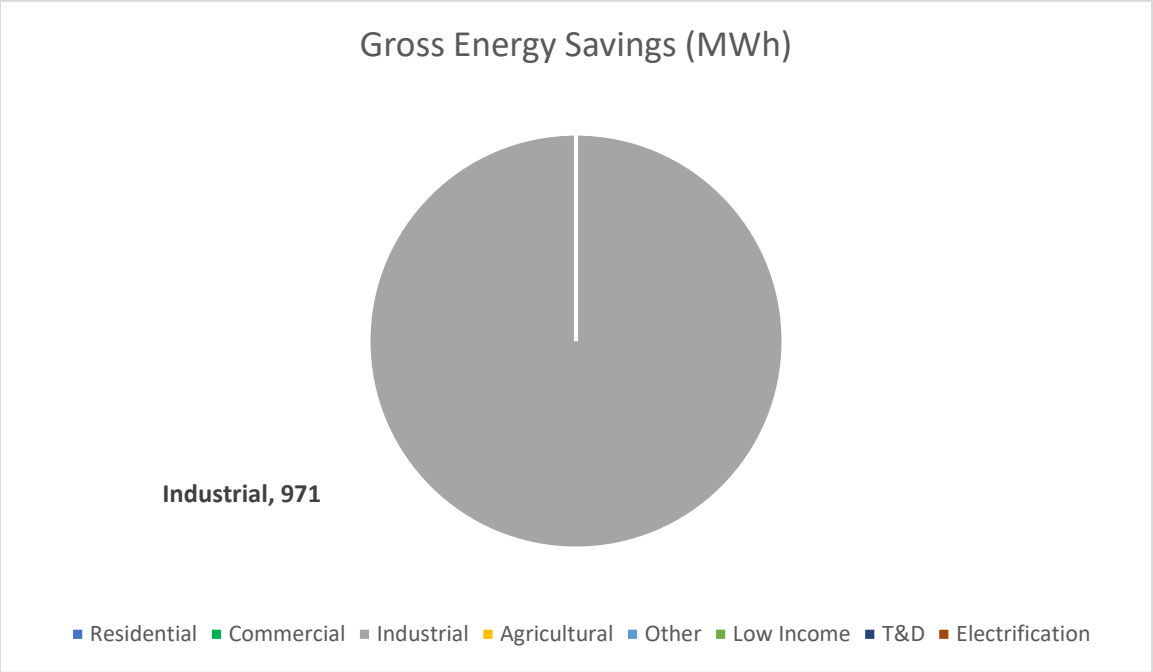
TABLE VPU-3. EE Program Results by Building Type

Summary by Building Type	Resource Savings Summary								Cost Test Results		
Building Type	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Other Commercial	470	1,947,056	13,393,693	470	1,947,056	13,393,693	4,399	$154,332	10.72	2.92	0.013
Warehouse - Refrigerated	56	1,210,200	17,995,345	56	1,210,200	17,995,345	5,645	$85,096	22.63	12.35	0.007
EE	526	3,157,256	31,389,038	526	3,157,256	31,389,038	10,044	$239,428	14.95	4.95	0.010
EE and Low Income	526	3,157,256	31,389,038	526	3,157,256	31,389,038	10,044	$239,428	14.95	4.95	0.010
C&S, T&D and Electrification								$0			
Utility Total	526	3,157,256	31,389,038	526	3,157,256	31,389,038	10,044	$239,428	14.95	4.95	0.010

VICTORVILLE MUNICIPAL UTILITIES SERVICES

Victorville Municipal Utilities Services at a Glance

- Climate Zone: 14
- Customers: 78
- Total annual retail sales: 108,080 MWh
- Annual Retail Revenue: $19,750,000
- Annual EE expenditures for reporting year: $68,895
- Gross annual savings from reporting year portfolio: 971 MWh



Victorville Municipal Utilities Services (VPU) Overview

- Customers reside in climate zone 14.
- Only serve non-residential customers.
- The annual budget for EE programs is $200,000.
- Peak demand was 21.3 megawatts (8.2% more than last year).
- The system load factor is 68.5%.
- Customers are served through 12 kV underground facilities with larger gauge ASCR conductors to improve system reliability and reduce system losses.
- All customers' facilities meet or exceed the applicable Title 24 requirements, which reduces the opportunity for energy savings.

Major Program and Portfolio Changes

None

Program and Portfolio Highlights

- A customer replaced existing high bay fluorescent fixtures with to LED high bay fixtures; and reduce annual consumption by 971,469 kWh and with a demand reduction of 145.39 kW.
- TOU meters and customers' access to their daily usage on the web portal provide the data to assess the cost of their energy usage and demand requirements.
- Cost-effective, reliable, and feasible EE improvements are a priority in VPU's integrated resource plan.
- VPU serves municipal facilities that can be interrupted as scheduled.

Commercial, Industrial & Agricultural Programs

- Audits – Industrial – Non-Res Audits: On-site energy assessment and recommendations designed to potentially improve energy operating efficiency and reduce load requirements.
- Lighting – Industrial – Non-Res Lighting: Financial incentives to improve EE for lighting applications, based on rate of $0.15/kWh for one year of energy savings and $150/kW for each kW that has been reduced. The EE Program payment shall not exceed 50% of the lighting material cost (including installation) or $50,000 per FY, whichever is lower.
- New Construction Projects – Industrial – Non-Res Construction Projects: Financial incentives for new equipment components that exceed state-mandated codes, federal-mandated codes, industry-accepted performance standards, or other baseline energy performance standards by more than 10%. Financial incentive payment is based on a rate of $0.15/kWh for each kWh that has been reduced, $150/kW for each kW that has been reduced, and $2/therm for each therm that has been reduced (whole building approach) for one year of energy savings between the baseline energy performance standards and the proposed energy performance standards for a whole building approach. Financial incentive payment shall not exceed 50% of the cost difference between standard and upgraded equipment and/or materials, or $100,000, whichever is lower.
- Custom EE Incentives: Financial incentives payment for the replacement of energy efficient equipment/technology that conserves energy and permanently reduces coincident summer/winter on-peak load and exceeds state-mandated codes, federal-mandated codes, industry accepted performance standards or other baseline energy performance standards. Financial incentive payment is based on a rate of $0.15/kWh or $2/therm for one year of energy savings and $150/kW for each kW that has been reduced and shall not exceed 50% of the total cost associated with the equipment/materials (including installation) or $50,000 per FY, whichever is lower.

- City Facilities: City owned facilities that are served by VMUS are qualified to participate in any of the EE programs herein. Qualifying city facilities served by VMUS could take advantage of our direct install program or custom incentives. The level of incentives or direct install budget will be determined by VMUS on a case-by-case basis.
- Utility-Side Projects/Activities: Direct funding for projects/activities on the utility side of the meter that promote a benefit to VMUS customers in terms of improved safety, system integrity, EE, conservation, or Research and Development (R&D). Projects must be authorized by the City Council as part of the annual operating budget or through a subsequent request in a public meeting.

Residential Programs

Victorville only serves non-residential customers.

Complementary Programs

Achieved commercial operation for a long-term photovoltaic generating facility power purchase agreement coupled with an 8 MW battery energy storage system.

EM&V Studies

Engineering analysis programs are the basis for energy savings and incentive calculations. Victorville relies upon the EE Technical Reference Manual for energy savings estimates.

Major Differences or Diversions from California POU TRM for Energy Savings

None

TABLE VPU-1. EE Program Results by End Use

Summary by End Use	Resource Savings Summary								Cost Test Results		
End Use	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Lighting - Indoor	145	971,468	24,286,712	145	971,468	24,286,712	8,886	$68,895	35.24	9.04	0.005
EE	145	971,468	24,286,712	145	971,468	24,286,712	8,886	$68,895	35.24	9.04	0.005
EE and Low Income	145	971,468	24,286,712	145	971,468	24,286,712	8,886	$68,895	35.24	9.04	0.005
C&S, T&D and Electrification								$0			
Utility Total	145	971,468	24,286,712	145	971,468	24,286,712	8,886	$68,895	35.24	9.04	0.005

TABLE VPU-2. EE Program Results by Sector

Summary by Sector	Resource Savings Summary								Cost Test Results		
Sector	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Industrial	145	971,468	24,286,712	145	971,468	24,286,712	8,886	$68,895	35.24	9.04	0.005
EE	145	971,468	24,286,712	145	971,468	24,286,712	8,886	$68,895	35.24	9.04	0.005
EE and Low Income	145	971,468	24,286,712	145	971,468	24,286,712	8,886	$68,895	35.24	9.04	0.005
C&S, T&D and Electrification								$0			
Utility Total	145	971,468	24,286,712	145	971,468	24,286,712	8,886	$68,895	35.24	9.04	0.005

TABLE VPU-3. EE Program Results by Building Type

Summary by Building Type	Resource Savings Summary								Cost Test Results		
Building Type	**Gross Peak Savings (kW)**	**Gross Annual Savings (kWh)**	**Gross Lifecycle Energy Savings (kWh)**	**Net Peak Savings (kW)**	**Net Annual Energy Savings (kWh)**	**Net Lifecycle Energy Savings (kWh)**	**Net Lifecycle GHG Reductions (Tons)**	**Total Utility Cost**	**PAC**	**TRC**	**Utility ($/kWh)**
Any	145	971,468	24,286,712	145	971,468	24,286,712	8,886	$68,895	35.24	9.04	0.005
EE	145	971,468	24,286,712	145	971,468	24,286,712	8,886	$68,895	35.24	9.04	0.005
EE and Low Income	145	971,468	24,286,712	145	971,468	24,286,712	8,886	$68,895	35.24	9.04	0.005
C&S, T&D and Electrification								$0			
Utility Total	145	971,468	24,286,712	145	971,468	24,286,712	8,886	$68,895	35.24	9.04	0.005

Appendix B

ESPLabs™

Calculation Reference

Lori Bovitz
Last Updated: 9-18-2023
Version: 2.0

Cost Benefit Calculations

The Cost/Benefit calculations in ESP are based on the Cost/Benefit tests described in the California Standard Practice Manual. ESP calculates all the tests described in that manual. The following describes the process used to calculate these and the other results in ESP.

Load Shape Assignment

The default Load Shape for a Measure is determined using a process that involves multiple fields in the Measure:

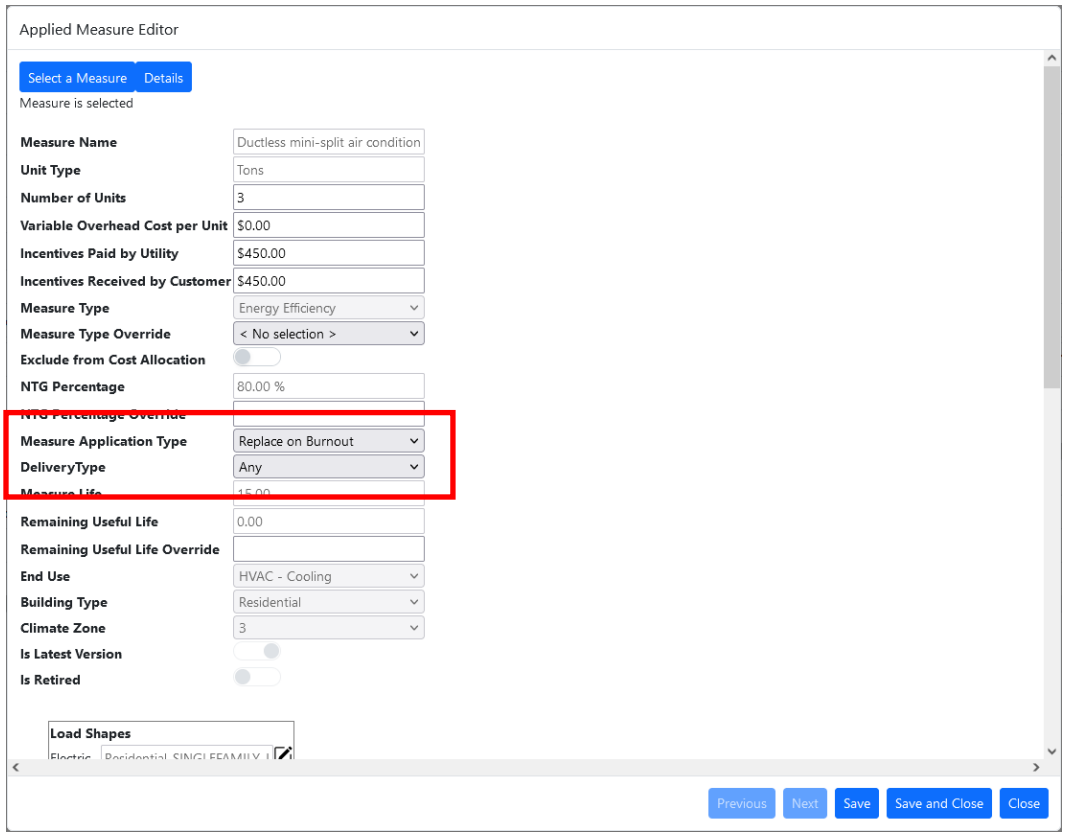
- Current version of the Load Shape
- Load Shape is either local to the organization or "Shared"
- The following attributes of the Load Shape match the same attribute of the Measure:
    - Climate Zone, or "All"
    - Building Type, or "All"
    - End Use
    - Sector, or "All"
- If an IOU is defined for the Load Shape, then the IOU for the Load Shape must match the IOU for the organization
    - If no IOU is defined for the Load Shape, the Load Shape is available to all Measures

If more than one Load Shape matches the above criteria, ESP uses the following additional process to determine the Load Shape for the Measure:

- ESP gives precedence to the following:
    - Load Shapes local to your organization (as opposed to shared Load Shapes)
    - Specific Building Type over "All"
    - Specific Sector over "Non-Residential" or "All"
    - Specific Climate Zone over "All"

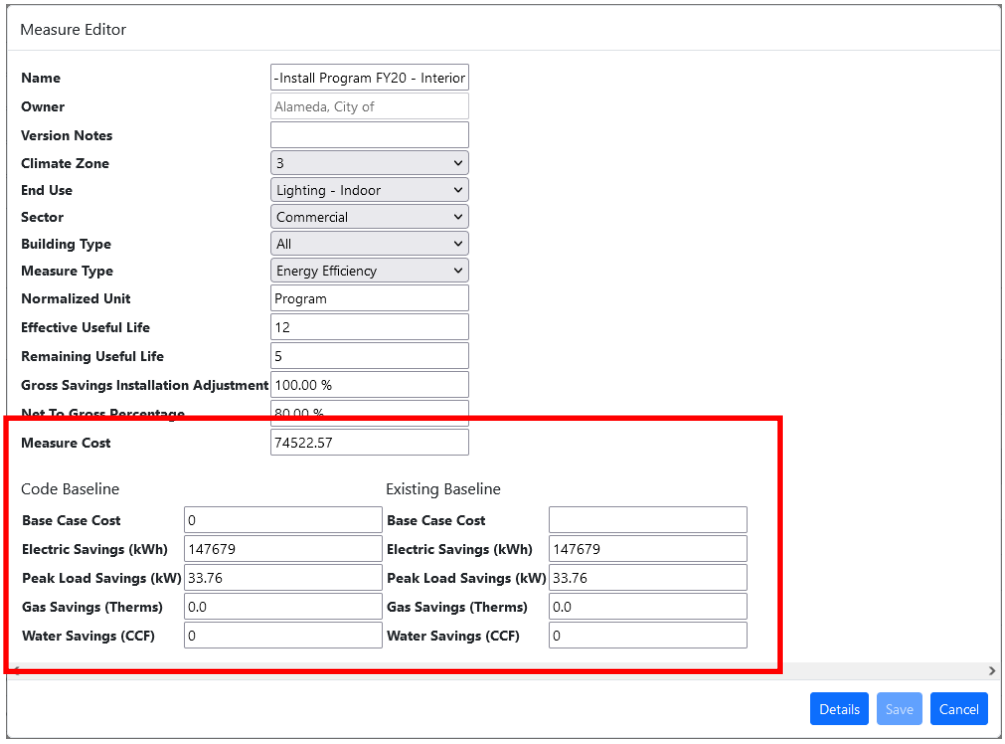
Dual Baseline Savings, Cost, and Measure Life

The calculations for Gross Savings, Cost, and Measure Life in ESP depend on the selection of Measure Application Type and Delivery Type in the Applied Measure Editor.



> ***Note**: Non-zero Values for both Code Baseline and Existing Baseline are required for the Measure to support Dual Baseline calculations.*

Each Measure contains the following fields used to calculate the Baseline values:



ESP calculates the actual 1st and 2nd Baseline values used in the calculations from these fields. The derivation of 1st and 2nd Baseline values depends on the Delivery Type and Measure Application Type selected in the Applied Measure.

Each Delivery Type selected in the Applied Measure belongs to either Group 1 or Group 2:

ESP Name	eTRM Name	Group
Upstream Prescriptive Rebate	PreRebUp	Group 1
Downstream Prescriptive Rebate	PreRebDown	Group 1
Non-upstream	NonUpStrm	Group 1
Building Design Incentive	BldgDesInc	Group 1
Custom Incentive	CustIncent	Group 1
Downstream Custom Incentive	CustIncentDown	Group 1
On-line Audit	OnLineAudit	Group 1
On-site Audit	OnSiteAudit	Group 1
Prescriptive Rebate	PreReb	Group 1
Any	Any	Group 1
Direct Install	DirInstall	Group 2
Direct Install Prescriptive Rebate	PreRebDI	Group 2

Based on the following Delivery Type "Group" and the selected Measure Application Type, the following describes the first and second baseline savings, cost, and years for single and dual baseline.

Delivery Type	Measure Application Type	1st Baseline	2nd Baseline	1st Baseline Costs	2nd Baseline Costs	1st Baseline Years	2nd Baseline Years
Group 1	Early retirement	Existing	Code	MC	MC – BC	RUL	EUL – RUL
	Replace on Burnout	Code	n/a	MC – BC	n/a	EUL	n/a
	New Construction	Code	n/a	MC – BC	n/a	EUL	n/a
	Retro-Commissioning	Existing	n/a	MC	n/a	EUL	n/a
	Retrofit	Existing	Code	MC	MC – BC	RUL	EUL – RUL
	Retrofit Add-on	Existing	n/a	MC	n/a	EUL	n/a
Group 2	Early retirement	Existing	Code	MC	MC – BC	RUL	EUL – RUL
	Replace on Burnout	Existing	n/a	MC	n/a	EUL	n/a
	New Construction	Existing	n/a	MC	n/a	EUL	n/a
	Retro-Commissioning	Existing	n/a	MC	n/a	EUL	n/a
	Retrofit	Existing	Code	MC	MC – BC	RUL	EUL – RUL
	Retrofit Add-on	Existing	n/a	MC	n/a	EUL	n/a

MC = Measure Costs
BC = Base Costs

RUL = Remaining Useful Life (years)
EUL = Estimated Useful Life (years)

If the Measure is dual Baseline, the cost/benefit calculation engine uses the first Baseline savings and costs for the first years of the Measure life, and the second Baseline savings and costs for the remaining years.

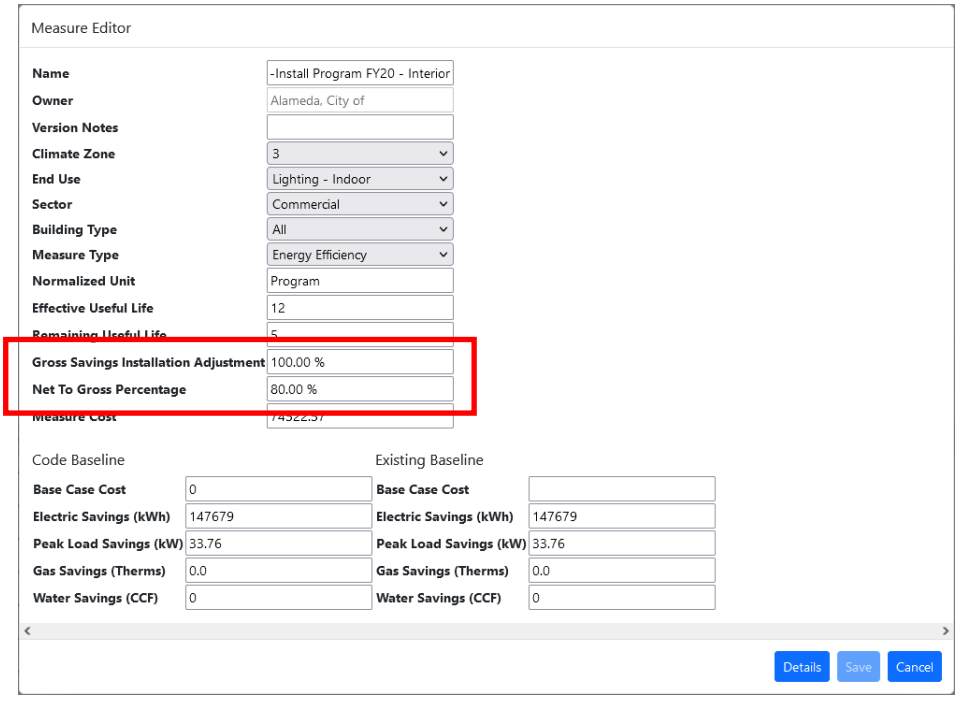
Total Cost Column

The Total Cost Column for Programs is a total of the Incremental Costs for each Applied Measure in the Program. The Increment Costs are calculated based on the Baseline Costs for the Applied Measure as described in the table above. This cost is a per unit cost and is not multiplied by the Number of Units.

Gross Savings, Adjusted Gross Savings, and Net Savings

ESP calculates 1st and 2nd Baseline Gross Savings values based on the Measure Application Type and Delivery Type (see table above).

Fields are available for the Measure for Gross Savings Installation Adjustment (GSIA) and Net to Gross Percentage in the Measure Editor.



GSIA is a factor typically used to account for the following impacts:

- In-Service Rate – number of actual units installed
- Realization Rate – differences between actual and Measure savings based on impact evaluation studies

Adjusted Gross Savings

The value for Adjusted Gross Savings is determined by the following formula:

Adjusted Gross Savings = Gross Savings * GSIA

The cost/benefit calculations use Adjusted Gross Savings to derive participant avoided costs.

Net Savings

The value for Net Savings is determined by the following formula:

Net Savings = Adjusted Gross Savings * Net to Gross Percentage

The cost/benefit calculations use Net Savings to derive utility avoided costs.

Annual Data Calculations

Cost/benefit calculations for full calendar years and are in U.S. dollars. For each hour of each year for the lifetime of the measure, ESP calculations the savings benefit using the following formulas.

Adjusted Gross Savings Benefit

1. Multiply annual Adjusted Gross Savings (unit = kWh, kW, etc.) by the Load Shape value which results in the Adjusted Gross savings for the hour.

Annual Savings (unit) * 8760 Fraction (unit) = Hourly Savings (unit)

2. Multiply the hourly Adjusted Gross Savings by the hourly Retail Rate to get the Adjusted Gross hourly benefit.

Hourly Savings (unit) * Retail Rate ($/unit) = Hourly Benefits ($)

3. Add up the Adjusted Gross hourly benefits for a year to get annual Adjusted Gross Benefit ($).

Net Savings Benefit

1. Multiply the annual Net savings by the Load Shape hourly value, which results in the Net savings for that hour.

Annual Savings (unit) * 8760 Fraction (unit) = Hourly Savings (unit)

2. Multiply the hourly Net savings by the hourly Avoided Cost rate to get the Net hourly benefit ($).

Hourly Savings(unit) * Avoided Cost Rate($/unit) = Hourly Benefit ($)

ESP treats each type of savings this way; Adjusted Gross Savings, Net Savings, Gas Savings, and Water Savings to get annual dollar benefit values.

Cost values in ESP are already annual dollar values and thus do not require 8760 hourly data or a rate for conversion.

In ESP, Retail Rate and Avoided Cost Rates in ESP are multi-year hourly values. As a result, each year of the calculation uses different hourly values throughout the measure lifetime.

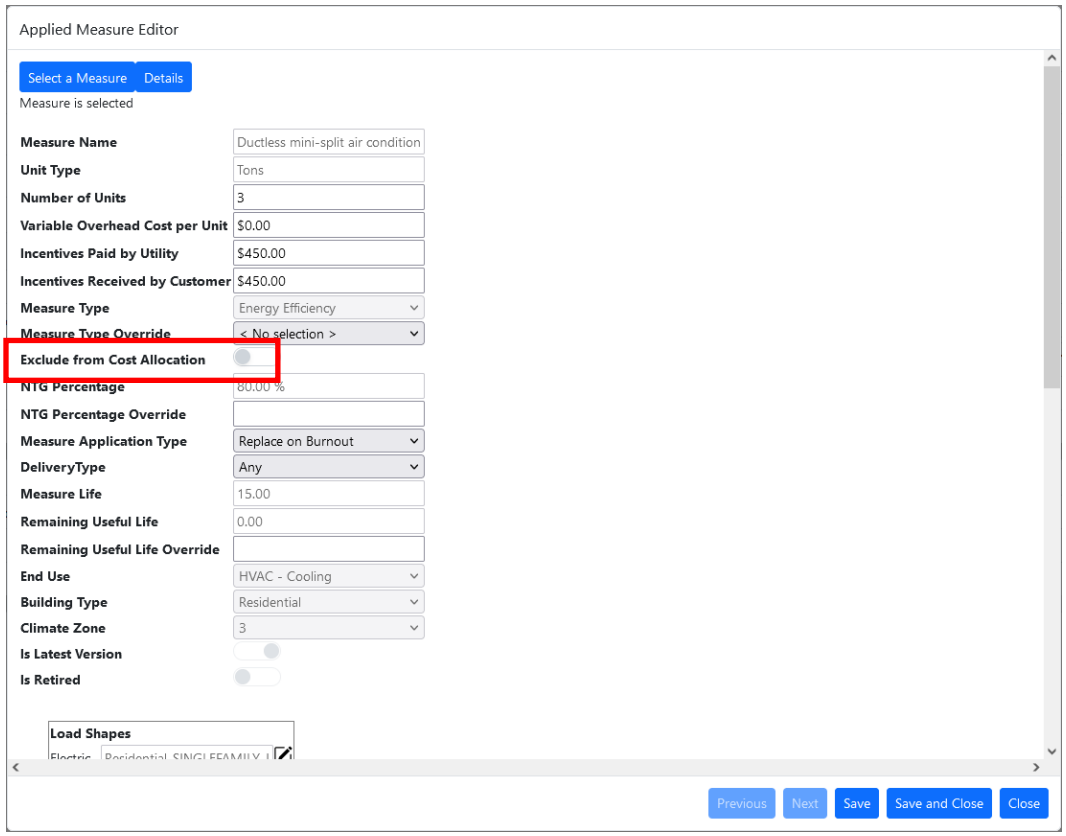
In ESP, each Load Shape resource contains one year of hourly data. As a result, each year of the calculation uses the same values for each year in the Measure lifetime.

Cost Allocation

ESP allocates Portfolio and Program costs down to the Applied Measure level according to the following rules. This allows the grouping of Applied Measures and their associated cost/benefit values in different ways for analysis.

- Allocates Portfolio overhead costs to each Applied Measure in the Portfolio in proportion to the Net Savings of the measure.
- Allocates Program overhead costs to each Applied Measure in the Program in proportion to the Net Savings of each measure.
- Allocates Sector overhead costs to each Applied Measure according to the Measure Sector setting, in proportion to the Net Savings of each measure.

Applied Measures have an option setting that prevents the allocation of any overhead costs to that Applied Measure.



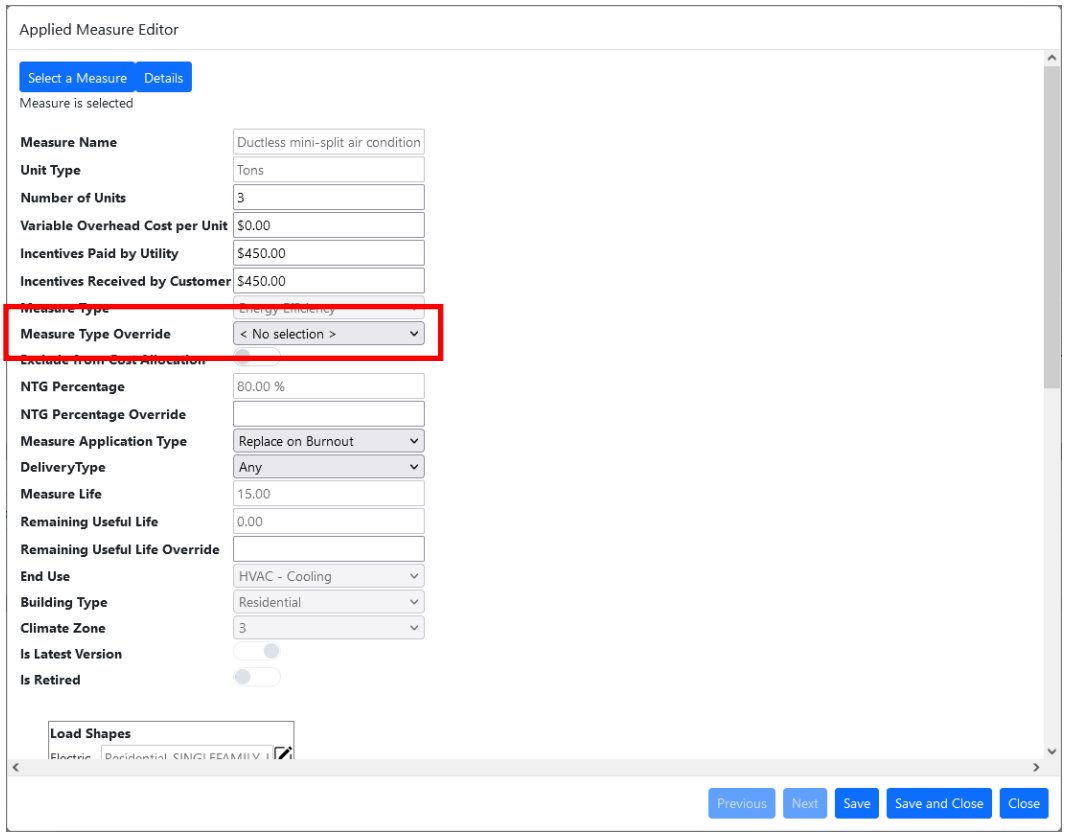
Cost Benefit calculations will not run if it cannot allocate a cost to any Applied Measures. For example, if you enter a cost in the Sector Overhead Residential field, but there are no Residential Measures to allocate the overhead costs, the cost benefit calculation will not run. This also applies to Portfolio Overhead and Program Overhead costs.

Costs are applied to Low Income Applied Measures just like any other Applied Measure even though they are presented separately from the main Portfolio in the results.

Low-Income

Low income Applied Measures results are separate from the main Portfolio results. So are Transmission & Distribution, Codes & Standards, and Electrification Applied Measures.

Use the “Measure Type Override” option in the Applied Measure to set the Applied Measure as low income, even if its underlying Measure is not of type Low Income. This option also allows you to override the Measure Type with any of the other Measure Type options.



> ***Note:*** *Participant Test and Ratepayer Impact Measure Test are only run if a Retail Rate is selected for the Applied Measure.*

Cost Benefit Calculations

ESP supports the following cost/benefit tests:

- Participant Test
- Ratepayer Impact Measure Test (RIM)
- Total Resource Cost Test (TRC)
- Modified Resource Cost Test (MTRC)
- Societal Test
- Program Administrator Cost Test (PA)

ESP calculates the cost/benefit tests using elements that correspond to the specific costs and benefits in each of the tests. Each Element has an Element Type that describes it in the context of the California Standard Practice Manual.

Element Type	TRC	MTRC	PAC	RIM	PCT	SCT
BR_BillReductionsGross					Benefit	
EmissionsCostSavingsNet						Benefit
FR_FreeRiderCost	Cost					Cost
INC_IncentivesPaidByUtilityGross			Cost	Cost		
INC_IncentivesReceivedByCustomerGross					Benefit	
PC_ParticipantCostsGross					Cost	
PCN_ParticipantCostsNet	Cost	Cost				Cost
PRC_ProgramAdministratorCosts	Cost	Cost	Cost	Cost		Cost
RL_RevenueLossNet				Cost		

Element Type	TRC	MTRC	PAC	RIM	PCT	SCT
UAC_UtilityAvoidedCostsNet	Benefit	Benefit	Benefit	Benefit		Benefit

Net Present Value Calculations

Formulas in the California Standard Practice Manual use a divisor of $(1+d)^{t-1}$, which equals 1 in the first year. In other words, the application of the discount rate should not happen in the first year. This is the implementation of the calculation in ESP.

Important Note: Many spreadsheet cost benefit calculations, including the original CMUA CET, use the Excel NPV function to calculate net present values. The NPV function in Microsoft Excel assumes that payments occur at the end of the term, which means the application of the discount rate is to first year costs and benefits. This approach is technically incorrect.