BEFORE THE PUBLIC UTILITIES COMMISSION OF THE

STATE OF CALIFORNIA

Order Instituting Rulemaking Concerning Energy Efficiency Rolling Portfolios, Policies, Programs, Evaluation, and Related Issues.	Rulemaking 13-11-005

SOUTHERN CALIFORNIA EDISON COMPANY'S (U 338-E) 2022 ANNUAL REPORT FOR ENERGY EFFICIENCY PROGRAMS

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Southern California Edison Company (SCE) hereby submits its 2022 Energy Efficiency Annual Report (Annual Report) for its energy efficiency programs and results for Program Year 2022, as Attachment A hereto.

The Annual Report is filed and served in this proceeding pursuant to the Administrative Law Judge's (ALJ) Ruling Adopting Annual Reporting Requirements for Energy Efficiency and Addressing Related Reporting Issues dated August 8, 2007 and the ALJ Fitch's March 28, 2023 email ruling granting SCE's March 23, 2023 "Rule 11.6 Extension Request for SCE's PY2022 EE Annual Report Submittal" to extend the Annual Report filing date to June 1, 2023. In addition, in compliance with Commission Decision Addressing Third Party Solicitation Process for Energy Efficiency Programs (D.18-01-004), SCE is including in this Annual Report a list of all third party contracts in place, along with the information in Ordering Paragraph 8 of that Decision, in Appendix C, Table 1 and Appendix A, Section 13.

SCE is concurrently filing a Notice of Availability of the 2022 Annual Report and its appendices and related documents available for viewing and downloading for the parties on the Proposal Evaluation & Proposal Management Application (PEPMA) website.

Respectfully submitted,

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June 1, 2023

Attachment A

SCE's 2022 Energy Efficiency Annual Report

2022
ENERGY EFFICIENCY ANNUAL REPORT

June 1, 2023

SOUTHERN CALIFORNIA EDISON®

SOUTHERN CALIFORNIA EDISON®
Energy for What's Ahead℠

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Energy for What's Ahead℠

Executive Summary

Southern California Edison (SCE) remains committed to energy efficiency (EE) in serving the needs of over 15 million people across our 50,000 square mile service area of central, coastal, and Southern California. Through 18 statewide third party-implemented EE programs (4 led by SCE), 74 local SCE-implemented programs, and 11 local third party-implemented programs, SCE delivers EE solutions to homes, businesses, agriculture, industry, local governments, schools and colleges, water agencies, and other public organizations.

SCE Reports its 2022 CPUC Adopted Savings Results and Cost-Effective EE Portfolio (Excluding Codes and Standards)

In 2022, SCE achieved:

- **42%** of its net electric energy savings goal (**178** net annual GWh)
- **51%** of its net electric demand reduction goal (**33** net demand reduction MW)
- Cost-effectiveness at **0.64** TRC and **0.74** PAC
- Average ratepayer savings of **$0.18**/kWh and first year ratepayer bill savings **$35.3** million
- Avoidance of **379,991** tons of carbon dioxide (CO_2) emissions
- At least **60%** of programs by budget outsourced to third-party implementers
- Hard to Reach (HTR) and Disadvantaged Communities (DACs) net annual electric energy savings of **44** MWh

SCE's Energy Efficiency portfolio exceeded last year's net demand reduction (kW) and Total Resource Cost (TRC) performance but did not meet California Public Utilities Commission (CPUC)-approved energy savings goals[1] (see inset, right). In 2022, EE results were under goal for both kilowatt-hours (kWh) energy savings and kilowatt (kW) demand reductions, by 58% and 49%, respectively, excluding Codes and Standards.[2] During the year, SCE focused on finding the simplest and most cost-effective ways to do business, reduce climate-affecting emissions, improve summer reliability,[3] shift demand off the grid, and reduce energy costs for our customers. We also continue to take action to influence building codes and appliance regulations, bring new technologies to the marketplace, and disseminate EE knowledge, tools, and skills to California's energy workforce.

SCE recognizes that Southern California is a very expensive place to live. This is why we are committed to providing reliable service to our customers and delivering robust EE programs that save customers energy and money. TRC is the process by which the CPUC measures the cost-effectiveness of Program Administrators (PAs). Since the majority of SCE's portfolio is outsourced to third-party implementers (TPIs), SCE's TRC heavily depends[4] on TPI

1 Decision (D.) 21-05-031, *Assessment of Energy Efficiency Potential and Goals and Modification of Portfolio Approval and Oversight Process*.

2 The Codes and Standards Program is not included when referencing energy savings results compared to goals for TRC, kW, and kWh. For energy savings results compared to goals that will include Codes and Standards, see *Appendix A*, below.

3 D. 21-12-011, *SCE Must File a Tier 2 Advice Letter for the Energy Efficiency (EE) Local Summer Reliability Solicitation*.

4 A.22-03-007, *Testimony in Support of Southern California Edison Company's Application for Approval of its Energy Efficiency Business Plan For 2024-2031,* Volume 2 – *Portfolio Plan*.

success in achieving their contracted-for savings goals at the forecasted cost. SCE acknowledges that real-world program performance has demonstrated that savings forecasted by PAs and TPIs were too optimistic.[5] SCE's EE TRC, excluding Codes and Standards, was lower than the target of 1.0 but slightly above (by 0.08 or 13%) the previous year's performance. Each year, SCE's EE team strives to meet its savings goals[6] and cost-effectiveness goals. For 2022, SCE's portfolio has been unable to achieve savings goals in a cost-effective manner due to several factors discussed in this report.

In 2022, SCE's EE programs, excluding the Codes & Standards Program, collectively achieved 178 GWh of first-year net energy savings ("savings"). SCE's Residential sector programs achieved savings of 123 GWh compared to a forecast of 82.5 GWh (149% of forecast) with most of the savings coming from the Home Energy Advisor Program. The Commercial sector programs achieved 43 GWh compared to a forecast of 156.8 GWh (27% of forecast) with most of the savings coming from the Comprehensive Commercial Program. The Industrial, Agriculture, Public, and Cross-Cutting sectors combined achieved savings of 12 GWh compared to a forecast of 78 GWh (15% of forecast). Most of the underperformance relative to forecast is in the nonresidential area of the portfolio.

SCE has identified several challenges faced in administering its EE portfolio under the current market conditions. In the past year, a number of issues beyond the control of either the implementers or the PAs affected the TPIs' ability to meet the savings goals in a cost-effective manner. These issues include: significant changes in the EE markets, the lingering effects of the COVID-19 pandemic (e.g., supply chain delays), rapid inflation, changes in savings calculations and measure eligibility after contracts had been executed, and delays in regulatory approvals. Throughout 2022 and continuing into 2023, SCE is exploring various strategies to increase the success of its portfolio, but implementing these strategies will take time — and, as SCE has noted,[7] there is no assurance that the portfolios will meet the goals for cost-effective savings given the rapidly evolving market and increased costs.

Supporting California's Ambitious Climate and Energy Goals

SCE supports California's comprehensive plan to achieve a greenhouse gas (GHG) pollution-free future and continues to seek innovative ways to reduce GHG emissions that contribute to climate change. *Pathway 2045,*[8] SCE's 2019 data-driven analysis, outlines the steps California must take to meet its 2045 goals of cleaning our electricity grid and reaching carbon neutrality. Throughout 2022, SCE continued to endorse and take aggressive steps to meet

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5 As noted in SCE's testimony on the EE Business Plan Application, "Third-party implementers are a key component for the success of the EE portfolio including SCE's ability to meet its TSB and cost-effectiveness goals. In other words, if third parties are not able to deliver their contracted-for savings, it is unlikely that SCE will be able to meet the goals set by the Commission." Ibid., p. 223.

6 Starting in 2023, savings goals will be measured through the Total System Benefit (TSB) instead of the savings metrics used for 2022.

7 See *SCE's Opening Comments to Administrative Law Judge's Ruling Inviting Comments On Draft Potential And Goals Study For 2024 And Beyond*, p. 3.

8 *Pathway 2045* is available at **https://www.edison.com/our-perspective/pathway-2045**.

the *Pathway 2045* clean energy, smart electrification, and building decarbonization goals, particularly within our EE Codes and Standards Programs. In 2022, the energy savings from our EE portfolio have helped move us closer to achieving these goals by decreasing CO_2 levels by 380 thousand tons, equivalent to removing approximately 84,000 cars from our roads.

Focusing on Hard-to-Reach Customers and Disadvantaged Communities

Our EE Team works hard to deliver robust programs that include Hard-to-Reach (HTR) customers. Our EE Team continues to break down barriers and provide full access to all our EE programs by concentrating on HTR and DAC customers. The EE Team plans to implement three HTR and Disadvantaged Communities (DACs) equity programs, for a total forecasted spend of over $1.9 million dollars in 2023. As a company, SCE strives to improve the quality of life and economic opportunity in California's most burdened communities. This aligns with SCE's long-term clean energy environment goals and path forward to a more reliable grid for the future.

Transforming Markets through Third-Party Solicitations

In 2018, the CPUC directed [9] the IOUs to incorporate third party-implemented EE programs into their portfolios. SCE achieved and has maintained the CPUC's compliance requirement of 60%, transitioning from SCE-led EE programs to the CPUC's third-party contract implementation business model. In 2022, following a solicitation process that includes both Requests for Abstracts (RFAs) [10] and Requests for Proposals (RFPs), with objective reviews by advisory Procurement Review Groups (PRGs) during the entire process from RFA development through final contract negotiations, the EE Team successfully conducted three negotiations, extended two offers, and signed two contracts totaling over $27.6 million with third-party companies. In addition, several third-party equity programs went through our solicitation process, and SCE awarded contracts, totaling nearly $15 million, to qualified small and diverse third-party EE service providers.

Extending the Reach of Customer EE Dollars Through Financing

SCE's On-Bill Financing (OBF) and New Finance Offerings programs provide financial solutions to different customer market segments. Nonresidential customers sought new EE opportunities in the OBF program in 2022, which funded over $170,000 in new interest-free loans to customers qualifying for retrofit projects through eligible EE programs. To support the New Finance Offerings, the EE Team continues to work with the California Alternative Energy and Advanced Transportation Financing Authority (CAEATFA) and the other California IOUs to offer, through participating financial institutions, ratepayer-backed financing options to residential, small business, and multifamily customers. In 2022, in addition to funding over $3.8 million in GoGreen Home loans for SCE customers, participating financial institutions also

[9] D.18-01-004, *Decision Addressing Third Party Solicitation Process for Energy Efficiency Programs.*

[10] Advice Letter 4888-E, *Southern California Edison Company's Single-Stage Solicitation Closure for Energy Efficiency Reliability-Focused Programs Pursuant to Decision (D.)21-12-011.*

funded the first GoGreen Business loan in California, to be repaid through the customer's utility bill. Providing credit enhancements to customer loans that support EE improvements reduces ratepayer burdens, while continuing to facilitate the installation of EE measures, which supports the goals and strategies of the California Energy Efficiency Strategic Plan (CEESP).

Looking Forward

SCE has consistently provided electricity for over 100 years and remains dedicated to providing the best service to our customers and continuing to lead the electric energy industry by reducing demand on the grid, improving reliability, saving customers money, and accelerating the path forward to a clean energy future. SCE looks forward to leading collaboration efforts with the CPUC on future Potential and Goals Studies [11] and addressing any near-term challenges that will give SCE the opportunity to meet its CPUC goals.

For highlights of SCE's active EE portfolio in 2022, please see the program descriptions and strategies described in each chapter of this report.

Go on to the next page

[11] Potential & Goals Study for 2024 and Beyond in Rulemaking R.13-11-005.

1. Residential Sector Energy Efficiency Programs

SCE's residential Energy Efficiency (EE) portfolio employs various strategies and tactics to overcome market barriers and to deliver cost-effective programs and services aligned to support customer needs and the goals of the California Energy Efficiency Strategic Plan (CEESP). The programs in the residential portfolio include:[12]

- Home Energy Advisor Program
- Residential Direct Install Program
- Comprehensive Manufactured Homes Program
- Willdan Multifamily Energy Efficiency Program
- AB 793 Residential Pay for Performance Program
- Market Access Program (aka Summer Reliability Program), and
- Enervee Residential Marketplace Program.

All of the residential programs target energy savings and demand reduction by implementing various approaches to help customers afford to upgrade inefficient equipment and to provide rebates for viable EE technologies. The programs are available to homeowners, renters, multifamily property owners, and new construction builders.

In 2022, SCE's residential portfolio offered programs focused on meeting customer expectations, improving customer satisfaction, and lowering operating costs in order to continue providing cost-effective programs for customers, and worked with various industry stakeholders — manufacturers, distributors, contractors, and various governmental, educational, and housing organizations — to create awareness of offerings available to residential customers.

Note that two Residential sector programs were closed to new applications, but were still completing committed projects in 2022:

- Plug Load and Appliances Program, and
- Residential New Construction Program.

Home Energy Advisor (HEA) Program

Program Description

The Home Energy Advisor (HEA) Program focuses on implementing behavior intervention strategies designed to help customers understand and manage their household energy use. HEA offers customers an interactive online tool designed to engage customers and encourage them to reduce energy, water, and gas consumption by recommending EE tips, EE programs, behavior changes, and other related efficiency information. HEA also implements Home Energy Reports (HERs) which are designed using Randomized Control Trials (RCTs) to provide energy reduction information and ensure confident savings

[12] For program budgets and forecast comparisons, please see CEDARS at this link: **2022 SCE Budget Filing Dashboard - CEDARS (sound-data.com)**.

evaluations, and which incorporate social science techniques to change or improve customers' energy-related behaviors.

Strategies Implemented in 2022

In 2022, SCE distributed HERs to more than 1.9 million residential customers. SCE also continued offering HERs to customers with Electric Vehicles (EV HERs). Overall, HER recipients benefited from numerous EE recommendations, tips and links to helpful EE-related content. HERs helped customers reduce more than 100 million kilowatt-hours (kWh) of energy and 21 megawatts (MW) of peak demand.

HEA EE Online Audit Tool (Enhanced Energy Advisor Tool [EEAT]) [13]

EEAT offered customers an online survey which provided customized EE tips, household improvements, and actions to help customers reduce energy use. The EEAT website was available to customers until June 30, 2022, and then was discontinued.

Integrated Demand Side Management (IDSM) Activities

Integrated Demand Side Management (IDSM) topics were also included in the online survey to offer residential customers a comprehensive approach to energy management. Key IDSM tips were offered around Smart Thermostat benefits and understanding Time-of-Use Rates.

Online Buyer's Guide

The Online Buyer's Guide remained available [14] for customers to research the following topics: "Building Materials," "Heating and Cooling," "Lighting," "Kitchens," "Laundry," and "Plug Loads." Helpful tools and tips were available to guide customers in selecting the most energy-efficient products.

The site continued providing helpful information on choosing the right lighting, appliances, and building materials, and included links to SCE's other helpful tools and programs, such as rebates and the EEAT.

Residential Direct Install Program

Program Description

The Residential Direct Install (Res DI) Program provides direct installation of comprehensive EE measures to residential customers at no cost to them, targeting specific geographic areas to alleviate energy hardship and electric system constraints and to assist lower-income customers who are not eligible for income assistance programs. The program enhances the EE knowledge and program participation of the targeted residential customers,

[13] Also called Universal Audit Tool (UAT) or Energy Survey.
[14] Online Buyer's Guide website, available at **https://www.sce.com/residential/home-energy-guide**.

to encourage them to undertake more extensive EE activities and retrofits.

The program collaborates with gas utilities and water agencies to promote both EE and water conservation. This approach provides customers with both EE measures and water conservation measures, such as high-efficiency toilets, low-flow shower heads, and faucet aerators.

Strategies Implemented in 2022

Core Function Activities

The program implementer:

- Continued installation of comprehensive EE measures (listed below) to optimize energy savings and help customers identify opportunities to participate in demand response programs and to use water more efficiently.
- Continued to have face-to-face interactions with customers while following the then-current COVID-19 safety protocols.

Collaboration with External Partners

SCE identified an opportunity to add value to a pilot program led by the Alliance for Water Efficiency in collaboration with Long Beach Water. The pilot was implemented to determine how much water, energy, and natural gas savings could be achieved through a direct install program for homeowners who might not otherwise have the resources to upgrade. This collaborative effort included contributions from The Metropolitan Water District, Long Beach Energy Resources, Long Beach Water, Alliance for Water Efficiency, and SCE, along with generous donations of high-efficiency toilets and clothes washers from Kohler and Whirlpool.

The pilot was limited to selected homeowners in the 90805 ZIP code. Eligible participants received one or more of the following measures:

- High-Efficiency Toilets
- Fan Delay Controllers
- Clothes Washers
- Low-Flow Showerheads
- Faucet Aerators
- Natural Gas Water Heaters
- Natural Gas Clothes Dryers
- Smart Thermostats
- Duct Testing and Sealing, and
- Brushless Fan Motors

Qualification was based on factors such as existing Gallons Per Flush (GPF), age of appliances, and whether existing appliances were ENERGY STAR™-certified. Implementation

began in November, and by the end of the year, almost 60 home assessments had been performed. In the homes assessed, more than 70 high-efficiency toilets, 40 low-flow showerheads, and 20 faucet aerators were installed. Clothes washers, dryers, and water heaters were assessed and identified for retrofits to be completed in 2023.

Integrated Demand Side Management (IDSM) Activities

The program continued its partnership with the Demand Response (DR) Smart Energy Program (SEP), enrolling eligible customers in SEP by leveraging Smart Thermostat installations. A pre-screening process was used to identify SEP-eligible customers. During Res DI installation appointments, pre-screened customers were educated on the benefits of participating in SEP. Customers who expressed interest and consented to SEP enrollment had their enrollment facilitated by the Res DI Program implementer.

This partnership continued to illustrate the value of IDSM by helping to meet grid needs with increased demand response MW capacity and providing cost-effective EE savings by installing Smart Thermostats. Res DI installed over 9,000 Smart Thermostats in 2022, and over 6,000 customers who received them were enrolled in SEP, resulting in an approximate 66% EE-to-DR enrollment conversion.

Outreach to Customers

The program continued customer outreach and enrollment primarily through door-to-door canvassing, word of mouth, and leveraging program landing pages on both the SCE.com and implementer's websites.[15]

Throughout 2022, the Res DI program continued to leverage SEP e-mail campaigns to include messaging around Smart Thermostats. The e-mail campaigns targeted customers who had previously participated in a DR program.

Comprehensive Manufactured Homes Program

Program Description

The Comprehensive Manufactured Homes (CMHP) Program is a direct install program designed to provide comprehensive EE services to mobile-home and manufactured-home customers, in collaboration with local communities seeking to maximize service to their residents. The program, implemented in coordination with the Southern California Gas Company (SoCalGas), installs energy-efficient products at no charge in mobile home dwellings that are located in mobile home parks.

The target customers for this program are those living in mobile homes located in mobile home parks, who are difficult to reach through other EE programs. These customers are typically moderate- or fixed-income, elderly, retired, and/or disabled individuals. The

[15] Residential DI: **https://www.sce.com/residential/rebates-incentives-saving-tips/residential-direct-install-program**. Synergy: **https://www.synergycompanies.com/utility-program/sce-smart-energy-program**.

program is designed to enhance EE knowledge and program participation in this market segment.

Strategies Implemented in 2022

Core Function Activities

- Continued installation of comprehensive EE measures (such as Smart Thermostats, fan delay controllers, brushless fan motors, duct testing and sealing, and low-flow showerheads) to optimize energy savings and help customers identify opportunities to participate in DR programs and to use water more efficiently.
- Identified a new measure offering, Duct Optimization, and began implementing it in 2022. This measure consists of two sub-measures: Return Duct Retrofit and Crossover Duct Replacement.

Outreach to Customers

- Expanded outreach to mobile home parks that had not previously participated in the program. The implementer conducted this outreach through in-person and virtual presentations for mobile home park managers and their staff.
- Because of the COVID-19 pandemic, outreach to mobile-home and manufactured-home parks and communities restricted to residents aged 55 or more was suspended in 2020 and 2021. In 2022, outreach resumed in those parks that reopened their doors to solicitation.

Collaboration with Internal Partners

- Continued collaboration with SCE's Meter Conversion pilot to provide CMHP services to customers who were impacted by construction work required for meter conversion.
- Continued collaboration with SCE's and SoCalGas' Energy Savings Assistance (ESA) Program. CMHP technicians are certified to qualify and enroll customers into the ESA Program for both IOUs. Leveraging this certification has allowed the CMHP Program to provide both CMHP and ESA Program services to customers in a single visit, leading to increased customer satisfaction and reduced carbon emissions.

Willdan Multifamily Energy Efficiency Program

Program Description

The Willdan Multifamily Energy Efficiency Program (MFEEP) is designed to provide comprehensive EE solutions for all multifamily (MF) customer segments of the residential sector across Southern California Edison's (SCE's) service area.

Strategies Implemented in 2022

SCE submitted Advice Letter (AL) 4350-E-A[16] in 2021 to request approval for the Willdan MFEEP Program,[17] and received a CPUC disposition letter approving the request on July 20, 2021. The MFEEP Program faced operational challenges in 2022. While the implementer was able to launch the program, the program ended the year with significantly lower savings than expected, approximately 9,000 net kWh achieved as opposed to 22.3 GWh expected. The implementer cited various reasons for these operational challenges, and SCE worked with the implementer to address issues that were within SCE's control.

In response to concerns raised by the Energy Division,[18] SCE provided a detailed letter to Energy Division outlining several actions SCE took to help mitigate operational challenges and actively engaged with Willdan to make several process improvements, which include but are not limited to:

- Actively engaged with Willdan when it learned of the issues facing the Multifamily Program, including responding to Willdan in writing, meeting with Willdan to hear its concerns, facilitating joint meetings with SCE, Willdan, and SoCalREN, and making the below-mentioned process improvements and modifications to help the Program succeed;
- Streamlined operational processes to eliminate redundant projects and measure requirements;
- Created a process for Willdan to request, and for SCE to expeditiously review and approve, additional Program measures without the need for further contract amendments; and
- Eliminated any pre-installation inspection reporting for deemed measures.

Notwithstanding these actions, Willdan was not able to achieve significant savings in 2022. Proactively, SCE will continue to work with the implementer to help them achieve their goals and optimize measure mixes for program performance.

[16] AL 4350-E-A, *Southern California Edison Company's Supplemental Advice Letter for Approval of Residential, Commercial, and Industrial Energy Efficiency Third Party Contract for Comprehensive Multifamily Program*.

[17] AL 4350-E-A also included the Willdan Commercial EE Program and the Industrial EE Program, described respectively in *Chapter 2* and *Chapter 3*, below.

[18] SCE's Letter to the Deputy Executive Director for Energy and Climate Policy/Director, Energy Division, regarding SCE oversight of third-party energy efficiency contracts with Willdan Energy Solutions, December 13, 2022.

AB 793 Residential Pay-for-Performance Program

Program Description

In 2017, California Assembly Bill (AB) 793 [19] and the associated CPUC Resolution E-4820 [20] mandated that all California IOUs develop and implement incentive programs targeting residential and Small and Medium Business (SMB) customers who acquire Energy Management Technologies (EMTs). EMTs may include products, services, or software that allow customers to better understand and manage electricity and/or natural gas consumption in their homes or places of business.

Resolution E-4820 [21] also required SCE and the other IOUs to launch residential and SMB pay-for-performance (P4P) programs by the Fourth Quarter of 2017.

SCE established the HomeIntel Program and Facility Assessment Services Program (FASP) to comply with the residential and SMB P4P requirements as mandated in AB 793 and associated directives.

- The HomeIntel Program was the initial Residential P4P program implemented by a third-party vendor, Home Energy Analytics, in February 2018.
- However, after more than a year of disappointing performance, SCE determined the HomeIntel Program was unsuccessful and discontinued it in mid-2019,.

For information on FASP, see Chapter 2, Commercial Sector Programs.

Strategies Implemented in 2022

SCE has requested CPUC approval to close the Residential AB 793 Pay for Performance Program in the 2024-2031 Energy Efficiency Application.[22] Pursuant to the requirements of AB 793 and Resolution E-4820,[23] SCE carried out the following activities in 2022 in order to continue to meet compliance requirements:

- Rebates for EMT products such as Home Area Network (HAN) devices and Smart Thermostats were offered and made available through SCE.com.
- To meet the AB 793 P4P residential program requirements:
  - SCE leveraged SCE's existing Home Energy Advisor Program[24] that includes the elements specified in AB 793. The Home Energy Reports (HER) will

[19] AB 793, Energy Efficiency.
[20] Resolution E-4820, *Request for Approval of PG&E, SDG&E, SCE and SoCalGas' AB 793 Advice Letters* (ALs).
[21] Ibid., Ordering Paragraph 1, §d.
[22] Application A.22-03-007, *Application of Southern California Edison Company (U 338-E) for Approval of its 2024-2031 Energy Efficiency Business Plan and 2024-2027 Portfolio Plan*.
[23] Resolution E-4820, OP 1a-1e, OP 2a-2b, and OP 3.
[24] See *Home Energy Advisor Program*, above.

continue through 2025 as the contract with its implementer was renewed for two additional years.

- The contract with ICF for the third party-implemented Residential Behavioral P4P Program, executed in September 2020 with an expected launch date in January 2022, was terminated in October 2022. SCE is currently investigating options for how best to serve Residential customers going forward.

- SCE followed up with customers who contacted SCE's Customer Contact Center (CCC) regarding bill complaints and/or payment issues, or who were at risk of disconnection, by addressing their issues during their calls. The necessary information was incorporated into SCE's CCC script for all credit-related calls. During these calls, Energy Advisor phone representatives offered various energy-saving and income-qualified programs and services and advised customers to visit the Energy Management Center at www.SCE.com/EMC for information about helpful products, tools, and programs. SCE is evaluating other methods to follow up with this group of customers.
- SCE reported the 2018-2022 metrics in Table 1.1, AB 793 Energy Management Technology (EMT) Metrics, shown below.

Table 1.1. AB 793 Energy Management Technology (EMT) Metrics

Description		Metric	Marketing Target Segments	2018	2019	2020	2021	2022
Customer Engagement	Marketplace Home Page	Count of clicks to Home Page	Mass Market / Low Income / DAC	393,940	371,356	351,926	543,512	521,489
	Marketplace - Purchase Interest	Count of clicks on the "Buy" button, leading to the retailer site	Mass Market / Low Income / DAC	5,619	10,925	30,205	41,611	45,276
	Marketplace - clicks to Rebate	Count of clicks by category / type of rebate	Mass Market / Low Income / DAC	12,599	5,362	17,862	39,316	48,583
	Energy Management Center Landings	Count of clicks on EMC landing page	Mass Market / Low Income / DAC	41,190	75,190	12,412	33,105	35,938
Customer Uptake	Smart Thermostat Rebates	Count of EE Rebates	Mass & Target Markets	52,526	24,222	-0-	-0-	0
		Count of DR Program Enrollment Rebates	Mass & Target Markets	20,695	14,358	6,745	12,197	16,528
	In-Home Display Device Rebates	Count of Rebates	Mass & Target Markets	61	51	171	200	358
	Green Button Download My Data*	Number of Green Button downloads	Mass Market	N/A	113,944	32,962	351,221	445,692
	Green Button Connect My Data	Count of completed 3rd Party authorizations	Mass Market	4,156	1,012	423	534	484

* *2018 Green Button Download data is not available due to SCE.com migration.*
2019 Green Button Download data covers June 2019 – December 2019.
2020 Green Button Download data covers September 2020 – December 2020.
2020 – 2021 Energy Management Center click counts are low due to system changes.

Market Access Program

Program Description

SCE's Market Access Program (MAP), marketed to the public as the Summer Reliability Program (SRP), offers participants performance-based compensation to reduce energy usage during times of high grid stress, with the goal of avoiding rotating outages while minimizing costs to ratepayers. The program assists commercial and residential customers to purchase and install EE measures to reduce electricity demand for the summers of 2022 and 2023. MAP was recently extended by the CPUC through March 2024 to provide additional demand reduction.

The Program focuses on peak energy reduction that qualifying vendors, called Trade Professionals, can help customers achieve. These Trade Professionals directly recruit and engage with targeted customer segments that demonstrate high peak energy usage for a select group of measures.

Strategies Implemented in 2022

On July 30, 2021, California's Governor Newsom signed an Emergency Proclamation to "free up energy supply to meet demand during extreme heat events and wildfires that are becoming more intense and to expedite deployment of clean energy resources this year and next year." The Governor's Emergency Proclamation directed all energy agencies, including the CPUC, to act immediately to achieve energy stability.

As a result of this Proclamation, the CPUC issued a proposed decision on October 29, 2021, followed by Decision (D.) 21-12-011[25] on December 8, 2021, which ordered the IOUs to prepare for potential extreme weather in the summers of 2022 and 2023.

SCE's Advice Letter 4715-E,[26] which was approved in March 2022, provided the program description and parameters of the Market Access Program. During 2022, the Market Access Program achieved the following:

- Launched a direct marketing campaign to Trade Professionals that participated in SCE's legacy EE programs
- Rolled the program out to the marketplace, and
- Partnered with the California Efficiency and Demand Management Council (CEDMC) on a presentation to their members.

[25] D.21-12-011, *Energy Efficiency Actions to Enhance Summer 2022 and 2023 Electric Reliability*.
[26] Advice Letter (AL) 4715-E, *Southern California Edison Company's Market Access Program Pursuant to Decision 21-12-011*.

Enervee Marketplace Program

Program Description

The Enervee Marketplace Program, implemented by Enervee Corporation, consists of an online marketplace that fulfills many of SCE's energy management technology marketplace obligations under CPUC Resolution E-4820.[27] The Enervee Marketplace employs Choice Engine technology to deliver an online shopping platform that presents consumers with a modified choice architecture that relies on behavioral science insights to simplify the shopping experience, overcome barriers, and nudge customers towards more energy-efficient choices.

The platform provides information on the best retail prices, product efficiency, operating costs, and savings. As a result, SCE customers can compare the total cost of ownership, inclusive of product cost and energy bill savings, for different products. The program also offers SCE customers inclusive, low-interest "Eco Financing," as well as a variety of stacked incentives, to overcome financial barriers to their purchase of energy-efficient products without Investor-Owned Utility (IOU) ratepayer-funded EE rebates.

Eco Financing offers instant online underwriting of long-term loans with minimal credit requirements, which enables customers to purchase energy-efficient products using a $0-down term loan with an affordable, fixed annual percentage rate (APR) of interest, backed by the California Hub for Energy Efficiency Financing (CHEEF) GoGreen Home Residential Financing Program.[28] Customers have the option to bundle installation and other services in their Eco Financing loan; they also have a choice of additional payment methods. However, Enervee only claims savings for eligible measures that are purchased using Eco Financing.

Strategies Implemented in 2022

The CPUC approved the Enervee Marketplace Program on November 22, 2021. During 2022, Enervee requested that additional measures be included in the contract, and those measures were approved as eligible for the program. Additionally, SCE reviewed and approved Enervee's marketing plan, call scripts, surveys, and marketplace website in preparation for the program's launch. Enervee did not submit any projects in 2022 for claimable savings.

Closed Residential Sector Programs

Plug Load and Appliances (PLA) Program

The PLA program did not offer rebates or have any activity in 2022 as the program team was focused on supporting San Diego Gas & Electric Company (SDG&E) in its

[27] Resolution E-4820. *Request for Approval of PG&E, SDG&E, SCE and SoCalGas' Assembly Bill 793 (AB 793) Advice Letters (ALs)*.

[28] See *Chapter 6, Finance Programs*, below.

implementation efforts for the new Statewide Plug Load & Appliance Program (aka Golden State Rebates).

Residential New Construction (RNC) Program

The only remaining Residential New Construction (RNC) Program is its sub-program, the California Advanced Homes Program (CAHP). CAHP provides comprehensive support for saving energy in the residential new construction sector. Through a combination of education, design assistance, and financial support, CAHP works to encourage the building industry and related industries to exceed California's Title 24 Building Energy Efficiency Standards,[29] and to prepare builders for future changes to these standards.

To prepare for the transition to the new Statewide RNC program, "California Energy Smart Homes," led by PG&E as the Program Administrator (PA) and launched in January 2022, CAHP closed to new enrollments on October 31, 2021. In 2022, CAHP continued to advance existing eligible projects through the program pipeline, including technical review as required, and will continue to do so until all projects have been completed and paid.

ICF Residential Behavior Program

The ICF Residential Behavior program had no energy savings to report during 2022. The program budget for this program remained open and "active" during 2022 until program closure on October 13, 2022. SCE hosted a public webinar on January 4, 2023 inviting stakeholders to the closure of the ICF Residential Behavior program.

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[29] California Building Energy Efficiency Standards, California Code of Regulations, Title 24.

2. Commercial Sector Energy Efficiency Programs

SCE's Commercial sector Energy Efficiency (EE) programs offer technical support (such as facility audits, calculations, and design assistance) and rebates and incentives to provide Demand Side Management (DSM) solutions that help commercial customers save energy and money. Targeted segments include distribution warehouses, office buildings, hotels, motels, restaurants, food service, schools, universities, colleges, hospitals, high-tech facilities, biotechnology facilities, retail facilities, and smaller customers that have similar buying characteristics.[30]

The Commercial sector program portfolio includes:

- Commercial Energy Advisor Program
- California Statewide Lighting Program
- Willdan Commercial Energy Efficiency Program
- Market Access Program (aka Summer Reliability Program), and
- ICF Commercial Behavioral Program.

Note that the following Commercial sector programs were closed to new applications, but were still completing committed projects in 2022:

- Commercial Calculated Energy Efficiency Program
- Savings By Design (SBD) Program, and
- Enhanced Retro-Commissioning Program.

Commercial Energy Advisor Program

Program Description

The Commercial Energy Advisor Program included one component in 2022, Building Benchmarking, which aligns with Assembly Bill (AB) 802,[31] with California Energy Commission (CEC) benchmarking regulations, and with Public Resource Code §25402.10 [32] which requires utilities to maintain records of the energy consumption data of all nonresidential buildings.

Strategies Implemented in 2022

In 2022, SCE implemented the following strategies for the Commercial Energy Advisor program:

[30] For program budgets and forecast comparisons, please see CEDARS at this link: **2022 SCE Budget Filing Dashboard - CEDARS (sound-data.com)**.

[31] AB 802, Energy Efficiency.

[32] California Public Resources Code § 25402.10 (Chapter 5, Energy Resources Conservation).

Benchmarking

In compliance with AB 802, SCE's Automated Benchmarking System (ABS) supports customer benchmarking data requests. AB 802 is an energy benchmarking and public disclosure regulation for commercial and multifamily buildings that meet certain criteria (building size, type, and so forth). It requires owners of disclosable buildings to report electricity usage data to the CEC. SCE's ABS system was developed to intake customer data requests and deliver the data to the Environmental Protection Agency's ENERGY STAR™ Portfolio Manager (ESPM) system, which allows the building owners to receive the usage data from SCE and submit reports to the CEC.

In 2022, SCE's Benchmarking activities included:

- Fulfilling customer data requests for approximately 7,400 active buildings via the ABS system, and
- Successfully providing aggregated whole building usage data from Program Year 2021 for compliance with AB 802 by the June 1, 2022 deadline for reporting to the California Energy Commission (CEC).

The implementation in 2021 of SCE's new customer data system continued to impact benchmarking data integrity and ABS functionality in 2022. There were:

- Some issues with aggregated building usage data accuracy, and
- Challenges regarding benchmarking data delivery to ENERGY STAR™ Portfolio Manager.

As a result, the program team continued to improve the benchmarking process during 2022 and, with SCE's Information Technology (IT) group, to work through solutions for the identified impacts.

Enhancements and fixes were made to the SCE Benchmarking Dashboard interface through SCE's public website, SCE.com, in order to:

- Correct errors in the database
- Enable street addresses with fractions to be benchmarked, and
- Improve software code used to calculate whole building energy usage data.

Also, new functionality was added to ABS through ESPM's Application Programming Interface (API), enabling data removal from ENERGY STAR™ Portfolio Manager if needed.

In 2022, in compliance with the requirements of AB 802, SCE self-reported and provided to the California Energy Commission (CEC) missing data on 2017-2021 aggregated whole-building energy usage for approximately 25 SCE-owned buildings that are 50,000 sq. ft. and larger. Reporting will continue on an annual basis as required for compliance.

California Statewide Lighting Program

Program Description

The California Statewide Lighting (SWL) Program, a midstream program implemented by TRC Solutions, serves all eligible electric customers in the participating IOUs' service areas: Southern California Edison (SCE), San Diego Gas & Electric (SDG&E), and Pacific Gas & Electric (PG&E). The goal of the SWL Program is to promote the sale and installation of high-efficiency LED (light-emitting diode) lighting products through midstream channels for the nonresidential (Commercial & Industrial) market sectors throughout the IOUs' service areas.

Strategies Implemented in 2022

The SWL implementer operated its program in 2022 despite challenges with inventory, significant measure eligibility and value changes, workpaper documentation requirements, and customer volume. As noted in SCE's request for extension for filing this Annual Report, SCE identified projects in the Statewide Lighting Program that, in SCE's view, did not contain sufficient documentation. SCE actively collaborated with the implementer to obtain additional required documentation. As a result of that collaboration, the implementer provided additional documentation for 42 projects, which resulted in more than 560,000 kWh and 70 kW of claimable energy and demand savings for 2022.

Willdan Commercial Energy Efficiency Program

Program Description

The Willdan Commercial Energy Efficiency Program (CEEP) is a comprehensive program, utilizing a downstream delivery methodology, offered only to commercial SCE customers. Program measures offered are Deemed, Custom Calculated, and Normalized Meter Energy Consumption (NMEC). The program offers these measures to commercial business customers that identify under the following North American Industry Classification System (NAICS) codes segments: Lodging, Restaurants, Grocery Stores, Warehouses, Refrigerated Warehouses, Retail, Technology, Offices, and Miscellaneous.

Strategies Implemented in 2022

The program met its Initial Delivery Date (IDD) milestone in January of 2022, which was 10% of its required annual energy savings goal.

Both the Deemed and Calculated processes for project submission, quality assurance (QA) review, and approval were streamlined in the middle of the year, which resulted in most of the year's total energy savings being delivered in the Fourth Quarter. The year-end energy savings total was approximately 30 million net kWh and 3,600 net kW, achieved

through over 1,200 projects, all of which were Deemed. The measure types were Refrigeration (90%), Lighting (6%), and Heat Pump Water Heaters (4%).

In February of 2023, the CPUC approved an amendment which included a 33% reduction in CEEP's targeted savings goal for 2022, due to challenges in ramp-up and operationalization of one of SCE's first third party-implemented (TPI) programs. The program met more than 80% of this revised energy savings goal.

The program's development of Checklists for Deemed Measure Packages (workpapers) required identification of many supporting documentation and data fields to validate that the projects met their Measure requirements. This included the development of validation documentation for:

- Title 24 compliance
- Preponderance of Evidence survey and scoring
- Qualified Product List approval, and
- Photo requirements.

Significant SCE processing system enhancements were also developed and implemented throughout the year to increase the program's efficiency in processing, tracking, revising, reviewing, and approving more than 1,200 projects.

Market Access Program

Program Description

SCE's Market Access Program (MAP), marketed to the public as the Summer Reliability Program (SRP), offers participants performance-based compensation to reduce energy usage during times of high grid stress, with the goal of avoiding rotating outages while minimizing costs to ratepayers. The program assists both commercial and residential customers to purchase and install EE measures to reduce electricity demand for the summers of 2022 and 2023. MAP was recently extended by the CPUC through March 2024 to provide additional demand reduction.

The Program focuses on peak energy reduction that qualifying vendors, called Trade Professionals, can help customers achieve. These Trade Professionals directly recruit and engage with targeted customer segments that demonstrate high peak energy usage for a select group of measures.

Strategies Implemented in 2022

For information about MAP activities in 2022, please see *Chapter 1, Residential Sector Energy Efficiency Programs*, above.

ICF Commercial Behavioral Program

Program Description

The Commercial Behavioral Program will drive adoption of behavioral changes in small and mid-size commercial customers through personalized Business Energy Reports (BERs), Energy Advisor support, and rewards. The program requires a new procedural workpaper for BERs to be drafted and approved. Once launched, the program will deliver BERs to an initial treatment group of 80,000 small and medium business (SMB) customers across SCE's service area. These customers will receive customized bi-monthly BERs delivered through paper and e-mail channels, giving them feedback on their energy use and recommending low-cost or no-cost ways to save energy.

Additionally, the program will involve a targeted outbound coaching campaign by Energy Advisors. This campaign will serve to reinforce the BERs through data-driven conversations with SCE's customers about their lighting, HVAC, refrigeration, office equipment, cooking, water heating, and other business-related electric end-uses. The program will also include a rewards component to motivate action and ultimately drive business energy savings.

The Commercial Behavioral Program is implemented by a third party, ICF Resources.

Strategies Implemented in 2022

In 2022, the program focused on:

- Conducting necessary ramp-up activities to prepare BERs for launch to SMB customers in early 2024, and
- Working with SCE's IT team to develop business requirements for secure data transfer from SCE to ICF to facilitate their analysis, launch, and implementation of the program.

Closed Commercial Sector Programs

Commercial Calculated Energy Efficiency Program

The Commercial Calculated Energy Efficiency Program (also known as Customized Retrofit Offering Program) offered incentives for customized retrofit and BRO (Behavioral, Retro-commissioning and Operational) [33] EE projects.

[33] Formerly known as Retro-commissioning (RCx).

The program was closed to new applications effective December 31, 2021,[34] but will continue managing approved projects in the pipeline until all are completed, which is expected to occur no later than December 2023.

Savings By Design Program

The Savings By Design (SBD) program was a statewide, nonresidential, new construction program that provided technical design assistance and financial incentives to influence and encourage facility owners, design teams, and builders to integrate energy-efficient technologies into their building design and construction practices.

SBD closed to new enrollments effective March 31, 2021.[35] SCE continued to manage approved projects in the pipeline and will continue until all are completed, which is expected to occur no later than December 2025.

Enhanced Retro-Commissioning Program

The primary objective of the Enhanced Retro-Commissioning Program was to provide comprehensive integrated demand-side management (IDSM) solutions for customers by using advanced analytic tools to identify retro-commissioning opportunities in complex buildings, including large commercial offices, hospitals, and resorts.

The Program was closed to new applications effective December 31, 2019, per Advice Letter 4068-E,[36] filed September 3, 2019. In 2022, the Program continued to work on completing its remaining pipeline projects.

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[34] AL 4633-E-A, *Southern California Edison Company's Energy Efficiency Program and Portfolio Annual Budget Advice Letter for Program Years 2022 and 2023*.

[35] AL 4285-E-A, *Southern California Edison Company's Energy Efficiency Program and Portfolio Annual budget Advice Letter for Program Year 2021*.

[36] AL 4086-E, *Energy Data Request Programs Quarterly Report for Third Quarter 2019 in Compliance with Decision D.14-05-016*

3. Industrial Sector Energy Efficiency Programs

SCE's Industrial sector Energy Efficiency (EE) programs work with industry stakeholders to promote integrated energy management solutions to industrial end-use customers, such as printing plants, petroleum refineries, chemical industries, and water and wastewater treatment plants. The programs are designed to overcome the traditional market barriers to energy efficiency while also advancing distributed generation (DG) and demand response (DR) opportunities.[37]

The Industrial program portfolio includes:

- Strategic Energy Management Program
- Willdan Industrial Energy Efficiency Program, and
- California Statewide Lighting Program.

In 2022, SCE received CPUC approval to close its Industrial Energy Advisor Program.

In addition, the SCE-implemented Industrial Calculated Energy Efficiency Program and five Local Third Party-Implemented Programs were closed to new applications, but were still completing committed projects in 2022:

- Primary and Fabricated Metals Program
- Nonmetallic Minerals and Products Program
- Comprehensive Chemical Products Program
- Comprehensive Petroleum Refining Program, and
- Midsize Industrial Customer EE (MICE) Program.

Strategic Energy Management (SEM) Program

Program Description

The Strategic Energy Management (SEM) Program, launched statewide by the California IOUs in 2018, engages large industrial customers in up to three two-year cycles to drive persistent electric and natural gas savings across their entire facilities.

The Program, in compliance with the CPUC-approved *California Industrial SEM Design Guide* [38] and the *California Industrial SEM Measurement and Verification (M&V) Guide,*[39] includes the following services:

- Customer workshops with clearly defined learning objectives and well-facilitated peer-to-peer learning

[37] For program budgets and forecast comparisons, please see CEDARS at this link: **2022 SCE Budget Filing Dashboard - CEDARS (sound-data.com)**.
[38] California SEM Industrial Guide: **https://semhub.com/resources/california-industrial-sem-design-guide**.
[39] California Industrial SEM M&V Guide: **https://semhub.com/resources/california-sem-m-v-guide**.

- Annual on-site "Energy Treasure Hunts" to identify energy-saving opportunities
- On-site and remote support for goal development, employee engagement, energy map development, energy data collection, and project savings persistence strategies, and
- Support for implementation of an "Energy Management Information System" (EMIS) to assess progress on each participant's management approach and to plan future improvements.

Energy savings opportunities in the SEM Program include low-cost Behavioral, Retro-commissioning and Operational (BRO) measures, as well as capital projects. The Program measures savings at the meter level, using a normalized regression model that accounts for factors that affect energy consumption, such as production volume and weather. Customers receive incentives for BRO measures, for capital projects, and for achieving key milestones.

The SEM Program is not open for enrollment in the same way as other EE programs. Instead, customers are recruited into "cohorts" or groups. SCE's SEM Program started with one cohort in 2018, expanded to three cohorts in 2020, further expanded to five cohorts in 2021, and added a sixth cohort in 2022 (see the table below). The implementer continues to target its recruitment efforts on industrial customers with high annual usage, working with SCE's Customer Engagement Division (CED)[40] to recruit and enroll customers into a cohort, and provides all SEM Program services.

Table 3.1. SEM Program Cohorts 2018-2022

Cohort	Cycle	Number of Participants	Two-Year Engagement Start & End Dates
1 *	Cycle 1	8	8/1/2018 - 7/31/2020
	Cycle 2	5	9/1/2020 - 8/31/2022
	Cycle 3	3	9/1/2022 – 8/31/2024
2 *	Cycle 1	7	1/1/2020 - 12/31/2021
3 **	Cycle 1	7	1/1/2020 - 12/31/2021
2 / 3 *	Cycle 2	6	1/1/2022 - 1/1/2024
4 **	Cycle 1	10	1/01/2021 - 12/31/2022
5 **	Cycle 1	10	11/01/2021 - 10/31/2023
6 **	Cycle 1	13	9/1/2022 - 8/31/2024

** Co-funded by SCE & SCG. In Cohort 1, three participants renewed their Program participation for an additional two-year engagement, from 9/1/2022 to 8/31/2024.*

*** Cohorts 4, 5 and 6 are 100% funded by SCE only.*

[40] Formerly Business Customer Division (BCD).

The Program has served and continues to serve customers in the following industry segments ("verticals"):

- Aerospace
- Beverages
- Cement
- Construction Materials
- Food Processing
- Industrial Gases
- Metal Processing
- Metal Smelting
- Plastic Formation
- Plastic Manufacturing
- Packaging Manufacturing (cardboard, paper, plastic and Styrofoam)
- Mineral Processing, and
- Water Distribution.

Strategies Implemented in 2022

Administrative Changes and Successes

- SEM Program staff, the implementer, and SCE's third-party technical reviewers further streamlined all aspects of SEM Program administration in 2022, especially the year-end savings process.
- The Program aligned itself with the updated statewide SEM guides (*California Industrial SEM Design Guide* and *California Industrial SEM Measurement and Verification (M&V) Guide*) that were published in July 2022. Preexisting cohorts will be aligned with these new guides as the cohorts complete their current biennial cycles.
- The SEM program manager led the SEM Best Practices Working Group in coordination with IOUs, SEM third-party implementers, technical reviewers, and CPUC Energy Division (ED) Evaluators to develop a series of best practices for a number of SEM-identified concerns, such as incremental savings, participation by sites not in traditional North American Industrial Classification System (NAICS) codes, and existing facility conditions vs. local regulations or Industry Standard Practice (ISP).

Core Function Activities

The program is delivered in a hybrid format of in-person and online activities. In Q3 and Q4 of 2022, selected workshops were held in person, as they had been before the onset of the COVID pandemic.

The Program has five cohorts in various stages:

- Cohort 1 completed the second year of Cycle 2 on August 31, 2022 and started Cycle 3 on September 1, 2022.
- Cohort 2, now a combination of Cohorts 2 and 3, completed the first year of Cycle 2 on December 31, 2022.
- Cohort 4 completed the second year of Cycle 1 on December 31, 2022, and started Cycle 2 on January 1, 2023.
- Cohort 5 completed the first year of Cycle 1 on October 31, 2022.
- Cohort 6 started its program enrollment for Cycle 1 on September 1, 2022.

Program Successes

- Participants in Cohort 1 continued to generate incremental savings in their fourth year of the program, and three of them successfully launched activities in their fifth year.
- Cohort 4 achieved over 12,000,000 kWh in energy savings, which exceeded the 2022 goal by approximately 25%.
- Participants across all cohorts completed over 150 energy savings projects, despite challenges in supply chain logistics and staffing shortages.
- One participant achieved greater than 3,000,000 kWh energy savings through the behavioral changes (optimizing the startup and shutdown of some of their key equipment) that they identified through the SEM process.
- Participants generated most of their savings through BRO measures such as:
    - Changing temperature setback in production zones when not in production
    - Turning off equipment when not in use or during down time
    - Reducing high-pressure setpoint, and
    - Conducting a compressed air leak program.

Outreach to Customers

The program completed the following outreach activities in 2022:

- Three customers who participated in Cohort 1, Cycle 2 were recruited to participate once again in Cycle 3, their 5th and 6th years of participation.
- Six customers who participated in either Cohort 2, Cycle 1 or Cohort 3, Cycle 1 were recruited to participate in a reconstituted Cohort 2, Cycle 2, representing their 3rd and 4th years of participation.
- Thirteen customers were recruited into the newly formed Cohort 6, Cycle 1, representing their 1st and 2nd years of participation.

Willdan Industrial Energy Efficiency Program

Program Description

The Willdan Industrial Energy Efficiency Program (IEEP) is a comprehensive offering for industrial SCE customers, utilizing a downstream delivery methodology. Program measures offered are Deemed, Calculated (customized), and Normalized Meter Energy Consumption (NMEC). The program offers these measures to industrial business customers that identify under the following NAICS code segments:

- Mining
- Utilities
- Construction
- Manufacturing
- Wholesale trade
- Transportation, and
- Other services.

Strategies Implemented in 2022

The program launched in early 2022.

Both the Deemed and Calculated processes for project submission, QA review, and approval were streamlined in the middle of the year, which resulted in most of the year's total energy savings being delivered in the Fourth Quarter. The year-end total energy savings total was over 300,000 net kWh and 40 net kW, significantly underperforming expectations. All the approved projects installed Lighting measures, and 75% of the measures were in the Deemed category.

The program's development of checklists for Deemed Measure Packages (workpapers) required identification of many supporting documentation and data fields to validate that the projects met their Measure requirements. This included the development of validation documentation for:

- Title 24 compliance
- Preponderance of Evidence survey and scoring
- Qualified Product List approval, and
- Photo requirements.

Significant SCE processing system enhancements were also developed and implemented throughout the year to increase the program's efficiency in processing, tracking, revising, reviewing, and approving projects.

California Statewide Lighting Program

Program Description

The California Statewide Lighting (SWL) Program, implemented by TRC Solutions, serves all eligible electric customers in the service areas of the participating IOUs: SCE, San Diego Gas & Electric (SDG&E), and Pacific Gas & Electric (PG&E). The goal of the SWL Program is to promote the sale and installation of high-efficiency LED lighting products through midstream channels for the Commercial and Industrial market sectors.

Strategies Implemented in 2022

For information about SWL activities in 2022, please see *Chapter 2, Commercial Sector Energy Efficiency Programs*, above.

Closed SCE-Implemented Industrial Sector Programs

Industrial Energy Advisor Program

SCE requested CPUC approval to close the Industrial Energy Advisor Program in its 2022-2023 *Annual Budget Advice Letter* (ABAL),[41] filed on November 8, 2021, and approved on February 15, 2022.

Industrial Calculated Energy Efficiency Program

The Industrial Calculated Energy Efficiency Program offered incentives for customized retrofit and Behavioral, Retro-commissioning and Operational (BRO) energy efficiency projects.

The Industrial Calculated Program closed to new enrollments effective June 2021,[42] but will continue managing approved projects in the pipeline until all are completed, which is expected to occur no later than December 2023.

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[41] AL 4633-E-A, *Southern California Edison Company's Energy Efficiency Program and Portfolio Annual Budget Advice Letter for Program Years 2022 and 2023*.

[42] AL 4285-E-A, *Southern California Edison Company's Energy Efficiency Program and Portfolio Annual Budget Advice Letter for Program Year 2021*.

Closed Local Third Party-Implemented Industrial Sector Programs

Primary and Fabricated Metals Program

The Primary and Fabricated Metals Program targeted qualifying customer businesses and facilities in the primary and fabricated metals and industrial gas manufacturing industries within SCE's service territory.

In Advice Letter 4285-E-A,[43] filed on November 20, 2020, SCE requested CPUC approval to close the Primary and Fabricated Metals Program after any existing commitments were completed. Effective December 31, 2020, the Program was closed to new applications.

In Advice Letter 4633-E,[44] SCE requested a relatively small increase to the program's budget to account for final project and program closure activities. During 2022, the Program continued to complete committed projects.

Nonmetallic Minerals and Products Program

The Nonmetallic Minerals and Products Program provided a cost-effective process for improving the energy efficiency of large industrial customers, among which are cement production plants and other non-metallic mineral miners or processors, aerospace and other transportation vehicle manufacturing, and wood and paper manufacturing.

The Program was closed to new applications effective December 31, 2020, per Advice Letter 4285-E-A, filed November 20, 2020. In Advice Letter 4633-E, filed November 8, 2021, SCE requested a relatively small increase to this program's budget to account for final project and program closure activities. In 2022, the Program continued to complete committed projects. SCE anticipates that pending projects will be completed and paid through 2023.

Comprehensive Chemical Products Program

The Comprehensive Chemical Products Program delivered reliable electric energy savings and demand reduction for the chemical and allied products, transportation equipment manufacturing, and beverage industries throughout SCE's service territory.

In Advice Letter 4068-E, filed on September 3, 2019, SCE requested CPUC approval to close the Comprehensive Chemical Products Program after any existing commitments were completed, effective December 31, 2019.[45]

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[43] AL 4285-E-A, *Southern California Edison Company's Energy Efficiency Program and Portfolio Annual Budget Advice Letter for Program Year 2021.*

[44] AL 4633-E, *Southern California Edison Company's Energy Efficiency Program and Portfolio Annual Budget Advice Letter for Program Years 2022 and 2023.*

[45] AL 4068-E, *SCE 2020 EE Program and Portfolio Annual Budget Advice Letter.*

In 2022, the Comprehensive Chemical Products Program processed committed projects that were submitted for final installation technical review by the end of 2021. Processing of these projects was completed, the final payments were approved, and the Program was closed in the 2nd Quarter of 2022.

Comprehensive Petroleum Refining Program

The Comprehensive Petroleum Refining Program targeted all the major petroleum refineries and petroleum product manufacturers in SCE's service territory to produce long-term, cost-effective electrical energy savings.

The Program was closed to new applications effective December 31, 2020, per Advice Letter (AL) 4285-E-A. In Advice Letter 4633-E, SCE requested a relatively small increase to this program's budget to account for final project and program closure activities. In 2022, the Program continued to complete committed projects. SCE anticipates that pending projects will be completed and paid through 2023.

Midsize Industrial Customer EE (MICE) Program

The Midsize Industrial Customer Energy Efficiency (MICE) Program provided in-depth energy assessment services to medium-size industrial customers in order to identify measures and projects that the customer might not otherwise implement.

In Advice Letter 3859-E,[46] filed on September 4, 2018, SCE requested CPUC approval to close the Midsize Industrial Customer EE (MICE) Program after any existing commitments were completed, effective December 31, 2018. Upon CPUC approval, the Program closed to new applications but will continue operations until projects in the pipeline are completed.

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[46] AL 3859-E, *SCE 2019 EE Program and Portfolio Annual Budget Advice Letter*.

4. Agriculture Sector Energy Efficiency Programs

SCE's Agriculture Sector Energy Efficiency (EE) programs offer solutions to help agricultural customers save money and energy, including technical support (facility audits, calculation and design assistance, and pump tests), and financial support through calculated and deemed incentives and rebates. Targeted segments include dairies, farms, food processing facilities, and water pumping facilities.[47]

A new EE program offered in the Agriculture Sector is the Agriculture Energy Efficiency (AgEE) Program, implemented by ICF Resources, LLC. This program succeeds two SCE-implemented programs closed in 2022:

- Agriculture Calculated Energy Efficiency Program, and
- Agriculture Deemed Energy Efficiency Program.

ICF Agriculture Energy Efficiency Program

The ICF Agriculture Energy Efficiency (AgEE) Program is intended to cost-effectively serve SCE's agricultural customers by delivering relevant EE solutions that meet the diverse needs of the agriculture sector. The program's objective is to increase customer participation and achieve greater savings within the sector by maximizing energy savings through customized solution sets that provide quantifiable operating cost reductions.

The AgEE Program identifies and works with agriculture customers to help them understand the benefits of implementing energy-saving projects and measures, provides technical and project development assistance as needed, and leverages financing solutions such as On-Bill Financing (OBF). For Disadvantaged Communities (DAC) and Hard-to-Reach (HTR) customers, the program provides higher levels of incentives and technical support to overcome participation barriers.

Program Activity in 2022

ICF Resources, LLC was awarded a contract to implement the AgEE Program in the Fourth Quarter of 2021. SCE submitted Advice Letter (AL) 4740-E[48] in March, 2022, to request CPUC approval of the contract, which was approved April 22, 2022. The AgEE Program was launched in July, and in December, 2022, ICF began submitting projects for SCE's review. No projects for this program were approved in 2022.

[47] For program budgets and forecast comparisons, please see CEDARS at this link: **2022 SCE Budget Filing Dashboard - CEDARS (sound-data.com)**.

[48] AL 4740-E, *SCE's Advice Letter for Approval of Local Agricultural Sector Energy Efficiency Third Party Contract with ICF Resources, LLC.*

Closed Agriculture Sector Programs

Agriculture Calculated Energy Efficiency Program

The Agriculture Calculated Energy Efficiency Program offered incentives for customized EE retrofit and Behavioral, Retro-commissioning and Operational (BRO) projects for agricultural customers.

In Advice Letter AL 4633-E-A, filed on January 7, 2022, SCE requested CPUC approval to close the Agriculture Calculated Program and to continue managing approved projects in the pipeline until all are completed, which is expected to occur no later than December 2023.[49]

Agriculture Deemed Energy Efficiency Program

The Agriculture Deemed Energy Efficiency Program offered eligible agricultural customers incentives that encouraged common, standardized EE equipment retrofits.

In Advice Letter AL 4633-E-A, SCE requested CPUC approval to immediately close the Agriculture Deemed EE Program.[50]

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[49] AL 4633-E-A, *Supplement to Advice 4633-E, Southern California Edison Company's Energy Efficiency Program and Portfolio Annual Budget Advice Letter for Program Years 2022 and 2023.*

[50] Ibid.

5. Public Sector Energy Efficiency Programs

SCE's portfolio of Public Sector Energy Efficiency (EE) programs includes:[51]

- The CATALENA Project
- Lincus Statewide Water Infrastructure & System Efficiency (SW WISE™)
- CLEAResult Statewide Higher Education EE Program (HEEP)
- CLEAResult Public Energy Performance (PEP) Program, and
- Three Regional Energy Network (REN) Partnerships:
  - Southern California REN Fiscal Oversight and Partnership
  - Inland Regional Energy Network (IREN), and
  - Tri-County REN Fiscal Oversight and Partnership.

In 2022, SCE closed the following Public Sector programs to new applications, but they were still completing committed projects in 2022:

- City of Long Beach Energy Leader Partnership
- Gateway Cities Energy Leader Partnership
- Orange County Cities Energy Leader Partnership
- San Gabriel Valley Energy Leader Partnership
- South Bay Energy Leader Partnership
- South Santa Barbara County Energy Leader Partnership
- Ventura County Energy Leader Partnership
- West Side Energy Leader Partnership
- North Orange County Cities
- County of Los Angeles Energy Efficiency Partnership
- California Community Colleges (CCC)
- California Department of Corrections and Rehabilitations (CDCR)
- State of California Partnerships
- University of California / California State Universities (UC / CSU) Energy Efficiency Partnership
- Public Sector Performance-Based Retrofit Program (PSPBR), and
- Water Infrastructure System Efficiency (WISE™) Program.

California Analysis Tool for Locational Energy Assessment (CATALENA) Project

Project Description

In its Decision (D.)18-05-041,[52] the California Public Utilities Commission (CPUC)

[51] For program budgets and forecast comparisons, please see CEDARS at this link: **2022 SCE Budget Filing Dashboard - CEDARS (sound-data.com)**.

[52] D.18-05-041, *Addressing Energy Efficiency Business Plans*.

directed the IOU Program Administrators[53] (PAs) to select a lead to oversee the statewide deployment of the California Analysis Tool for Locational Energy Assessment (CATALENA) and competitively solicit a third party.

In 2022, the IOUs discussed data privacy issues with the CPUC. CATALENA is expected to be able to display data through graphs, charts, and an interactive map. The IOUs expect further guidance in 2023 from the CPUC Energy Division on data privacy issues.

In Decision (D.) 23-02-002 the Commission confirmed its "intent, as articulated in D.18-05-041, for the CATALENA tool to expand the Energy Atlas to statewide use, including both the public-facing database and the back-end geospatial relational database, and making disaggregated demand data accessible to qualifying users." [54] As part of D.23-02-002, COL 27, the Commission indicated its intent to seek a memorandum of understanding with the CEC for the CEC to implement CATALENA, whereas the IOU PAs are required to fund and facilitate implementation of the CATALENA project.

Additionally, D.23-02-002 directed the IOU PAs "to allocate the $2 million specified in D.18-05-041 to a new accounting mechanism for the purpose of transferring those funds to the CEC to develop and maintain the tool." [55] The IOU PAs must transfer the full amount in this accounting mechanism to the CEC.

Furthermore, the IOU PAs must transfer customer-level Distributed Energy Resources (DER) program data, as specified by Commission staff, to the CEC for the purposes of the CATALENA tool.[56]

Regional Energy Network Partnerships

Note: *See also Appendix D, Regional Energy Networks: Joint Cooperation Memoranda, below.*

Southern California Regional Energy Network Fiscal Oversight

Program Description

The Southern California Regional Energy Network (SoCalREN) Fiscal Oversight Partnership was approved as a pilot in the 2013-2015 Program Cycle, with Los Angeles (LA) County as the lead administrator, and was authorized in 2015 to continue operating as a REN through 2017. On June 6, 2018, the CPUC approved SCE's 2018-2025 Energy Efficiency Rolling Portfolio Business Plan.[57] In December 2019, the CPUC issued D.19-12-021,[58]

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53 SCE, Pacific Gas & Electric (PG&E) Company, San Diego Gas & Electric (SDG&E) Company, and Southern California Gas (SoCalGas) Company.

54 D.23-02-002, p. 59.

55 Ibid., OP 16.

56 Ibid., OP 18.

57 D.18-05-041, *Decision Addressing Energy Efficiency Business Plans.*

58 D.19-12-021, *Decision Regarding Frameworks for Energy Efficiency Regional Energy Networks and Market Transformation*.

removing the pilot status of SoCalREN and authorizing the continuation of SoCalREN through the end of the business plan period.

A joint agreement between SCE, the Southern California Gas Company (SoCalGas), and SoCalREN, with SoCalGas as the lead administrator, describes the SoCalREN Partnership, through which the IOUs provide fiscal oversight for the programs but do not directly manage them.

Strategies Implemented in 2022

- SCE, SoCalGas, and SoCalREN developed, as required by D.18-05-041, a Joint Cooperation Memo (JCM) that details SoCalREN's 2023 programs and SoCalGas's and SCE's comparable 2022 programs.
- SoCalREN, in cooperation with the IOUs, focused on collaboration as the IOUs introduced new programs under the Third-Party model.

Tri-County Regional Energy Network Fiscal Oversight

Program Description

The Tri-County Regional Energy Network (3C-REN), jointly administered by San Luis Obispo, Santa Barbara, and Ventura counties, was approved as a pilot in D.18-05-041 (cited above). A joint agreement between Pacific Gas and Electric (PG&E), SCE, SoCalGas, and 3C-REN, with SoCalGas as the lead administrator, defines the 3C-REN Partnership, through which the IOUs provide fiscal oversight for the programs but do not directly manage them.

Program Activities in 2022

In 2022, SCE worked cooperatively and collaboratively with PG&E, SoCalGas, and 3C-REN to coordinate complementary services and create a positive, successful experience for customers. As required by D.18-05-041, they developed a Joint Cooperation Memo (JCM) which details:

- 3C-REN's 2022 programs
- PG&E, SoCalGas, and SCE's comparable 2022 programs, and
- The coordination among the Program Administrators (PAs) in overlapping service territories.

The 2022 3C-REN JCM was approved on July 15, 2021.[59]

Additionally, 3C-REN and the IOUs discussed customer data needs and data privacy concerns related to their residential population NMEC program. The discussions continued

[59] AL 4520-E, *2022 Joint Cooperation Memorandum (JCM) of SoCalGas, SCE, 3C-REN, and PG&E Pursuant to Decision (D.) 18-05-041*.

through 2022 and further guidance from the CPUC Energy Division is expected.

Inland Regional Energy Network

Program Description

The Inland Regional Energy Network (I-REN), jointly administered by the Western Riverside Council of Governments (WRCOG), Coachella Valley Association of Governments (CVAG), and San Bernardino Association of Governments (SANBAG), was approved in D.18-05-041 (cited above). A joint agreement between SCE, SoCalGas, and I-REN, with SoCalGas as the lead administrator, defines the I-REN Partnership, through which the IOUs provide fiscal oversight for the programs but do not directly manage them.

Program Activity in 2022

In 2022, SCE worked cooperatively and collaboratively with SoCalGas and I-REN to develop the I-REN agreement.

Lincus Statewide Water Infrastructure & System Efficiency (SW WISE™) Program

Program Description

The Statewide Water Infrastructure and System Efficiency™ Program (SW WISE™) is a downstream offering within the service territories of PG&E, SCE, SoCalGas, and San Diego Gas & Electric (SDG&E), providing EE solutions to water production, distribution, and water/wastewater treatment systems and oil field clear-water pumping systems. SW WISE™ serves facilities and systems including water agencies, private water companies, wastewater agencies, special districts, joint power authorities, local government agencies, investor-owned water utilities (IOUs), oil field water pumping customers, and other water pumping or treatment customers paying the Public Purpose Programs Charge (PPPC).

The SW WISE™ Program:

- Trains and equips trade allies in the water and wastewater segment to recommend more efficient processes and technologies to their customers and enable project implementation
- Assists qualified customers in installing EE measures
- Provides energy engineering and project support services to qualified customers selected to participate in the program
- Helps secure downstream rebates and incentives for eligible measures
- Focuses on technologies and solutions to meet the Program's target TRC ratio, and

- Delivers demand reductions (kW) and energy savings (kWh and therms).

Engineering services may include:

- Project identification
- Feasibility evaluation
- Recommendations and evaluations of EE measures
- EE post-operations validation, and
- Final verification of realized savings.

Project support includes application processing, project inspections, and payment of incentives.

See also the "legacy" Water Infrastructure System Efficiency (WISE™) Program under Closed Public Sector Programs, below.

Strategies Implemented in 2022

SCE completed the solicitation process for this market segment in 2022, including negotiations, and awarded the contract to Lincus, Inc. The initial contract was fully executed in April 2022, and SCE approved Advice Letter (AL) 4816-E in July 2022,[60] and the implementer ramped up the program for the remainder of 2022.

CLEAResult Statewide Higher Education Energy Efficiency Program (HEEP)

Program Description

The CLEAResult Higher Education Efficiency Performance (HEEP) Program combines traditional efficiency programs that incentivize calculated (customized) and deemed measures with supported energy action plan implementation and Strategic Energy Management (SEM). Strategic Energy Management is a holistic, whole-facility approach that uses Normalized Meter Energy Consumption (NMEC) and dynamic baseline models to determine energy savings from all program activity at a facility, including capital projects, custom and deemed retrofits, and behavioral, retro-commissioning, and operations (BRO) projects. The SEM offering for the Higher Education sector, following the *California SEM M&V Guide*,[61] requires a multiyear customer commitment to participate in multiple cohort-type training workshops, energy analysis, and Measurement and Evaluation (M&V) activities based on characteristics of the facility's specific operations.

The HEEP program targets customers in the Higher Education sector and delivers savings to diverse building types owned by each of the three California Higher Education

60 Advice Letter 4816-E, *Request for Approval of Statewide Water/Wastewater Pumping Solicitation Energy Efficiency Third Party Contract with Lincus Inc.*

61 California Energy Efficiency/Energy Contracts, available at: **https://pda.energydataweb.com/#!/?q=strategic%20energy%20management%20design%20guide&searchOn=title**.

systems: University of California (UC), California State University (CSU), and the California Community Colleges (CCC).

Strategies Implemented in 2022

SCE completed the solicitation process for this market segment in 2022, including negotiations, and awarded the contract to CLEAResult. The contract was fully executed in February 2022, SCE approved Advice Letter (AL) 4772-E-A in August 2022,[62] and the implementer ramped up the program during the remainder of 2022

CLEAResult Public Energy Performance (PEP) Program

Program Description

The CLEAResult Public Energy Performance (PEP) Program combines traditional EE programs that incentivize Calculated (customized) and Deemed measures with supported energy action plan implementation and Strategic Energy Management (SEM), described above. The SEM offering for the Public Sector, following the *California SEM M&V Guide*, requires a multi-year customer commitment to participate in multiple cohort-type training workshops, individual or cohort energy analysis site activities, and Measurement and Evaluation (M&V) activities based on the characteristics of the facility's specific operations.

The PEP program targets customers across the Public Sector and delivers savings to diverse building types owned by public and private local education authorities, municipal, county and federal governments, tribal entities, and private universities and trade schools. This program does not include public higher education institutions, state government facilities, or public hospitals.

The program's primary objective is to meet SCE's business plan goals and objectives and achieve deep energy savings and performance through a comprehensive delivery design. An additional objective of the program is to increase participation by identifying and offering technical support to establish a foundation on which to develop capital projects, which will yield deeper savings. Our targeted yet flexible approach, coupled with our streamlined processes and thorough quality management, will yield a cost-effective program that serves public sector customers.

Program Activities in 2022

SCE completed the solicitation process for this market segment in 2022, including negotiations, and awarded the contract to CLEAResult. The initial contract was fully

[62] Advice Letter 4772-E-A, *Southern California Edison Company's Advice Letter for Approval of Statewide Higher Education Energy Efficiency Third Party Contract with CLEAResult Consulting Inc.*

executed in December 2021, and SCE approved Advice Letter (AL) 4724-E-A[63] in August, 2022. After contract approval CLEAResult also began:

- Actively soliciting customers for SEM project participation in 2022, and
- Developing Deemed and Calculated projects for program participation in 2023.

Closed Public Sector Programs

Local Government Partnerships

SCE's Local Government Partnerships were collaborations with public entities that shaped EE and sustainability at the local, regional, and statewide level. They were the primary delivery channel supporting cities, counties, and other local agencies seeking energy savings and GHG emission reductions on the community scale.

In its 2022-2023 Bi-Annual Budget Advice Letter [64] (BBAL), SCE requested CPUC approval to close all of SCE's Local Government Partnerships (LGPs) by the end of 2021. A number of these LGPs were completely closed as of December 31, 2021.

However, the following partnerships were closed to new applications, but still have projects in the pipeline and so will not be completely closed until completion of existing commitments.

City of Long Beach Energy Leader Partnership

The City of Long Beach Partnership Program was a local government partnership between SCE and the City of Long Beach. The Partnership worked to raise EE awareness, promote long-term energy reduction goals within municipal building stock, and coordinate with the city to cross-promote residential and business utility EE programs.

The Partnership did not complete any projects in 2022.

Gateway Cities Energy Leader Partnership

The Gateway Cities Energy Partnership Program was a local government partnership including the Cities of South Gate, Norwalk, Downey, Lakewood, and Lynwood, along with SCE and SoCalGas.

The Partnership completed one project in 2022.

[63] Advice Letter 4724-E-A, *Supplement to Advice 4724-E, Southern California Edison Company's Advice Letter for Approval of Local Public Sector Energy Efficiency Third Party Contract with CLEAResult Consulting Inc.*

[64] AL 4633-E, *SCE's Energy Efficiency Program and Portfolio Annual Budget Advice Letter for Program Years 2022 and 2023*, filed 11/8/2021.

Orange County Cities Energy Leader Partnership

The Orange County Cities Energy Leader Partnership included the Cities of Irvine, Costa Mesa, Fountain Valley, Huntington Beach, Newport Beach, Santa Ana, and Westminster, as well as SCE and SoCalGas.

The Partnership did not complete any projects in 2022.

San Gabriel Valley Energy Leader Partnership

The San Gabriel Valley Energy Leader Partnership was a partnership between SCE and the San Gabriel Valley Council of Governments, including 29 cities of the San Gabriel Valley.

The Partnership did not complete any projects in 2022.

South Bay Energy Leader Partnership

The South Bay Energy Leader Partnership Program[65] provided integrated technical and financial assistance to help fifteen (15) member cities in the South Bay Cities effectively lead their communities to increase energy efficiency, reduce greenhouse gas emissions, increase renewable energy usage, protect air quality, and ensure that their communities are more livable and sustainable.

The Partnership did not complete any projects in 2022.

South Santa Barbara County Energy Leader Partnership

The South Santa Barbara County Energy Efficiency Partnership included SCE, Santa Barbara County, and the Cities of Santa Barbara, Goleta, and Carpinteria.

The Partnership did not complete any projects in 2022.

Ventura County Energy Leader Partnership

The Ventura County Energy Leader Partnerships, also known as the Ventura County Regional Energy Alliance (VCREA), in partnership with SoCalGas and SCE, worked to produce energy savings for public agencies[66] throughout Ventura County, including the County of Ventura and the cities of Camarillo, Fillmore, Moorpark, Ojai, Oxnard, Port Hueneme, Santa Paula, Simi Valley, Thousand Oaks, and Ventura.

The Partnership did not complete any projects in 2022.

[65] Also known as the South Bay Cities Council of Governments (SBCCOG) Energy Efficiency Partnership.
[66] That is, city or county governments and any other public sector organizations.

West Side Community Energy Leader Partnership

The West Side Community Energy Leader Partnership was a local government partnership including SCE and the Cities of Beverly Hills, Culver City, Malibu, Santa Monica, Santa Clarita, and West Hollywood, with The Energy Coalition (TEC) as the implementing vendor.

The Partnership did not complete any projects in 2022.

North Orange County Cities Energy Leader Partnership

The North Orange County Cities Energy Leader Partnership was a local government partnership comprising the Cities of Brea, Buena Park, Fullerton, La Habra, La Palma, Orange, Placentia, and Yorba Linda, along with SCE and SoCalGas, with The Energy Coalition (TEC) as the implementing vendor.

The Partnership did not complete any projects in 2022.

County of Los Angeles Energy Efficiency Partnership

The County of Los Angeles ("LA County") Partnership supported the energy reduction and environmental initiatives described in the Los Angeles County Energy and Environmental Plan, adopted in 2008, and the objectives of the California Energy Efficiency Strategic Plan (CEESP).

The Partnership completed two projects in 2022.

Institutional and Government Energy Efficiency Partnership Program

The Institutional and Government Energy Efficiency Partnership Program (IGPP) was an umbrella program comprising four (4) subprograms, including partnerships with:

- California Community Colleges (CCC)
- California University Systems (University of California [UC] and California State University [CSU])
- California Department of Corrections and Rehabilitation (CDCR), and
- The State Government of California.

California Community Colleges Energy Efficiency Partnership

The California Community Colleges / Investor-Owned Utility (CCC / IOU) Energy Efficiency Partnership was a unique Statewide program to achieve immediate and long-term energy savings and peak demand reduction within California's community college system.

The SCE CCC/IOU Partnership did not complete any projects in 2022, but has new construction projects still in the pipeline that are expected to be completed by 2024.

California Dept. of Corrections and Rehabilitation (CDCR) Energy Efficiency Partnership

The CDCR EE Partnership was designed to achieve immediate and long-term peak energy demand savings and establish a permanent framework for sustainable, comprehensive energy management programs at CDCR institutions served by the IOUs.

This Partnership transitioned to the new third party-implemented program offered by PG&E, State of California Energy Strategy and Support (SOC ESS) Program, in the Fourth Quarter of 2021, and had no further activity in 2022.

State of California Energy Efficiency Partnership

The State of California Energy Efficiency Partnership was a Statewide program designed to achieve immediate and long-term peak energy demand savings and establish a permanent framework for sustainable, comprehensive energy management programs at state-owned facilities served by California's four large IOUs, in collaboration with the Department of General Services (DGS) and the California Department of Finance Energy$Mart Program.

This partnership was replaced by the new State of California third party-implemented program offered by PG&E, State of California Energy Strategy and Support (SOC ESS) Program, in the Fourth Quarter of 2021, and had no activity in 2022.

University of California / California State Universities (UC / CSU) Energy Efficiency Partnership

The UC / CSU Energy Efficiency Partnership was a unique program that included California's four IOUs — PG&E, SCE, SoCalGas, and SDG&E — as well as the Los Angeles Department of Water and Power (LADWP), in partnership with the University of California (UC) and the California State University (CSU) systems.

This Partnership completed one project in 2022, and has four more projects in the pipeline that are expected to be completed by 2024.

Public Sector Performance-Based Retrofit Program

The Public Sector Performance-Based Retrofit Program[67] (PSPBR) was designed to leverage smart meter investments while bringing the benefits of Normalized Metered Energy Consumption (NMEC) to Public Sector buildings.

The PSPBR Program closed to new enrollments effective December 31, 2021.[68] The Program will continue managing approved projects in the pipeline until all are completed, which is expected to occur no later than December 2025. (The extended time is due to

[67] Approved in AL 3460-E-A, *Supplemental Filing to Advice 3460-E: Submission of High Opportunity Projects and Programs Proposal: Public Sector Performance-Based Retrofit Program*.

[68] AL 4633-E, *Southern California Edison Company's Energy Efficiency Program and Portfolio Annual Budget Advice Letter for Program Years 2022 and 2023*.

meter-data analyses scheduled to occur at three, 12, and 24 months after each project installation is completed.)

Water Infrastructure System Efficiency (WISE™) Program

The Water Infrastructure System Efficiency (WISE™) Program was a demand-side management (DSM) program designed to provide EE solutions to customers that include water agencies, special districts, and local government agencies that oversee water and wastewater treatment and pumping facilities and systems.

SCE proposed to close the WISE™ Program to new applications after June 30, 2019, per Advice Letter 4068-E, filed on September 3, 2019. In 2022, this Program completed nine projects and continues to work toward completing the remaining pipeline of projects, some of which were impacted by COVID-19 so that it was necessary to extend their expected completion dates to the end of 2024.

See also the *Lincus Statewide Water Infrastructure & System Efficiency (SW WISE™) Program* on Page 37, above. Customers with new water and wastewater treatment and pumping projects will apply to the Lincus Program going forward.

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6. Finance Programs

The goal of the Statewide Finance Program is to facilitate the installation of Energy Efficiency (EE) improvements by providing effective solutions that reduce the burden of upfront costs for the improvements. The Statewide Finance Program includes two main subprograms:

- On-Bill Financing (OBF) Program, and
- New Finance Offerings, which includes one program and two pilot programs.

These programs provide competitive financing solutions to different customer market segments.[69]

On-Bill Financing (OBF) Program

Program Description

SCE's OBF Program offers zero-interest, no-fee financing for the installation of qualifying EE measures. Loans are available to qualifying nonresidential customers, including commercial, industrial, agricultural, government, and institutional customers, who repay their loan as a line item on their electric bill. This program supports the goals and strategies of the California Energy Efficiency Strategic Plan (CEESP).

To be eligible for OBF, customers were required to participate in one or more SCE-administered EE programs, local third party-administered EE programs, or statewide third party-implemented EE programs. In 2022, OBF funded new loans totaling over $170,000, and SCE received over $7.25 million in loan repayments.

Strategies Implemented in 2022

As a result of SCE's transition to third-party implementation for EE programs, the OBF Program was placed on hold for the first eight months of 2022 until SCE was able to determine the best way to offer financing for projects executed through the new third party-implemented programs. This delay in re-launching the program resulted in a lower number of loans being funded in 2022.

In 2022, SCE implemented the following strategies in order to fulfill CPUC-mandated compliance requirements, reduce program constraints, and expand the potential for OBF financing to better meet customers' needs:

[69] For program budgets and forecast comparisons, please see CEDARS at this link: **2022 SCE Budget Filing Dashboard - CEDARS (sound-data.com)**.

Administrative Changes and Administrative Successes

- The OBF Program de-coupled the OBF process from the EE incentive program process. However, customers are still required to provide proof of participation in one of the approved third party-implemented or statewide programs, as financing is only available for approved measures through these OBF-eligible EE programs.
- Once the OBF Program became available again in August 2022, only customers were allowed to submit OBF applications in SCE's system. Installation contractors and third-party program implementers were no longer authorized to submit OBF applications on behalf of customers.
- In 2022 all proceeds were payable to customers only. The option for customers to assign a contractor as their loan payee was temporarily eliminated.

Marketing and Communications

Since the program was on hold for most of 2022, there were no significant marketing efforts during the year. However, all relevant program changes and the reinstatement of the program were communicated to the third-party and statewide EE program implementers and to the general public through the OBF page on SCE.com and other direct communication means, such as the Trade Ally Connect project submission portal.

New Finance Offerings

Program Description

In accordance with D.13-09-044,[70] the IOUs, along with the California Alternative Energy and Advanced Transportation Financing Authority (CAEATFA, a subdivision of the California Treasurer's Office serving as the pilots' Program Administrator), have developed and are continuing to improve statewide financing pilot programs that:

- Offer scalable and leveraged financing products
- Test market incentives for attracting private capital through investment of customer funds, and
- Test whether payment via the utility bill ("on-bill repayment" or OBR) increases debt service performance across market sectors.

The New Finance Offerings include the following programs and pilots:

- Single Family Loan Program with Credit Enhancements,[71] commercially known as the GoGreen Home Program

[70] D.13-09-044, *Decision Implementing 2013-2014 Energy Efficiency Financing Pilot Programs*.
[71] Formerly also called the Residential EE Loan (REEL) Program.

- Small Business OBR Loan/Lease with Credit Enhancements Pilot Program, commercially known as the GoGreen Business Program, and
- Master-Metered Multifamily OBR Pilot Program, commercially known as the GoGreen Multifamily Program.

The new Finance Offerings include various forms of credit enhancements for loans made by participating financial institutions to residential properties and small businesses. The credit enhancements provide additional security to third-party lenders so that they can extend or improve credit terms for loans that are for qualifying EE projects.

Strategies Implemented in 2022

In 2022, SCE worked with CAEATFA and the other IOUs to implement the following strategies for the New Finance Offerings:

Administrative Successes

SCE filed Advice Letter 4810-E/248-G [72] covering revisions to SCE's Form 14-938, Authorization to Add Changes to Utility Bill, and Form 14-938-G, Authorization to Add Changes to Utility Bill-Gas, for customers on Santa Catalina Island. These updates were the result of SCE's collaboration with CAEATFA and the other participating IOUs, giving GoGreen Business and GoGreen Multifamily customers the option to repay their loans through their SCE bills.

As a result of D.21-08-006,[73] SCE executed a new Agreement among the California IOUs to provide funding for the implementation of the existing CHEEF Programs during the period starting July 2022 through 2027.

Other activities in 2022 included:

- SCE received its first on-bill repayment (OBR) application, making SCE the first IOU to have a CHEEF loan with the OBR feature
- A financial institution made one GoGreen Business loan in SCE's service territory for over $100,000, and
- In support of GoGreen Home, SCE worked closely with SCE's third-party implementer, Enervee, to develop infrastructure to promote GoGreen Home loans for household appliances directly to customers through the SCE Marketplace platform. This option became available to customers in the 1st Quarter of 2023.

[72] Advice Letter (AL) 4810-E/248-G, *On-Bill Repayment Program - Revisions to Authorization to Add Charges to Utility Bill, Form 14-938, and Authorization to Add Charges to Utility Bill - Gas, Form 14-938G for Santa Catalina Island Customers.*

[73] D.21-08-006, *Decision Extending California Hub for Energy Efficiency Financing Programs and Conditionally Approving Use of Platform for Non-Ratepayer Funded Programs*.

- SCE provided credit enhancements for more than 170 GoGreen Home loans in 2022 that totaled over $3.8 million.

General Marketing Strategies

- The Statewide marketing contract with the Center for Sustainable Energy (CSE) came to an end in 2022 and a new marketing implementer, Riester,[74] was selected to lead marketing efforts for the CHEEF programs. SCE worked closely with CAEATFA and the Statewide team in the selection process. Once a contract was executed between Riester and SoCalGas, the Lead PA, SCE signed a new co-funding agreement with SoCalGas to continue financial support of statewide marketing activities for the programs.
- Additionally, SCE executed its own marketing campaigns specifically directed at our customers in the summer and fall of 2022.

Collaboration with Others

SCE continues to collaborate closely with CAEATFA, the other California IOUs, and third-party implementers by providing financial, marketing, and implementation support to the New Finance Offerings. This collaboration includes regular policy, marketing, and On-Bill Repayment (OBR) system implementation meetings.

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[74] Riester Advertising Agency, available at: **https://www.riester.com/**.

7. Codes and Standards Program

Program Description

The Codes and Standards (C&S) Program includes three Statewide Advocacy subprograms and three "local" subprograms administered by SCE.[75] The three Statewide Advocacy subprograms are:

- Appliance Standards Advocacy Subprogram
- Building Codes Advocacy Subprogram, and
- National and International Standards Subprogram.

In compliance with the statewide program and outsourcing goals of the California Public Utilities Commission (CPUC), these Advocacy Subprograms transitioned to a Statewide Codes and Standards Advocacy Program, launched in early 2020, for which Pacific Gas & Electric (PG&E) is the lead Program Administrator (PA).[76] These subprograms save energy and reduce GHG emissions on behalf of customers by influencing regulatory bodies such as the California Energy Commission (CEC or "Energy Commission") and the U.S. Department of Energy (DOE) to strengthen existing Energy Efficiency (EE) regulations and develop new EE regulations.

The three local Codes and Standards subprograms administered by SCE are:

- The C&S Compliance Improvement Subprogram provides additional tools, resources, and training for awareness and improved compliance with all-electric options under the 2022 Title 24, Part 6 California Building Code by offering training and webinars.
- The C&S Reach Codes Subprogram continually supports local government reach code activities by developing cost-effectiveness studies and by tracking their activities in addressing climate action plans and adopting reach codes.
- The C&S Planning and Coordination Subprogram, in collaboration with the CPUC and CEC, continually supports coordination across internal and external stakeholders and cross-cutting programs to develop planning efforts aimed at state policy goals and grid integration, including the state's GHG reduction, EE, renewable energy, energy storage, water efficiency, and clean transportation goals.

These subprograms conduct efforts to increase compliance with existing C&S regulations, to ensure that the State of California realizes the energy savings from new codes and

[75] For program budgets and forecast comparisons, please see CEDARS at this link: **2022 SCE Budget Filing Dashboard - CEDARS (sound-data.com)**.

[76] In December 2022, PG&E identified issues related to 2020 Statewide (SW) Codes & Standards (C&S) annual claims. After discussion with CPUC staff, it was determined that the CEDARS system cannot be reasonably reopened for 2020 program year (PY) claims to allow adjustments to be made inside the system. Due to this limitation, PG&E is reporting the impacts (including impacts to SCE) of the discrepancy in Appendix C of PG&E's 2022 Annual Report. For details on this correction, please refer to PG&E's 2022 Annual Report.

standards, and to support local governments that include reach codes as a climate strategy. They also bring together statewide IOUs and external stakeholders to optimize building decarbonization planning and coordination activities in preparation for future codes.

SCE, as a non-lead PA for Advocacy, collaborated and coordinated with PG&E by reviewing Codes and Standards Enhancement (CASE) studies and comment letters as requested by PG&E. The local subprograms, Compliance Improvement, Reach Codes, and Planning and Coordination, bring together stakeholders to help achieve the State's ambitious decarbonization goals.

The C&S Program continues to move California toward decarbonized, grid-harmonized buildings, and to drive adoption of efficient appliances, distributed energy resources, electric vehicles, and load flexibility, consistent with three other major objectives:

- Carbon reduction targets in 2030 that are 40% below 1990 emissions levels[77, 78]
- A cumulative doubling of statewide EE savings in electricity and natural gas final end-uses by January 1, 2030,[79] to reduce existing building energy usage by 50%, and
- Near-zero-emission building technologies to significantly reduce greenhouse gas (GHG) emissions from buildings,[80] in alignment with Executive Order B-55-18,[81] to achieve carbon neutrality by 2045.

As a cross-cutting EE program, SCE's C&S Program plans and coordinates with the Emerging Technology Program and other EE programs, the Demand Response Emerging Markets and Technology Program, Transportation Electrification programs, and SCE's Transmission and Distribution department to optimize collaboration in support of California's ambitious decarbonization and energy goals, while addressing grid harmonization, load and demand flexibility, building resiliency, and preparing for future code changes.

Key Initiatives

Key initiatives of the C&S Program in 2022 included:

- Training, tools, and resources to support compliance with existing and upcoming codes and standards, and various activities further supporting the all-electric compliance path under 2019 and 2022 Title 24, Part 6.[82]
- Development of new cost-effectiveness studies to support local government reach codes, including tracking local governments' activities in addressing climate

77 AB 398, California Global Warming Solutions Act of 2006: market-based compliance mechanisms: fire prevention fees: sales and use tax manufacturing exemption.
78 Senate Bill (SB) 32, California Global Warming Solutions Act of 2006: emissions limit.
79 SB 350, Clean Energy and Pollution Reduction Act of 2015.
80 SB 1477, Low-emissions buildings and sources of heat energy.
81 California Executive Order B-55-18 To Achieve Carbon Neutrality - State of California, September 10, 2018.
82 Building Energy Efficiency Title 24 Standards.

action plans and adopting reach codes by developing and continuously updating a web-based database.

- Long-term planning and coordination activities, including oversight of the California Building Energy Modeling (CalBEM) consortium,[83] to optimize energy modeling work across California's utilities.
- Coordination of market-readiness activities aimed at preparing specific industries and technologies for future code cycles.

In addition, support began for the CEC's initiatives to move to a more GHG-based metric that promotes electrification and grid harmonization.

Compliance Improvement Subprogram

Program Description

The Compliance Improvement (CI) Subprogram helps make customers aware of and comply with building EE and appliance standards and supports local jurisdictions in improving the effectiveness of their energy code compliance review and oversight role. Compliance improvement activities maximize verified, persistent savings from building codes and appliance standards. The CI Subprogram targets market actors throughout the entire compliance chain, providing education, outreach, technical support, and resources to improve compliance with both building standards (Title 24 Part 6) and appliance energy standards (Title 20).

2022 Strategies and Successes

Throughout 2022, the CI Subprogram continued to employ a systematic approach to mobilize the market throughout building and appliance efficiency supply chains. The three-pronged performance improvement approach addresses the essential elements of behavior change:

- **Training** to provide the knowledge and skills needed to comply
- **Outreach** to increase awareness and motivation, and
- **Tools and resources** to empower people to take the desired actions.

The work accomplished in each area reflects specifically what key market actors have indicated they want and need to improve compliance. This was completed in close collaboration with the CEC, reviewing CI's tool development, statewide course materials, fact sheets, and other resources for accuracy before they are released to the public.

[83] CalBEM California Building Energy Modeling, available at **https://calbem.ibpsa.us**. See also *Planning and Coordination Subprogram* in this chapter, below.

Education & Training Highlights

The statewide training team continued its educational efforts in an almost exclusively online format, delivering more than 221 live courses to more than 6,400 participants, and with an additional 260 people completing Online Self-Study courses. The program achieved an average knowledge swing of 24% and satisfaction rating of 97%.

New CI courses support the provisions included in the 2022 Title 24 standards,[84] including:

- Adding content to a series of topic-specific courses called "Code Breakers," designed to fill a need expressed by various professional associations that seek compact learning seminars for delivery during monthly member meetings. Revisions were made to the initial suite of Code Breaker topics to update with the 2022 code provisions and help support decarbonization:
  - Photovoltaics and battery storage
  - Nonresidential mechanical systems
  - Single-family all-electric, multifamily all-electric, nonresidential all-electric, and accessory dwelling units (ADUs), and
  - Controlled Environmental Horticulture covered processes.
- A course showcasing all-electric nonresidential case study buildings, as a companion presentation to the book of case studies [85] published through subprogram activities early in the year. The course was designed to meet the new Zero Net Carbon Design continuing education requirement for all California architects as part of their biannual license renewal.
- A course to provide in-depth training on Advanced Framing Techniques (also known as Optimum Value Engineering), an approach to framing design that maintains structural integrity while improving the building envelope's performance by reducing the amount of lumber used in wall and roof assemblies.
- A course titled "Introduction to CBECC[86] Energy Modeling Software for Nonresidential Building," aimed at providing training for the use of the CEC's no-cost, open-source energy code compliance software.

The education and training team also:

- Continued delivery of the Plans Examiner and Building Inspector Workshop, the Nonresidential Standards for Architects Workshop, and the EnergyPro software trainings.

84 Cited above, p. 50.
85 California Building Energy Modeling (CalBEM), available at **https://calbem.ibpsa.us/resources/case-study-books**.
86 CBECC: California Building Energy Code Compliance.

- Supported the administration of Certified Energy Analyst (CEA) exams [87] — comprehensive certification examinations for energy modelers that incorporate the latest Title 24, Part 6, material — and the CEA mentoring program, in partnership with the California Association of Building Energy Consultants (CABEC),[88] to facilitate direct knowledge sharing within the industry.
- Provided information to market actors through the EnergyCodeAce.com (ECA) YouTube channel, adding a new video series on how to use the Virtual Compliance Assistant in addition to how to model heat pump water heaters.
- Partnered with the California Lighting Technology Center (CLTC) [89] and the CEC to complete a series of brief videos highlighting various requirements of the 2019 Title 24 lighting standards.[90] The series is hosted on both YouTube and the CLTC site.
- Sent ongoing, targeted e-mail messages to registered Energy Code Ace users promoting training and other offerings.
- Completed a book of case studies to highlight nonresidential all-electric building projects completed within the state of California, providing detailed energy usage statistics and in-depth interviews with the design teams, and began work on an additional volume to showcase multifamily all-electric buildings.

In addition to serving as the gateway to training, tools, and resources, the EnergyCodeAce.com website also facilitates communication between industry and Energy Code Ace experts. EnergyCodeAce.com's user base and activity continue to grow; the number of Energy Code Ace subscribers increased by a third, from 15,000 to over 20,000.

Tools and Resources Highlights

- Launched a new Energy Code Ace website "Collections" feature which groups EnergyCodeAce.com content into roles and code subjects. People can create their own Collections or access one of the curated pre-populated Collections tailored to specific market roles.
- Restructured the Energy Code Ace Training, Tools and Resources landing pages and menus to help improve online wayfinding.
- Worked with subject matter experts and the CEC to update the vast library of existing code resources to incorporate the new 2022 standards, including the following expanded resources in the existing library:
  - Fact Sheets

[87] CABEC Steps to CEA Certification, available at: **https://cabec.org/cea/steps-to-cea-certification/**.
[88] CABEC website, available at: **https://cabec.org/about/**.
[89] UC Davis California Lighting Technology Center, available at: **https://cltc.ucdavis.edu/**.
[90] UC Davis California Lighting Technology Center, available at: **https://www.youtube.com/channel/UCn7ANoMkJSSGnX4c6Fu2Hhw**.

- Trigger Sheets
- Quick Reference Sheets
- Navigator and Installation Ace
- Application Guides, and
- Note Blocks.

- Highlights of new resources added in 2022 include:
  - Developed a series of 2022 Title 24, Part 6 "What's Changed" and "What's New" Factsheets, one set each for single family, multifamily, and nonresidential construction
  - Published electrification fact sheets for realtors and builders, including tools on how to communicate technologies and benefits to prospective buyers and clients
  - Published a brochure spotlighting all of Energy Code Ace's building electrification offerings, and
  - Maintained the 2019 Reference Ace (an online, hyperlinked version of the Title 24 Part 6 Energy standards) while developing an enhanced version for the 2022 standards in preparation for a January 2023 launch.

Collaboration with Partners

The CI Subprogram continued its emphasis on targeted online education content and outreach, specifically through the Energy Code Ace components of the subprogram (EnergyCodeAce.com, webinars, and online trainings). The CI Subprogram also strengthened strategic partnerships with key industry organizations, such as the following, in order to provide their members with training and resources targeted specifically to their needs:

- American Institute of Architects (AIA)
- California Building Officials (CALBO)
- California Association of Building Energy Consultants (CABEC)
- Regional Energy Networks (RENs)
- US Green Building Council (USGBC)
- International Code Council (ICC)
- California Retailers Association (CRA)
- Compressed Air and Gas Institute (CAGI), and
- Passive House California (PHCA).

As part of these efforts, the CI Subprogram:

- Supported AIA California's Climate Action efforts, contributing resource links and information for its microsite and developing and administering quarterly webinars

- Supported the local ICC chapters by providing educational sessions during their annual "Inspection Matrix" all-day training event, and
- Supported local AIA chapters by sponsoring project awards that specifically recognized exemplary projects pursuing energy-efficient, low-carbon designs.

The CI Subprogram maintained a strong presence at industry events and conferences, participating as an exhibitor at over 35 events for Energy Code Ace statewide. Participation included session presentations by subject matter experts, distribution of job-relevant reference materials specific to the audience, and providing specialists at exhibit booths to answer attendees' code-related questions. Highlights included:

- Sponsoring educational sessions on various code topics during the CABEC conference in March, including a first-hand demonstration of the Virtual Compliance Assistant tool
- Providing an exhibit booth and distributing net-zero-carbon case study books during the AIA Los Angeles 1.5 Degree Climate Symposium in March
- Engaging realtor and home-builder audiences with new outreach tools at the Pacific Coast Builders' Conference and at the California Association of Realtors' RE-Imagine Conference, and
- Providing an in-person exhibit booth at the CALBO Annual Business Meeting in May and at the CALBO Education Week events in October.

The CI Subprogram expanded its social media presence in 2022, leveraging multiple platforms to increase awareness about available resources, engage with a broader audience, and to drive more traffic to the Energy Code Ace website and available trainings. Content was posted two to three times per week, featuring upcoming events, highlighted education courses, and other notable resources. In 2022, Energy Code Ace Social Media followers grew from 35 to 130 on Twitter, from under 100 to over 225 on LinkedIn, and from 600 to over 850 on YouTube.

Measure-Specific Work

The CI Subprogram also continued to support Title 20 [91] compliance in 2022 by targeting key measures,[92] conducting needs assessments and developing work plans. Key activities included:

- Developed a newsletter, slides, and flyer for the Hydraulics Institute to promote appliance database certification for commercial and industrial pumps

[91] California 2019 Appliance Efficiency Regulations (Title 20, Public Utilities and Energy, Chapter 4, Energy Conservation, Article 4, Appliance Efficiency Regulations), effective 1/1/2020.

[92] Key measures are defined as those having high savings paired with low compliance, and those that are newly regulated.

- Conducted a survey on behalf of the CEC's Title 20 outreach team to learn how many people are using the archived appliance database, and how frequently, in order to determine if a separate database is necessary
- Connected with major pool pump manufacturers to promote the Energy Code Ace pool pump video series
- Provided distributors with flyers and posters that point customers to Energy Code Ace resources and training, and
- Updated Title 20 standards resources in collaboration with the CEC.

Energy Code Ace subject matter experts authored three articles on lighting topics for *LEDs Magazine*, a nationally distributed industry periodical with a readership of 50,000. Article topics included California Title 24 lighting efficiencies, Controlled Environment Horticulture lighting requirements, and resources to help with compliance.

Reach Codes Subprogram

Program Description

The C&S Reach Codes (RC) Subprogram provides support to local governments that wish to adopt local energy ordinances ("reach codes") that exceed statewide Title 24 minimum requirements for new buildings, additions, or alterations. Reach code support for local governments includes:

- Conducting research and analysis to establish performance levels and cost effectiveness relative to fundamental Title 24, Part 6 (Energy) and Part 11 (CALGreen) requirements by climate zone
- Drafting model ordinance language to encourage consistency and minimize duplication
- Providing assistance for completing and expediting the application process required for approval by the CEC, and
- Supporting ordinance implementation once proven effective.

Many local jurisdictions have established goals within their Climate Action Plans to reduce building energy use and GHG emissions by adopting and implementing local energy ordinances. This has translated to unprecedented interest in reach codes as a policy tool to achieve those goals.

In recognition of the high priority of reducing GHG emissions, focus is shifting from solely reducing energy use to reducing carbon emissions associated with energy use. This shift has resulted in increased interest in building electrification, both at the local and state level. The 2019 Title 24 standards created an all-electric baseline for low-rise residential new construction, which allows all-electric designs to readily comply with and exceed the

code, and this change to the state code created a path for local jurisdictions to accelerate emissions reductions in new construction.

At the local level, most jurisdictions are selecting one or a combination of the following ordinance structures, applied by building use type:

- All-Electric: Restricts new construction to all-electric designs only. May be structured as an amendment to Title 24, Part 6 (the Energy Code), or an amendment to a different part of the building code, the health and safety code, or any other municipal code that prohibits new natural gas infrastructure.
- Electric Preferred: Requires mixed-fuel designs to exceed the code, and requires all-electric designs to merely comply with the code.
- Electric-Ready: Requires mixed-fuel designs to install conduit and wiring to easily enable future conversion to electric equipment.

Some jurisdictions are pursuing measure-based reach codes, such as requiring sustainable or cool roofs or photovoltaic (PV) systems on nonresidential projects, but most are assembling a pro-electrification package targeting the whole building. In addition, many jurisdictions adopted reach codes accelerating the requirements for electric vehicle charging infrastructure in new buildings.

2022 Strategies and Successes

In 2022, throughout California, approximately 50 jurisdictions adopted reach codes, including the following jurisdictions in SCE's service territory:

- The City of Santa Monica updated its previous electrification ordinance, found in its municipal health and safety code. The previous ordinance provided an electric-preferred option for all new residential and non-residential construction, meaning that energy-efficiency requirements were lower for all-electric buildings than for mixed-fuel (gas and electric) buildings. The revised ordinance requires all new residential and non-residential construction to be all-electric, except for junior and attached Accessory Dwelling Units (ADUs). There is also a public interest exemption for commercial restaurants, institutional cooking, medical uses, and laboratory equipment.

  The City's reach code also exceeds the California Green Building Standards Code (CALGreen) requirements, by increasing the quantity of electric vehicle-charging infrastructure required in newly constructed buildings.
- The County of Ventura passed an electrification reach code for new construction, with exceptions for fireplaces, fire pits, outdoor grills, pool and spa equipment, and emergency generators.

- Although not in SCE's service territory, the Cities of Pasadena, Glendale, and Riverside passed all-electric reach codes in 2022. SCE provided technical assistance to these jurisdictions, including custom cost-effectiveness reports.

Throughout the year, the Reach Codes Subprogram's work to support the jurisdictions pursuing reach codes included analysis and report development, technical support, reach code resource accessibility improvements, and other activities.

Reach Codes Subprogram activities fall into two main categories, with details given below: Direct Technical Support and Resources, Communications, and Events.

Direct Technical Support

Cost-Effectiveness Studies

The IOUs shared resources in 2022 to complete the following studies:

- New Single-Family Residences, Including Accessory Dwelling Units (ADUs), and
- New Non-Residential Buildings.

Supporting Documents

In addition to developing new cost-effectiveness reports, the Reach Codes Subprogram, independently and in collaboration with other organizations, supported reach code adoption by creating supplemental support documents. Beginning from a common core helps to support consistent code language across jurisdictions with similar objectives. The RC Subprogram continued partnering with the Building Decarbonization Coalition and Community Choice Aggregators (CCAs) to support jurisdictions through events, resources, and training, while being careful to avoid overlapping efforts.

Cost-Effectiveness (C/E) Explorer

The California energy code is complex, and many people responsible for adopting local reach codes do not regularly work with it. In addition, many components of both the economic and technical analyses associated with the California energy code can be difficult for a lay person to understand. Although the cost-effectiveness studies provide all data sorted by climate zone, it can still be challenging to identify the appropriate data for an individual jurisdiction. The C/E Explorer simplifies the process, allowing municipal staff to easily select and view only the jurisdiction-specific, relevant results for specific policy options of interest.

Phase 1 of the C/E Explorer, launched in October 2020, allows users to easily access results for their jurisdiction and to format, share, or download a report documenting the results. The C/E Explorer interface includes a multi-level pop-up help system that provides details about each input field, including definitions, measure descriptions, and assumptions. Users may also sort results to highlight specific metrics of importance to their jurisdiction.

Resources, Communications, and Events

LocalEnergyCodes.com Website Refresh

Local interest in reach codes continued to accelerate throughout 2022, fueled by the desire to decarbonize the building sector. As jurisdictions began expanding the scope of ordinances beyond Title 24, Part 6, they sought input from a more diverse community.

- To support improved outreach efforts and remain a trusted resource in this growing area, the RC Subprogram continued to support the LocalEnergyCodes.com website. Throughout the year, the number of site subscribers grew approximately 7% (from 429 to 461 subscribers).
- The RC Subprogram continued to support the Local Ordinance Map, an interactive map of California that allows users to search geographically or by Reach Code Path:
  - At the individual jurisdiction level, the map provides a brief summary of an ordinance's scope and requirements, and users may download the ordinance text and the staff report that was presented at the public adoption meeting.
  - The map is accompanied by a matrix listing the information contained in the map to allow users to view the information in a different format. This saw an average of 450 downloads per month in 2022.
- In addition to fostering stakeholder engagement through the website, the RC Subprogram continued publishing the *Reach Codes News Brief* monthly newsletter throughout the year. The *News Brief* offers insight into the rapidly evolving reach code landscape and highlights "frontrunner" cities that are leading the way. On average, more than 440 subscribers received the newsletters each month via e-mail.
- The RC Subprogram continues to develop its social media presence and maintains a Twitter account where the program posts content two or three times weekly. The California Local Energy Codes Twitter page (@ca_codes) continues to grow and now has more than 125 followers.

SCE Reach Codes Website Launch

In November, 2022, SCE launched its Reach Codes website. This site provides city and county staff education on reach codes and links to further resources.

Conferences and Events

The RC Subprogram presented and participated in several conferences and held several technical webinars in 2022:

- A monthly reach codes coordination meeting attended by local jurisdictions, regional organizations including Regional Energy Networks (RENs), Community

Choice Aggregators (CCAs), and staff from the California Energy Commission (CEC) and the California Air Resources Board (CARB), averaging 41 attendees, approximately 35% more than the 2021 average of 30 attendees.

- A Reach Codes Newcomers Series Webinar (Five Sessions): Following a request for additional support from jurisdictions new to the reach codes process, the RC Subprogram reached out to the Bay Area Regional Energy Network (BayREN), the California Climate and Energy Collaborative (CCEC), and the Building Decarbonization Coalition (BDC), and collaboratively developed and hosted a series of webinars. The webinars garnered more than 300 unique registrants and averaged 95 participants in each session.
    - January 2022, Session 1: Introduction to Reach Codes, 119 participants
    - February 2022, Session 2: Reach Codes Process and Timings, 94 participants
    - March 2022, Session 3: Cost-effectiveness Analyses, 98 participants
    - April 2022, Session 4: Reach Code Ordinance Options, 99 participants, and
    - September 2022, Session 5: Implementation, 64 participants.

    Since website tracking reporting was updated in April (significantly after most of the Newcomers Series webinar sessions occurred), the webinar presentation pages have been viewed 716 times and presentations and recordings have been downloaded 177 times with 80 views on the Local Energy Codes YouTube channel.
- The RC Subprogram also hosted the following webinars:
    - Webinar, January 2022: *Designing Flexible Path Reach Codes with the Cost-Effectiveness Explorer*. This webinar focused on the Flexible Compliance Path ordinance structure targeting opportunities to decarbonize existing residential buildings, and was attended by 60 participants. Since tracking began in April, the webinar page has been viewed 29 times and the materials downloaded eight times.
    - Webinar, May 2022: *Results & Findings: Single Family New Construction Cost-Effectiveness Study*. This webinar presented the preliminary results from the 2022 Single Family New Construction cost-effectiveness analysis, and was attended by 48 participants. The webinar page has been viewed 264 times and the materials downloaded 85 times.
    - Webinar, May 2022: *Draft Results: Nonresidential New Construction Cost-Effectiveness Study*. This webinar presented the preliminary results from the 2022 Nonresidential New Construction cost-effectiveness analysis, and was attended by 41 participants. The webinar page has been viewed 131 times and the materials downloaded 61 times.
    - Webinar, July 2022: *Draft Results: Multifamily New Construction Cost-Effectiveness Study*. This webinar presented the preliminary results from the

2022 Multifamily New Construction cost-effectiveness analysis, and was attended by 45 participants. The webinar page has been viewed 164 times and the materials downloaded 23 times.

- Webinar, August 2022: *Designing Local Policies with the Cost-Effectiveness Explorer*. This webinar, attended by 23 participants, showcased the implementation of the Explorer's policy design process which allows users to save and share policies, and also provided study results. The webinar page has been viewed 68 times, and the materials downloaded seven times.

- Cross-promotions: The team also promoted webinars, trainings, and conferences hosted by others throughout the year, advertised events in the *Reach Codes News Brief*, posted Energy Updates on the LocalEnergyCodes.com Home page, and advertised more than 60 external events on the LocalEnergyCodes.com Events page.

Planning and Coordination Subprogram

Program Description

California's increasing commitment to energy-efficient building, decarbonization, and grid harmonization has resulted in a growing number of state policy goals, expressed in Executive Orders, legislative bills, and state agency action plans. California is currently at the forefront of a fundamental power system transformation toward a cleaner, more diverse "plug and play" grid that integrates an ever-growing set of distributed energy resources and technologies, including demand response (DR), electric vehicle (EV) infrastructure, photovoltaic (PV) systems, and battery and thermal energy storage. Specific emphasis is placed on energy-efficient building decarbonization and grid flexibility, to support the state in achieving its "bold clean energy" goals.

SCE's Planning and Coordination (P&C) Subprogram[93] has led the way in meeting California's challenging and urgent decarbonization goals by integrating and coordinating zero-net-emission and all-electric buildings with various programs and grid harmonization activities — including, but not limited to, the Emerging Technologies and Residential New Construction programs, and Transmission & Distribution (T&D) planning and forecasting — as envisioned by the CPUC in its Decision (D.)12-05-015.[94]

Since SCE's creation of the California Building Energy Modeling (CalBEM) consortium,[95] Building Energy Modeling (BEM) coordination has been a key part of the P&C subprogram that supports four key areas:

- Oversight and financial support for CalBEM

[93] SCE's Planning and Coordination subprogram is similar to PG&E's Code Readiness and Planning and Coordination subprograms combined.

[94] D.12-05-15, *Decision Providing Guidance on 2013-2014 Energy Efficiency Portfolios and 2012 Marketing, Education, and Outreach*.

[95] CalBEM, available at: **https://calbem.ibpsa.us/**.

- Code baseline simulation
- Grid impacts simulation, and
- Alternative metrics research.

CalBEM coordinates with the California Energy Commission (CEC) to manage and support updates and changes to Title 24 compliance software (except for CASE-driven compliance support, which is a part of the Statewide Advocacy activities led by PG&E).

The scope of the P&C Subprogram continues to expand to help quantify and understand the grid impacts of existing codes and proposed code changes, focusing on energy-efficient building, decarbonization, and grid harmonization.

2022 Strategies and Successes

The P&C Subprogram has taken a lead role in coordinating the various Codes & Standards-related efforts across the company necessary to support customers and the building industry in effectively meeting the state's GHG reduction and grid flexibility goals.

Decarbonization

- As part of P&C's support of the Advanced Water Heating Initiative (AWHI), the subprogram is funding the development of a project tracking database of AWHI member projects, to be housed on the ETCC-CA.com website.
- P&C, Sacramento Municipal Utility District (SMUD), and PG&E are working together on a 120-volt (V) heat pump water heater (HPWH) field study currently in progress, conducted at 32 sites. Initial data indicates that 120V HPWHs are operating two to five times more efficiently (in the coefficient of performance [COP] range from 2 to 5) than gas tank water heaters, and draw 3 to 5 amps. Therefore, this new product can replace an existing gas water heater using an existing 120V receptacle, allowing for easier adoption in existing buildings.
- P&C and SMUD jointly developed a central heat pump sizing tool for multifamily buildings. This free software tool, called "EcoSizer," educates and supports the building industry to adopt HPWHs in multifamily buildings. The software provides a significant improvement over existing industry sizing methods, in understanding central HPWH limitations per available configurations, and allows load shift design considerations.
- P&C, Emerging Technologies Program (ETP), Emerging Markets & Technologies (EM&T), manufacturers, Air Conditioning Heating & Refrigeration Institute (AHRI), Northwest Energy Efficiency Alliance (NEEA), and other organizations worked together to implement various energy management strategies for demand flexible water heaters ranging from 40 gallons to 120 gallons that would be installed in residential and small commercial applications. As a result, AHRI 1430 was approved in December 2022. This standard promotes standardized communication requirements for demand flexible water heaters, and manufacturers

will now be able to certify and list water heating products that comply with the CEC's Joint Appendix (JA) 13 requirements such as the Consumer Technology Association (CTA) 2045B standard.

- P&C staff participated with various working groups regarding advanced heat pumps for space heating and cooling, including the Advanced Heat Pump Coalition (AHPC), a group of utility and EE parties with a common objective of supporting the rapid adoption of advanced heat pump space heating and cooling systems. SCE's P&C staff participated in discussions between AHPC and heat pump manufacturers to determine how advanced heat pump market share can be increased. P&C staff also worked with the AHPC to develop a scope of work for field testing heat pumps to obtain more performance data. In 2022, the Coalition initiated field testing in Nebraska as well as lab testing. The U.S. Dept. of Energy (DOE) recently issued a Request for Information (RFI) on test procedures for central air conditioners and heat pumps.
- In 2022, P&C engaged with the California Air Resource Board (CARB), the California Electric Transportation Coalition, and SCE's transportation electrification team:
  - To establish electric vehicle (EV) parking space requirements and electric vehicle supply equipment (EVSE) installation requirements in CalGREEN, and
  - To explore alternative code options, since direct current (DC) fast-charging stations would reduce the number of available EV parking spaces.
- P&C and CARB also explored ways to require EV parking spaces and EVSE installation in existing parking spaces, in addition to having EVSE in assigned parking spaces for rental properties, addressing an aspect of equity challenges. As a result, Section 11 of Title 24 has been updated to require more EV parking spaces.

Grid Harmonization

- In 2022, P&C led quarterly coordination meetings with SCE Transmission & Distribution (T&D) stakeholders to provide continuous feedback loops of inter-related policies and workstreams to inform T&D planning activities that support reducing readiness barriers. P&C continued to coordinate with T&D on workstreams related to the following areas:
  - Electrification Load Forecasting (a bottom-up approach to understand how building electrification [BE] will impact load forecasts for existing communities targeted for electrification and for communities with all-electric new construction)
  - Electrical Distribution Design Standard analysis, and
  - Foundational Electrification Load Profile Analysis.

- In 2022, P&C collaborated with T&D in preparation for the update to Title 24 that took effect January 1, 2023, which required residential new construction to be all-electric-ready. Recommendations on residential distribution design for all-electric-ready new construction were informed by P&C's foundational load profile analysis work.
- In 2022, P&C began developing Bottom Up Grid Model Advanced Profiles (BUGMAP) to understand how electrification will impact the grid and to support load forecasting, which will proactively support the adoption of electrification and load control measures.
    - BUGMAP begins with the characterization of the customers on a given circuit.
    - Residential characterization distinguishes between home size, vintage, and climate zone, while commercial characterization adds the dimensions of building type and customer use cases.
    - Each customer is assigned a representative baseline load profile determined from the Foundational Load Profiling work.
    - Assumptions are added to account for diversity impacts and the models are calibrated to the observed conditions on the grid.
    - Changes are then made to the models representing various measure adoption scenarios (e.g., 40% BE adoption) and the potential impacts are recorded.
- In coordination with the T&D Grid Technology Innovation team, P&C produced a Grid Harmonization Roadmap that laid out an action plan for P&C to help increase the amount of flexible demand-side loads that can integrate smoothly with SCE's electric grid operations and renewable generation. The Roadmap is meant to provide high-level vision and direction to assist P&C in identifying concrete projects that can be pursued in coordination with stakeholders. It identifies and prioritizes potential projects that P&C can pursue (over periods of 1 to 2 years, 3 to 5 years, and 6 to 10 years) toward achieving these objectives in alignment with SCE's *Pathway 2045* and *Reimagining the Grid* whitepapers (SCE, 2019 and 2020).
- P&C's coordination objectives include monitoring for opportunities to leverage SCE's Emerging Markets & Technologies (EM&T) program's dynamic rate pilots to provide data in support of the CEC's load management standards and to harmonize the development of the CEC's Joint Appendix (JA) 5 for the 2022 Building Codes. P&C also included EM&T projects in P&C's Grid Harmonization Roadmap and other roadmaps being developed. These activities help realize the state's vision for major initiatives that cut across proceedings and internal groups.

- In 2022 during Phase 1 of the Building Electrification Resiliency Study, P&C identified aspects of resiliency related to building electrification and equity. Many Phase 1 study findings were presented by P&C staff and SCE management at the American Council for an Energy-Efficient Economy (ACEEE) 2022 Summer Study, at the United Nations 27th Conference of Parties (COP 27), and other conferences. The P&C team also contributed to Edison International's *Adapting for Tomorrow: Powering a Resilient Future* whitepaper to identify touchpoints between the two efforts.

Strategic Planning and Coordination

P&C led California Building Energy Modeling (CalBEM) coordination among various stakeholders, including CEC and CPUC. Currently, there are three working groups within CalBEM: [96]

- Working Group 1: Creating a Streamlined Building Energy Modeling (BEM) Process:
  - The Prototypes Technical Advisory Group (TAG) is a subgroup within Working Group 1 that aims to facilitate collaboration with CPUC, CEC, and other key stakeholders on California building energy modeling prototype work and related processes. TAG seeks to evaluate, improve, and consolidate California prototypes and related processes to meet CPUC and CEC current and future needs. In 2022 the group developed a characterization of statewide residential stock and made recommendations on single-family prototype development.
  - TAG discussed bottlenecks in building energy modeling (BEM) software development and ways to simplify the prioritization and implementation process for new features and measures. The group has taken several action items to turn these discussion points into industry changes benefiting BEM stakeholders in 2023.
  - TAG initiated a project in 2022 to investigate if the performance rating method (PRM) approach would be viable within the CEC's California's Building Energy Code Compliance (CBECC) compliance software. The project seeks to develop a research version of PRM and analyze potential impacts to code compliance in California.
- Working Group 2: Developing BEM Education and Resources:
  - In order to identify education priorities, this working group developed a whitepaper in 2022 to define common uses for BEM and identify typical roles of people who perform BEM.

[96] CalBEM Fall 2022 Activities, available at: **https://calbem.ibpsa.us/working-groups/**.

  - P&C supported the group's development and launch of the BEMcyclopedia, a wiki-based webpage that covers essential BEM concepts. The goal is to raise the baseline understanding on how buildings work, how to create models, and how to use the output of the model.
- Working Group 3: Advancing BEM Capabilities and Metrics:
  - The group had discussions on the future of the Alternative Calculation Method (ACM) Reference Manuals and CBECC Software enhancements and measure selection process.
- P&C staff organized a face-to-face meeting with the CEC Standards staff on July 19, 2022, to confirm the CEC's valuation of SCE's "non-advocacy" support for the development of building and appliance codes.
- In response to a request by the CEC, P&C began coordinating the development of a whitepaper to update the California Utility Allowance Calculator that would better support electrification in low-income housing by allowing more rent to be charged based upon the reduction of energy bills due to higher levels of energy efficiency, electrification, and distributed energy resources (DERs).
- P&C staff participated in the CEC Workshop of Load Management Rulemaking. The outcome of the Rulemaking may potentially provide for better management of load on the electric grid that could both increase load capacity and minimize grid expansion, which in turn could result in lower rates and fewer disruptions.
- P&C continued to provide oversight and support of SCE's development of alternate energy metrics for the CEC toward possible replacement of the Time Dependent Valuation (TDV) metric that is in current use. The purpose of an alternate energy metric is to align more closely with greenhouse gas (GHG) reduction efforts.
- P&C began scoping a study to take inventory of all known Building Performance Standards (BPS) programs in the U.S., assess their attributes, and determine their suitability for reach codes as well as for a statewide policy. The CEC and many jurisdictions have expressed an interest in adopting BPS as an ordinance, with Chula Vista recently passing such an ordinance.

Program Coordination

- Through the Emerging Technologies Coordinating Council (ETCC), P&C sponsored the following webinars for ETCC members on current Decarbonization topics in 2022:
  - CEC's Electric Program Investment Charge (EPIC) Program leads presented technologies for low-income and disadvantaged communities (DAC) programs (January 2022)

  - SCE presented the features of its Building Electrification Application (April 2022), and
  - ChargerHelp! presented its mission of maintaining 97% of electric vehicle charging stations, discussing how it addresses equity through local workforce education and job creation as preparation for the rapidly emerging EV market in California (September 2022).

- P&C provided support to the development of the SB 1477 BUILD (Building Initiative for Low-Emissions Development) program that was signed into law in 2018 to address building decarbonization. This included extensive project coordination with CEC staff to align the BUILD program with the 2019 Title 24 requirements which establish the baseline for GHG emissions. In 2022, P&C continued to coordinate technical support for the BUILD program to provide parametric energy modeling for mid- and high-rise buildings to identify all-electrification packages that would reduce energy bills as compared to a mixed fuel building.
- In 2022, P&C staff continued to participate in the quarterly ZNE (Zero Net Energy) / Decarbonization Evaluation, Measurement & Verification (EM&V) Project Coordination Group with Energy Division staff to discuss various decarbonization and electrification issues and research projects. Recent efforts included a study on whether California could reduce electric feeder loads by incorporating passive home strategies.
- In 2022 P&C continued tracking SCE program activities that can support equitable electrification. This included transportation electrification (TE) projects that may provide lessons for jurisdictions interested in TE reach code development.
- The U.S. Environmental Protection Agency (EPA) released the first version of the ENERGY STAR™ Commercial Electric Cooktops Specification on Nov. 10, 2022. EPA directly contacted SCE's Foodservice Technology Center, through the P&C subprogram, to request testing for 14 commercial electric cooktops per American Society for Testing and Materials (ASTM) Standard F1521-12 to determine their cooking (boiling) energy efficiency and production capacity. In 2022, SCE conducted the requested tests and provided the dataset to the EPA, which used it to propose new EE specifications. SCE was recognized as a contributor for this appliance specification development. This is an example of P&C's involvement in code preparedness through engaging and conducting various research data collection efforts for advancing codes, test procedures, and standards.
- In consideration of the increasing adoption of electrified end-uses anticipated to result from the adoption of the 2022 Title 24 Part 6 California Energy Standards and future electrification-favorable codes and state programs, SCE developed the Building Electrification Academy. The intent of this initiative is to provide a

foundational working knowledge of electrified building end-use technologies for customer-facing, frontline SCE employees, relevant to their specific job function and responsibilities. This will better equip SCE staff to navigate project needs and help customers achieve their building electrification and carbon reduction goals in alignment with energy codes and state programs encouraging the installation of heat pumps. In 2022, SCE convened a group of internal subject matter experts to meet with an instructional designer to develop curriculum in four major areas: Building Electrification Essentials, Residential Electrification, Non-Residential Electrification, and Customer Assistance.

- The Architecture at Zero competition, now in its twelfth year, was conceived as a response to the Zero Net Energy targets set out by the CPUC. P&C, working with the Workforce Education & Training (WE&T) program and with support from partner IOUs, participated in the planning, delivery, and evaluation of the competition, guiding the technical submission requirements, and providing support to the competition jury in the form of energy metrics review and scoring. The 2021-2022 competition challenged entrants to develop affordable housing for farmworker families in Visalia, California, in one of the world's most productive farming regions.
- The P&C team engaged with an app developer to create a unique educational experience, accessible by smartphone or Virtual Reality (VR) headset, to highlight key energy code efficiency and decarbonization measures in an engaging way that would help a broad array of stakeholders, such as residential builders, better understand them. In 2022, SCE completed development of the apps and launched them at the Tulare International Agriculture Exhibition in April. Further development included breaking the experience down into modules to make it easier to navigate portions of the experience. The VR headsets were deployed at over a dozen industry and community events.

Code Harmonization

- P&C led two projects for conducting central HPWH field evaluations in Delano and Santa Barbara:
  - The Delano project site, developed by the County of Kern Housing Authority for low-income families, has five buildings consisting of one-, two-, and three-bedroom units. Construction was completed in late 2022 and the site is occupied. Central HPWH performance data will be collected for a year and will be used to validate the EcoSizer software tool, funded and developed by SCE and SMUD, for modeling 8760 hourly energy performance curves.
  - The second site, in Santa Barbara, is a 29-unit subsidized homeless housing development. The construction is expected to be completed in early 2Q 2023. This site will have a different central HPWH configuration, called a "swing tank," with different temperature strategies deployed. P&C will collect the

operating performance data and efficiency level variations and assess the adequacy of system design compared to the ASHRAE 90.1 standard and EcoSizer.

- P&C continued participating as a member of the ASHRAE/USGBC/IES Standing Standard Project Committee (SSPC) 189.1 Standard for High-Performance Green Buildings Except Low-Rise Residential Buildings, and a member of Working Group 7.5, Energy Performance, Marginal Emissions Task Group.
    - This Task Group was formed to update the CO_2e[97] emission rates and source energy conversion factors that will be included in the 2023 version of Standard 189.1. Since SCE has funded and jointly directed the development of the CEC hourly source energy conversion factors, the Task Group has become a national forum to bring together the leading entities that are developing and supporting forecasted hourly carbon emissions factors being proposed for building energy codes.
    - P&C staff participated in various other Working Group 7.5 discussions relating to GHG emissions (e.g., 20-year life vs. 100-year life for methane), energy simulations for PV, alternate performance compliance approaches, and outcome-based codes compliance pathways.
    - P&C staff also participated with a subgroup of SSPC 189.1 to update the requirements for daylighting and views to the outside, and with various daylighting experts submitted a list of needs for further research for ASHRAE to improve the daylight availability in buildings.
- P&C staff participated in several of the ASHRAE Task Force on Building Decarbonization Working Groups. The purpose of this Task Force is to set a unified direction for how ASHRAE will approach building decarbonization across their standards, guides, guidelines, and ongoing strategies. P&C staff:
    - Helped kick off the development of the "Grid Interactive Buildings for Decarbonization: Design and Operation Resource Guide," and
    - Continued coordination between ASHRAE Region X and the CEC regarding the update of the design temperature tables that mostly rely on 1970s weather data. In most cases, the updated weather data will reflect more extreme weather conditions to better reflect energy usage of higher-efficiency heating and cooling equipment and the proper sizing of heat pumps and associated supplemental heat capacity. As a result of this coordination, additional scope that the CEC added to update hourly weather files has been completed.

In 2022, in response to an inquiry from CARB, P&C completed a survey of 2,014 consumers throughout California to help understand how California consumers perceive

[97] CO_2e = carbon dioxide (CO_2) equivalent.

electric alternatives to gas home appliances and how knowledgeable they are about the benefits of transitioning from appliances that use fossil fuels to clean, electric alternatives. Information gathered via the consumer awareness survey will inform the prioritization of appliance electrification efforts and development of new construction building standards. The sample was demographically balanced by key variables including age, gender, race/ethnicity, education, region, and housing type.

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8. Emerging Technologies Programs

In 2022, SCE offered two programs related to emerging electric technologies:[98]

- The Local Emerging Technologies Program (ETP), and
- The Statewide Electric Emerging Technologies Program (SWEETP).

SCE's Local Emerging Technologies Program (ETP) supports the California Investor-Owned Utility (IOU) Energy Efficiency (EE) programs in their achievement of aggressive objectives through three subprograms:

- The Technology Assessment subprogram identifies and assesses the performance of emerging EE technologies and solutions that may be offered to customers with an incentive.
- The Technology Development Support subprogram promotes efforts to increase technology supply by educating technology developers about technical and programmatic requirements for rebated (incentivized) measures.
- The Technology Introduction Support subprogram supports efforts to introduce technologies to the market by exposing end users to applications of emerging technologies in real-world settings, and by using third-party projects to deploy technologies, on a limited scale, in the market.

SCE's Local ETP program was closed to new project commitments in early 2022, with the launch of the new Statewide Electric Emerging Technologies Program (SWEETP). SCE's local ETP program continued efforts to complete remaining project commitments and is on track to complete program operations by the end of 2025.

Technology Assessment Subprogram

Subprogram Description

Through its Technology Assessment (TA) element, a historical core function of providing critical support to EE programs, the ETP evaluates the performance claims of EE technologies that are new to the market, or underutilized for a given application, for overall effectiveness in reducing energy consumption and peak demand. A key objective of these assessments is the adoption of new measures into SCE's portfolio. Data from different sources and program tactics may be used to support assessment findings, including *in situ* testing (conducted at customer or other field sites), laboratory testing, or paper studies. In addition to other findings, assessments typically generate some of the data that EE incentive programs can use to construct a customized offering or deemed Measure Package (workpaper), estimating energy and demand savings over the life of the measure.

[98] For program budgets and forecast comparisons, please see CEDARS at this link: **2022 SCE Budget Filing Dashboard - CEDARS (sound-data.com)**.

Strategies Implemented in 2022

In 2022, the Technology Assessment subprogram implemented the following strategies to support completion of remaining project commitments:

- Produced reports describing TA results, conclusions, and recommendations. Some of the assessment projects completed in 2022 include electrochromic window film, commercial foodservice holding bins, all-electric residential Zero Net Energy (ZNE) home assessment, and refrigerated display case air-curtain guiding vanes.
- Transferred TA results to EE program stakeholders, with technology study results successfully transferring to deemed (rebated) measures and customized (incentivized) measures. SCE held completion meetings with relevant stakeholders to disseminate findings from completed projects in 2022.
- Shared technology information, such as distributed energy resources in office buildings, low global warming potential refrigerants for commercial HVAC, and decarbonizing commercial water heating systems, through the virtual Emerging Technologies (ET) Summit 2022.
- Coordinated development of webinars with the Emerging Technologies Coordinating Council (ETCC) [99] on various topics for the commercial building, industrial, agricultural, and residential sectors.

Technology Development Support Subprogram

Subprogram Description

The Technology Development Support (TDS) subprogram assists private industry in developing or improving technologies. Although product development — the process of taking an early-stage technology or concept and transforming it into a saleable or marketable product — is the domain of private industry, there are opportunities where IOUs are well-qualified, or in a strong position, to undertake targeted, cost-effective activities supporting private industry product development efforts. This support decreases innovators' uncertainties and allows SCE opportunities to influence the new technologies as they are developed.

Strategies Implemented in 2022

In 2022, SCE implemented the following strategies for the TDS Subprogram. These activities were focused on supporting the completion of remaining project commitments:

- Collaborated with industry directly and through partners such as the Western Cooling Efficiency Center (WCEC), the California Lighting Technology Center (CLTC), the California Plug-Load Center (CalPlug), and the Electric Power

[99] Emerging Technologies Coordinating Council, available at: **https://www.etcc-ca.com/about-etcc**.

Research Institute (EPRI) to provide targeted support for technology development.

- Collaborated with innovators from universities and other research institutions such as Lawrence Berkeley National Labs, University of California at Irvine, University of California at Davis, California Institute of Technology (CalTech), and others.
- Supported early-stage technology companies through membership in the CalTech RocketFund Program.[100]
- Completed projects and disseminated findings to stakeholders. Some projects completed in 2022 were:
  - Residential Water Heating Cost Comparison Tool, and
  - All Electric Homes for a Clean Energy Future, a project whose primary goal was to show the feasibility of building all-electric homes for incorporation into an all-electric community in Southern California, cost-effectively and within the building code.

Technology Introduction Support Subprogram

Subprogram Description

The Technology Introduction Support (TIS) subprogram supports the introduction of new technologies to the market, on a limited scale, through several activities:

- Scaled Field Placement (SFP) projects place measures at a number of customer sites as a key step toward gaining market traction and feedback. Typically, these measures have already undergone an assessment to reduce risk of failure. Monitoring activities on each scaled field placement are determined as appropriate.
- Demonstration and Showcase (D&S) projects are designed to provide key stakeholders the opportunity to "kick the tires" on proven combinations of measures that advance Zero Net Energy (ZNE) goals. D&S projects introduce measures at a systems level to stakeholders — the general public or a targeted audience — in real-world settings, thus creating broad public and technical community exposure and increased market knowledge.
- Market and behavioral studies are designed to perform targeted research on customer behavior, customer decision-making, and market behavior to gain a qualitative and quantitative understanding of customer perceptions, customer acceptance of new measures, and market readiness and potential for new measures.

[100] Cal Tech Rocket Fund, available at: **https://rocketfund.caltech.edu.**

Strategies Implemented in 2022

In 2022, SCE implemented the following strategies for the TIS subprogram:

- Conducted TIS projects in support of measure development
- Implemented SFP and D&S projects in actual field conditions, with proper COVID-19 safety precautions in place, and
- Performed primary or secondary research, as necessary, to gain market insights on technologies.

Other Notable ET Program Activities in 2022

- In collaboration with ETCC leadership and partners, the local ETP Program successfully conducted a virtual ET Summit 2022, which attracted 351 unique attendees over two days.[101]
- Collaborated with the ETCC, which includes the California Energy Commission (CEC) and the other IOUs, on various program-related activities, such as technology research and ETCC outreach webinars. The CEC's project interests encompass technology research and development, commercialization, and market facilitation, while the IOUs are interested in commercially available technologies that can be offered through customer programs as incentivized measures.

Statewide Electric Emerging Technologies Program

Program Description

The Statewide Electric Emerging Technologies Program (SWEETP) supports the advancement of knowledge technology performance, market knowledge and characteristics, and effective program interventions. SWEETP's vision is to identify and bring commercially available technologies promptly to the EE program portfolio by determining the latest emerging technology trends. It is important for SWEETP to be at the forefront of these trends because it allows SWEETP to identify, prioritize, and vet these technologies, products, and solutions through a variety of program tactics to:

- Assess and confirm their potential energy savings and operational performance
- Help estimate measure cost-effectiveness
- Identify potential barriers to market adoption, and
- Recommend promising technologies, solutions, and market interventions.

SWEETP supports the California IOU EE portfolios in identifying and evaluating promising innovations and delivery mechanisms to help drive energy and demand savings across the portfolio. This program includes the following components:

- Scanning and Screening

[101] ET Summit 2022, available at: **https://www.etcc-ca.com/summits/2022.**

- Planning and Prioritization
- Focused Pilots
- Workpaper Development
- Dissemination, and
- Technology Transfer.

Strategies Implemented in 2022

Following CPUC approval of Advice Letter (AL) 4607-E[102] on November 24, 2021, SWEETP was launched in May 2022. In the first year, the program implemented the following strategies:

- Planning and Prioritization:
  - Completed Technology Priority Maps (TPMs) which drive research priorities across six technology categories: HVAC, Lighting, Plug Loads & Appliances, Process Loads, Water Heater, and Whole Buildings.
  - Held technology-focused webinars to disseminate technology priorities to stakeholders.
  - Held collaboration meetings with the Gas Emerging Technologies Program to reduce duplication of efforts and streamline common program activities.
- Scanning and Screening:
  - Conducted broad outreach to stakeholders through program events to drive high-quality submissions.
  - Reviewed and selected project submission ideas on a quarterly cadence.
  - Identified project opportunities to target disadvantaged communities and hard-to-reach customers.
  - Developed project plans for technologies that aligned with TPMs.
- Technology Research:
  - Launched several projects to support different end uses and market segments. Some of these projects include occupancy-based thermostats for commercial offices, residential multi-function heat pumps, and all-electric commercial kitchen electrical requirements.
  - Completed and disseminated project findings to key stakeholders through a variety of channels, such as webinars, social media, the program website (ca-etp.com), and outreach events.
  - Launched planning activities for a Technology Focused Pilot.

[102] Advice Letter (AL) 4607-E, *Southern California Edison Company's Advice Letter for Approval of Statewide Electric Emerging Technologies Energy Efficiency Third Party Contract with Cohen Ventures dba Energy Solutions.*

9. Workforce Education & Training Program

The Statewide Workforce Education and Training (WE&T) Program is a comprehensive initiative focused on education, training, and workforce development, which is funded by or coordinated with the Investor-Owned Utilities (IOUs). The portfolio encompasses one SCE-administered local subprogram and two statewide subprograms administered by Pacific Gas & Electric Company (PG&E):[103]

- WE&T Integrated Energy Education and Training (IEET)
- Statewide WE&T Career Workforce Readiness (CWR), and
- Statewide WE&T Connections.

In 2022, the WE&T Program continued to enhance its offerings, guided by program evaluation and study recommendations. To do this, SCE collaborated with a diverse set of stakeholders, professional and trade organizations, government agencies, and other education and training providers. These efforts were concentrated on three (3) primary areas:

- Expanding the WE&T Program's reach to a wider audience
- Evolving the WE&T Program to address customer, market, and industry needs. and
- Collaborating with industry and stakeholders to build upon each other's strengths.

Following is an overview of the 2022 program highlights.

WE&T Integrated Energy Education and Training (IEET) Subprogram

Subprogram Description

The IEET Subprogram is designed to promote demand-side management (DSM) through workforce knowledge and technical training in various sectors. The program's largest component consists of SCE's two Energy Education Centers ("Centers") in Irwindale and Tulare, California, and the Foodservice Technology Center (FTC), also in Irwindale, which provide educational workshops and seminars, tool loans, equipment demonstrations, consultations, and community outreach events. The Centers offer access to educational resources including free or low-cost options, online content, and resources through satellite and partnership collaboration locations. The program is structured to provide technical upskill training to the workforce, including those in disadvantaged worker communities, enabling them to thrive in the Energy Efficiency (EE) industry while supporting California's greenhouse gas (GHG) reduction goals and SCE's Pathway 2045.

[103] For program budgets and forecast comparisons, please see CEDARS at this link: **2022 SCE Budget Filing Dashboard - CEDARS (sound-data.com)**.

Program Activities in 2022

Noteworthy 2022 IEET Subprogram highlights include:

- In response to the ongoing COVID-19 pandemic, the Energy Centers remained partially closed to the public and utilized an online delivery channel to provide greater accessibility to workshops and seminars.
- The Centers began work to develop a comprehensive educational program focused on Building Electrification and Fuel Substitution topics, while sustaining their HVAC education and other training topics.
- Collaborations with community-based organizations (CBOs) and educational institutions remained focused on allowing for the expanded reach of IEET offerings.
- The Mobile Education Unit (MEU) was relaunched in 2022 with a focus on conducting outreach in disadvantaged and underserved communities, maintaining a focus on educating market actors and trade professionals.
- Lending programs including the Tool Lending Library (TLL) and Induction Lending Programs (ILP) remained fully open, providing energy measurement and building performance evaluation tools, as well as induction cooking equipment including cookware.
- The Foodservice Technology Center (FTC) conducted customer events, including training for small businesses and consultations and worked to expand their reach through strategic collaborations.

Energy Education Centers (EECs)

During the COVID-19 pandemic, the Centers adapted their primary delivery channel by focusing on instructor-led course content online to provide education and training to the public. Collaborations with other IOUs, educational institutions, and industry stakeholders allowed for an expanded reach to provide educational content for the workforce with the necessary skills and technical knowledge to prepare for a clean energy future. Despite the challenges posed by the pandemic, the Centers continued to prioritize their goal of empowering the workforce with the knowledge and skills needed to support California's clean energy future.

- The Centers have expanded the stock of online offerings, such as live webcasts, to provide a flexible online learning experience. This robust online channel allowed the program to broaden its reach to the workforce that could not attend events in-person due to distance, work schedules, or barriers presented by the COVID-19 pandemic.
- SCE collaborated with PG&E and SDG&E WE&T-IEET teams to cross-promote and offer a wider variety of online classes to customers, covering topics in the EE field.

The collaboration aimed to enhance the educational offerings to the workforce, consumers, and market actors by providing a broader range of online content, including webinars and on-demand courses, in support of clean energy goals.

- Throughout the year 2022, SCE provided technical upskill training for contractors and technicians as part of the IEET HVAC programs. These programs were delivered in collaboration with the Institute of Heating and Air Conditioning Industries (IHACI), HVACRedu.net, and the National Comfort Institute (NCI).

The following sections detail the initiatives and efforts that have contributed to an increase in attendance of IEET offerings, exceeding previous years. The metrics are highlighted in the table below:

Table 9-1. 2022 Energy Education Centers Performance

Goal	Target	Actual
Collaborations	4	13
Number of Participants	17,401	23,865*
Number of Participants – Residential	6,560	16,572
Number of Participants – Commercial	10,841	7,293
Percentage of Target Audience Reached**	12%	2.2%
Percentage of Disadvantaged Worker Participants (CalEnviroScreen 3.0)	43%	42.6%
Percentage of Disadvantaged Worker Participants (CalEnviroScreen 4.0)***	43%	45.6%

** Totals are inclusive of the 2022 Foodservice Technology Center Customer Activities.*

*** Based on Rulemaking 13-11-005: Amended 2020 Annual Report For Energy Efficiency Programs.*

**** For informational purposes only.*

Curriculum Focus Areas

Fuel Substitution and Building Electrification

The Centers developed a comprehensive Fuel Substitution and Building Electrification educational program that aims to equip the electrification workforce with the necessary knowledge and skills to support California's transition to a clean energy future. The focus was on building a strong foundation of knowledge and skills related to these areas.

- **Fuel Substitution Curriculum:** In support of California's and SCE's Pathway 2045 decarbonization goals, the Centers partnered with the Codes & Standards Program and others to deliver several new Building Electrification (BE) classes. These classes were conducted multiple times throughout 2022:

- Practical Guide to All-Electric, Lower Cost Multi-Family Buildings with Electric-Vehicle Charging
- Practical Guide to All-Electric Residential Buildings,
- Heat Pumps in Retrofit Construction, Space Conditioning and Water Heating
- Multifamily Electrification: Water Heating Deep Dive and Emerging Technologies
- Variable Refrigerant Flow Commercial HVAC&R Systems – Design and Application
- Commercial Heat Pump Water Heating: Engineering Deep Dive
- Designing for Decarbonization
- Building Electrification Fundamentals Part I – BE and Me, and
- Building Electrification Fundamentals Part II – An Overview of Building Electrification.

Heating, Ventilation and Air Conditioning (HVAC)

The Centers sustained their HVAC education and training programs as part of the IEET program in 2022, providing specialized education and training opportunities at all levels of the HVAC value chain. The Centers collaborated with stakeholders to identify skill gaps and opportunities for workforce education in support of a clean energy economy. Notable collaborations within the HVAC focus included:

- **National Comfort Institute (NCI):** Continued efforts with NCI focused on intermediate- and advanced-level HVAC performance-based, hands-on certification training courses through comprehensive test-in and test-out procedures, along with instructor-led field training and coaching in the following areas:

  - Commercial Air Balancing
  - Commercial System Performance
  - Residential Air Balancing
  - Residential System Performance
  - Advanced Digital Economizers (Economizer & Ventilation Optimization Training)
  - Residential Renovation and Retrofit (Duct System Optimization)
  - Combustion Performance and Carbon Monoxide (CO) Safety training
  - Refrigerant-Side Performance
  - Airflow Testing and Diagnostics
  - Hydronic Testing, Adjusting, & Balancing
  - Advanced Air & Hydronic Balancing, and
  - Performance-Based Selling of Energy Efficiency Systems.

  The NCI Training covered 680 total hours, certifying over 460 participants and awarded approximately 2,700 Continuing Education Units (CEUs) to participants in 2022 with approximately 98% of classes at an Intermediate or Advanced levels.

NCI also trained more than 170 unique individuals from Disadvantaged Worker Communities.

- **Institute of Heating and Air Conditioning Industries (IHACI):** Continued to support HVAC Residential and Commercial Quality Installation (QI), Quality Maintenance (QM), and Quality Service (QS) by providing targeted training through our industry partnership with IHACI. This professional training taught contractors to install and service HVAC&R systems that meet all installation requirements, ensuring that equipment operates at the highest possible efficiency and capacity.
  - In 2022, over 70 evening classes were delivered online in lieu of in-person sessions, due to the impact of the COVID-19 pandemic.
  - Over 2,500 contractors and technicians were trained in 2022 through online classes using both IHACI (QI, QM, and QS), Mechanical Nonresidential Acceptance Testing (ATE and ATT), and North American Technician Excellence (NATE) preparation curricula. Most participants in these offerings have two or more years of industry experience, and the majority demonstrated an increase in knowledge as measured by survey results.
- **HVACRedu.net:** Continued partnership with HVACRedu.net, an online and on-demand organization for training HVAC&R contractors and technicians, delivering the "It's About Q" program throughout SCE's service territory. This program focuses on standards-based skills training for quality installation and maintenance of commercial and residential HVAC systems:
  - In 2022, several HVAC&R building electrification classes were added to support California and SCE's decarbonization goals
  - Over 275 NATE Core, Ready to Work, and Specialty exams were delivered with a pass rate of 96.4%
  - Over 14,600 three-hour online class modules were completed, 87% of which were at the Beginner / Intermediate level, and 13% were at the Advanced level, and
  - All participants who completed the classes demonstrated an increase in knowledge as measured by pre- and post-training tests.
- **Low Global Warming Potential (GWP) Refrigerants Classes:** Several Low GWP (A2L & A3) Refrigerants classes were offered to help HVAC Contractors lower GHG emissions and meet regulatory requirements. These classes equipped them with the knowledge to lower GHG emissions, navigate regulatory changes, and consider the environmental impacts of their work.

Integrated Demand Side Management (IDSM) Activities

Educational seminars and workshops included a number of IDSM components. The specific classes listed below included additional information on the combined benefits of EE and Demand Response (DR). Customers and contractors attended the following trainings:

- Basic HVAC
- Introduction to Programmable Logic Controllers: Energy Efficiency Applications
- Heat Pump in Retrofit Construction – Space Conditioning and Water Heating
- Title 24: What's New in the 2022 Energy Code
- 2019/2022 Title 24 Requirements for Non-Residential Lighting
- 2019/2022 Title 24 Requirements for Residential Lighting
- The Practical Guide to All-Electric, Lower Cost Multifamily Buildings with EV Charging, and
- Practical Guide to All-Electric Residential Buildings.

External Collaborations

The Centers have collaborated with various community-based organizations (CBOs), educational institutions, and other industry stakeholders and training organizations to expand the access and reach of IEET offerings. The Centers have established 13 collaborations, including:

- **Architecture at Zero Design Competition:** Partnered with the American Institute of Architecture (AIA) to conduct the "Architecture at Zero" Design Competition, resulting in two collaborations with El Camino College and Orange Coast College throughout 2022. This partnership with AIA is expected to continue through 2023 with additional collaborations.
- **Energize Colleges Program of SEI:** Maintained a collaboration with third-party vendor, Strategic Energy Innovations (SEI), which established relationships with several community colleges within SCE's service territory. The collaboration resulted in multiple Fellowship opportunities, Academic Projects, training events, and collaborations with community colleges. The Centers also formed seven (7) collaborations with Cal Poly Pomona, Chaffey College, College of the Canyons, Los Angeles Community College District, Riverside Community College District, San Bernardino Community College District, and Santa Monica College.
- **Proteus, Inc.:** Proteus agreed to attend scheduled meetings with SCE staff to assist with the development of course framework for sessions to be delivered to students from the Proteus workforce, promote sessions and recruit students from their workforce to participate in the trainings, and provide space and technology necessary for Proteus workforce to participate in online sessions.
- **Stanford Center for Professional Development (SCPD):** SCPD agreed to:
  - Provide a 10% discount to students identified by SCE

- Support a cohort of 10-12 energy professionals in SCE's service territory to earn the Energy Innovation & Emerging Technologies certificate
- Provide aggregate information on certificate attainment and course evaluation feedback information to SCE, and
- Enrollment of and tuition payment management for the students identified through SCE.

  In addition, SCE with the other IOUs hosted two added training sessions for participants enrolled through the IOUs.

- **California Restaurant Foundation (CRF):** SCE's WE&T Foodservice Technology Center worked directly with The California Restaurant Foundation (CRF) on the Culinary High School Education / Training project that targeted public and charter high school students residing in SCE's service territory, focusing on careers in the foodservice and hospitality industries. This collaboration aims to partner in workforce development efforts to train the students and provide an in-person or virtual experience with commercial foodservice equipment to apply to their portfolio of knowledge upon graduation and entrance into college, university, or future work within the foodservice industry.

Internal Collaborations

Codes & Standards

The WE&T program maintained its collaboration with the Codes and Standards sector by prioritizing the education of market actors on emerging codes and standards. This has ensured that the workforce can effectively achieve SCE's clean energy and decarbonization goals. As a result of this collaboration, over 40 online seminars have been delivered on various topics to more than 1,000 customers throughout SCE's service territory:

- Title 24 Part 11 CALGreen Codes
- Title 24: What's New in the 2022 Energy Code
- 2019/2022 Title 24 Lighting (Residential and Nonresidential Standards)
- Accessory Dwelling Units (ADUs) and the California Energy Code
- Introduction to CBECC Energy Modeling Software for Nonresidential Buildings
- Introduction to CBECC Energy Modeling Software for Multifamily Buildings, and
- EnergyPro 9 Software for Nonresidential, Residential and Multifamily.

End-use customers targeted for these Codes & Standards offerings represented the following industry sectors:

- Plans examiners and building inspectors
- Energy code compliance building modelers
- Architects, engineers, and building envelope and lighting designers, and
- HVAC technicians and other trade professionals.

Mobile Education Unit (MEU)

The Mobile Education Unit (MEU), previously under the WE&T Connections Subprogram, was transitioned to IEET and relaunched in 2022 after it was halted in 2020 due to the COVID-19 pandemic. The relaunched MEU program has renewed its focus conducting outreach in communities with accessibility barriers or those less inclined to seek out or attend in-person courses. These outreach efforts are directed at disadvantaged and underserved communities, high school and college events, trade shows, community events, and others.

- The Centers acquired two vehicles in 2022: an all-electric Ford Lightning Truck and a Sprinter van. The initial focus this year was a combination of research, vehicle acquisition, and program relaunch, with the first attended event taking place in October. Other efforts centered on the procurement and development of displays and demonstrations for the Sprinter van, which occurred throughout the year.
- The Ford Lightning MEU was immediately available for customer outreach and has been present at several community events. Both vehicles are expected to be fully operational and conducting outreach throughout the SCE territory by the second Quarter (Q2) of 2023.

Lending Programs

- The Tool Lending Library (TLL), a program that provides tool loans free of charge to people working on short-term EE projects, remained fully open and lent over 370 energy measurement and building performance evaluation tools to customers throughout SCE's service area, including homeowners, business owners, and contractors.
- The Induction Range Lending Program (ILP) loaned out over 25 induction units in 2022. The intent of the program is to educate customers about the EE and GHG reduction benefits of induction cooking. The ILP focused on expanding its inventory with specialty cookware and accessories to support the introduction of induction cooking for ethnic cuisines. Cookware and accessories, such as wok units, hotpots, Korean BBQ grill plates, and comal griddles, were added to the inventory to ensure a quality customer experience for the ILP.

Foodservice Technology Center Activities

Throughout 2022, the Foodservice Technology Center (FTC) continued its collaborative efforts with statewide IOU WE&T programs to educate professionals at all levels of the commercial food service industry.

- The FTC conducted over 150 events taking place in-person and virtually, both in the field and at the FTC facility in Irwindale. These events included training and

webinars for small businesses such as San Gabriel Valley chambers of commerce in South Pasadena, San Gabriel, Alhambra, and Irwindale. Additionally, the FTC conducted consultations with school districts regarding the electrification of their campus, kitchens, and culinary classrooms.

- Throughout the year, the FTC provided training to culinary students and their teachers in high school, community college, and university programs, both in person and virtually. The FTC also expanded its collaboration with the California Restaurant Foundation (CRF) to Central California, where a training for high school members of CRF was held at the EEC in Tulare.
- Additionally, coordinated efforts between SCE's FTC and Emerging Technologies teams resulted in commercial food service equipment tests and demonstrations that yielded energy savings potential for customers, including retail chains, local governments, and educational institutions.

An overview of the FTC's 2022 activity, which encompassed both in-person and virtual events, is provided in the following table:

Table 9-2. 2022 Foodservice Technology Center Customer Activities

Activity Types	Number of Events	Number of Attendees
Equipment Demonstrations	85	1,142
Webinars	17*	240*
Seminars	6*	135*
Consultations	5	19
Tours	10	104
Trainings	27	427
Total	**144**	**2,067**

** Totals are a subset of the 2022 Energy Education Centers Performance.*

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Appendix A. Annual Report Tables

Section 1: Energy Savings

Table 1a. 2022 Net First Year Savings, Goal Attainment and Fuel Sub Load Reduction Adjustments[104]

T-1 2022 Net First Year Savings, Goal Attainment and Fuel Sub Load Reduction Adjustments						
Southern California Edison	GWh	MW	MMTherms	GWh	MW	MMTherms
2022 Goal Achievement	Portfolio - Non C&S			Codes & Standards		
2022 Total Installed Portfolio Savings	178	33	-	1,294	214	-
Adopted Goals (D.22-06-016)	425	65	-	1,000	184	-
Percentage of goal attainment	42%	51%	0%	129%	117%	0%
Fuel Substitution Goal Reduction see Tab 2, Table 2B	-	-	-	-	-	-
Goals less FS Goal Reduction (7-9 not reflected in CEDARS unless requested)	425	65	-	1,000	184	-

[1] Decision 19-08-034 removed Energy Savings Assistance Program (ESA) savings from Energy Efficiency goals. Therefore, the 2022 Annual Report Installed Savings does not include 20.44 GWh and 3 MW in First Year Net savings attributed to the ESA program. 2022 ESA Performance can be reviewed in the 2022 Low Income Annual Report.

In 2022, the following five programs and program strategies accounted for approximately 90% percent of SCE's portfolio energy savings results (excluding Codes & Standards and ESA programs).[105]

In 2022, Statewide Codes & Standards Program savings accounted for approximately 88% percent of SCE's total portfolio energy savings results.

Table 1b. Top Five Programs by Percentage of Savings

Top Five Programs by Percentage of Savings (Excluding Codes and Standards and Energy Savings Assistance)			
ProgramID	Program Name	FirstYearNetkWh	FirstYearNetkW
SCE-13-SW-001A	Energy Advisor Program (64%)	113,861,736	22,310
SCE_3P_2020RCI_005	Comprehensive Commercial Program (18%)	31,588,247	3,875
SCE-13-L-002Y	Grandfathered Street Lights (3%)	5,448,235	-
SCE-13-SW-003D	Strategic Energy Management Program (3%)	4,920,966	653
SCE-13-SW-001F	Residential New Construction Program (3%)	4,525,902	2,131

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104 The data shown in this Annual Report is based on SCE's ex ante savings, adjusted for actual installations, consistent with the ex ante values and processes adopted by the CPUC in D.11-07-030, *Third Decision Addressing Petition for Modification of Decision 09-09-047*. Values in table include market effects (ME) of 5% as consistent with CEDARS.

105 This percentage was calculated using 1st year net kWh for the 5 listed programs divided by total portfolio (excluding C&S and ESA).

Section 2: Fuel Substitution

Table 2a. New Fuel Program Administrator Savings

Fuel Substitution Measure Use Category [8]	Energy Savings (MMBTU) [2]	New Fuel Units [3]	New Fuel Savings Conversion [4]		Original Fuel Goals Reduction (PY activities)			Building infrastructure upgrades necessitated by installation of FS measures [7]		
			kWh	Thm	Utility [5]	kWh [6]	Thm [6]	Electric ($)	Gas ($)	Other ($)
Appliance or Plug Load	-		-	-		-	-	N/A	N/A	N/A
Building Envelope	-		-	-		-	-	N/A	N/A	N/A
Compressed Air	-		-	-		-	-	N/A	N/A	N/A
Commercial Refrigeration	-		-	-		-	-	N/A	N/A	N/A
Codes & Standards	-		-	-		-	-	N/A	N/A	N/A
Food Service	-		-	-		-	-	N/A	N/A	N/A
HVAC	10,665	kWh	3,125,556	-	SoCalGas	-	105,238	N/A	N/A	N/A
Irrigation	-		-	-		-	-	N/A	N/A	N/A
Lighting	-		-	-		-	-	N/A	N/A	N/A
Non-Savings Measure	-		-	-		-	-	N/A	N/A	N/A
Process Distribution	-		-	-		-	-	N/A	N/A	N/A
Process Drying	-		-	-		-	-	N/A	N/A	N/A
Process Heat	-		-	-		-	-	N/A	N/A	N/A
Process Refrigeration	-		-	-		-	-	N/A	N/A	N/A
Recreation	-		-	-		-	-	N/A	N/A	N/A
Service	-		-	-		-	-	N/A	N/A	N/A
Service and Domestic Hot Water	12,707	kWh	3,723,970	-	SoCalGas	-	125,386	N/A	N/A	N/A
Whole Building	-		-	-		-	-	N/A	N/A	N/A
Total	**23,372**		**6,849,525**	-	-	-	**230,624**	**N/A**	**N/A**	**N/A**

1. Separate accounting of Fuel Substitution claims sponsored by the new-fuel PA submitting these tables.
2. Claimable net energy savings in MMBTU. This is a calculated energy conversion from columns D:E.
3. Unit of savings for the new fuel (either kWh or Thm)
4. Claimable savings for the new fuel (this is not actual grid savings, but the net savings converted to unit of the new fuel). CEDARS CET output fields "First Year Net kWh" and "First Year Net Therm" apply this conversion and should be used in these cells.
5. The original fuel utility whose goals should be adjusted.
6. This is the amount that the original fuel utility's goals should be reduced. These are calculated as an energy conversion from the net new fuel savings in columns D:E. Reductions for the original fuel utility goals are to be summarized in Table 2B of the original fuel utility's Annual Reports.
7. Required for Downstream measures only. See D.19-08-009 OP 4 for more information.
8. Measure Use Categories listed here are the descriptions that correspond directly to the CET field "CET_ID__UseCategory" (or "UseCategory") codes.

Table 2b. Original Fuel Utility Goals Reduction

Program Administrator Sponsoring New Fuel Measure [10]	Original Fuel Goals Reduction (PY activities) [11]		Original Fuel Goals Reduction True-up (PY-1 activities) [12]		Total PY Goals Reductions	
	kWh	Thm	kWh	Thm	kWh	Thm
PG&E	-	-	-	-	-	-
SCE	-	-	-	-	-	-
SDG&E	-	-	-	-	-	-
SoCalGas	-	-	-	-	-	-
3C-REN	-	-	-	-	-	-
BayREN	-	-	-	-	-	-
I-REN	-	-	-	-	-	-
MCE	-	-	-	-	-	-
RuralREN	-	-	-	-	-	-
SoCalREN	-	-	-	-	-	-
RCEA	-	-	-	-	-	-
SJCE	-	-	-	-	-	-
Total Goal Reduction	-	-	-	-	-	-

[9] Goals reductions for the original fuel utility from all applicable PAs. This table is only populated by utilities whose fuels were the original fuel for a Fuel Substitution Measure to reflect their reduction in goals. Non-IOU PAs or utilities who were not the original fuel leave this table blank.
[10] Name of PA which sponsored fuel substitution measures that affect the reporting utility (as documented in the sponsoring PA's Annual Report).
[11] When feasible, these values should equal the goals reductions listed in corresponding sponsoring PA's Table 2A for the original fuel utility.
[12] True-up values only used if/when the original fuel utilities goals reductions for PY-1 did not equal the sponsoring PA goals reductions for PY-1; see D.19-08-009 OP 7.

Section 3: Emission Reductions (Environmental Impacts)

Table 3. Environmental Impacts (Net) [106]

Measure Use Category	Gross annual tonnes of CO2 avoided[1]	Net annual tonnes of CO2 avoided[1]	Gross lifecycle tonnes of CO2 avoided[1]	Net lifecycle tonnes of CO2 avoided[1]	Gross annual tonnes of NOx avoided[2]	Net annual tonnes of NOx avoided[2]	Gross lifecycle tonnes NOx avoided[2]	Net lifecycle tonnes NOx avoided[2]	Gross annual tonnes PM10 avoided[2]	Net annual tonnes PM10 avoided[2]	Gross lifecycle tonnes PM10 avoided[2]	Net lifecycle tonnes PM10 avoided[2]
Appliance or Plug Load	93,351	29,430	946,415	257,660	28	9	247	68	9	3	82	23
Building Envelope	13,518	6,606	322,262	160,306	4	2	76	38	1	1	25	12
Compressed Air	1,558	540	29,104	10,086	0	0	7	2	0	0	2	1
Commercial Refrigeration	74,545	28,323	638,146	249,348	22	8	167	65	8	3	56	22
Codes & Standards	139,273	18,221	3,000,564	368,130	43	6	716	88	14	2	237	29
Food Service	977	638	13,258	8,656	0	0	3	2	0	0	1	0
HVAC	74,234	25,700	1,301,286	399,737	22	7	313	96	7	2	103	32
Irrigation	-	-	-	-	-	-	-	-	-	-	-	-
Lighting	742,488	203,170	9,501,543	2,873,610	226	62	2,423	723	75	20	802	239
Non-Savings Measure	-	-	-	-	-	-	-	-	-	-	-	-
Process Distribution	676	452	2,766	1,837	0	0	1	1	0	0	0	0
Process Drying	-	-	-	-	-	-	-	-	-	-	-	-
Process Heat	50	36	880	641	0	0	0	0	0	0	0	0
Process Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-
Recreation	6,737	3,344	83,910	42,213	2	1	22	11	1	0	7	4
Service	30,059	31,562	30,059	31,562	9	9	9	9	4	4	4	4
Service and Domestic Hot Water	6,615	3,907	75,862	43,104	2	1	18	9	1	0	6	3
Whole Building	41,867	28,062	893,975	549,080	13	9	210	129	4	3	70	43
Total	**1,225,948**	**379,991**	**16,840,031**	**4,995,971**	**372**	**114**	**4,211**	**1,241**	**124**	**39**	**1,396**	**413**

SCE, embracing the fact that EE is the utility sector's first and most cost-effective response to global climate change, is firmly committed to making major contributions to California's climate change goals. To further SCE's commitment, its programs are designed to maximize energy savings results, and therefore are maximized to reduce greenhouse gas (GHG) emissions as well. SCE's most successful programs and program strategies are described in detail in *Section 1: Energy Savings,* above.

The Commission has mandated that the utilities report their results using the Cost-Effectiveness Tool (CET). This tool includes many embedded calculations, such as avoided costs and emission factors, that have been approved by the Commission. Pursuant to the Commission's authorization, SCE entered its results into the CET and determined the amount of emission reductions attributed to the successful implementation of the 2022 portfolio of EE programs. These results are shown in *Table 3*, above.

The environmental benefits utilized in the cost-effectiveness analysis of the programs included in this document are only applicable to EE program reporting. The factors utilized in the development of these environmental benefits were agreed upon specifically to reflect an appropriate and approximate value for the reduced energy savings due to EE programs. As such, these environmental benefits should not be used in any other context and should also be reviewed for future use in EE program planning and evaluation.

[106] The data shown in this Annual Report is based on SCE's ex ante savings, adjusted for actual installations, consistent with the ex ante values and processes adopted by the CPUC in D.11-07-030.

Section 4: Expenditures

Table 4. 2022 Expenditures, Including Expenditures from Past Cycle Commitments, Paid in 2022 [107]

Table 4 is available on the California Energy Data and Reporting System (CEDARS) home page, available at: **https://cedars.sound-data.com/documents/standalone/list/.**

1. On the Homepage section of CEDARS, click the Documents link on the upper mid-section of the page.
2. The Documents link takes you to a list of key EE documents, including the IOUs' EE annual reports.
3. The *Table 4* file is titled SCE_2022_Annual_Report_Appendices and can be found on Tab T-4 Program Data.

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[107] The data shown in this Annual Report is based on SCE's ex ante savings, adjusted for actual installations, consistent with the ex ante values and processes adopted by the Commission.

Section 5: Segment Summary

Table 5. Program Administrator (PA) Savings by Sector and Segment

T-5 PA Savings By Sector and Segment											
						PY2022 ENERGY SAVINGS (Net)				
Sector	2022 Approved Budget	2022 Expenditures	TRC Ratio	PAC Ratio	Total System Benefit	First Year Net GWh	Lifecycle Net GWh	First Year Net MW	First Year Net MMTherms	Lifecycle Net MMTherms
Resource Acquisition										
Agricultural	$ 5,695,452	$ 917,432	0.04	0.04	$ 38,082	0	0	-	-	-
Commercial	$ 131,632,169	$ 32,748,957	0.71	0.94	$ 30,325,004	43	299	5	140	726
Industrial	$ 27,236,361	$ 4,094,456	0.60	0.62	$ 2,522,245	5	29	1	- 1	- 15
Public	$ 11,896,477	$ 9,209,245	- 0.00	- 0.00	$ 1,747,673	6	23	0	- 61	- 183
Residential	$ 61,424,738	$ 16,855,423	1.53	1.71	$ 28,466,110	123	214	27	109	1,674
Cross-Cutting	$ 1,581,102	$ 546,097	0.56	0.79	$ 376,847	1	4	0	-	-
PA Subtotal (does not include ESA)	$ 239,466,298	$ 64,371,610	0.83	1.00	$ 63,475,961	**178**	**570**	**33**	**187**	**2,202**
Market Support										
Agricultural	$ 41,164	$ 189,633	-	-	$ -	-	-	-	-	-
Commercial	$ 799,074	$ 879,056	-	-	$ -	-	-	-	-	-
Industrial	$ 133,457	$ 119,932	-	-	$ -	-	-	-	-	-
Public	$ 48,092	$ 525,227	-	-	$ -	-	-	-	-	-
Residential	$ 2,211,906	$ 1,838,319	-	-	$ -	-	-	-	-	-
Cross-Cutting	$ 20,538,670	$ 15,999,179	-	-	$ -	-	-	-	-	-
PA Subtotal (does not include ESA)	$ 23,772,363	$ 19,551,347	-	-	$ -	**-**	**-**	**-**	**-**	**-**
Equity										
Agricultural	$ -	$ -	-	-	$ -	-	-	-	-	-
Commercial	$ 2,120,001	$ -	-	-	$ -	-	-	-	-	-
Industrial	$ -	$ -	-	-	$ -	-	-	-	-	-
Public	$ -	$ -	-	-	$ -	-	-	-	-	-
Residential	$ 3,696,750	$ -	-	-	$ -	-	-	-	-	-
Cross-Cutting	$ 573,654	$ 559,288	-	-	$ -	-	-	-	-	-
PA Subtotal (does not include ESA)	$ 6,390,405	$ 559,288	-	-	$ -	**-**	**-**	**-**	**-**	**-**
Portfolio										
Agricultural	$ 5,736,616	$ 1,107,066	0.03	0.03	$ 38,082	0	0	-	-	-
Commercial	$ 134,551,244	$ 33,628,013	0.69	0.91	$ 30,325,004	43	299	5	140	726
Industrial	$ 27,369,818	$ 4,214,388	0.59	0.60	$ 2,522,245	5	29	1	- 1	- 15
Public	$ 11,944,569	$ 9,734,472	- 0.00	- 0.00	$ 1,747,673	6	23	0	- 61	- 183
Residential	$ 67,333,394	$ 18,693,742	1.39	1.54	$ 28,466,110	123	214	27	109	1,674
Cross-Cutting	$ 22,693,426	$ 17,104,564	0.03	0.03	$ 376,847	1	4	0	-	-
PA Subtotal (does not include EM&V, ESA, C&S, RENS & CCAs)	**$ 269,629,066**	**$ 84,482,245**	**0.69**	**0.81**	**$ 63,475,961**	**178**	**570**	**33**	**187**	**2,202**
CPUC Savings Goal (w/o C&S)						**425**		**65**	-	
Savings as % of CPUC Savings Goal (w/o C&S)						**42%**		**51%**		
Total EM&V [7]	**$ 13,394,258**	**$ 7,018,150**								
Codes and Standards	**$ 17,177,567**	**$ 15,022,848**	**3.76**	**87.20**	**$ 1,309,979,105**	**1,294**	**15,717**	**214**	-	-
PA Portfolio Total (excl. C&S, does not include ESA, RENS & CCAs)	**$ 283,023,324**	**$ 91,500,395**	**0.64**	**0.74**	**$ 63,475,961**	**178**	**570**	**33**	**187**	**2,202**
PA Portfolio Total (does not include ESA, RENS & CCAs)	**$ 300,200,891**	**$ 106,523,243**	**3.07**	**13.64**	**$ 1,373,455,066**	**1,473**	**16,287**	**248**	**187**	**2,202**
CPUC Savings Goal (w/ C&S)						**1,425**		**249**	-	
Savings as % of CPUC Savings Goal (w/ C&S)						**91%**		**86%**		

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Section 6: Cost-Effectiveness

Table 6. Cost-Effectiveness (Net)

T-6 Cost Effectiveness (Net)										
Annual Results[2][3]	**Total Benefits (TRC/PAC)**	**Total TRC Cost**	**Net TRC Benefits**	**TRC Ratio**	**Total PAC Cost**	**Net PAC Benefits**	**PAC Ratio**	**PAC Cost per kW Saved ($/kW)[1]**	**PAC Cost per kWh Saved ($/kWh)**	**PAC Cost per therm Saved ($/therm)**
Total Portfolio w/o C&S	$ 63,816,766	$ 99,437,672	$ (35,620,906)	0.64	$ 85,792,275	$ (21,975,509)	0.74	N/A	$ 0.0018	N/A
Total Portfolio with C&S	$ 1,373,795,871	$ 447,846,547	$ 925,949,323	3.07	$ 100,815,123	$ 1,272,980,748	13.63	N/A	$ 0.11	N/A
[1] The adopted avoided cost methodology does not provide information to provide a meaningful value for PAC Cost per kW saved. The adopted avoided cost methodology created kWh costs values that vary for each hour of the year that includes kW generation capacity costs. The current PAC Cost per kWh saved includes all ratepayer financial costs incurred in producing electric savings. The same costs would have to be reallocated if a PAC Cost per kW saved were presented. Additionally, the current approved CET Calculator does not have the capability to calculate discounted kW, nor is it clear whether an annualized cost per kW saved or total cost per kW saved is more useful.										
[2] Does not include costs and benefits associated with the Energy Savings Assistance Program or Grandfathered Street Lights per December 6, 2018 memo from E. Randolph .										
[3] Includes Codes & Standards Program savings and expenditures, as well as expenditures for Statewide ME&O, ESPI, and Pension & Benefits.										

This section provides a description of what each metric means in terms of the overall portfolio's progress in producing net resource benefits for customers.

- The Total Resource Cost Test (TRC) measures the net benefits of a program as a resource versus the participants' costs and program administration costs.
- The Total Resource Net Benefit (Net RBn) amount is the result of subtracting Total TRC costs from Total Resource Benefits.
- The Total Resource Net Benefit is a measure of the total resource benefits from a measure or program, as derived by multiplying the energy savings by the appropriate avoided costs and reduced by the net-to-gross ratio.

- The Ratepayer Impact Measure (RIM) test measures what happens to customer bills or rates due to changes in utility revenues and operating costs caused by the program. This test indicates the direction and magnitude of the expected change in customer bills or rate levels. SCE has a RIM test of 6.61 including Codes and Standards and 0.63 without Codes and Standards. A benefit-cost ratio above one (1.0) indicates that the program will lower rates and bills.

Total TRC Costs shown in the tables include the sum of the total administrative costs and the incremental measure or participant cost. The TRC costs also represent the changes to the TRC test made in Decision 07-09-043.[108]

- The Program Administrator Cost (PAC) Test measures the net benefits of a program as a resource versus the total program costs, including both the program incentive and program administration costs.
- The PAC Net Benefits amount is the result of subtracting the Total PAC costs from the Total Resource Net Benefit (Net RBn).
- The Total Resource Net Benefit is a measure of the total resource benefits from a measure or program, as derived by multiplying the energy savings by the appropriate avoided costs and reduced by the net-to-gross ratio.

Total PAC Costs shown in the tables include the sum of the total program administrative and incentive costs.

The following provides a brief explanation of the assumptions used in the calculation; that is, incremental measure costs used and how rebates (transfers) were applied:

- The cost-effectiveness tables provided in this report reflect a summary of the cost-effectiveness calculations developed for SCE's 2022 programs. These tables provide energy savings and program costs associated with activity in 2022.
- Pursuant to Policy Rule IV.11, to the extent possible, the assumptions that are used to estimate load impacts (for example, kWh and kW savings per unit, program net-to-gross ratios, incremental measure costs, and useful lives) in the calculation of the TRC and PAC tests are taken from the California Electronic Technical Reference Manual (eTRM), which houses the Database for Energy Efficient Resources (DEER).

Units (Number and Definition)

Unit counts of each measure are displayed in the program tracking databases. The definition of a unit is tailored to the specifications of each individual measure offered by a program.

[108] D.07-09-043, *Interim Opinion on Phase 1 Issues: Shareholder Risk/Reward Incentive Mechanism for Energy Efficiency Programs*.

Energy and Capacity Savings (Per Unit and Total)

Annual program energy and capacity reductions are derived from *ex ante* estimates of energy and capacity savings. Annual program energy and capacity reduction estimates for the programs are the result of a summation of measure-level savings from the measures installed as a result of the 2022 programs. The measure-level savings information used to calculate the 2022 program results is based upon estimates contained in eTRM.

The gross amounts of the annual energy and capacity savings are reduced by appropriate net-to-gross ratios for the particular measure or end use and extended through their useful lives by the appropriate Effective Useful Life estimates (see ***Net-to-Gross (NTG) Ratio*** and ***Effective Useful Life (EUL)***, below).

For all of the tables presented in this report, SCE has presented the capacity savings based on the estimated summer on-peak savings. Thus, the capacity savings of each measure has been reduced to show only the applicable percentage of savings that fall in the defined summer on-peak period for the particular measure, as defined in Resolution E-4952.[109] All energy savings results are a total of the savings across all time periods.

Net-to-Gross (NTG) Ratio

Gross energy savings are considered to be the savings in energy and demand seen by the participant at the meter level. Net savings are assumed to be the savings that are attributable to the program; that is, net savings are gross savings minus those changes in energy use and demand that would have happened even in the absence of the program ("free riders"). The net-to-gross (NTG) ratio is a factor applied to gross program load impacts to convert them into net program load impacts. This factor is also used to convert gross measure costs into net measure costs.

Each NTG ratio utilized in the report is taken from eTRM.

Effective Useful Life (EUL)

The EUL is the length of time (in years) for which the load impacts of an EE measure are expected to persist. Each of the EUL periods utilized in the report are taken from eTRM.

[109] Resolution E-4952, *Approval of the Database for Energy-Efficient Resources Updates for 2020 and Revised Version 2019 in Compliance with D.15-10-028, D.16-08-019, and Resolution E-4818*.

Incremental Measure Cost (Per Unit and Total)

These costs generally represent the incremental costs of EE measures over standard replacement measures. The gross amounts of these costs are reduced by appropriate net-to-gross ratios for the particular measure or end use. SCE relies upon eTRM for *ex ante* incremental measure cost values, as required by the Commission. If eTRM does not contain an estimate, SCE's incremental measure costs are typically derived from a recent measure cost study and documented in SCE's approved Work Papers.

Program Incentive Cost (Per Unit and Total)

Incentive costs are the amount of incentives paid to customers during 2022. The incentive cost totals are based on per-unit incentive costs paid to the customer, multiplied by the total number of units.

Program Administrative Costs

Program administrative costs include all expenditures directly charged to the program **except** incentive costs. The administrative costs consist of allocated administrative, labor, non-labor, and contract labor costs.

Labor costs consist of SCE labor charges directly charged to the program. These costs include salaries and expenses of SCE employees engaged in:

- Developing energy-efficient marketing strategies, plans, and programs
- Developing program implementation procedures
- Reporting
- Monitoring, and
- Evaluating systems.

Labor costs reflected in this report are actual costs incurred in 2022 in support of the programs. Non-labor costs include materials and other miscellaneous costs charged directly to the program. These costs include items such as booklets, brochures, promotions, training, membership dues, postage, telephone, supplies, printing and photocopying services, and computer support services.

Contract labor costs consist of contract employees and consultant labor charges directly charged to the program. These costs include salaries and expenses of contract employees and consultants engaged in:

- Developing energy-efficient marketing strategies, plans, and programs

- Developing program implementation procedures
- Reporting
- Monitoring, and
- Evaluating systems.

Allocated administrative costs represent building lease and maintenance costs and management oversight expenditures.

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Section 7: Bill Payer Impacts

Table 7: Average Bill Payer Impacts from Net Savings [110]

T-7 Average Billpayer Impacts from Net Savings

2022	Electric Average Rate (Res and Non-Res) $/kWh	Gas Average Rate (Core and Non-Core) $/therm	Average First Year Bill Savings ($)	Average Lifecylce Bill Savings ($)
Southern California Edison	$0.18	$0.00	$35,357,637	$137,209,050

[1] SCE's average rate electric rate for bundled-service customers
[2] Average first year electric bill savings is calculated by multiplying an average electric rate with first year gross kWh energy savings.
[3] Average lifecycle electric bill savings is calculated by multiplying an average electric rate with lifecycle gross kWh energy savings.
[4] 2022 first year and lifecycle net KWh savings excluded Codes & Standards and Energy Savings Assistance.

This section provides an explanation of the impact of EE activities on customer bills relative to their bills without the EE programs.

In 2022, SCE was authorized to collect approximately $122 million in rates to implement approved EE programs. Customer bills included the authorized collection on January 1, 2022, the date the program year began. Therefore, EE programs increase customer bills "up front," as funds are collected to fund the EE programs. However, upon implementation, the programs result in lower customer energy usage due to improvements in EE and subsequent reductions to participants' bills. In the long term, all users will benefit through reductions in the avoided costs of energy. The tables provided above show the bill impacts on participating customers in 2022.

The following provides a brief explanation of the assumptions used in the calculation:

1. The customer bill impacts included in this report reflect the net impact on bills, accounting for the benefits of the programs.
2. The overall impact of SCE's programs is that customer bills will decrease relative to the level of billing without the EE programs.

The following methodology was utilized for the calculation of bill impacts resulting from the 2022 EE portfolio:

- The calculation methodology for determining average first-year bill savings utilizes the total gross energy savings per year multiplied by the average rate denominated in kWh. The product of these numbers results in a total bill savings for all program participants.

[110] The data shown in this Annual Report is based on SCE's *ex ante* savings, adjusted for actual installations, consistent with the *ex ante* values and processes adopted by the Commission.

- Similarly, the calculation methodology for determining average lifecycle bill savings utilizes the total lifecycle gross energy savings multiplied by the average rate denominated in kWh. The product of these numbers results in a total lifecycle bill savings for all program participants.

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Section 8: Savings by End-Use

Table 8: Annual Savings By Use Category[111]

T-8 Annual Savings By Use Category 2022

			Gross GWh		Gross MW	Gross MMTherms		Net GWh		Net MW	Net MMTherms	
Measure End Use Category	TRC Ratio	PAC Ratio	First Year	Life Cycle	First Year	First Year	Life Cycle	First Year	Life Cycle	First Year	First Year	Life Cycle
Appliance or Plug Load	2.14	221.51	373	3,234	59	-	-	117	890	20	-	-
Building Envelope	2.21	260.33	50	960	19	-	-	24	477	12	-	-
Compressed Air	2.53	266.24	6	92	-	-	-	2	32	-	-	-
Commercial Refrigeration	2.05	3.66	295	2,227	44	169	1,034	113	874	16	98	630
Codes & Standards	2.60	7.12	559	9,377	96	-	-	73	1,156	11	-	-
Food Service	1.15	1.38	4	53	1	-	-	3	31	1	-	-
HVAC	2.68	11.81	281	4,079	114	203	1,951	96	1,283	40	162	1,833
Irrigation	-	-	-	-	-	-	-	-	-	-	-	-
Lighting	6.67	117.57	2,957	31,650	246	- 18	- 120	806	9,438	80	- 14	- 94
Non-Savings Measure	-	-	-	-	-	-	-	-	-	-	-	-
Process Distribution	0.25	0.29	3	10	0	-	-	2	7	0	-	-
Process Drying	-	-	-	-	-	-	-	-	-	-	-	-
Process Heat	7.37	266.24	0	3	-	-	-	0	2	-	-	-
Process Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-
Recreation	3.91	597.80	28	295	7	-	-	14	150	3	-	-
Service	1.24	1.24	108	108	21	-	-	114	114	22	-	-
Service and Domestic Hot Water	3.23	19.50	28	278	3	-	-	17	167	2	-	-
Whole Building	1.81	36.55	148	2,727	73	- 59	- 152	91	1,665	41	- 60	- 166
Grand Total	**3.07**	**13.64**	**4,840**	**55,093**	**683**	**295**	**2,712**	**1,473**	**16,287**	**248**	**187**	**2,202**

[1] Table does not account for savings from SoCalREN as the data is reported separately.

The Commission's EE reporting requirements mandate that SCE submit regular reports to the Commission quantifying the accomplishments of the portfolio. One such requirement, reporting portfolio performance of energy savings and demand reduction by end use, as shown in the table above, is reported on a regular basis as part of SCE's monthly report. The table above illustrates the 2022 results, by end use, of SCE's portfolio of EE programs.

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[111] The data shown in this Annual Report is based on SCE's *ex ante* savings, adjusted for actual installations, consistent with the ex ante values and processes adopted by the CPUC in D.11-07-030 and subsequent decisions and resolutions.

Section 9: Commitments

Table 9: Commitments [112]

T-9 Commitments					
Commitments Made in the Past Year with Expected Implementation after December 2010-2012					
	Committed Funds	Expected Energy Savings			
2010-2012	$	GWh	MW	MmTherms	
Resource		-	-		
Non-Resource					
Codes & Standards					
SCE Total	$ -	-	-		
Commitments Made in the Past Year with Expected Implementation after December 2013-2015					
	Committed Funds	Expected Energy Savings			
2013-2015	$	GWh	MW	MmTherms	
Resource [1]	$ 1,106,100.84	3.72	0.56		
Non-Resource [2]	$ 132,089.96				
Codes & Standards					
SCE Total	$ 1,238,190.80	3.72	0.56		
Commitments Made in the Past Year with Expected Implementation after December 2016					
	Committed Funds	Expected Energy Savings			
2016	$	GWh	MW	MmTherms	
Resource [1]	$ 2,110,309.53	14.01	3.33		
Non-Resource [2]	$ -				
Codes & Standards					
SCE Total	$ 2,110,309.53	14.01	3.33		
Commitments Made in the Past Year with Expected Implementation after December 2017					
	Committed Funds	Expected Energy Savings			
2017	$	GWh	MW	MmTherms	
Resource [1]	$ 614,579.25	2.86	0.36		
Non-Resource [2]	$ 901,351.76				
Codes & Standards					
SCE Total	$ 1,515,931.01	2.86	0.36		

Table continues on the next page

[112] Ibid.

(Table 9, continued)

Commitments Made in the Past Year with Expected Implementation after December 2018				
	Committed Funds	Expected Energy Savings		
2018	$	GWh	MW	MmTherms
Resource [1]	$ 28,884.69	0.14	0.02	
Non-Resource [2]	$ 1,451,947.55			
Codes & Standards				
SCE Total	$ 1,480,832.24	0.14	0.02	

Commitments Made in the Past Year with Expected Implementation after December 2019				
	Committed Funds	Expected Energy Savings		
2019	$	GWh	MW	MmTherms
Resource [1][3]	$ 1,229,006.39	3.06	0.41	
Non-Resource [2]	$ 1,450,398.67			
Codes & Standards				
SCE Total	$ 2,679,405.06	3.06	0.41	

Commitments Made in the Past Year with Expected Implementation after December 2020				
	Committed Funds	Expected Energy Savings		
2020	$	GWh	MW	MmTherms
Resource [1]	$ 1,774,920.46	7.65	1.48	
Non-Resource [2]	$ 931,346.43			
Codes & Standards				
SCE Total	$ 2,706,266.89	7.65	1.48	

Commitments Made in the Past Year with Expected Implementation after December 2021				
	Committed Funds	Expected Energy Savings		
2021	$	GWh	MW	MmTherms
Resource [1]	$ 1,737,094.57	11.00	1.17	
Non-Resource [2]	$ 2,586,017.57			
Codes & Standards	$ 1,392,024.00			
SCE Total	$ 5,715,136.14	11.00	1.17	

Commitments Made in the Past Year with Expected Implementation after December 2022				
	Committed Funds	Expected Energy Savings		
2022	$	GWh	MW	MmTherms
Resource [1] [4]	$ 4,142,692.88	10.06	0.87	
Non-Resource [2] [4] [5]	$ 10,350,569.76			
Codes & Standards	$ 10,956,876.00			
SCE Total	$ 25,450,138.64	10.06	0.87	

[1] Excludes accruals accounted for in Expense Tables
[2] Emerging Technologies Commitments; excludes EM&V and OBF
[3] 2019 excludes $3M unspent uncommitted funds set aside for CLEAR projects per AL 3993-E, AL 4430-E
[4] 2022 includes SW Commitments (SCE portion)
[5] 2022 Non Resource includes $5,445,000 IOU Data Sharing D.23-02-002 Commitments

Section 10: Cap and Target Expenditures

Table 10. 2022 EE Quarterly Cap And Target Expenditure Performance

Energy Efficiency Cap and Target Expenditure Report [1][8]								
		Expenditures [1][6]				Cap & Target Performance		
Line	Budget Category	Non-Third-Party Qualifying Costs (including PA costs and old-definition 3P/GP contracts that don't meet the new definition)	Third-Party Qualifying Costs (including SW)	Total Portfolio	One-Year Authorized IOU Budget [3][4][5]	Percent of Budget	Cap %	Target %
1	**Administrative Costs**	**$ 13,131,082**	**$ 2,656,708**	**$ 15,787,790**	**$ 29,870,923**			
2	IOU	$ 10,039,530		**$ 10,039,530**		**3.28%**	**10.0%**	
3	Third Party & Partnership	$ 70,267	$ 2,656,708	**$ 2,726,975**		**0.89%**		**10.0%**
4	Target Exempt IOU Programs	$ 3,021,285		**$ 3,021,285**				
5	**Marketing and Outreach Costs**	**$ 1,282,505**	**$ 2,256,967**	**$ 3,539,472**	**$ 14,233,400**			
6	Marketing & Outreach	$ 1,594,990	$ 2,256,967	**$ 3,851,957**		**1.26%**		**6.0%**
7	Statewide Marketing & Outreach [2]	$ (312,485)		**$ (312,485)**	**$ 6,327,696**			
8	**Direct Implementation Costs**	**$ 46,462,761**	**$ 33,402,585**	**$ 79,865,346**	**$ 242,702,310**			
9	Direct Implementation (Incentives and Rebates) [8]	$ 10,000,284	$ 22,412,631	**$ 32,412,914**				
10	Direct Implementation (Non Incentives and Non Rebates) [7][8]	$ 14,961,347	$ 2,221,761	**$ 17,183,108**		**5.61%**		**20.0%**
11	Direct Implementation Target Exempt Programs	$ 21,501,130	$ 8,768,194	**$ 30,269,324**				
12	**EM&V Costs (Investor Owned Utilities & Energy Division)**	**$ 7,018,150**		**$ 7,018,150**	**$ 13,394,258**	**2.29%**	**4.0%**	
13	**Total**	**$ 67,894,498**	**$ 38,316,260**	**$ 106,210,758**				
14	**2022 Authorized Budget [3][4][5]**				**$306,528,587**			
15	**Third-Party Implementer Contracts (as defined per D.16-08-019, OP 10)**		**$ 38,316,260**	**$ 38,316,260**	**$ 209,297,693**	**12.50%**		

[1] - Included all Energy Efficiency Program expenditures & incentives incurred & claimed during 2022 Except SW Market Transformation & Summer Reliability
[1] - Does not include budget and expenditures for 3C REN and SoCal REN
[2] - Statewide Marketing, Education & Outreach budget, AL 4371-E
[3] - SCE's 2022 EE Portfolio budget is $300.201 million, Advice Letter 4633-E-A, excluded the Program and EM&V budget for 3C REN and SoCal REN. $12M Finance Revolving Loan budget also was excluded.
[4] - 2022 Authorized Budget includes budget for SWME&O
[5] - 2022 Authorized Budget excludes $115,109,511 PY 2022 AB 841 budget
[6] - $5,199,076 of Pensions & Benefits were excluded from the program spent, not funded by the EE funding
[7] - Included Non Incentives vendor payment for SCE-13-SW-001A Residential Energy Advisor, Resource program
[8] - This report is updated with any adjustments made for SCE's 2021 Annual Report

The Cap and Target Expenditures report details whether program budgets in each category (Administrative Costs, Marketing and Outreach, Direct Implementation, and Evaluation, Measurement and Verification [EM&V]) exceed the percentage caps and targets set by D.09-09-047, OP 13,[113] and subsequent Commission guidance.

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[113] D.09-09-047, *Decision Approving 2010 to 2012 Energy Efficiency Portfolios and Budgets*.

Section 11: Metrics

A copy of SCE's Metrics is available on the California Energy Data and Reporting System (CEDARS) home page, available at:

https://cedars.sound-data.com/documents/standalone/list/

4. On the Homepage section of CEDARS, click the Documents link on the upper mid-section of the page.
5. The Documents link takes you to a list of key EE documents, including the IOUs' EE annual reports.
6. The metrics can be found in the document titled SCE_2022_Annual_Report_Appendices, on Tab T-1 BP Metrics.

In D.18-05-041,[114] the Commission directed Program Administrators to:

- Report progress toward all metrics and indicators [115] and report metrics and targets, using the updated definition of disadvantaged communities and hard-to-reach customers in the Decision, and
- Assess the relative success of implementers' strategies, for purposes of identifying lessons learned and best practices for maximizing the contribution of energy efficiency in disadvantaged communities, and include this assessment as part of their metrics in their EE Annual Report.[116]

In compliance with D.18-05-041, the metrics and indicators included in SCE's 2022 EE Annual Report utilize the definitions for disadvantaged communities (DAC) and hard-to-reach (HTR). As defined in Resolution G-3497,[117] and reaffirmed in D.18-05-041:

- If an HTR customer **does not** meet the geographic criterion, they must meet a total of three criteria to be considered hard-to-reach; and
- If a customer **does meet** the geographic criterion, they must meet one other criterion to be considered hard-to-reach.

In addition, Commission Energy Division Staff provided further guidance in a memorandum dated February 3, 2022, indicating that the 0.85 net-to-gross ratio for HTR customers only applies to HTR customers that use the direct install delivery channel. This guidance has also been incorporated into the metrics where applicable.

After declining energy savings results from the last three years, SCE reports that HTR and DAC metrics for first year annual net kWh have increased approximately 93% (or 22.8

[114] D.18-05-041 *Addressing EE Business Plans*.
[115] Ibid., OP 9.
[116] Ibid., OP 11.
[117] Resolution G-3497, *Pacific Gas and Electric Company (PG&E), San Diego Gas and Electric Company (SDG&E), and Southern California Gas Company (SoCalGas) requesting approval of program year 2012 and partial 2013 energy efficiency incentive awards*.

MWh) and 91% (or 17.7 MWh) compared to 2021, respectively. These, and similar metrics in the S3: DAC Savings and S4: HTR Metric Type categories have made significant improvements in 2022 since a new market segmentation approach adopted in D.21-05-031[118] established that Market Support and Equity segments together complement the traditional Resource Acquisition programs. Equity Programs increase and enhance the adoption of energy efficiency measures by HTR, DAC, and/or underserved customers. SCE anticipates that HTR and DAC metrics will continue to improve compared to the last three years as a result of new Equity Programs entering the market in 2021.

SCE's EE portfolio made significant progress on its environmental impact goals in 2022. The EE portfolio realized nearly 380,000 annual tons of CO2 avoided. This equates to over 4.9 million lifecycle tons of CO2 avoided.

Section 12: Local Program & Statewide Program Third-Party Budgets

See *Tables C-1* and *C-2* in *Appendix C, Statewide and Third Party-Implemented Programs*, below.

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[118] D. 21-05-031, *Assessment of Energy Efficiency Potential & Goals and Modification of Portfolio Approval and Oversight Process.*

Section 13: Third-Party Contracts

Table 13. Third-Party Contracts [119, 120]

T-13 Third-Party Contracts

Program ID	Program Name	Counterparty	Primary Sector (Market Segment)	Sub-Segment	Market Size	Types of Customers	Delivery Channel	Length (Duration, in months)	Contract Start Date[1]	Contract End Date	Program Start Date[2]	Program End Date	Contract Dollar Value
SCE_3P_2020RCI_001	Marketplace	ENERVEE CORPORATION	Residential	Residential: 1.000000	N/A	All SCE residential customers including DAC and HTR	Downstream	36	9/30/2020	1/30/2025	1/31/2023[3]	1/30/2025	$ 11,990,962.00
SCE_3P_2020RCI_003	Commercial Behavioral Program	ICF RESOURCES, LLC	Commercial	Commercial: 1.000000	N/A	Commercial, retail, office, restaurants, grocery, warehouse, tech industries, lodging, misc NAICS Codes	Downstream	36	9/29/2020	3/31/2025	6/1/2023[4]	3/31/2025	$ 6,922,115.00
SCE_3P_2020RCI_004	Comprehensive Multifamily Program	WILLDAN ENERGY SOLUTIONS	Residential	Residential: 1.000000	Multi-Family only	Residential, Multi-family only	Downstream	58	9/29/2020	12/31/2025	1/29/2022	12/31/2025	$ 82,170,000.00
SCE_3P_2020RCI_005	Comprehensive Commercial Program	WILLDAN ENERGY SOLUTIONS	Commercial	Commercial: 1.000000	ALL	Commercial	Downstream	58	9/29/2020	12/31/2025	1/29/2022	12/31/2025	$ 141,654,000.00
SCE_3P_2020RCI_006	Comprehensive Industrial Program	WILLDAN ENERGY SOLUTIONS	Industrial	Industrial: 1.000000	ALL	Industrial	Downstream	55	9/29/2020	12/31/2025	5/25/2022	12/31/2025	$ 155,000,000.00
SCE_3P_2021AGPUB_001	Agriculture Energy Efficiency Program	ICF RESOURCES, LLC	Agricultural	Agricultural: 1.000000	Small Medium	Local Agriculture	Downstream	38	12/15/2021	12/31/2025	3/1/2023[5]	12/31/2025	$ 11,499,813.00
SCE_3P_2021AGPUB_002	Public Energy Performance Program	CLEARESULT CONSULTING INC.	Public	Public: 1.000000	Medium Large	A Public Customer is a Customer who is a Local government, federal government, special district, tribal government, kindergarten through twelfth grade public or private school, private university, private college, or private trade school. A Public Customer excludes any Residential Customer, public hospital, the University of California, the California State University, the California Community College, all California State agencies, and any water production, distribution, or treatment system customer. They are Commercial and Industrial Customers who are not Residential Customers and have a monthly maximum demand of greater than 20 kW.	Downstream	43	12/14/2021	12/31/2025	7/1/2022[4]	12/31/2025	$ 22,762,103.00
SCE_Res_Equity_001	Residential Energy Advisor (Resource)	CLEARESULT CONSULTING INC.	Residential	Residential: 1.000000	N/A	Residential customers in single-family or two-to-four-unit dwellings with electric service from SCE.	Downstream	36	3/31/2023	12/31/2025	1/30/2024	12/31/2025	$ 8,381,556.00
SCE_Res_Equity_002	Residential Energy Advisor (Non-Resource)	CLEARESULT CONSULTING INC.	Residential	Residential: 1.000000	N/A	Residential customers in single-family or multifamily dwellings with electric service from SCE.	N/A	36	3/31/2023	12/31/2025	1/30/2024	12/31/2025	$ 3,896,028.00
SCE_Res_Equity_003	Disadvantaged Communities Marketing and Outreach	GLOBAL ENERGY SERVICES INC.	Residential	Residential: 1.000000	N/A	Single Family, Multi Family	Downstream	33	3/31/2023	12/31/2025	11/1/2023	12/31/2025	$ 4,275,000.00
SCE_SMB_Equity_001	Simplified Savings	RESOURCE INNOVATIONS INC.	Commercial	Commercial: 1.000000	Small Medium	Customers with <200 kW in peak demand Agricultural, Commerical, Inudstrial, Public, Small and Medium Business	Downstream	33	5/22/2023	12/31/2025	3/1/2024	12/31/2025	$ 14,551,739.00
SCE_SW_ETP_Elec	Emerging Technologies Program, Electric	Cohen Ventures, Inc.	Cross-Cutting	Emerging Technologies: 1.000000	ALL	Customers who receives service from a California electric investor-owned utility are eligible.	N/A	20	9/14/2021	12/31/2027	2/1/2023	12/31/2027	$ 67,533,849.00

Table continues on the next page

[119] Per D.18-05-041, OP 17, *Addressing EE Business Plans*, "The investor owned utilities must track the number and proportion of third parties that forego the option of using utility account representatives. The utilities must include this information in their annual reports." All (100%) of SCE's third-party implementers have foregone this option.
[120] Note that in the future, contract dates and dollar amounts may be amended.

Program ID	Program Name	Counterparty	Primary Sector (Market Segment)	Sub-Segment	Market Size	Types of Customers	Delivery Channel	Length (Duration, in months)	Contract Start Date[1]	Contract End Date	Program Start Date[2]	Program End Date	Contract Dollar Value
SCE_SW_IP_Colleges	Institutional Partnerships, UC/CSU/CCC	ClearResult Consulting Inc.	Public	Public: 1.000000	ALL	Higher Education Efficiency Performance (HEEP) program is within Southern California Edison's (SCE), Pacific Gas and Electric's (PG&E), San Diego Gas and Electric's (SDG&E), and Southern California Gas' (SoCalGas') service area, implemented by CLEAResult for California Community Colleges, Universities of California, and California State Universities. The program provides energy efficiency services, technical assistance, and incentives through a deemed, custom calculated, Normalized Meter Energy Consumption (NMEC), and Strategic Energy Management (SEM) pathways. This combines a traditional energy efficiency approach with a holistic, whole-facility approach to delve further into an organization's energy management.	Downstream	46	2/9/2022	12/31/2025	1/1/2023[4]	12/31/2025	$ 12,571,286.00
SCE_SW_UL	CA Statewide Lighting Program	TRC Solutions Inc.	Commercial	Commercial: 1.000000	Small Medium Large	Statewide Commercial Statewide Industrial	Mid/Upstream	36	9/24/2020	5/31/2024	10/1/2021	5/31/2024	$ 36,000,000.00
SCE_SW_WP	Water/wastewater Pumping	Lincus Inc.	Public	Public: 1.000000	ALL	The Statewide Water Infrastructure and System Efficiency™ (SW WISE™) Program assists Water/Wastewater pumping customers within Pacific Gas and Electric's (PG&E's), Southern California Edison's (SCE's), Southern California Gas' (SoCalGas'), and San Diego Gas and Electric's (SDG&E's) service areas in identifying energy efficiency solutions, securing incentives to help offset installation costs, and providing engineering services. Program trains and equips trade allies in the water and wastewater segment to recommend more efficient processes and technologies to their customers for enabling project implementation.	Downstream	44	4/28/2022	12/31/2025	12/31/2023	12/31/2025	$ 15,481,218.00

1. Contract Start Date is defined as the Effective Date of the Agreement.
2. Program Start Date is defined as the Initital Delivery Date or Initial Delivery Deadline (IDD).
3. IDD in process of being confirmed.
4. Contract in amendment process; IDD may be revised to a later date.
5. Contract amendment requested to change IDD.

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Section 14: Final EE Monthly Report

To obtain a copy of SCE's December 2022 EE Monthly Report, please visit the California Public Utilities Commission – California Energy Data and Reporting System (CEDARS, available at **https://cedars.sound-data.com/monthly-reports/confirmed-dashboard/SCE/**.

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Appendix B.
Southern California Edison Programs for 2022

This Appendix contains the list of programs included in SCE's 2022 EE Portfolio, and the years that programs were added or removed, where applicable.

Table: Programs Included in SCE's 2022 EE Portfolio

CPUC Program ID	Program Name	Start Year [121]	End Year
SCE-13-SW-001	California Statewide Program for Residential Energy Efficiency	2013	N/A
SCE-13-SW-001A	Home Energy Advisor Program	2013	N/A
SCE-13-SW-001B	Plug Load and Appliances Program	2013	2022
SCE-13-SW-001C	Multifamily Energy Efficiency Rebate Program	2013	2020
SCE-13-SW-001D	Energy Upgrade California	2013	2018
SCE-13-SW-001E	Residential HVAC Program	2013	N/A
SCE-13-SW-001F	Residential New Construction Program	2013	2021
SCE-13-SW-001G	Residential Direct Install Program	2017	N/A
SCE-13-SW-002	Statewide Commercial Energy Efficiency Program	2013	N/A
SCE-13-SW-002A	Commercial Energy Advisor Program	2013	N/A
SCE-13-SW-002B	Commercial Calculated Program	2013	2021
SCE-13-SW-002C	Commercial Deemed Incentives Program	2013	2021
SCE-13-SW-002D	Commercial Direct Install Program	2013	2019
SCE-13-SW-002E	Commercial Continuous Energy Improvement Program	2013	2018
SCE-13-SW-002F	Nonresidential HVAC Program	2013	N/A
SCE-13-SW-002G	Savings By Design Program	2013	2021
SCE-13-SW-002H	Midstream Point Of Purchase Program	2017	2021
SCE-13-SW-002I	Market Based Incentive Program	2019	2021
SCE-13-SW-003	Statewide Industrial Energy Efficiency Program	2013	N/A
SCE-13-SW-003A	Industrial Energy Advisor Program	2013	2021
SCE-13-SW-003B	Industrial Calculated Energy Efficiency Program	2013	2021

[121] SCE CPUC-approved programs which includes the program Start Year and End Year. A program's Start Year is the year the program was CPUC-approved. A program's End Year is the year in which program commitment, or program activity has ceased.

CPUC Program ID	Program Name	Start Year [121]	End Year
SCE-13-SW-003C	Industrial Deemed Energy Efficiency Program	2013	2021
SCE-13-SW-003D	Industrial Continuous Energy Improvement Program	2013	2018
SCE-13-SW-003D	Strategic Energy Management Program	2018	N/A
SCE-13-SW-004	Statewide Agriculture Energy Efficiency Program	2013	N/A
SCE-13-SW-004A	Agriculture Energy Advisor Program	2013	2020
SCE-13-SW-004B	Agriculture Calculated Energy Efficiency Program	2013	2022
SCE-13-SW-004C	Agriculture Deemed Energy Efficiency Program	2013	2021
SCE-13-SW-004D	Agriculture Continuous Energy Improvement Program	2013	2018
SCE-13-SW-005	Lighting Program	2013	2019
SCE-13-SW-005A	Lighting Market Transformation Program, Subprogram of Statewide Lighting Program	2013	2018
SCE-13-SW-005B	Lighting Innovation Program, Subprogram of Statewide Lighting Program	2013	2018
SCE-13-SW-005C	Primary Lighting Program, Subprogram of Statewide Lighting Program	2013	2019
SCE-13-SW-006	Integrated Demand Side Management Program	2013	2018
SCE-13-SW-007	Statewide Finance Program	2013	N/A
SCE-13-SW-007A	On-Bill Financing Program	2013	N/A
SCE-13-SW-007B	ARRA-Originated Financing Program	2013	2018
SCE-13-SW-007C	New Finance Offerings	2013	N/A
SCE-13-SW-008	Codes and Standards Program	2013	N/A
SCE-13-SW-008A	Building Codes and Compliance Advocacy	2013	2020
SCE-13-SW-008B	Appliance Standards Advocacy	2013	2020
SCE-13-SW-008C	Compliance Improvement	2013	N/A
SCE-13-SW-008D	Reach Codes	2013	N/A
SCE-13-SW-008E	Planning and Coordination	2013	N/A
SCE-13-SW-008F	National and International Standards	2019	2020
SCE-13-SW-009	Emerging Technologies Program	2013	N/A
SCE-13-SW-009A	Technology Development Support	2013	N/A
SCE-13-SW-009B	Technology Assessments	2013	N/A

CPUC Program ID	Program Name	Start Year [121]	End Year
SCE-13-SW-009C	Technology Introduction Support	2013	N/A
SCE-13-SW-010	Workforce Education & Training Program	2013	N/A
SCE-13-SW-010A	WE&T Integrated Energy Education and Training	2013	N/A
SCE-13-SW-010B	WE&T Career Connections	2013	N/A
SCE-13-SW-010C	WE&T Planning	2013	2018
SCE-13-SWMEO	Statewide Marketing, Education & Outreach Program	2013	2021
SCE-13-L-001	Integrated Demand Side Management Pilot for Food Processing	2013	2016
SCE-13-L-002 (Rollup)	Energy Leader Partnership Program	2009	2018
SCE-13-L-002A	City of Beaumont Energy Leader Partnership	2010	2015
SCE-13-L-002B	City of Long Beach Energy Leader Partnership	2010	2022
SCE-13-L-002C	City of Redlands Energy Leader Partnership (merged with SCE-13-L-002W)	2010	2016
SCE-13-L-002D	City of Santa Ana Energy Leader Partnership (merged with SCE-13-L-002L OCC)	2007	2016
SCE-13-L-002E	City of Simi Valley Energy Leader Partnership (merged with SCE-13-L-002Q Ventura)	2010	2015
SCE-13-L-002F	Gateway Cities Energy Leader Partnership	2010	2022
SCE-13-L-002G	Community Energy Leader Partnership	2009	2017
SCE-13-L-002H	Eastern Sierra Energy Leader Partnership	2010	2021
SCE-13-L-002I	Energy Leader Partnership Strategic Support	2013	2020
SCE-13-L-002J	Desert Cities Energy Leader Partnership	2010	2021
SCE-13-L-002K	Kern County Energy Leader Partnership	2010	2021
SCE-13-L-002L	Orange County Cities Energy Leader Partnership	2010	2022
SCE-13-L-002M	San Gabriel Valley Energy Leader Partnership	2013	2022
SCE-13-L-002N	San Joaquin Valley Energy Leader Partnership	2010	N/A
SCE-13-L-002O	South Bay Energy Leader Partnership	2010	2022
SCE-13-L-002P	South Santa Barbara County Energy Leader Partnership	2009	2022
SCE-13-L-002Q	Ventura County Energy Leader Partnership	2009	2022
SCE-13-L-002R	Western Riverside Energy Leader Partnership	2010	N/A

CPUC Program ID	Program Name	Start Year [121]	End Year
SCE-13-L-002S	High Desert Regional Energy Leader Partnership (formerly City of Adelanto Energy Leader Partnership)	2010	2021
SCE-13-L-002T	West Side Community Energy Leader Partnership	2011	2022
SCE-13-L-002U	Local Government Strategic Planning Pilot Program	2011	2019
SCE-13-L-002V	North Orange County Cities Energy Leader Partnership	2015	2022
SCE-13-L-002W	San Bernardino Regional Energy Leader Partnership	2015	2022
SCE-13-L-002Y	Grandfathered Street Lights	2018	2022
SCE-13-L-003	Institutional and Government Core EE Partnership	2013	N/A
SCE-13-L-003A	California Community Colleges EE Partnership	2010	2022
SCE-13-L-003B	California Dept. of Corrections and Rehabilitation EE Partnership	2010	2021
SCE-13-L-003C	County of Los Angeles Energy Efficiency Partnership	2010	2022
SCE-13-L-003D	County of Riverside Energy Efficiency Partnership	2010	2021
SCE-13-L-003E	County of San Bernardino Energy Efficiency Partnership	2010	2021
SCE-13-L-003F	State of California Energy Efficiency Partnership	2010	2021
SCE-13-L-003G	UC/CSU Energy Efficiency Partnership	2010	2021
SCE-13-L-003I	Public Sector Performance-Based Retrofit High Opportunity Program	2017	2021
SCE-13-TP-001	Comprehensive Manufactured Homes Program	2013	N/A
SCE-13-TP-002	Cool Planet Program	2013	2018
SCE-13-TP-003	Healthcare EE Program	2013	2018
SCE-13-TP-004	Data Center Energy Efficiency Program	2013	2018
SCE-13-TP-005	Lodging EE Program	2013	2018
SCE-13-TP-006	Food & Kindred Products Program	2013	2018
SCE-13-TP-007	Primary and Fabricated Metals Program	2013	2020
SCE-13-TP-008	Nonmetallic Minerals and Products Program	2013	2020
SCE-13-TP-009	Comprehensive Chemical Products Program	2013	2022
SCE-13-TP-010	Comprehensive Petroleum Refining Program	2013	2020

CPUC Program ID	Program Name	Start Year [121]	End Year
SCE-13-TP-011	Oil Production Program	2013	2018
SCE-13-TP-012	Refinery Energy Efficiency Program	2013	2015
SCE-13-TP-013	Cool Schools Program	2013	2018
SCE-13-TP-014	Commercial Utility Building Efficiency (CUBE) Program	2013	2018
SCE-13-TP-017	Energy Efficiency for Entertainment Centers Program	2013	2015
SCE-13-TP-018	School Energy Efficiency Program	2013	2019
SCE-13-TP-019	Sustainable Communities Program	2013	2018
SCE-13-TP-020	IDEEA365 Program	2013	2018
SCE-13-TP-021	Enhanced Retro-commissioning Program	2013	2019
SCE-13-TP-022	Water Infrastructure Systems EE Program (WISE)	2017	2019
SCE-13-TP-023	Midsize Industrial Customer Program (MICE)	2017	2018
SCE-13-TP-024	AB793 Residential Pay for Performance Program	2017	N/A
SCE-13-TP-025	Facility Assessment Services Program	2019	2021
SCE-16-L-002X	Water Energy Nexus Program	2016	2020
SCE-13-TP-029	Public Energy Performance Program	2021	N/A
SCE_3P_2021AGPUB_001	Agriculture Energy Efficiency Program	2021	N/A
SCE-3P_2020_102	Enervee Marketplace Program	2020	N/A
SCE-3P-2020RCI-002	Residential Behavioral Program	2020	2022
SCE-3P-2020RCI-003	Commercial Behavioral Program	2020	N/A
SCE-3P-2020RCI-004	Willdan Multifamily Energy Efficiency Program	2020	N/A
SCE-3P-2020RCI-005	Willdan Commercial Energy Efficiency Program	2020	N/A
SCE-3P-2020RCI-006	Willdan Industrial Energy Efficiency Program	2020	N/A
SCE_SW_ETP_Elec	Statewide Electric Emerging Technologies Program (SWEETP)	2021	N/A
SCE_SW_UL	California Statewide Lighting Program	2021	N/A

Appendix C.
Statewide and Third Party-Implemented Programs

In D. 16-08-019, the California Public Utilities Commission (CPUC or Commission) provided direction to Investor Owned Utility (IOU) Program Administrators (PAs) on business plan filings and established the requirement that programs be considered "statewide" [122] and "third-party" [123] programs. Additionally, the Commission set the requirement that statewide programs should comprise at least 25 percent of the total program portfolio budget of each utility PA.[124] These directives set forth a new direction for PAs in administering programs.

Subsequently, in D.18-01-004,[125] the Commission established the process for third-party solicitations for EE rolling portfolio programs overseen by the IOU PAs. In that Decision, the Commission adopted a requirement that the IOUs use a two-stage process to solicit third party-designed and -implemented programs for the energy efficiency portfolio, and refined budget targets, to foster a smooth transition from a portfolio designed by the IOUs to one where a majority of programs are designed and delivered by third parties.

In order to provide for a smooth and sustainable transition from current portfolios, in D.18-01-004, the Commission also established a phased-in approach to allow the IOUs to transition to third-party design and implementation over a period of years. In D.18-05-041, the Commission approved SCE's Business Plan and partially modified the compliance deadlines, such that at least 25 percent of SCE's EE portfolio budget was required to be under contract to third parties by December 19, 2019, 40 percent by December 31, 2020, and 60 percent by December 31, 2022. The Energy Division subsequently extended the deadline for the 25% requirement to September 30, 2020.[126] At the conclusion of 2020, SCE had entered into contracts with third-party implementers for more than 40 percent of its EE budget and met both of the 2020 deadlines. At the conclusion of 2022, SCE had entered into contracts with third-party implementers for more than 60 percent of its EE budget and met the 2022 compliance requirement established by the Commission.

Statewide Third-Party Program Results

SCE completed two solicitations in 2020 that resulted in the award of six contracts to four implementers. The Residential, Commercial, and Industrial (RCI) Solicitation was designed for local EE programs spanning the Residential, Commercial and Industrial sectors. The Statewide Lighting (SWL) Solicitation was designed for lighting solutions for industrial and commercial sector customers across all electric IOU service areas.

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122 D.16-08-019, D*ecision Providing Guidance for Initial Energy Efficiency Rolling Portfolio Business Plan Filings*, OP 5.

123 Ibid., OP 10.

124 Ibid., OP 6.

125 D.18-01-004, *Decision Addressing Third Party Solicitation Process for EE Programs*.

126 Letter from Executive Director, Energy Division, dated November 25, 2019, "Re: Request for Extension of Time to Comply With Ordering Paragraph 4 of Decision 18-05-041."

In 2021, SCE completed three solicitations that resulted in the award of contracts to three implementers. The Statewide Electric Emerging Technologies Program (SWEETP) Solicitation was for a non-resource program. The Local Public Sector Solicitation was designed to select innovative, cost-effective market-based solutions to serve local, tribal, and Federal government customers not addressed by other Statewide programs. The Local Agricultural Sector Solicitation was intended to address the needs of customers whose primary businesses are agricultural production.

In 2022, SCE completed two solicitations that resulted in the award of two contracts to two implementers. The Statewide Higher Education Solicitation is intended to serve the University of California, California State University, and California Community Colleges systems. The Statewide Water/Waste Water Solicitation is intended to address the needs of water and wastewater pumping institutions throughout the four IOUs.

Statewide Third-Party Program Coordination

To allow for the successful implementation of Statewide Programs, all IOUs have engaged in various coordinated efforts. The IOUs have established a coordinated body that meets regularly to coordinate the development of critical infrastructure that will allow the IOUs to implement Statewide Programs in compliance with Commission guidance. All meetings and topics of discussion abide by each utility's anti-trust policy.

Statewide Third-Party Program Budgets

On November 15, 2018, San Diego Gas & Electric Company (SDG&E), Southern California Gas Company (SoCalGas), Pacific Gas & Electric Company (PG&E), and SCE filed a Joint Supplemental Advice Letter regarding the IOUs' proposed mechanism for shared funding of statewide programs pursuant to OP 24 of D.18-05-041.[127] The IOUs proposed to submit annual true-up reports with the IOUs' annual EE reports submitted on May 1 of the following calendar year.[128]

See Tables C-1 – C-5, below.

In D.18-05-041, the Commission also directed the IOUs to include a summary of key findings from the annual report in their respective annual energy efficiency portfolio reports to the Commission. Specifically, the summary of key findings details proportional funding amounts for each statewide program area, and highlights any IOU cost-sharing discrepancies, with a focus on the requirement for proportional budget contributions.[129]

[127] *Joint Supplemental Advice Letter* (SDG&E AL 3268-E-A/2701-G-A; SoCalGas AL 5346-G-A; SCE AL 3861-E-A; and PG&E AL 5373-E-A/4009-G-A).
[128] Ibid., p. 3.
[129] D.18-05-041, *Addressing EE Business Plans*, pp. 86-87.

Table C-1. Local Programs Third-Party Budgets

12-1. Local Program Third-Party Budgets

Program ID	Program Name	Counterparty Name	3P Procurement? (Y/N)*	Sector/Category	Approved Annual Budgets[1] 2023
SCE_3P_2020RCI_001	Marketplace	ENERVEE CORPORATION	Y	Residential	6,752,640
SCE_3P_2020RCI_003	Commercial Behavioral Program	ICF RESOURCES, LLC	Y	Commercial	2,414,856
SCE_3P_2020RCI_004	Comprehensive Multifamily Program	WILLDAN ENERGY SOLUTIONS	Y	Residential	1,960,000
SCE_3P_2020RCI_005	Comprehensive Commercial Program	WILLDAN ENERGY SOLUTIONS	Y	Commercial	26,120,000
SCE_3P_2020RCI_006	Comprehensive Industrial Program	WILLDAN ENERGY SOLUTIONS	Y	Industrial	38,547,361
SCE_3P_2021AGPUB_001	Agriculture Energy Efficiency Program	ICF RESOURCES, LLC	Y	Agriculture	2,999,916
SCE_3P_2021AGPUB_002	Public Energy Performance Program	CLEARESULT CONSULTING INC.	Y	Public	6,122,441
SCE_Res_Equity_001	Residential Energy Advisor (Resource)	CLEARESULT CONSULTING INC.	Y	Residential	642,416
SCE_Res_Equity_002	Residential Energy Advisor (Non-Resource)	CLEARESULT CONSULTING INC.	Y	Residential	422,202
SCE_Res_Equity_003	Disadvantaged Communities Marketing and Outreach	GLOBAL ENERGY SERVICES INC.	Y	Residential	570,000
SCE_SMB_Equity_001	Simplified Savings	RESOURCE INNOVATIONS INC.	Y	Commercial	295,484
				Total	86,847,316

* (Y) if the program was procured through the two-stage third-party solicitation process, (N) if program existed prior to the establishment of the process

[1] For third-party compliance calculations, SCE utilizes implementer's annual contractual budget which may be different from the 2023 forecasted Biennial Budget Advice Letter.

Table C-2. Statewide Programs Third-Party Budgets

12-2. Statewide Programs Third-Party Budgets

Program ID	Program Name	Counterparty Name	Lead IOU	Sector/Category	Approved Annual Budget 2023	Pro Rata Share (%)	IOU Share of Projected Annual Budget 2023
SCE_SW_ETP_Elec	Emerging Technologies Program, Electric[1]	Cohen Ventures, Inc.	SCE	Commercial	$ 17,819,947	40%	$ 7,145,799
SCE_SW_IP_Colleges	Institutional Partnerships, UC/CSU/CCC[1]	ClearResult Consulting Inc.	SCE	Public	$ 3,471,138	32%	$ 1,113,541
SCE_SW_UL	CA Statewide Lighting Program[1]	TRC Solutions Inc.	SCE	Commercial	$ 11,040,000	40%	$ 4,427,040
SCE_SW_WP	Water/wastewater Pumping[1]	Lincus Inc.	SCE	Public	$ 4,881,218	32%	$ 1,565,895
SDGE_SW_HVAC_Up	SW Upstream HVAC Program	CLEAResult Inc.	SDG&E	Commercial	$ 13,681,748	32%	$ 4,389,105
SDGE_SW_PLA	SW Plug Load and Appliances	CLEAResult Inc.	SDG&E	Residential	$ 15,261,637	32%	$ 4,895,933
SCG_SW_FS	COM-SW-Point of Sale Food Service	Energy Solutions	SoCalGas	Commercial	$ 18,343,225	16%	$ 2,942,253
SCG_SW_MCWH	COM-SW-Midstream Commercial Water Heating	DNV GL Energy Services USA, Inc.	SoCalGas	Commercial	$ 17,252,452	16%	$ 2,767,293
SCG_SW_ETP_Gas	ET-SW-Emerging Technologies, Gas	CF Resources, LLC	SoCalGas	Emerging Tech	$ 4,339,776	0%	$ -
PGE_SW_CSA_Appl	State Appliance Standards Advocacy[2]	Multiple	PG&E	Codes and Standards	$ -	32%	$ -
PGE_SW_CSA_Bldg	State Building Codes Advocacy	Multiple	PG&E	Codes and Standards	$ 5,998,421	32%	$ 1,924,293
PGE_SW_CSA_Natl	National Codes & Standards Advocacy[2]	Multiple	PG&E	Codes and Standards	$ -	32%	$ -
PGE_SW_IP_Gov	Institutional Partnerships: DGS and DoC	Alternative Energy Systems	PG&E	Public	$ 4,230,309	32%	$ 1,357,083
PGE_SW_NC_NonRes_electric	SW New Construction NonRes - All Electric	Willdan Energy Solutions	PG&E	Commercial	$ 3,409,051	32%	$ 1,093,624
PGE_SW_NC_NonRes_mixed	SW New Construction NonRes - Mixed Fuel	Willdan Energy Solutions	PG&E	Commercial	$ 8,746,903	32%	$ 2,806,007
PGE_SW_NC_Res_electric	SW New Construction Res - All Electric	TRC SOLUTIONS INC	PG&E	Residential	$ 6,759,536	32%	$ 2,168,459
PGE_SW_NC_Res_mixed	SW New Construction Res - Mixed Fuel	TRC SOLUTIONS INC	PG&E	Residential	$ 2,545,541	32%	$ 816,610
PGE_SW_WET_CC	WET Career Connections	The Energy Coalition	PG&E	WE&T	$ 1,000,000	32%	$ 320,800
PGE_SW_WET_Work	WET Career and Workforce Readiness	Strategic Energy Solutions	PG&E	WE&T	$ 1,891,288	32%	$ 606,725
						Total	$ 40,340,459.62

[1] For third-party compliance calculations, SCE utilizes implementer's annual contractual budget which may be different from the 2023 forecasted Biennial Budget Advice Letter.

[2] PG&E is excluding these program budgets for the third-party calculation due to unique circumstances: the contracts expired at the end of 2022 and the solicitation is ongoing as of May 2023. Interim contracts were executed to continue program implementation until the new contracts are executed and Advice Letter approved.

Table C-3. AB 841 CEC School Stimulus 3P Amount

12-3. AB 841 CEC School Stimulus 3P Amount		
PY 2020 ABAL Budget*	$	147,395,384
Authorized 2020 Budget Cap	$	271,852,000
Difference	$	124,456,616
	2023	
Applicable %		60%
Funding from applicable %	$	74,673,970
Funding from carryover	$	166,543,658
Total AB 841 Funding	$	241,217,627
* see "IOU Budget Recovery Request"		

Table C-4. Annual Budget by Sector

12-4. Annual Budget	
Sector/Category	**PY 2023 Budget**
Residential	$ 88,008,162
Commercial	$ 154,821,000
Industrial	$ 53,006,397
Agriculture	$ 6,754,495
Emerging Tech	$ 8,893,257
Public	$ 12,841,737
WE&T	$ 9,780,462
AB 841 Allocations*	$ 241,217,628
Finance	$ 1,369,871
EM&V	$ 16,221,354
Codes and Standards	$ 17,078,491
Total	**$ 609,992,854**
*Allocations budgeted to the SRVEVR and SNPFA programs per AB 841. This number should equal the Total AB 841 funding found in section 3 of this worksheet	

Table C-5. 60% Compliance

12-5. 60% Compliance	
Component	**2023**
Local 3P Programs	$ 86,847,316.00
Statewide 3P Programs[1]	$ 40,340,459.62
AB 841	$ 241,217,627.63
Total 3P-Qualified Budget	**$ 368,405,403.25**
Annual Budget	$ 609,992,853.63
% Third Party Achieved	**60.40%**
Requirement	60%
In Compliance (T/F)	TRUE

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Statewide Programs

The Commission established Statewide Programs and the associated Lead IOUs[130] in 2018, as described below:

Table C-6. Lead Program Administrator for Statewide Programs

Program Category	Lead IOU
Plug Load and Appliance	SDG&E
HVAC (Upstream Residential, Upstream Commercial)	SDG&E
New Construction (Residential)	PG&E
New Construction (Non-Residential)	PG&E
Codes & Standards (Building Codes Advocacy)	PG&E
Codes & Standards (Appliance Standards Advocacy)	PG&E
Codes & Standards (National Advocacy)	PG&E
Workforce Education & Training (Career Connections)	PG&E
Institutional Partnerships (State of California, California Department of Corrections)	PG&E
Lighting	SCE
Emerging Technologies (Electric)	SCE
Institutional Partnerships (University of California, California State University), called "Higher Education"	SCE
Emerging Technologies (Gas)	SoCalGas
Foodservice Point of Sale	SoCalGas
Midstream Commercial Water Heating	SoCalGas

Table C-7. Lead Program Administrator for Statewide Downstream Pilot Programs

Program	Lead IOU
HVAC Quality Installation/Quality Maintenance (QI/QM)	SDG&E
Water/Wastewater Pumping Program	SCE
Workforce Education & Training (Career and Workforce Readiness)	PG&E

SCE provides funding to the Lead Program Administrators as shown in Table 3 and Table 4 of D.18-05-041. SCE receives proportional benefits from the Statewide Programs through the CPUC's CEDARS reporting system. Please refer to the Lead Program Administrators' 2022 Energy Efficiency Annual Reports for performance information on their respective Statewide Programs.

[130] Ibid., OP 26.

Appendix D. Regional Energy Networks Joint Cooperation Memoranda

Per Decision 21-05-031,[131] for the Regional Energy Networks (RENs) in their service areas, program administrators must "continue to prepare and submit Joint Cooperation Memoranda (JCMs), according to the existing requirements contained in Decision 18-05-041,[132] except that the JCMs may be included for the upcoming program year as an attachment in each program administrator's Energy Efficiency Annual Report."

To view the JCMs for the Southern California Regional Energy Network (SoCalREN), the Tri-County Regional Energy Network (3C-REN), and the Inland Regional Energy Network (I-REN), use this link: **Joint Cooperation Memos | caeecc**.

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[131] D.21-05-031, *Assessment of Energy Efficiency Potential & Goals and Modification of Portfolio Approval and Oversight Process*, OP 7, p. 82.

[132] D.18-05-041, *Decision Addressing Energy Efficiency Business Plans*.

Appendix E.
List of Acronyms and Abbreviations

Acronym or Abbreviation	Explanation
3C-REN	Tri-County Regional Energy Network
9-12	A program for high schools (see **WE&T,** below)
AB	Assembly Bill
ABAL	Annual Budget Advice Letter
ABS	Automated Benchmarking System
ACEEE	American Council for an Energy-Efficient Economy
ACM	Alternative Calculation Method
ADUs	Accessory Dwelling Units
AHPC	Advanced Heat Pump Coalition
AHR	Air-Conditioning, Heating, Refrigerating
AHRI	Air Conditioning, Heating and Refrigeration Institute
AIA	American Institute of Architects
aka	also known as
AL	Advice Letter
API	Application Programming Interface
APR	Annual Percentage Rate
ASHRAE	ASHRAE.org, formerly American Society of Heating, Refrigeration, & Air-Conditioning Engineers
ASTM	American Society for Testing and Materials
ATE / ATT	Nonresidential Acceptance Testing
AWHI	Advanced Water Heating Initiative
BBAL	Bi-Annual Budget Advice Letter
BCD	Business Customer Division (renamed Customer Engagement Division, or CED)
BDC	Building Decarbonization Coalition
BE	Building Electrification
BEM	Building Energy Modeling
BER	Business Energy Report
BPS	Building Performance Standards
BRO	Behavioral, Retro-commissioning and Operational
BUGMAP	Bottom Up Grid Model Advanced Profiles
BUILD	Building Initiative for Low Emissions Development
C&S	Codes and Standards
C/E	Cost-Effectiveness

Acronym or Abbreviation	Explanation
CABEC	California Association of Building Energy Consultants
CAEATFA	California Alternative Energy and Advanced Transportation Financing Authority
CAGI	Compressed Air and Gas Institute
CAHP	California Advanced Home Program
CALBO	California Association of Building Officials
CALGreen	California Green Building Standards Code
CalTech	California Institute of Technology
CARB	California Air Resources Board
CASE	Codes & Standards Enhancement Study
CATALENA	California Analysis Tool for Locational Energy Assessment
CBECC	California Building Energy Code Compliance
CBO	Community-Based Organization
CCA	Community Choice Aggregator
CCC	(a) California Community Colleges [System]; (b) Customer Call Center
CCEC	California Climate and Energy Collaborative
CDCR	California Department of Corrections & Rehabilitation
CEA	Certified Energy Analyst
CEC	California Energy Commission
CED	Customer Engagement Division (formerly Business Customer Division)
CEDARS	California Energy Data and Reporting System
CEDMC	California Efficiency and Demand Management Council
CEEP	Commercial Energy Efficiency Program
CEESP	California Energy Efficiency Strategic Plan [*preferred acronym*]
CEU	Continuing Education Unit
CHEEF	California Hub for Energy Efficiency Financing
CI	Compliance Improvement [Subprogram]
CLTC	California Lighting Technology Center
CMHP	Comprehensive Manufactured Homes Program
CO	Carbon monoxide
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
COP	Coefficient of performance
COVID-19	Coronavirus Disease 2019
CPUC	California Public Utilities Commission
CRA	California Retailers Association
CRF	California Restaurant Foundation
CSE	Center for Sustainable Energy

Acronym or Abbreviation	Explanation
CSU	California State University [System]
CTA	Consumer Technology Association
CVAG	Coachella Valley Association of Governments
CWR	[WE&T] Career Workforce Readiness [Program]
D&S	Demonstration and Showcase
DAC	Disadvantaged Community (ies)
DEER	Database for Energy Efficient Resources
DER	Distributed Energy Resources
DG	Distributed Generation
DGS	[California] Department of General Services
DI	Direct Install [Program]
DOE	U.S. Department of Energy
DR	Demand Response
DS	See **D&S,** above
DSM	Demand-Side Management
ECA	Energy Code Ace
ED	[CPUC] Energy Division
EE	Energy Efficiency
EEAT	Energy Efficiency Online Audit Tool (aka Enhanced Energy Audit Tool)
EEC	Energy Education Center
e.g.	*Exempli gratia*: for example; such as
EM&T	Emerging Markets & Technologies
EM&V	Evaluation, Measurement & Verification
EMIS	Energy Management Information System
EMT	Energy Management Technologies
EPA	Environmental Protection Agency
EPIC	Electric Program Investment Charge
EPRI	Electric Power Research Institute
ESA	Energy Savings Assistance [Program]
ESPM	ENERGY STAR™ Portfolio Manager
ETCC	Emerging Technologies Coordinating Council
ETP	Emerging Technologies Program
eTRM	Electronic Technical Reference Manual
EUL	Effective (or Estimated or Expected) Useful Life
EV	Electric Vehicle
EVSE	Electric Vehicle Supply Equipment
FASP	Facility Assessment Service Program

Acronym or Abbreviation	Explanation
FTC	Foodservice Technology Center
GHG	Greenhouse Gas
GPF	Gallons Per Flush
GW, GWh	Gigawatts, Gigawatt-hours
GWP	Global Warming Potential
HAN	Home Area Network
HEA	Home Energy Advisor [Program]
HEEP	Higher Education Efficiency Performance [Program]
HER	Home Energy Report
HPWH	Heat Pump Water Heater
HTR	Hard-to-Reach
HVAC	Heating, Ventilation and Air Conditioning
HVACRedu	HVACRedu.net
ICC	International Code Council
IDD	Initial Delivery Date
IDSM	integrated demand-side management
i.e.	*Id est*: that is; that is to say; namely; in other words
IEET	Integrated Energy Education and Training (see **WE&T**, below)
IES	Illuminating Engineering Society
IGPP	Institutional and Government Energy Efficiency Partnership Program
IHACI	Institute of Heating and Air Conditioning Industries
ILP	Induction (Range) Lending Program
IOU	Investor-Owned Utility
I-REN	Inland Regional Energy Network
ISP	Industry Standard Practice
IT	Information Technology
JCM	Joint Cooperation Memorandum
K-12	Kindergarten through 12th grade schools
kW, kWh	Kilowatts, Kilowatt-hours
LADWP	Los Angeles Department of Water & Power
LED	Light-emitting diode
LEED	Leadership in Energy and Environmental Design
LGP	Local Government Partnership
M&V	Measurement and Verification
ME	Market Effects
MEU	Mobile Education Unit
MFEEP	Multifamily Energy Efficiency Program

Acronym or Abbreviation	Explanation
MICE	Midsize Industrial Customer Energy Efficiency [Program]
MW, MWh	Megawatts, Megawatt-hours
NAICS	North American Industry Classification System
NATE	North American Technician Excellence
NBI	New Buildings Institute
NCI	National Comfort Institute
NEEA	Northwest Energy Efficiency Alliance
Net RBn	Total Resource Net Benefit (or TRC Net Benefit)
NMEC	Net (or Normalized) Metered Energy Consumption
NTG	Net-to-Gross
OBF	On-Bill Financing
OBR	On-Bill Repayment
OP	Ordering Paragraph
P4P	Pay for Performance
P&C	Planning & Coordination [Subprogram]
PA	Program Administrator
PG&E	Pacific Gas & Electric Company
PHCA	Passive House California
PLA	Plug Load and Appliances [Program]
PPPC	Public Purpose Programs Charge
PRG	Procurement Review Group
PRM	Performance Rating Method
PSPBR	Public Sector Performance-Based Retrofit
PUC	See **CPUC,** above
PV	PhotoVoltaic
QA	Quality Assurance
QC	Quality Control
QI	Quality Installation
QM	Quality Maintenance
QS	Quality Service
RC	Reach Codes [Subprogram]
RCI	Residential, Commercial, and Industrial
RCT	Randomized Control Trial
RCx	Retro-commissioning
REEL	Residential Energy Efficiency Loan [Program]
REN	Regional Energy Network
Res DI	Residential Direct Install

Acronym or Abbreviation	Explanation
RFA	Request for Abstract
RFP	Request for Proposal
RIM	Ratepayer Impact Measure
RNC	Residential New Construction
SB	(a) Senate Bill; (b) Small Business
SBCCOG	South Bay Cities Council of Governments
SBD	Savings By Design [Program]
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison Company
SCG	Southern California Gas Company (aka SoCalGas or The Gas Company)
SCPD	Stanford Center for Professional Development
SDG&E	San Diego Gas & Electric Company
SEI	Strategic Energy Innovations
SEM	Strategic Energy Management [Program]
SEP	Smart Energy Program
SFP	Scaled Field Placement
SMB	Small and Medium (-sized) Business
SMUD	Sacramento Municipal Utility District
SoCalGas	Southern California Gas Company (aka SCG or The Gas Company)
SoCalREN	Southern California Regional Energy Network
SOC ESS	State of California Energy Strategy and Support [Program]
SSPC	Standing Standard Project Committee
Strategic Plan	See **CEESP,** above
SW or S/W	Statewide
SWEETP	Statewide Electric Emerging Technologies Program
SWL	Statewide Lighting [Program]
T&D	Transmission and Distribution
TA	Technology Assessment [Subprogram]
TAG	Technical Advisory Group
TDS	Technology Development Support [Subprogram]
TDV	Time Dependent Valuation
TE	Transportation Electrification
TEC	The Energy Coalition
TIS	Technology Introduction Support [Subprogram]
TLL	Tool Lending Library
TPI	Third-Party Implementer (or Third Party-Implemented)
TPM	Technology Priority Map

Acronym or Abbreviation	Explanation
TRC	(1) Total Resource Cost; (2) TRC Solutions, a third-party implementer *Note: see also Net Rbn, above.*
TSB	Total Savings Benefit
UAT	Universal Audit Tool
UC	University of California
USGBC	U.S. Green Building Council
VR	Virtual Reality
VCREA	Ventura County Regional Energy Alliance
WCEC	Western Cooling Efficiency Center
WE&T	Workforce Education & Training
WE&T IEET	WE&T Integrated Energy Education and Training [Subprogram]
WISE	Water Infrastructure System Efficiency [Program]
WRCOG	Western Riverside Council of Governments
ZNE	Zero Net Energy

Attachment B

Notice of Availability of Southern California Edison Company's Posting of 2022 Energy Efficiency Programs Annual Report and Supporting Documents

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE

STATE OF CALIFORNIA

Order Instituting Rulemaking Concerning Energy Efficiency Rolling Portfolios, Policies, Programs, Evaluation, and Related Issues.	Rulemaking 13-11-005

NOTICE OF AVAILABILITY OF SOUTHERN CALIFORNIA EDISON COMPANY'S (U 338-E) POSTING OF 2022 ENERGY EFFICIENCY PROGRAMS ANNUAL REPORT AND SUPPORTING DOCUMENTS

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Dated: **June 1, 2023**

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE

STATE OF CALIFORNIA

Order Instituting Rulemaking Concerning Energy Efficiency Rolling Portfolios, Policies, Programs, Evaluation, and Related Issues.	Rulemaking 13-11-005

NOTICE OF AVAILABILITY OF SOUTHERN CALIFORNIA EDISON COMPANY'S (U 338-E) POSTING OF 2022 ENERGY EFFICIENCY PROGRAMS ANNUAL REPORT AND SUPPORTING DOCUMENTS

Pursuant to the Administrative Law Judge's Ruling Adopting Annual Reporting Requirements for Energy Efficiency and Addressing Related Reporting Issues dated August 8, 2007, Southern California Edison Company (SCE) hereby provides notice to the service list in proceeding R.13-11-005 that the following documents are available for viewing and downloading on Proposal Evaluation & Proposal Management Application (PEPMA) website within 10 days:

SCE's 2022 Energy Efficiency Annual Report (Annual Report) and supporting documents, including the following appendices, as shown in the table of contents:

- Appendix A – Annual Report Tables
- Appendix B – Southern California Edison Programs for 2022
- Appendix C – Statewide and Third Party-Implemented Programs
- Appendix D – Regional Energy Networks Joint Cooperation Memoranda
- Appendix E – List of Acronyms and Abbreviations

Additionally, SCE provides notice to the above-referenced service list that the Annual Report, in Section 9, highlights the key activities of the statewide Workforce, Education and Training (WE&T) Program for 2022 in compliance with D.09-09-047.

Respectfully submitted,

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