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**Los Angeles Department of Water and Power  
Fiscal Year 2022-2023 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 TRM<sup>1</sup>, SCPPA<sup>2</sup>, 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, 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 TRM 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<sup>3</sup> for its deemed savings references. Moving forward, all new additions and updates will be referring to the eTRM as the primary source.

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<sup>1</sup> California Municipal Utility Association Savings Estimation Technical Reference Manual 2017 Third Edition by ERS.

<sup>2</sup> Southern California Public Power Authority.

<sup>3</sup> Electronic Technical Reference Manual platform could help ensure accuracy, transparency, and accessibility of all deemed measure values.

## 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 2022-2023	%	Prorated kWh Savings FY 2022-2023 Based on Date Installed	%	Previous Years Carryover FY 2006-2022 (kWh)	%	Current Year ECAF Adjustment Cumulative FY 2022-2023 (kWh)	%
Commercial Direct Install (CDI)	32,644,666	24.89%	18,872,703	29.8%	346,246,546	17.79%	365,119,248	18.17%
Los Angeles Unified School District Direct Install (LAUSD DI)	4,103,398	3.13%	2,396,271	3.8%	29,587,666	1.52%	31,983,936	1.59%
Refrigerator Exchange Program	1,537,854	1.17%	979,392	1.5%	111,072,743	5.71%	112,052,135	5.58%
Refrigerator Turn In and Recycle (RETIRE)	3,909,852	2.98%	2,381,325	3.8%	11,231,408	0.58%	13,612,733	0.68%
Home Energy Improvement Program (HEIP)	2,083,200	1.59%	843,310	1.3%	22,421,511	1.15%	23,264,821	1.16%
Energy Upgrade California™ (EUCA)	0	0.00%	0	0.0%	3,173,734	0.16%	3,173,734	0.16%
California Advanced Home Program (CAHP)	158,764	0.12%	57,606	0.1%	10,134,246	0.52%	10,191,851	0.51%
Consumer Rebate Program (CRP)	2,623,345	2.00%	1,102,427	1.7%	124,870,512	6.42%	125,972,939	6.27%
Efficient Product Marketplace	1,302,075	0.99%	907,345	1.4%	8,871,456	0.46%	9,778,801	0.49%
HVAC Optimization Program	12,336,807	9.41%	6,452,162	10.2%	39,387,632	2.02%	45,839,794	2.28%
Residential Lighting Efficiency Program	71,287	0.05%	44,716	0.1%	133,178,335	6.84%	133,223,051	6.63%
Energy Savings Assistance Program (ESAP)	0	0.00%	0	0.0%	13,407,560	0.69%	13,407,560	0.67%
Custom Performance-Based Efficiency Program (CPP or Custom) / Custom Express	14,411,630	10.99%	7,918,239	12.5%	492,324,105	25.29%	500,242,345	24.89%
Commercial Lighting Incentive Program (CLIP)	41,127,932	31.36%	14,488,247	22.9%	389,244,469	20.00%	403,732,716	20.09%
Zero By Design (Formerly Savings By Design)	3,955,225	3.02%	1,011,364	1.6%	40,472,214	2.08%	41,483,578	2.06%
Retrocommissioning (RCx) Express Program	0	0.00%	0	0.0%	2,276,726	0.12%	2,276,726	0.11%
Food Service	36,746	0.03%	27,047	0.0%	12,693,521	0.65%	12,720,568	0.63%
Upstream HVAC	3,591,027	2.74%	1,450,518	2.3%	50,490,298	2.59%	51,940,816	2.58%
Whole Building MultiFamily	0	0.00%	0	0.0%	1,800,666	0.09%	1,800,666	0.09%
City Plants	7,243,165	5.52%	4,438,919	7.0%	64,372,753	3.31%	68,811,672	3.42%
New Construction	0	0.00%	0	0.0%	6,036,770	0.31%	6,036,770	0.30%
Weatherization	0	0.00%	0	0.0%	109,740	0.01%	109,740	0.01%
Chiller Efficiency Program (CEP)	0	0.00%	0	0.0%	32,986,587	1.69%	32,986,587	1.64%
<b>TOTALS</b>	<b>131,136,973</b>	<b>100.00%</b>	<b>63,371,591</b>	<b>100.0%</b>	<b>1,946,391,198</b>	<b>100.00%</b>	<b>2,009,762,790</b>	<b>100.00%</b>

LADWP reported a total 327.9 gigawatt-hours (GWh) savings for FY 2022-2023 toward LA's 15% savings goal by 2030. Of this total, 196.8 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 improvements, and an offer to install a limited amount of high efficiency lighting equipment at no charge. CDI Program lighting 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 Technical Reference Manual and from work papers obtained from California's investor-owned utilities (IOUs)

The table below shows the monthly savings (kWh) for Fiscal Year 2022-23.

Month	2022-2023 Installed KWH Savings	2022-2023 Installed KWH Savings Prorated Amount*	2006-2022 Previous Years Carryover Annual Amount	2022-2023 Current Year ECAF Adjustment Cumulative Amount
22-Jul	3,909,245	3,746,360	28,504,403	32,250,763
22-Aug	4,053,144	3,546,501	30,702,712	34,249,213
22-Sep	2,916,031	2,308,524	29,337,987	31,646,511
22-Oct	3,354,036	2,375,776	29,679,506	32,055,281
22-Nov	2,994,895	1,871,809	27,653,296	29,525,105
22-Dec	3,230,161	1,749,671	30,975,239	32,724,910
23-Jan	2,575,338	1,180,363	29,546,386	30,726,749
23-Feb	2,494,300	935,363	24,082,106	25,017,468
23-Mar	1,784,200	520,392	27,440,908	27,961,300
23-Apr	1,738,055	362,095	26,215,928	26,578,023
23-May	1,512,565	189,071	29,056,504	29,245,575
23-Jun	2,082,696	86,779	33,051,570	33,138,349
Total	32,644,666	18,872,703	346,246,546	365,119,248

\*Annual Prorated Savings based on actual installation date



## 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 TRM and from work papers obtained from California's IOUs.

The table below shows the monthly savings (kWh) for Fiscal Year 2022-23.

Month	2022-2023 Installed KWH Savings	2022-2023 Installed KWH Savings Prorated Amount*	2006-2022 Previous Years Carryover Annual Amount	2022-2023 Current Year ECAF Adjustment Cumulative Amount
22-Jul	459,971	440,805	3,203,485	3,644,291
22-Aug	949,119	830,480	1,499,920	2,330,399
22-Sep	103,578	81,999	3,514,582	3,596,581
22-Oct	354,776	251,300	2,996,303	3,247,603
22-Nov	312,266	195,166	1,184,900	1,380,066
22-Dec	-	-	695,370	695,370
23-Jan	262,482	120,304	4,741,049	4,861,353
23-Feb	666,987	250,120	2,422,451	2,672,571
23-Mar	227,612	66,387	2,852,933	2,919,320
23-Apr	766,608	159,710	2,698,783	2,858,492
23-May	-	-	2,655,377	2,655,377
23-Jun	-	-	1,122,514	1,122,514
Total	4,103,398	2,396,271	29,587,666	31,983,936

\*Annual Prorated Savings based on actual installation date

### 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 TRM (savings per refrigerator).

The table below shows the monthly savings (kWh) for Fiscal Year 2022-23

Month	2022-2023 Installed KWH Savings	2022-2023 Installed KWH Savings Prorated Amount*	2006-2022 Previous Years Carryover Annual Amount	2022-2023 Current Year ECAF Adjustment Cumulative Amount
22-Jul	373,924	358,344	10,946,126	11,304,470
22-Aug	249,658	218,451	9,490,739	9,709,190
22-Sep	80,288	63,561	10,800,387	10,863,949
22-Oct	35,682	25,275	13,432,234	13,457,508
22-Nov	169,332	105,833	9,780,736	9,886,569
22-Dec	219,474	118,882	8,503,553	8,622,435
23-Jan	35,346	16,200	6,892,547	6,908,747
23-Feb	-	-	7,818,637	7,818,637
23-Mar	94,694	27,619	7,551,565	7,579,184
23-Apr	164,648	34,302	7,717,209	7,751,510
23-May	73,712	9,214	8,144,760	8,153,974
23-Jun	41,096	1,712	9,994,250	9,995,963
<b>Total</b>	<b>1,537,854</b>	<b>979,392</b>	<b>111,072,743</b>	<b>112,052,135</b>

\*Annual Prorated Savings based on actual installation date

#### 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.

##### Savings<sup>4</sup>:

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 2022-23.

Month	Number of Units	2022-2023 Installed KWH Savings	2022-2023 Installed KWH Savings Prorated Amount*	2006-2022 Previous Years Carryover Annual Amount**	2022-2023 Current Year ECAF Adjustment Cumulative Amount
22-Jul	637	500,196	479,355	1,234,669	1,714,024
22-Aug	727	570,619	499,291	1,112,110	1,611,402
22-Sep	630	494,636	391,587	957,777	1,349,364
22-Oct	387	303,738	215,148	1,032,111	1,247,259
22-Nov	367	288,170	180,106	975,828	1,155,935
22-Dec	493	387,298	209,786	1,230,572	1,440,358
23-Jan	503	395,170	181,120	824,922	1,006,042
23-Feb	241	188,806	70,802	827,668	898,471
23-Mar	375	294,198	85,808	797,837	883,645
23-Apr	327	256,960	53,533	821,400	874,934
23-May	80	62,421	7,803	634,146	641,949
23-Jun	214	167,639	6,985	782,367	789,352
<b>Total</b>	<b>4981</b>	<b>3,909,852</b>	<b>2,381,325</b>	<b>11,231,408</b>	<b>13,612,733</b>

\*Annual Prorated Savings based on actual installation date

\*\*Represents a reduction of 1,776,620 kWh for previously installed expired measures and data reconciliation

<sup>4</sup> Cost 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 retrofit program that offers residential customers a full suite of free products and services to improve the energy and water efficiency in the home by upgrading/retrofitting the home's envelope and core systems. While not limited to low-income customers, in FY 2020-2021, HEIP expanded beyond the aim to serve single-family residents in disadvantaged communities by including the multi-family segment.

### 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 TRM and from work papers obtained from California's IOUs.

The table below shows the monthly savings (kWh) for Fiscal Year 2022-23.

Month	2022-2023 Installed KWH Savings	2022-2023 Installed KWH Savings Prorated Amount*	2006-2022 Previous Years Carryover Annual Amount	2022-2023 Current Year ECAF Adjustment Cumulative Amount
22-Jul	-	-	1,285,454	1,285,454
22-Aug	-	-	1,617,134	1,617,134
22-Sep	51,926	41,108	1,836,553	1,877,661
22-Oct	228,635	161,950	1,496,108	1,658,058
22-Nov	240,294	150,184	1,729,527	1,879,710
22-Dec	196,132	106,238	1,793,999	1,900,237
23-Jan	245,008	112,295	1,423,691	1,535,986
23-Feb	275,907	103,465	1,771,419	1,874,884
23-Mar	333,580	97,294	3,956,633	4,053,927
23-Apr	214,109	44,606	1,746,174	1,790,780
23-May	165,231	20,654	1,904,776	1,925,430
23-Jun	132,378	5,516	1,860,043	1,865,559
<b>Total</b>	<b>2,083,200</b>	<b>843,310</b>	<b>22,421,511</b>	<b>23,264,821</b>

\*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 ended December 31, 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 TRM and from work papers obtained from California's IOUs.

The table below shows the monthly savings (kWh) for Fiscal Year 2022-23.

Month	2022-2023 Installed KWH Savings	2022-2023 Installed KWH Savings Prorated Amount*	2006-2022 Previous Years Carryover Annual Amount	2022-2023 Current Year ECAF Adjustment Cumulative Amount
22-Jul	-	-	169,177	169,177
22-Aug	-	-	198,824	198,824
22-Sep	-	-	506,661	506,661
22-Oct	-	-	238,907	238,907
22-Nov	-	-	194,147	194,147
22-Dec	-	-	262,746	262,746
23-Jan	-	-	162,571	162,571
23-Feb	-	-	189,405	189,405
23-Mar	-	-	383,639	383,639
23-Apr	-	-	337,748	337,748
23-May	-	-	276,238	276,238
23-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 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 2022-23.

Month	2022-2023 Installed KWH Savings	2022-2023 Installed KWH Savings Prorated Amount*	2006-2022 Previous Years Carryover Annual Amount	2022-2023 Current Year ECAF Adjustment Cumulative Amount
22-Jul	-	-	1,463,859	1,463,859
22-Aug	-	-	50,333	50,333
22-Sep	22,599	17,891	255,511	273,402
22-Oct	-	-	922,797	922,797
22-Nov	-	-	916,465	916,465
22-Dec	-	-	107,731	107,731
23-Jan	-	-	617,711	617,711
23-Feb	-	-	1,549,709	1,549,709
23-Mar	136,165	39,715	365,909	405,624
23-Apr	-	-	1,612,818	1,612,818
23-May	-	-	856,380	856,380
23-Jun	-	-	1,415,023	1,415,023
<b>Total</b>	<b>158,764</b>	<b>57,606</b>	<b>10,134,246</b>	<b>10,191,851</b>

\*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, 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 TRM, ENERGY STAR® and California IOU data, as appropriate.

The table below shows the monthly savings (kWh) for Fiscal Year 2022-23.

Month	2022-2023 Installed KWH Savings	2022-2023 Installed KWH Savings Prorated Amount*	2006-2022 Previous Years Carryover Annual Amount	2022-2023 Current Year ECAF Adjustment Cumulative Amount
22-Jul	-	-	10,128,004	10,128,004
22-Aug	419,672	367,213	11,309,858	11,677,071
22-Sep	-	-	10,774,322	10,774,322
22-Oct	289,822	205,291	11,626,161	11,831,452
22-Nov	89,305	55,816	10,555,486	10,611,302
22-Dec	282,858	153,215	8,031,479	8,184,694
23-Jan	115,145	52,775	8,845,038	8,897,813
23-Feb	203,719	76,394	9,121,678	9,198,072
23-Mar	232,635	67,852	10,660,239	10,728,091
23-Apr	400,993	83,540	11,330,158	11,413,698
23-May	189,386	23,673	9,674,303	9,697,976
23-Jun	399,810	16,659	12,813,786	12,830,444
Total	2,623,345	1,102,427	124,870,512	125,972,939

\*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 TRM, ENERGY STAR® and California IOU data, as appropriate.

The table below shows the monthly savings (kWh) for Fiscal Year 2022-23.

Month	2022-2023 Installed KWH Savings	2022-2023 Installed KWH Savings Prorated Amount*	2006-2022 Previous Years Carryover Annual Amount	2022-2023 Current Year ECAF Adjustment Cumulative Amount
22-Jul	363,911	348,748	544,378	893,125
22-Aug	233,181	204,034	727,475	931,508
22-Sep	160,409	126,990	765,443	892,433
22-Oct	86,158	61,029	543,370	604,399
22-Nov	109,208	68,255	668,957	737,213
22-Dec	92,727	50,227	1,282,840	1,333,068
23-Jan	47,706	21,865	925,756	947,622
23-Feb	38,921	14,596	740,854	755,450
23-Mar	-	-	546,390	546,390
23-Apr	-	-	651,842	651,842
23-May	54,286	6,786	634,320	641,105
23-Jun	115,567	4,815	839,831	844,646
Total	1,302,075	907,345	8,871,456	9,778,801

\*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 TRM, ENERGY STAR® and California IOU data, as appropriate.

The table below shows the monthly savings (kWh) for Fiscal Year 2022-23.

Month	2022-2023 Installed KWH Savings	2022-2023 Installed KWH Savings Prorated Amount*	2006-2022 Previous Years Carryover Annual Amount**	2022-2023 Current Year ECAF Adjustment Cumulative Amount
22-Jul	1,317,056	1,262,179	3,326,281	4,588,460
22-Aug	1,359,622	1,189,669	4,248,909	5,438,578
22-Sep	992,005	785,337	3,768,490	4,553,827
22-Oct	1,182,364	837,508	4,107,295	4,944,803
22-Nov	930,303	581,439	3,355,448	3,936,887
22-Dec	739,963	400,813	2,680,247	3,081,060
23-Jan	926,634	424,707	3,041,214	3,465,922
23-Feb	798,502	299,438	3,039,672	3,339,111
23-Mar	916,936	267,440	3,080,047	3,347,487
23-Apr	1,050,369	218,827	3,080,326	3,299,153
23-May	1,156,133	144,517	2,456,552	2,601,068
23-Jun	966,920	40,288	3,203,150	3,243,438
Total	12,336,807	6,452,162	39,387,632	45,839,794

\*Annual Prorated Savings based on actual installation date

\*\*Represents a reduction of 9,063,741 kWh for previously installed expired measures and data reconciliation

## 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 24W per unit per year based on established savings algorithms in the TRM.

The table below shows the monthly savings (kWh) for Fiscal Year 2022-23.

Month	2022-2023 Installed KWH Savings	2022-2023 Installed KWH Savings Prorated Amount*	2006-2022 Previous Years Carryover Annual Amount	2022-2023 Current Year ECAF Adjustment Cumulative Amount
22-Jul	17,171	16,456	3,977,890	3,994,346
22-Aug	10,893	9,531	326,483	336,014
22-Sep	3,573	2,829	15,669,483	15,672,312
22-Oct	1,769	1,253	16,659,542	16,660,795
22-Nov	7,146	4,466	16,380,608	16,385,074
22-Dec	9,193	4,979	109,307	114,286
23-Jan	1,457	668	65,355	66,023
23-Feb	3,469	1,301	77,809	79,110
23-Mar	4,232	1,234	3,551,521	3,552,755
23-Apr	7,250	1,510	16,833,267	16,834,777
23-May	3,296	412	46,923,789	46,924,201
23-Jun	1,839	77	12,603,281	12,603,358
<b>Total</b>	<b>71,287</b>	<b>44,716</b>	<b>133,178,335</b>	<b>133,223,051</b>

\*Annual Prorated Savings based on actual installation date

## XII. Energy Savings Assistance Program (ESAP)

The Energy Savings Assistance Program (ESAP) offers no-cost, energy and water-saving home improvement services to income-qualified renters and homeowners. This program is 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.

### 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 2022-23.

Month	2022-2023 Installed KWH Savings	2022-2023 Installed KWH Savings Prorated Amount*	2006-2022 Previous Years Carryover Annual Amount	2022-2023 Current Year ECAF Adjustment Cumulative Amount
22-Jul	-	-	835,088	835,088
22-Aug	-	-	878,532	878,532
22-Sep	-	-	798,239	798,239
22-Oct	-	-	1,184,698	1,184,698
22-Nov	-	-	767,382	767,382
22-Dec	-	-	2,744,857	2,744,857
23-Jan	-	-	1,358,082	1,358,082
23-Feb	-	-	1,255,276	1,255,276
23-Mar	-	-	2,439,377	2,439,377
23-Apr	-	-	222,320	222,320
23-May	-	-	349,666	349,666
23-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 2022-23.

<b>Month</b>	<b>2022-2023 Installed KWH Savings</b>	<b>2022-2023 Installed KWH Savings Prorated Amount*</b>	<b>2006-2022 Previous Years Carryover Annual Amount**</b>	<b>2022-2023 Current Year ECAF Adjustment Cumulative Amount</b>
<b>22-Jul</b>	1,021,819	979,243	18,665,418	19,644,661
<b>22-Aug</b>	1,987,481	1,739,045	30,864,356	32,603,402
<b>22-Sep</b>	581,748	460,551	34,963,013	35,423,563
<b>22-Oct</b>	3,900,021	2,762,515	36,822,801	39,585,316
<b>22-Nov</b>	74,251	46,407	18,831,388	18,877,795
<b>22-Dec</b>	457,604	247,869	33,943,556	34,191,424
<b>23-Jan</b>	497,516	228,028	23,581,570	23,809,598
<b>23-Feb</b>	2,543,861	953,948	23,903,196	24,857,144
<b>23-Mar</b>	240,668	70,195	71,150,399	71,220,594
<b>23-Apr</b>	1,473,300	306,938	51,552,173	51,859,110
<b>23-May</b>	665,335	83,167	60,734,847	60,818,014
<b>23-Jun</b>	968,026	40,334	87,311,388	87,351,722
<b>Total</b>	<b>14,411,630</b>	<b>7,918,239</b>	<b>492,324,105</b>	<b>500,242,345</b>

\*Annual Prorated Savings based on actual installation date

\*\*Represents a reduction of 102,576,527 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 2022-23.

Month	2022-2023 Installed KWH Savings	2022-2023 Installed KWH Savings Prorated Amount*	2006-2022 Previous Years Carryover Annual Amount**	2022-2023 Current Year ECAF Adjustment Cumulative Amount
22-Jul	584,651	560,290	25,208,920	25,769,210
22-Aug	1,873,617	1,639,414	16,950,996	18,590,410
22-Sep	1,404,362	1,111,787	27,480,449	28,592,236
22-Oct	3,169,652	2,245,170	30,645,835	32,891,005
22-Nov	2,752,148	1,720,093	22,700,923	24,421,016
22-Dec	3,646,295	1,975,076	35,771,279	37,746,356
23-Jan	599,657	274,843	33,489,254	33,764,097
23-Feb	4,427,359	1,660,260	34,909,818	36,570,077
23-Mar	4,682,264	1,365,660	34,572,379	35,938,039
23-Apr	4,305,667	897,014	47,801,560	48,698,574
23-May	5,622,550	702,819	38,434,185	39,137,004
23-Jun	8,059,711	335,821	41,278,871	41,614,692
<b>Total</b>	<b>41,127,932</b>	<b>14,488,247</b>	<b>389,244,469</b>	<b>403,732,716</b>

\*Annual Prorated Savings based on actual installation date

\*\*Represents a reduction of 37,971,153 kWh for previously installed expired measures and data reconciliation

## **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 2022-23.

<b>Month</b>	<b>2022-2023 Installed KWH Savings</b>	<b>2022-2023 Installed KWH Savings Prorated Amount*</b>	<b>2006-2022 Previous Years Carryover Annual Amount</b>	<b>2022-2023 Current Year ECAF Adjustment Cumulative Amount</b>
<b>22-Jul</b>	-	-	1,849,425	1,849,425
<b>22-Aug</b>	-	-	5,147,150	5,147,150
<b>22-Sep</b>	428,492	339,223	931,543	1,270,766
<b>22-Oct</b>	-	-	3,257,064	3,257,064
<b>22-Nov</b>	33,097	20,686	192,657	213,343
<b>22-Dec</b>	69,284	37,529	1,368,318	1,405,847
<b>23-Jan</b>	-	-	7,739,301	7,739,301
<b>23-Feb</b>	-	-	993,690	993,690
<b>23-Mar</b>	-	-	7,231,343	7,231,343
<b>23-Apr</b>	2,827,469	589,056	4,683,358	5,272,414
<b>23-May</b>	-	-	6,474,973	6,474,973
<b>23-Jun</b>	596,883	24,870	603,392	628,262
<b>Total</b>	<b>3,955,225</b>	<b>1,011,364</b>	<b>40,472,214</b>	<b>41,483,578</b>

\*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 2022-23.

	<b>2022-2023 Installed KWH Savings</b>	<b>2022-2023 Installed KWH Savings Prorated Amount*</b>	<b>2006-2022 Previous Years Carryover Annual Amount**</b>	<b>2022-2023 Current Year ECAF Adjustment Cumulative Amount</b>
<b>Total</b>	-	-	2,276,726	2,276,726

\*Annual Prorated Savings based on actual installation date

\*\*Represents a reduction of 193,644 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 2022-23.

Month	2022-2023 Installed KWH Savings	2022-2023 Installed KWH Savings Prorated Amount*	2006-2022 Previous Years Carryover Annual Amount	2022-2023 Current Year ECAF Adjustment Cumulative Amount
22-Jul	-	-	765,213	765,213
22-Aug	6,590	5,766	420,718	426,484
22-Sep	3,357	2,658	1,133,806	1,136,464
22-Oct	24,793	17,561	780,240	797,802
22-Nov	854	534	374,589	375,123
22-Dec	-	-	426,854	426,854
23-Jan	1,152	528	1,734,572	1,735,100
23-Feb	-	-	1,311,149	1,311,149
23-Mar	-	-	1,360,718	1,360,718
23-Apr	-	-	1,157,498	1,157,498
23-May	-	-	2,351,477	2,351,477
23-Jun	-	-	876,686	876,686
Total	36,746	27,047	12,693,521	12,720,568

\*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 may 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 the Database for Energy Efficient Resources and utility workpapers.

The table below shows the monthly savings (kWh) for Fiscal Year 2022-23.

Month	2022-2023 Installed KWH Savings	2022-2023 Installed KWH Savings Prorated Amount*	2006-2022 Previous Years Carryover Annual Amount	2022-2023 Current Year ECAF Adjustment Cumulative Amount
22-Jul	6,745	6,464	4,375,575	4,382,039
22-Aug	110,929	97,063	3,362,715	3,459,778
22-Sep	234,175	185,389	3,754,099	3,939,488
22-Oct	730,786	517,640	4,326,681	4,844,321
22-Nov	163,335	102,084	4,065,359	4,167,443
22-Dec	73,558	39,844	4,468,028	4,507,872
23-Jan	449,845	206,179	3,895,109	4,101,288
23-Feb	327,435	122,788	5,073,174	5,195,962
23-Mar	256,297	74,753	4,041,055	4,115,808
23-Apr	104,279	21,725	3,765,665	3,787,390
23-May	352,242	44,030	5,634,850	5,678,880
23-Jun	781,401	32,558	3,727,988	3,760,546
Total	3,591,027	1,450,518	50,490,298	51,940,816

\*Annual Prorated Savings based on actual installation date

## **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 2022-23.

	<b>2022-2023 Installed KWH Savings</b>	<b>2022-2023 Installed KWH Savings Prorated Amount*</b>	<b>2006-2022 Previous Years Carryover Annual Amount</b>	<b>2022-2023 Current Year ECAF Adjustment Cumulative Amount</b>
<b>Total</b>	-	-	<b>1,800,666</b>	<b>1,800,666</b>

\*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 EcoSmart 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. 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 2022-23.

Month	2022-2023 Installed KWH Savings	2022-2023 Installed KWH Savings Prorated Amount*	2006-2022 Previous Years Carryover Annual Amount	2022-2023 Current Year ECAF Adjustment Cumulative Amount
22-Jul	999,117	957,487	8,889,906	9,847,393
22-Aug	1,284,579	1,124,007	11,387,934	12,511,941
22-Sep	1,284,579	1,016,958	11,506,934	12,523,893
22-Oct	856,386	606,607	7,697,208	8,303,815
22-Nov	285,462	178,414	2,645,906	2,824,320
22-Dec	214,097	115,969	2,016,621	2,132,590
23-Jan	224,414	102,856	2,050,857	2,153,714
23-Feb	224,414	84,155	2,050,857	2,135,012
23-Mar	299,219	87,272	2,674,554	2,761,826
23-Apr	374,023	77,922	3,134,250	3,212,172
23-May	448,828	56,104	3,783,957	3,840,061
23-Jun	748,047	31,169	6,533,767	6,564,935
<b>Total</b>	<b>7,243,165</b>	<b>4,438,919</b>	<b>64,372,753</b>	<b>68,811,672</b>

\*Annual Prorated Savings based on actual installation date

## 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 2022-23.

	2022-2023 Installed KWH Savings	2022-2023 Installed KWH Savings Prorated Amount*	2006-2022 Previous Years Carryover Annual Amount	2022-2023 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 2022-23.

	2022-2023 Installed KWH Savings	2022-2023 Installed KWH Savings Prorated Amount*	2006-2022 Previous Years Carryover Annual Amount	2022-2023 Current Year ECAF Adjustment Cumulative Amount
<b>Total</b>	-	-	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 IPLV<sup>6</sup> factors as specified. Annual hours of use are assumed to be 1,918<sup>7</sup>.

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

The table below shows the monthly savings (kWh) for Fiscal Year 2022-23.

	2022-2023 Installed KWH Savings	2022-2023 Installed KWH Savings Prorated Amount*	2006-2022 Previous Years Carryover Annual Amount	2022-2023 Current Year ECAF Adjustment Cumulative Amount
Total	-	-	32,986,587	32,986,587

\*Annual Prorated Savings based on actual installation date

<sup>6</sup> Integrated Part Load Value.

<sup>7</sup> Estimate based on building simulation studies.



**Los Angeles Department of Water and Power**  
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