



**Los Angeles Department of Water and Power
FY 2023-2024 Energy Efficiency Program
ECAF Energy Savings Report**

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Energy Cost Adjustment Factor (ECAF) Energy Savings

INTRODUCTION

The purpose of this report is to document the methodologies used in quantifying the energy savings for the variety of efficiency measures promoted by LADWP's energy efficiency (EE) programs. The use of consistent values is critical to the process of developing reporting standards that current and future LADWP EE staff can use for common reporting needs. The study's approach capitalizes on existing information from the eTRMⁱ, SCPPAⁱⁱ, utility companies (including LADWP and others) and consultant-prepared energy studies and savings estimation practices. The report team condensed the available detailed data into concise measure summaries. References to key data, sources and measures are made where applicable.

PROJECT METHODOLOGY

a. Measure Documentation Resources

Using existing resources to the extent possible, the report team created summaries for all of the EE program measures as reported in the Efficiency Programs KPI Report. The primary data resources were the LADWP EE Management and Program Managers, with assistance from the Customer Information and Analysis staff.

Sources of energy savings include custom engineering calculations using building simulation modeling software, including California Energy Commission approved compliance software for the current Building Energy Efficiency Standards (Energy Code), such as EnergyPro, eQuest, and Openstudio/Energyplus, and simple engineering calculations in an Excel spreadsheet. 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 eTRM and utility workpapers are used. Examples of programs using this approach include the Commercial Direct Install, Consumer Rebate, Food Service, Refrigerator Exchange, and Refrigerator Recycling Programs. LADWP is currently transitioning toward leveraging the California Technical Forum eTRM for its deemed savings references. Moving forward, all new additions and updates will be referring to the eTRM as the primary source.

ⁱ Electronic Technical Reference Manual platform could help ensure accuracy, transparency, and accessibility of all deemed measure values.

ⁱⁱ Southern California Public Power Authority.

b. Measure Baselines

Depending on the measure as well as the availability of reference points for energy usage comparison, some measures reference the Title 24 code requirements as their baseline while others reference the existing conditions typically found at the project site. In all cases, the method that was used to determine savings is noted directly in the text of the measure summary.

c. Custom Savings

The report provides prescriptive savings for most measures. Some of the measures are considered custom and savings are therefore calculated for each unique project as indicated in the text. For such custom savings approaches, an energy savings analysis methodology is provided.

d. Measure Savings

This report includes annual energy (kWh) savings for the measures.

The measure hours may be either the actual hours of operation or equivalent operating hours depending on the equipment or measure. The appropriate definition is included in each measure section.

e. Methodology Improvements

In 2021, improvements in methodology involving the initial use of more sophisticated data processing tools caused LADWP EE staff to reassess the historical assumptions made about the useful life of program measures, resulting in adjustments to the retirement of energy saving measures; hence, data reconciliation and corresponding increases or decreases in historic energy savings (also called “Previous Years Carryover”) were completed.

For each program that cites an increase in energy savings, it means previously retired program measures are still within their useful life based on data from Energy and Environmental Economics (E3) reports. As a result, there is a corresponding increase in historic energy savings.

For each program that cites a decrease in energy savings, it means more previously installed energy savings measures are beyond their useful life based on data from Energy and Environmental Economics (E3) reports. As a result, there is a corresponding decrease in historic energy savings.

Useful life statements in previous reports are no longer valid due to these methodology improvements.

Energy Efficiency Programs

Most of LADWP's EE programs are similar to those implemented by utilities throughout the state and offer similar measures, incentives and processes.

- I. Commercial Direct Install (CDI)
- II. Los Angeles Unified School District Direct Install (LAUSD DI)
- III. Refrigerator Exchange Program
- IV. Refrigerator Turn In and Recycle (RETIRE)
- V. Home Energy Improvement Program (HEIP)
- VI. Energy Upgrade California™ (EUCA)
- VII. California Advanced Home Program (CAHP)
- VIII. Consumer Rebate Program (CRP)
- IX. Efficient Product Marketplace
- X. HVAC Optimization Program
- XI. Residential Lighting Efficiency Program
- XII. Energy Savings Assistance Program (ESAP)
- XIII. Custom Performance-Based Efficiency Program
(CPP or Custom) / Custom Express
- XIV. Commercial Lighting Incentive Program (CLIP)
- XV. Zero By Design (Formerly Savings By Design)
- XVI. Retrocommissioning (RCx) Express Program
- XVII. Food Service
- XVIII. Upstream HVAC
- XIX. Whole Building MultiFamily
- XX. City Plants
- XXI. New Construction
- XXII. Weatherization
- XXIII. Chiller Efficiency Program (CEP)

Summary Schedule of Annual Energy Savings (kWh)

Program	Annualized kWh Savings FY 2023-2024	%	Prorated kWh Savings FY 2023-2024 Based on Date Installed	%	Previous Years Carryover FY 2006-2023 (kWh)	%	Current Year ECAF Adjustment Cumulative FY 2023-2024 (kWh)	%
Commercial Direct Install (CDI)	22,904,188	26.02%	12,441,706	25.49%	377,058,916	19.71%	389,500,622	19.85%
Los Angeles Unified School District Direct Install (LAUSD DI)	7,403,738	8.41%	4,298,222	8.81%	30,806,627	1.61%	35,104,848	1.79%
Refrigerator Exchange Program	7,398	0.01%	6,542	0.01%	112,610,597	5.89%	112,617,139	5.74%
Refrigerator Turn In and Recycle (RETIRE)	354,115	0.40%	338,214	0.69%	15,141,260	0.79%	15,479,474	0.79%
Home Energy Improvement Program (HEIP)	1,247,673	1.42%	729,807	1.50%	24,504,711	1.28%	25,234,518	1.29%
Energy Upgrade California™ (EUCA)	0	0.00%	0	0.00%	3,173,734	0.17%	3,173,734	0.16%
California Advanced Home Program (CAHP)	308,062	0.35%	272,253	0.56%	10,293,009	0.54%	10,565,262	0.54%
Consumer Rebate Program (CRP)	2,093,551	2.38%	1,223,108	2.51%	127,493,857	6.66%	128,716,965	6.56%
Efficient Product Marketplace	575,034	0.65%	471,317	0.97%	10,173,531	0.53%	10,644,848	0.54%
HVAC Optimization Program	3,821,530	4.34%	2,986,147	6.12%	51,724,438	2.70%	54,710,585	2.79%
Residential Lighting Efficiency Program	5,516	0.01%	4,396	0.01%	133,249,622	6.96%	133,254,018	6.79%
Energy Savings Assistance Program (ESAP)	0	0.00%	0	0.00%	13,407,560	0.70%	13,407,560	0.68%
Custom Performance-Based Efficiency Program (CPP or Custom) / Custom Express	7,241,863	8.23%	3,826,596	7.84%	418,829,391	21.89%	422,655,987	21.54%
Commercial Lighting Incentive Program (CLIP)	32,520,656	36.94%	13,633,416	27.93%	430,372,401	22.49%	444,005,818	22.63%
Zero By Design (Formerly Savings By Design)	1,382,652	1.57%	491,527	1.01%	44,427,439	2.32%	44,918,967	2.29%
Retrocommissioning (RCx) Express Program	0	0.00%	0	0.00%	2,219,947	0.12%	2,219,947	0.11%
Food Service	21,155	0.02%	6,016	0.01%	12,730,267	0.67%	12,736,283	0.65%
Upstream HVAC	448,421	0.51%	386,789	0.79%	54,081,326	2.83%	54,468,115	2.78%
Whole Building MultiFamily	0	0.00%	0	0.00%	1,800,666	0.09%	1,800,666	0.09%
City Plants	7,695,094	8.74%	7,695,094	15.77%	0	0.00%	7,695,094	0.39%
New Construction	0	0.00%	0	0.00%	6,036,770	0.32%	6,036,770	0.31%
Weatherization	0	0.00%	0	0.00%	109,740	0.01%	109,740	0.01%
Chiller Efficiency Program (CEP)	0	0.00%	0	0.00%	32,986,587	1.72%	32,986,587	1.68%
TOTALS	88,030,645	100.00%	48,811,151	100.00%	1,913,232,396	100.00%	1,962,043,547	100.00%

LADWP reported a total 278.1 gigawatt-hours (GWh) savings for FY 2023-2024 toward LA's 15% savings goal by 2030. Of this total, 190.0 GWh reported to the California Energy Commission is due to Codes and Standards and other programs and savings; the revenue impacts of these are not recovered through this mechanism.

I. Commercial Direct Install (CDI)

The CDI Program provides energy efficiency services to business customers with less than 250 kW demand. It was previously known as the Small Business Direct (SBDI) Program. The primary services include facility energy assessments, recommendations for lighting and refrigeration improvements, and an offer to install a limited amount of high efficiency lighting and refrigeration equipment at no charge. CDI Program lighting and refrigeration measure services are provided by independent contractors.

Savings:

Annual energy savings are calculated by multiplying the installed efficiency measure quantities by the corresponding factor for CDI annual kWh savings per unit. The savings factors have been established for the list of measures using data developed by the eTRM and from work papers obtained from California's investor-owned utilities (IOUs)

The table below shows the monthly savings (kWh) for Fiscal Year 2023-24

Month	2023-2024 Installed KWH Savings	2023-2024 Installed KWH Savings Prorated Amount*	2006-2023 Previous Years Carryover Annual Amount**	2023-2024 Current Year ECAF Adjustment Cumulative Amount
23-Jul	2,326,084	2,229,164	32,413,648	34,642,812
23-Aug	2,297,507	2,010,319	34,755,856	36,766,175
23-Sep	2,064,300	1,634,237	32,254,017	33,888,255
23-Oct	1,848,017	1,309,012	33,033,542	34,342,554
23-Nov	2,452,768	1,532,980	30,648,191	32,181,171
23-Dec	2,232,358	1,209,194	34,205,400	35,414,594
24-Jan	1,837,748	842,301	32,121,724	32,964,025
24-Feb	1,464,407	549,152	26,576,406	27,125,559
24-Mar	1,859,573	542,376	29,225,109	29,767,484
24-Apr	1,498,575	312,203	27,953,983	28,266,186
24-May	1,737,788	217,224	30,161,876	30,379,100
24-Jun	1,285,063	53,544	33,709,163	33,762,707
Total	22,904,188	12,441,706	377,058,916	389,500,622

*Annual Prorated Savings based on actual installation date

**Represents a reduction of 1,832,296 kWh for previously installed expired measures and data reconciliation

II. Los Angeles Unified School District Direct Install (LAUSD DI)

The Los Angeles Unified School District Direct Install (LAUSD DI) Program is designed to improve energy efficiency throughout LAUSD's facilities through upgrades in electricity consuming systems. This Program provides energy efficiency design assistance, project management experience and retrofitting installation, utilizing independent contractors to assist LAUSD facilities in need of aid in reducing energy usage and corresponding utility expenses.

Savings:

Annual energy savings are calculated by multiplying the installed efficiency measure quantities by the corresponding factor for LAUSD Direct Install annual kWh savings per unit. The savings factors have been established for the list of measures using data developed by the eTRM and from work papers obtained from California's IOUs.

The table below shows the monthly savings (kWh) for Fiscal Year 2023-24

Month	2023-2024 Installed KWH Savings	2023-2024 Installed KWH Savings Prorated Amount*	2006-2023 Previous Years Carryover Annual Amount**	2023-2024 Current Year ECAF Adjustment Cumulative Amount
23-Jul	-	-	3,663,456	3,663,456
23-Aug	-	-	2,449,039	2,449,039
23-Sep	2,330,614	1,845,069	3,618,160	5,463,229
23-Oct	-	-	3,351,079	3,351,079
23-Nov	1,382,322	863,951	1,497,165	2,361,116
23-Dec	1,437,061	778,408	695,370	1,473,778
24-Jan	1,363,894	625,118	2,818,122	3,443,240
24-Feb	-	-	3,089,438	3,089,438
24-Mar	3,486	1,017	3,080,545	3,081,562
24-Apr	886,361	184,659	2,766,361	2,951,020
24-May	-	-	2,655,377	2,655,377
24-Jun	-	-	1,122,514	1,122,514
Total	7,403,738	4,298,222	30,806,627	35,104,848

*Annual Prorated Savings based on actual installation date

**Represents a reduction of 2,884,437 kWh for previously installed expired measures and data reconciliation

III. Refrigerator Exchange Program

The Refrigerator Exchange Program (REP) provides new energy-saving, ENERGY STAR® rated refrigerators, free of charge, to qualified customers, in exchange for qualified older model refrigerators, that are subsequently recycled in an environmentally responsible manner.

Savings:

Annual energy savings (kWh) are calculated by multiplying the number of exchanged units by the REP Annual kWh savings per unit factor. The savings factor used for the program is 822 kWh per unit per year (15 cu. ft. and above) and 692 kWh per unit per year (below 15 cu. ft.) based on averages determined by the eTRM (savings per refrigerator).

The table below shows the monthly savings (kWh) for Fiscal Year 2023-24

Month	2023-2024 Installed KWH Savings	2023-2024 Installed KWH Savings Prorated Amount*	2006-2023 Previous Years Carryover Annual Amount	2023-2024 Current Year ECAF Adjustment Cumulative Amount
23-Jul	822	788	11,320,050	11,320,838
23-Aug	6,576	5,754	9,740,397	9,746,151
23-Sep	-	-	10,880,675	10,880,675
23-Oct	-	-	13,467,916	13,467,916
23-Nov	-	-	9,950,068	9,950,068
23-Dec	-	-	8,723,027	8,723,027
24-Jan	-	-	6,927,893	6,927,893
24-Feb	-	-	7,818,637	7,818,637
24-Mar	-	-	7,646,259	7,646,259
24-Apr	-	-	7,881,857	7,881,857
24-May	-	-	8,218,472	8,218,472
24-Jun	-	-	10,035,346	10,035,346
Total	7,398	6,542	112,610,597	112,617,139

*Annual Prorated Savings based on actual installation date

Note: Program temporarily suspended since August 2023 while the new program agreement is in development.

IV. Refrigerator Turn In and Recycle (RETIRE)

The RETIRE Program offers a rebate to encourage LADWP residential customers to give up functioning older inefficient refrigerators and/or window air conditioning units for recycling in an environmentally sound manner.

Savings⁴:

Annual energy savings (kWh) are calculated by multiplying the number of units by the RETIRE annual kWh savings per unit factor. The savings factor used for the program is 1,946 kWh per refrigerator/freezer unit and 30 kWh per window a/c unit per year based on the Cost Effectiveness Calculation Program developed by Energy and Environmental Economics (E3) for California publicly-owned utilities (POUs).

The table below shows the monthly savings (kWh) for Fiscal Year 2023-24

Month	Number of Units	2023-2024 Installed KWH Savings	2023-2024 Installed KWH Savings Prorated Amount*	2006-2023 Previous Years Carryover Annual Amount	2023-2024 Current Year ECAF Adjustment Cumulative Amount
23-Jul	434	340,361	326,179	1,734,866	2,061,045
23-Aug	18	13,754	12,035	1,682,729	1,694,764
23-Sep	0	-	-	1,452,413	1,452,413
23-Oct	0	-	-	1,335,849	1,335,849
23-Nov	0	-	-	1,263,999	1,263,999
23-Dec	0	-	-	1,617,870	1,617,870
24-Jan	0	-	-	1,220,092	1,220,092
24-Feb	0	-	-	1,016,474	1,016,474
24-Mar	0	-	-	1,092,035	1,092,035
24-Apr	0	-	-	1,078,360	1,078,360
24-May	0	-	-	696,567	696,567
24-Jun	0	-	-	950,005	950,005
Total	451	354,115	338,214	15,141,260	15,479,474

*Annual Prorated Savings based on actual installation date

Note: Program temporarily suspended since August 2023 while the new program agreement is in development.

⁴Cost Effectiveness Calculation Program developed by E3 for POUs, employing a database of more than 5,000 energy saving measures.

V. Home Energy Improvement Program (HEIP)

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

Savings:

Annual energy savings are calculated by multiplying the installed efficiency measure quantities by the corresponding factor for Home Energy Improvement Program's annual kWh savings per unit. The savings factors have been established for the list of measures using data developed by the eTRM and from work papers obtained from California's IOUs.

The table below shows the monthly savings (kWh) for Fiscal Year 2023-24

Month	2023-2024 Installed KWH Savings	2023-2024 Installed KWH Savings Prorated Amount*	2006-2023 Previous Years Carryover Annual Amount	2023-2024 Current Year ECAF Adjustment Cumulative Amount
23-Jul	164,686	157,824	1,285,454	1,443,278
23-Aug	262,745	229,902	1,617,134	1,847,036
23-Sep	69,573	55,079	1,888,479	1,943,558
23-Oct	84,870	60,116	1,724,743	1,784,859
23-Nov	82,716	51,698	1,969,821	2,021,518
23-Dec	69,079	37,418	1,990,131	2,027,549
24-Jan	85,924	39,382	1,668,698	1,708,080
24-Feb	105,283	39,481	2,047,326	2,086,807
24-Mar	91,405	26,660	4,290,212	4,316,872
24-Apr	89,719	18,691	1,960,283	1,978,974
24-May	91,836	11,479	2,070,008	2,081,487
24-Jun	49,837	2,077	1,992,421	1,994,498
Total	1,247,673	729,807	24,504,711	25,234,518

*Annual Prorated Savings based on actual installation date

VI. Energy Upgrade California™ (EUCA)

The Energy Upgrade California™ (EUCA) Program, also known as Energy Upgrade California Home Upgrade, was a collaborative effort among California counties, cities, non-profit organizations, the state's investor-owned utilities, and publicly owned utilities to deliver a California statewide "whole house" residential retrofit energy efficiency program, in which LADWP partnered with Southern California Gas Company (SoCalGas). EUCA offered incentives to homeowners who completed selected energy-saving home improvements on single-family residences or 2-4-unit buildings, such as townhouses, condominiums, etc.

This program was offered in partnership with SoCalGas and ended June 30, 2019.

Savings:

Annual energy savings are calculated by multiplying the installed efficiency measure quantities by the corresponding factor for Energy Upgrade California's™ annual kWh savings per unit. The savings factors have been established for the list of measures using data developed by the eTRM and from work papers obtained from California's IOUs.

The table below shows the monthly savings (kWh) for Fiscal Year 2023-24

Month	2023-2024 Installed KWH Savings	2023-2024 Installed KWH Savings Prorated Amount*	2006-2023 Previous Years Carryover Annual Amount	2023-2024 Current Year ECAF Adjustment Cumulative Amount
23-Jul	-	-	169,177	169,177
23-Aug	-	-	198,824	198,824
23-Sep	-	-	506,661	506,661
23-Oct	-	-	238,907	238,907
23-Nov	-	-	194,147	194,147
23-Dec	-	-	262,746	262,746
24-Jan	-	-	162,571	162,571
24-Feb	-	-	189,405	189,405
24-Mar	-	-	383,639	383,639
24-Apr	-	-	337,748	337,748
24-May	-	-	276,238	276,238
24-Jun	-	-	253,672	253,672
Total	-	-	3,173,734	3,173,734

*Annual Prorated Savings based on actual installation date

VII. California Advanced Home Program (CAHP)

The California Advanced Home Program (CAHP) was an incentive program that utilized the statewide CAHP through LADWP's partner utility, Southern California Gas Company (SoCalGas), to incentivize cost-effective energy efficiency upgrades in residential new construction. CAHP targeted high density residential new construction, including single and multi-family high rise buildings, as this was the area with the greatest new construction energy savings potential in LADWP's service territory.

This program was offered in partnership with SoCalGas and ended December 31, 2019.

Savings:

CAHP was designed for the performance-based approach for compliance. Compliance with the current Title 24 Standards must be demonstrated through the performance method utilizing approved California Energy Commission (CEC) compliance software. Compliance must be demonstrated for the building as a whole and may not group unrelated or detached buildings together.

The table below shows the monthly savings (kWh) for Fiscal Year 2023-24

Month	2023-2024 Installed KWH Savings	2023-2024 Installed KWH Savings Prorated Amount*	2006-2023 Previous Years Carryover Annual Amount	2023-2024 Current Year ECAF Adjustment Cumulative Amount
23-Jul	162,991	156,200	1,463,859	1,620,058
23-Aug	112,419	98,367	50,333	148,700
23-Sep	-	-	278,110	278,110
23-Oct	-	-	922,797	922,797
23-Nov	-	-	916,465	916,465
23-Dec	32,652	17,686	107,731	125,417
24-Jan	-	-	617,711	617,711
24-Feb	-	-	1,549,709	1,549,709
24-Mar	-	-	502,074	502,074
24-Apr	-	-	1,612,818	1,612,818
24-May	-	-	856,380	856,380
24-Jun	-	-	1,415,023	1,415,023
Total	308,062	272,253	10,293,009	10,565,262

*Annual Prorated Savings based on actual installation date

VIII. Consumer Rebate Program (CRP)

The CRP is designed to both educate and influence purchasing decisions of LADWP residential customers by offering rebates for the purchase of qualifying energy-saving products that meet or exceed ENERGY STAR® efficiency ratings, Title 20, Title 24, Air-Conditioning Heating and Refrigeration Institute (AHRI), and/or the Cool Roof Rating Council (CRRC) criteria.

Savings:

Annual energy savings are calculated by multiplying the installed efficiency measure quantities by the corresponding factor for the EPM's annual kWh savings per unit. The savings factors used for the program are derived from various sources such as the eTRM, ENERGY STAR® and California IOU data, as appropriate.

The table below shows the monthly savings (kWh) for Fiscal Year 2023-24

Month	2023-2024 Installed KWH Savings	2023-2024 Installed KWH Savings Prorated Amount*	2006-2023 Previous Years Carryover Annual Amount	2023-2024 Current Year ECAF Adjustment Cumulative Amount
23-Jul	204,423	195,905	10,128,004	10,323,909
23-Aug	314,655	275,323	11,729,530	12,004,854
23-Sep	182,989	144,866	10,774,322	10,919,188
23-Oct	351,892	249,257	11,915,983	12,165,240
23-Nov	102,108	63,818	10,644,791	10,708,609
23-Dec	98,823	53,529	8,314,337	8,367,866
24-Jan	211,419	96,900	8,960,183	9,057,083
24-Feb	128,305	48,114	9,325,396	9,373,511
24-Mar	113,798	33,191	10,892,873	10,926,065
24-Apr	208,007	43,335	11,731,151	11,774,486
24-May	137,865	17,233	9,863,689	9,880,922
24-Jun	39,266	1,636	13,213,596	13,215,232
Total	2,093,551	1,223,108	127,493,857	128,716,965

*Annual Prorated Savings based on actual installation date

IX. 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 programmable thermostats and advanced power strips.

Savings:

Annual energy savings are calculated by multiplying the installed efficiency measure quantities by the corresponding factor for the EPM's annual kWh savings per unit. The savings factors used for the program are derived from various sources such as the eTRM, ENERGY STAR® and California IOU data, as appropriate.

The table below shows the monthly savings (kWh) for Fiscal Year 2023-24

Month	2023-2024 Installed KWH Savings	2023-2024 Installed KWH Savings Prorated Amount*	2006-2023 Previous Years Carryover Annual Amount	2023-2024 Current Year ECAF Adjustment Cumulative Amount
23-Jul	172,471	165,285	908,288	1,073,573
23-Aug	147,037	128,657	960,656	1,089,314
23-Sep	83,440	66,057	925,851	991,908
23-Oct	62,195	44,054	629,528	673,583
23-Nov	107,459	67,162	778,166	845,327
23-Dec	-	-	1,375,568	1,375,568
24-Jan	-	-	973,463	973,463
24-Feb	-	-	779,776	779,776
24-Mar	-	-	546,390	546,390
24-Apr	-	-	651,842	651,842
24-May	-	-	688,605	688,605
24-Jun	2,432	101	955,398	955,499
Total	575,034	471,317	10,173,531	10,644,848

*Annual Prorated Savings based on actual installation date

X. HVAC Optimization Program

The HVAC 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 includes an option to install a programmable thermostat free of charge.

Savings:

Annual energy savings are calculated by multiplying the installed efficiency measure quantities by the corresponding factor for the HVAC Optimization annual kWh savings per unit. The savings factors used for the program are derived from various sources such as the eTRM, ENERGY STAR® and California IOU data, as appropriate.

The table below shows the monthly savings (kWh) for Fiscal Year 2023-24

Month	2023-2024 Installed KWH Savings	2023-2024 Installed KWH Savings Prorated Amount*	2006-2023 Previous Years Carryover Annual Amount	2023-2024 Current Year ECAF Adjustment Cumulative Amount
23-Jul	461,758	442,518	4,643,337	5,085,855
23-Aug	968,312	847,273	5,608,531	6,455,804
23-Sep	843,894	668,083	4,760,495	5,428,578
23-Oct	732,531	518,876	5,289,659	5,808,535
23-Nov	815,034	509,396	4,285,750	4,795,147
23-Dec	-	-	3,420,210	3,420,210
24-Jan	-	-	3,967,848	3,967,848
24-Feb	-	-	3,838,175	3,838,175
24-Mar	-	-	3,996,983	3,996,983
24-Apr	-	-	4,130,695	4,130,695
24-May	-	-	3,612,684	3,612,684
24-Jun	-	-	4,170,070	4,170,070
Total	3,821,530	2,986,147	51,724,438	54,710,585

*Annual Prorated Savings based on actual installation date

Note: Program temporarily suspended since November 2023 while the new program agreement is in development.

XI. Residential Lighting Efficiency Program

The Residential Lighting Efficiency Program (RLEP) provides light-emitting diode (LED) lamps to customers. The LEDs are distributed to LADWP residential customers via multiple channels.

Savings:

Annual energy savings (kWh) are calculated by multiplying the number of units by the LED annual kWh savings per unit factor. The savings factor used for the program is 24 W per unit per year based on established savings algorithms in the eTRM.

The table below shows the monthly savings (kWh) for Fiscal Year 2023-24

Month	2023-2024 Installed KWH Savings	2023-2024 Installed KWH Savings Prorated Amount*	2006-2023 Previous Years Carryover Annual Amount	2023-2024 Current Year ECAF Adjustment Cumulative Amount
23-Jul	35	34	3,995,061	3,995,095
23-Aug	278	243	337,376	337,619
23-Sep	5,203	4,119	15,673,056	15,677,175
23-Oct	-	-	16,661,311	16,661,311
23-Nov	-	-	16,387,754	16,387,754
23-Dec	-	-	118,500	118,500
24-Jan	-	-	66,812	66,812
24-Feb	-	-	81,278	81,278
24-Mar	-	-	3,555,753	3,555,753
24-Apr	-	-	16,840,517	16,840,517
24-May	-	-	46,927,085	46,927,085
24-Jun	-	-	12,605,120	12,605,120
Total	5,516	4,396	133,249,622	133,254,018

*Annual Prorated Savings based on actual installation date

XII. Energy Savings Assistance Program (ESAP)

The Energy Savings Assistance Program (ESAP) offered no-cost, energy and water-saving home improvement services to income-qualified renters and homeowners. This program was administered in partnership with SoCalGas. Measures include attic insulation, weather stripping, caulking, low-flow showerheads, faucet aerators as well as installation of various electric measures.

This program was offered in partnership with SoCalGas and ended December 31, 2020.

Savings:

Annual energy savings are calculated by multiplying the installed efficiency measure quantities by the corresponding factor for the Weatherization Program's annual kWh savings per unit. The savings factors have been established for the list of measures using data developed by the TRM and from work papers obtained from California's IOUs.

The table below shows the monthly savings (kWh) for Fiscal Year 2023-24

Month	2023-2024 Installed KWH Savings	2023-2024 Installed KWH Savings Prorated Amount*	2006-2023 Previous Years Carryover Annual Amount	2023-2024 Current Year ECAF Adjustment Cumulative Amount
23-Jul	-	-	835,088	835,088
23-Aug	-	-	878,532	878,532
23-Sep	-	-	798,239	798,239
23-Oct	-	-	1,184,698	1,184,698
23-Nov	-	-	767,382	767,382
23-Dec	-	-	2,744,857	2,744,857
24-Jan	-	-	1,358,082	1,358,082
24-Feb	-	-	1,255,276	1,255,276
24-Mar	-	-	2,439,377	2,439,377
24-Apr	-	-	222,320	222,320
24-May	-	-	349,666	349,666
24-Jun	-	-	574,043	574,043
Total	-	-	13,407,560	13,407,560

*Annual Prorated Savings based on actual installation date

XIII. Custom Performance-Based Efficiency Program (CPP or Custom) / Custom Express

LADWP's Custom Performance Program (CPP) offers financial incentives for energy-saving measures not covered by existing non-residential energy efficiency programs. This includes equipment controls, industrial processes, retro-commissioning (RCx), HVAC, refrigeration, high-efficiency motors and other innovative energy-saving strategies. With CPP's enhanced custom features, LADWP can tailor its program to better meet the project scope and maximize energy savings and incentive potential.

Savings:

CPP's energy savings and incentives are determined by one of two paths, Custom Express or Custom Calculated. Custom Express uses standardized tools on less energy intensive projects with deemed energy savings projections. Custom Calculated conducts an in-depth analysis to custom calculate the unique project's energy savings.

The table below shows the monthly savings (kWh) for Fiscal Year 2023-24

Month	2023-2024 Installed KWH Savings	2023-2024 Installed KWH Savings Prorated Amount*	2006-2023 Previous Years Carryover Annual Amount**	2023-2024 Current Year ECAF Adjustment Cumulative Amount
23-Jul	657,580	630,181	18,259,471	18,889,652
23-Aug	-	-	25,867,461	25,867,461
23-Sep	840,913	665,723	31,184,486	31,850,208
23-Oct	-	-	35,698,963	35,698,963
23-Nov	1,549,362	968,351	14,487,495	15,455,846
23-Dec	1,589,787	861,135	23,333,347	24,194,481
24-Jan	372,753	170,845	19,011,834	19,182,679
24-Feb	1,179,980	442,492	20,884,534	21,327,026
24-Mar	-	-	64,244,405	64,244,405
24-Apr	231,151	48,156	41,731,294	41,779,451
24-May	66,387	8,298	54,371,677	54,379,976
24-Jun	753,951	31,415	69,754,423	69,785,838
Total	7,241,863	3,826,596	418,829,391	422,655,987

*Annual Prorated Savings based on actual installation date

**Represents a reduction of 87,906,345 kWh for previously installed expired measures and data reconciliation

XIV. Commercial Lighting Incentive Program (CLIP)

The Commercial Lighting Incentive Program offers incentives to help make a wide variety of high-performance lamps and lighting fixtures cost-effective, targeting customers with greater than 200 kW demand still utilizing standard fixtures. CLIP is designed to be consistent with California's statewide lighting programs, leveraging established contractor networks to offer non-residential customers a full suite of lighting products and services to improve the energy efficiency in their businesses by upgrading/retrofitting core lighting systems, including lighting controls. This commercial lighting program replaces the Commercial Lighting Efficiency Offering (CLEO) Program.

Savings:

The energy savings achieved by CLIP are determined by multiplying the demand savings for each of the individual lighting measures by an "hours-of-use" factor as derived from actual field survey inspections.

The table below shows the monthly savings (kWh) for Fiscal Year 2023-24

Month	2023-2024 Installed KWH Savings	2023-2024 Installed KWH Savings Prorated Amount*	2006-2023 Previous Years Carryover Annual Amount	2023-2024 Current Year ECAF Adjustment Cumulative Amount
23-Jul	2,327,836	2,230,843	25,793,571	28,024,414
23-Aug	2,752,971	2,408,849	18,824,612	21,233,462
23-Sep	2,097,996	1,660,914	28,884,811	30,545,725
23-Oct	1,452,299	1,028,712	33,815,487	34,844,198
23-Nov	5,095,245	3,184,528	25,453,072	28,637,600
23-Dec	51,102	27,680	39,417,574	39,445,255
24-Jan	839,055	384,567	34,088,911	34,473,478
24-Feb	2,709,494	1,016,060	39,337,177	40,353,237
24-Mar	1,688,914	492,600	39,254,643	39,747,243
24-Apr	2,506,379	522,162	52,107,227	52,629,389
24-May	2,618,320	327,290	44,056,735	44,384,025
24-Jun	8,381,043	349,210	49,338,582	49,687,792
Total	32,520,656	13,633,416	430,372,401	444,005,818

*Annual Prorated Savings based on actual installation date

XV. Zero By Design (Formerly Savings By Design)

LADWP Zero By Design (ZBD) encourages developers to build more sustainably by providing financial incentives for commercial and high-rise multifamily new construction projects which exceed Title 24 or other industry standards. Program offerings include complimentary up-front design assistance, owner incentives, design team incentives, and energy design resources. On January 1, 2021 the Savings By Design (SBD) transitioned to Zero By Design.

Savings:

LADWP ZBD utilizes two paths to identify and quantify energy efficient design improvements, Express and Whole Building Performance. The paths provide the flexibility required to serve a large range of new construction projects. The Express path provides incentives for the purchase and installation of high efficiency new equipment utilizing deemed energy savings calculations. Whole Building Performance rewards developments which exceed Title 24 requirements by more than 10%. Through custom analysis of the entire building's performance, this path explores systems integration and connectivity to maximize efficiency, help reduce operating costs and increase occupant comfort.

The table below shows the monthly savings (kWh) for Fiscal Year 2023-24

Month	2023-2024 Installed KWH Savings	2023-2024 Installed KWH Savings Prorated Amount*	2006-2023 Previous Years Carryover Annual Amount	2023-2024 Current Year ECAF Adjustment Cumulative Amount
23-Jul	-	-	1,849,425	1,849,425
23-Aug	-	-	5,147,150	5,147,150
23-Sep	-	-	1,360,035	1,360,035
23-Oct	-	-	3,257,064	3,257,064
23-Nov	185,586	115,991	225,754	341,746
23-Dec	-	-	1,437,602	1,437,602
24-Jan	-	-	7,739,301	7,739,301
24-Feb	318,881	119,581	993,690	1,113,271
24-Mar	876,006	255,502	7,231,343	7,486,845
24-Apr	2,178	454	7,510,827	7,511,281
24-May	-	-	6,474,973	6,474,973
24-Jun	-	-	1,200,275	1,200,275
Total	1,382,652	491,527	44,427,439	44,918,967

*Annual Prorated Savings based on actual installation date

XVI. Retrocommissioning (RCx) Express Program

The RCx Express program was a program for non-residential customers. The program design was based on lessons learned from SCE's Retrocommissioning program. The LADWP program offered a cash incentive (rebate) to those who undertook a "tune-up" of their existing building system equipment to bring it back up to its original performance level. The program offered a menu of 13 items that qualify for incentives. Program offerings included incentives for replacement or repair of certain lighting sensors, air conditioning economizers, restoration of fan and pump variable frequency drives, operations set point strategies for supply air, temperature or duct pressure, chilled water and condenser water, operating schedules and boiler lockout.

This program was offered in partnership with SoCalGas and ended December 31, 2017.

Savings:

Annual energy savings are calculated using the Building Optimization Analysis (BOA) Tool developed by the California Commissioning Collaborative. The BOA Tool is an Excel spreadsheet-based program used to calculate energy savings for the 13 RCx measures offered under the program.

The table below shows the monthly savings (kWh) for Fiscal Year 2023-24

	2023-2024 Installed KWH Savings	2023-2024 Installed KWH Savings Prorated Amount*	2006-2023 Previous Years Carryover Annual Amount**	2023-2024 Current Year ECAF Adjustment Cumulative Amount
Total	-	-	2,219,947	2,219,947

*Annual Prorated Savings based on actual installation date

**Represents a reduction of 56,779 kWh for previously installed expired measures and data reconciliation

XVII. Food Service

The Food Service Program is a downstream program that offers incentives to encourage retrofit measures and technologies to reduce energy consumption in supermarkets, liquor stores, convenience stores, restaurants, hospitals, schools, office buildings, and other businesses with food preparation or refrigeration equipment. Rebates are offered for commercial food appliances such as commercial ovens, fryers, reach-in freezers and refrigerators, ice makers, steamers, and other refrigeration and cooking equipment. The program offers only electric-fueled equipment in alignment with LA100 goals.

The Point-of-Sale (POS) component of the program enabled non-residential customers to receive an instant rebate as a line item discount directly on their sales invoice for eligible equipment, and influences commercial food service vendors to stock and sell energy-efficient equipment. The POS Food Service component ended on March 31, 2022.

Savings:

The annual energy savings (kWh) are calculated by multiplying the installed measure quantities by the corresponding factor for Food Service Program annual kWh savings per unit. LADWP program managers and/or engineers evaluate each of the proposed measures' energy savings using factors developed by the eTRM and from work papers obtained from California's IOUs.

The table below shows the monthly savings (kWh) for Fiscal Year 2023-24

Month	2023-2024 Installed KWH Savings	2023-2024 Installed KWH Savings Prorated Amount*	2006-2023 Previous Years Carryover Annual Amount	2023-2024 Current Year ECAF Adjustment Cumulative Amount
23-Jul	-	-	765,213	765,213
23-Aug	-	-	427,308	427,308
23-Sep	-	-	1,137,163	1,137,163
23-Oct	-	-	805,033	805,033
23-Nov	-	-	375,443	375,443
23-Dec	-	-	426,854	426,854
24-Jan	-	-	1,735,724	1,735,724
24-Feb	9,654	3,620	1,311,149	1,314,769
24-Mar	-	-	1,360,718	1,360,718
24-Apr	11,501	2,396	1,157,498	1,159,894
24-May	-	-	2,351,477	2,351,477
24-Jun	-	-	876,686	876,686
Total	21,155	6,016	12,730,267	12,736,283

*Annual Prorated Savings based on actual installation date

XVIII. Upstream HVAC

The Upstream HVAC Program offers incentives to upstream market suppliers and distributors who sell qualifying high-efficiency HVAC equipment. The program is designed to influence non-residential LADWP customers' choice of HVAC equipment by increasing stock of and promoting high-efficiency equipment. The program model allows contractors and HVAC customers to immediately access premium replacement technology that might not have been readily available to them without the program. The upstream approach allows LADWP to capture energy savings at the point of sale which would not have been applied for in LADWP's downstream programs.

Savings:

Annual energy savings are calculated by multiplying the various energy-saving product quantities. Savings of eligible measures are estimated as annualized amounts as determined by eTRM and utility worksheets.

The table below shows the monthly savings (kWh) for Fiscal Year 2023-24

Month	2023-2024 Installed KWH Savings	2023-2024 Installed KWH Savings Prorated Amount*	2006-2023 Previous Years Carryover Annual Amount	2023-2024 Current Year ECAF Adjustment Cumulative Amount
23-Jul	244,191	234,017	4,382,320	4,616,337
23-Aug	78,636	68,807	3,473,644	3,542,451
23-Sep	-	-	3,988,274	3,988,274
23-Oct	65,635	46,491	5,057,467	5,103,959
23-Nov	59,959	37,475	4,228,694	4,266,169
23-Dec	-	-	4,541,586	4,541,586
24-Jan	-	-	4,344,954	4,344,954
24-Feb	-	-	5,400,609	5,400,609
24-Mar	-	-	4,297,352	4,297,352
24-Apr	-	-	3,869,944	3,869,944
24-May	-	-	5,987,092	5,987,092
24-Jun	-	-	4,509,389	4,509,389
Total	448,421	386,789	54,081,326	54,468,115

*Annual Prorated Savings based on actual installation date

Note: Program temporarily suspended since December 2022 while the new program agreement is in development.

XIX. Whole Building MultiFamily

The Whole Building MultiFamily Program (WBM) is a collaborative program with SoCalGas that offers energy consultation, audit, and incentives for energy-efficient electric, water, and natural gas upgrades to owners of existing multi-family properties. The WBM 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 capital upgrades.

WBM targets multi-family housing, particularly those awaiting Low Income Weatherization Program assistance from the State Department of Community Services & Development (CSD). WBM offers efficiency upgrades for both individual residential units and common areas throughout the property. The efficiency measures include lighting upgrades, insulation, HVAC upgrades, water heating upgrades, weatherization, controls, low-flow showerheads and faucet aerators, appliance upgrades, pool pumps, and window/door replacement/repair.

This program ended June 30, 2021.

The table below shows the monthly savings (kWh) for Fiscal Year 2023-24

	2023-2024 Installed KWH Savings	2023-2024 Installed KWH Savings Prorated Amount*	2006-2023 Previous Years Carryover Annual Amount	2023-2024 Current Year ECAF Adjustment Cumulative Amount
Total	-	-	1,800,666	1,800,666

*Annual Prorated Savings based on actual installation date

XX. City Plants

City Plants, previously Million Trees LA, is a cooperative effort between the City of Los Angeles, Board of Public Works, LADWP, and community groups, businesses, and individuals working together to plant and provide long-term stewardship of trees planted across the City to provide shade, energy savings, cooling and many other benefits. City Plants provides up to seven free shade trees to Los Angeles residents and businesses, as well as planting services following program requirements.

Savings:

City Plants utilizes the EcoLayers Landscapes modeling tool developed by the US Forest Service to calculate energy savings and climate benefits from each tree planted. The tool estimates kWh saved by shading (through decreased use of air conditioning) on an annual basis over the expected life of the tree. The tool also calculates more general climate cooling benefits from these trees and presents them in kWh saved. These calculations use the best available data on the distance and direction of the tree from the building, the building's age, presence of air conditioning, and other relevant factors. In-person sampling of trees that have been planted through the LADWP and City Plants programs determines a tree mortality rate of approximately 4.6% per year for the first five years and 3% per year thereafter, which is applied to the forecasts of energy savings. The tree modeling tool adjusts for planting dates, eliminating the need for proration of annual savings. It also accounts for tree mortality and carryover savings from previous years. In recent years, over 98% of trees have been planted in locations with potential to shade buildings. Residents are encouraged to plant to the west, east, and south of buildings to maximize benefits. Most recent tree planting activities have been targeted to hot under-canopied parts of the City, particularly in disadvantaged communities.

The table below shows the monthly savings (kWh) for Fiscal Year 2023-24

Month	2023-2024 Installed KWH Savings	2023-2024 Installed KWH Savings Prorated Amount*	2006-2023 Previous Years Carryover Annual Amount**	2023-2024 Current Year ECAF Adjustment Cumulative Amount
23-Jul	1,077,313	1,077,313	-	1,077,313
23-Aug	1,385,117	1,385,117	-	1,385,117
23-Sep	1,385,117	1,385,117	-	1,385,117
23-Oct	923,411	923,411	-	923,411
23-Nov	307,804	307,804	-	307,804
23-Dec	230,853	230,853	-	230,853
24-Jan	230,853	230,853	-	230,853
24-Feb	230,853	230,853	-	230,853
24-Mar	307,804	307,804	-	307,804
24-Apr	384,755	384,755	-	384,755
24-May	461,706	461,706	-	461,706
24-Jun	769,509	769,509	-	769,509
Total	7,695,094	7,695,094	-	7,695,094

The tree modeling tool annually accounts for savings proration, tree mortality, and carryover savings from previous years.

*Annual Prorated Savings based on actual installation date

**Represents a reduction of 71,615,918 kWh for previously installed expired measures and data reconciliation

XXI. New Construction

The New Construction Program previously offered by LADWP provided two program incentive tracks:

The Performance Track (Green Building Design) based on LEED rating was for owners and developers interested in building projects that include environmental improvements, energy efficiency, and sustainability. To qualify, projects needed to be LEED certified (Leadership in Energy and Environmental Design) or CHPS (Collaborative for High Performance Schools). LEED is a national point-based system developed by the U.S. Green Building Council (USGBC) for certifying sustainable construction.

The Prescriptive Track was for owners and developers that were interested in improving the energy efficiency of the building's equipment. This track offered incentives for installing equipment from an approved menu of energy efficient products.

The New Construction Program was replaced by the Savings by Design and California Advanced Homes Programs effective December 31, 2017.

Savings:

Savings are project specific, based either on the menu of measures (for the Prescriptive Track) or the number of LEED energy points (for the Performance Track). Detailed energy savings information is available upon request.

The table below shows the monthly savings (kWh) for Fiscal Year 2023-24

	2023-2024 Installed KWH Savings	2023-2024 Installed KWH Savings Prorated Amount*	2006-2023 Previous Years Carryover Annual Amount	2023-2024 Current Year ECAF Adjustment Cumulative Amount
Total	-	-	6,036,770	6,036,770

*Annual Prorated Savings based on actual installation date

XXII. Weatherization

LADWP partnered with SoCalGas through an MOU to share data on our respective weatherization programs to avoid duplication. The SoCalGas Energy Savings Assistance Program provided free services to limited income renters & homeowners, including attic and pipe insulation, furnace repair and replacement, weather stripping, window and door sealing, and other services, equipment and repairs. Through this coordination, LADWP was able to report the electric savings from SoCalGas-serviced homes, and was able to offer SoCalGas the therm savings from LADWP-serviced homes.

This program has been discontinued.

Savings:

Annual energy savings are calculated by multiplying the installed efficiency measure quantities by the corresponding factor for the Weatherization Program's annual kWh savings per unit. The savings factors have been established for the list of measures using data developed by the Technical Reference Manual and from work papers obtained from California's IOUs.

The table below shows the monthly savings (kWh) for Fiscal Year 2023-24

	2023-2024 Installed KWH Savings	2023-2024 Installed KWH Savings Prorated Amount*	2006-2023 Previous Years Carryover Annual Amount	2023-2024 Current Year ECAF Adjustment Cumulative Amount
Total	-	-	109,740	109,740

*Annual Prorated Savings based on actual installation date

XXIII. Chiller Efficiency Program (CEP)

The CEP is now part of the Custom Performance Program (CPP) employing energy modeling using LADWP approved software in calculating energy savings for incentives. This new approach, where applicable, pays incentives from existing baseline conditions to new conditions that meet or exceed Title 24 code requirements. For non-operational machines, the baseline is current code requirements.

Savings:

Savings are calculated using Title 24 energy efficiency requirements as the baseline. Kilowatt hour savings are calculated using IPLV⁶ factors as specified. Annual hours of use are assumed to be 1,918⁷.

The effective useful measure life of a chiller is 20 years.

The table below shows the monthly savings (kWh) for Fiscal Year 2023-24

	2023-2024 Installed KWH Savings	2023-2024 Installed KWH Savings Prorated Amount*	2006-2023 Previous Years Carryover Annual Amount	2023-2024 Current Year ECAF Adjustment Cumulative Amount
Total	-	-	32,986,587	32,986,587

*Annual Prorated Savings based on actual installation date

⁶ Integrated Part Load Value.

⁷ Estimate based on building simulation studies.



Los Angeles Department of Water and Power
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