

**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) 2021 ANNUAL REPORT
FOR ENERGY EFFICIENCY PROGRAMS**

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Dated: **June 1, 2022**

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Southern California Edison Company (SCE) hereby submits its 2021 Energy Efficiency Annual Report (Annual Report) for its energy efficiency programs and results for Program Year 2021, 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. 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, listing all third party contracts in place, along with the information in Ordering Paragraph 8 of that Decision. A public version of the list of third party contracts is attached to this Annual Report as Appendix F and E. A confidential version has been sent directly to the Commission’s Energy Division via the CPUC Secure File Transfer Protocol site.

SCE is concurrently filing a Notice of Availability of the 2021 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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Attachment A

SCE's 2021 Energy Efficiency Annual Report

2021

ENERGY EFFICIENCY ANNUAL REPORT

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Executive Summary

Southern California Edison Company (SCE) continues to maintain its customer-focused approach by building on its leadership role in the energy efficiency (EE) industry, advancing the transition and modernization of its EE portfolio design, transitioning to a new EE third-party model, and meeting California's clean energy goals.

Serving residential, commercial, industrial, agricultural, public, and other customers across the state, in 2021 SCE continued to deliver a diverse, innovative, and cost-effective EE portfolio designed to meet customer needs and enhance community safety while progressing toward the state's 2045 carbon neutrality goals. For SCE, the EE landscape continues to experience rapid change with meaningful opportunities in several sectors. The actions pursued and progress made in 2021 supported SCE's objectives:

- Meeting its EE goals
- Maximizing cost-effectiveness while successfully managing budget and energy savings
- Delivering on the energy needs of its customers, and
- Striving toward its corporate Pathway 2045¹ objective.

This summary captures SCE's EE strategic direction, highlights SCE's progress towards energy savings goals, and offers areas of improvement to advance the transformation and modernization of the EE portfolio.

In 2021, SCE's EE programs collectively achieved 1.578 billion kilowatt-hours (kWh) of annualized energy savings and 265 megawatts (MW) of peak demand reduction, equivalent to powering more than 247,239 standard California residential homes annually. SCE's total 2021 EE portfolio achieved a Total Resource Cost (TRC) ratio of 0.56 (without Codes & Standards), the same TRC from 2020, and a TRC of 3.41 (with Codes & Standards) compared to 3.89 in 2020. Including Codes & Standards, SCE achieved 158% and 130% of its 2021 savings and demand reduction goals, respectively.²

SCE's EE portfolio also made significant progress toward its environmental impact targets in 2021. The EE portfolio realized nearly 390,000 annual tons of CO₂ avoided, which exceeds the 2021 portfolio target of approximately 320,000 annual tons of CO₂ avoided. This amount of CO₂ avoided in the year equates to approximately the annual CO₂ output of 83,000 cars. This equates to over 6.4 million lifecycle tons of CO₂ avoided versus a target of over 4.4 million lifecycle tons of CO₂ avoided.

¹ SCE's Pathway 2045 Whitepaper. Link provided in *Appendix I*, below.

² D.19-08-034, *Decision Adopting Energy Efficiency Goals for 2020–2030*. Link provided in *Appendix I*, below.

SCE's transition to a new Energy Efficiency paradigm, which began in 2018 in support of two decisions³ issued by the California Public Utilities Commission (CPUC or Commission), provided an opportunity for third parties to propose, design, implement, and deliver EE programs, under contract, to a utility program administrator (PA). In 2021, consistent with our EE Business Plan and the objective of expanding the innovative solutions it offers to customers,⁴ SCE:

- Completed the Statewide Emerging Technologies and Local Public Sector solicitations, which resulted in awarding contracts to third-party implementers that will design, deliver, and implement new programs for SCE customers, and
- Launched several more solicitations to meet these statewide and third-party requirements.

See Chapter 12, Third Party-Implemented Programs, for more information on new third-party programs and the solicitation process.

SCE continues to be an active participant in a stakeholder process to enable interested parties to collaborate with EE PAs and provide input into the PAs' EE programs, led by the California Energy Efficiency Coordinating Committee (CAEECC) since 2015.⁵ SCE participated in all CAEECC and associated sub-committee meetings.

Continuous improvements in the EE portfolio will require working with policy makers, as Investor Owned Utility (IOU) PAs continue to transition their EE programs towards programs increasingly designed and delivered by third parties and to support innovative and cost-effective programs that unlock customer value and result in a simplified customer experience.

In December 2019, the Upstream Lighting Program closed, and subsequently SCE's lighting program(s) transitioned to a statewide third party-implemented program administered by SCE as the statewide lead. In June of 2020, SCE retained an independent third party to investigate the Upstream Lighting Program's operations in connection with the Upstream Lighting proceeding (R.13-11-005) covering program years 2017-2019. Findings from that investigation identified shortcomings in SCE's program management that require improvements. As part of these findings, SCE has made several improvements in the energy efficiency portfolio and will continue to introduce additional processes and controls, as needed.

On December 23, 2021, the Commission issued a scoping memo and ruling related to addressing the issues associated with the Upstream Lighting Program. On May 24, 2022, the Commission issued an Order to Show Cause, in Docket R.13-11-005, addressing possible (1) refunds of ratepayer funding for the portion of the program budget associated with unaccounted-for lightbulbs, (2) refunds of shareholder awards associated with unaccounted-for lightbulbs, and

³ D.18-01-004, *Decision Addressing Third Party Solicitation Process for Energy Efficiency Programs*, and D.18-05-041, *Decision Addressing Energy Efficiency Business Plans*. Links are provided in *Appendix I*, below.

⁴ A.17-01-013, *Southern California Edison Company's Amended Energy Efficiency Rolling Portfolio Business Plan For 2018-2025*, Pages 9, 16-20. Link provided in *Appendix I*, below.

⁵ D.15-10-028, *Decision Re Energy Efficiency Goals for 2016 and Beyond and Energy Efficiency Rolling Portfolio Mechanics*. Link provided in *Appendix I*, below.

(3) penalties pursuant to Rule 1.1 and the Public Utilities Code. SCE will file a response to the ruling no later than June 20, 2022.⁶

SCE's 2021 Annual Report describes the full set of programs delivering cost-effective energy savings for our customers and details the strategies and accomplishments of SCE's program portfolio. SCE will continue to deliver on its commitments to customers and be a positive contributor to California's success in delivering cost-effective EE and meeting important environmental goals.

As we celebrate our 135-year legacy of serving California's families and businesses, SCE has renewed its commitment to make smart energy choices which save energy, save money, and accelerate our path to a 100% clean energy future. For highlights of the accomplishments of SCE's active EE portfolio during 2021, please see the program descriptions in each chapter of this report.

⁶ R.13-11-005, *Order to Show Cause Directing Southern California Edison Company to Address Upstream Lighting Program Issues for Program Years 2017 Through 2019*. Link provided in *Appendix I*, below.

1. Residential Energy Efficiency Programs

SCE's residential 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).⁷ Five programs make up the residential portfolio:

- Home Energy Advisor Program
- Plug Load and Appliances Program
- Residential New Construction Program
- Residential Direct Install Program, and
- AB 793 Pay for Performance Program.

All five programs achieve energy savings and demand reduction by implementing unique approaches to help customers overcome the financial costs required to upgrade inefficient equipment and by providing rebates for viable energy efficiency (EE) technologies. The programs are available to homeowners, renters, multifamily property owners, and new construction builders.

In 2021, 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. Some highlights of 2021 include:

- Reaching more than 2.5 million customers with printed and e-mailed Home Energy Reports
- Helping customers reduce more than 187 megawatt-hours (MWh) of energy⁸
- Continuing to offer rebates for fuel substitution — that is, replacing fossil-fueled appliances with electric Heat Pump technologies, such as Heat Pump HVAC and Heat Pump Water Heaters, and
- Integrating energy efficiency and demand response by leveraging the Residential Direct Install Program smart thermostat installations to enroll eligible customers in the Smart Energy Program, thus demonstrating true IDSM.

⁷ CEESP January 2011 Update. Link provided in *Appendix I*, below.

⁸ Not including Codes & Standards Program energy savings. See also *Chapter 6, Codes and Standards*, below.

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

Strategies Implemented in 2021

Home Energy Reports

In 2021, SCE distributed HERs to more than 2.5 million residential customers. A total of eight HER waves were in operation in 2021 (Waves 2-9). SCE also implemented new and completely customized HERs for Electric Vehicle owners (EV HERs). These EV HERs focused on informing customers who charge at home with tips to save energy, details on how much they could save if they switched to an alternative EV rate, and links to EV rebates that may be available to some EV owners. EV HERs also provided bar charts to customers so they could compare their homes' electricity usage against their EV charging usage and see how much of their bills were spent on charging their EVs.

Overall, HER recipients benefited from the numerous energy efficiency recommendations, tips, links to rebates, and social science techniques implemented by the HERs, which resulted in helping customers reduce more than 137 million kilowatt-hours (kWh) of energy usage and 25 megawatts (MW) of peak demand.

HERs supported customers by promoting the following websites and programs:

- The SCE Marketplace, Solar and Battery Storage Marketplace, and Heat Pump Water Heater (HPWH) Marketplace (see under *Plug Load and Appliances Program*, below)
- Electric Vehicle Charging and Tips
- SCE Bill Assistance Programs
- Public Safety Power Shutoffs, and
- Enhanced Energy Advisor Tool Survey.

The HERs also provided web links to SCE's numerous support programs and to other critical energy-related information.

HEA EE Online Audit Tool (aka Enhanced Energy Advisor Tool [EEAT])⁹

The EEAT website¹⁰ offers customers an innovative online survey which provides customized EE tips, household improvements, and actions to help customers reduce energy use. EEAT was available in 2021 to all residential customers who have an active SCE "My Account" online, and was promoted to customers via HERs, promotional e-mails, and other multi-layered promotions. Over 76,000 residential customers completed an online audit in 2021.

EEAT offered more than one hundred energy saving tips to help customers reduce their energy consumption and modify energy-related behaviors, some of which include:

- "Consider your Green House Gas (GHG) Impacts"
- "Install a WiFi-Enabled Smart Thermostat"
- "Download a Connected Home Mobile Application"
- "Consider Switching to a Time-of-Use Rate Plan," and
- Multiple references of when best to use the SCE Marketplace.

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 available¹¹ for customers who were researching any of 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.

⁹ Also called Universal Audit Tool (UAT) or Energy Survey.

¹⁰ Link to Enhanced Energy Advisor Tool website provided in *Appendix I*, below.

¹¹ Link to the Online Buyer's Guide provided in *Appendix I*, below.

Plug Load and Appliances (PLA) Program

Program Description

The PLA Program developed and built upon its existing Point-of-Sale (POS) relationships by continuing relationships with Heat Pump Water Heater (HPWH) manufacturers and large distributors of Heat Pump Heating, Ventilation, and Air Conditioning systems (HP HVAC). The program worked with HPWH manufacturers to provide customers with \$1,000 instant rebates for purchasing qualifying HPWHs at multiple retail locations throughout SCE's service area. The Program also worked with more than ten HP HVAC distributors to provide instant discounts to contractors who replaced gas furnaces with fully electric and highly efficient HP HVAC systems.

Both offerings were available through the PLA Program until March 31, 2021, as the Program ramped down to prepare for the transition to a new statewide program administered by San Diego Gas & Electric Company (SDG&E).

Strategies Implemented in 2021

The SCE Marketplace

The PLA Program funded the implementation of the online SCE Marketplace, mandated under CPUC Resolution E-4820¹² and designed to help consumers become aware of Energy Management Technologies (EMTs) by offering rebates, energy-related information, scores, referrals to the lowest prices, and reviews and other information that will help customers determine the best products to purchase. The SCE Marketplace was operational throughout the year and continued providing benefits to customers through three related Marketplace pages:

- The EE SCE Marketplace: The principal website for customers to research energy-related information, identify and download energy-saving mobile apps, shop for appliances, obtain rebates for portable power stations, generators, electric lawn equipment, and a multitude of other energy savings products.
- The SCE Solar and Battery Storage Marketplace: A website created to support customers shopping for rooftop solar and battery backup products.
- The SCE HPWH Marketplace: A website developed to help customers identify HPWH rebates and find qualified contractors.

Residential New Construction (RNC) Program

The Residential New Construction (RNC) Program is a continuing statewide program that includes the California Advanced Homes Program (CAHP). The RNC Program is

¹² Resolution E-4820, *Request for Approval of AB 793 Advice Letters (ALs)*. Link provided in *Appendix I*, below.

designed to guide builders to produce energy-efficient homes in the most cost-effective manner.

California Advanced Homes Program (CAHP)

Program Description

CAHP, a subprogram of the RNC Program, provides comprehensive support for saving energy in the residential new construction sector, with a cross-cutting focus on sustainable design and construction, green building practices, EE, and emerging technologies. 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,¹³ and to prepare builders for future changes to these standards.

Strategies Implemented in 2021

Core Function Activities

- In preparation for the launch of the Statewide RNC program, "California Energy Smart Homes," CAHP closed to new enrollments on October 31, 2021. Existing eligible projects will remain in the program pipeline until construction is completed and incentives are paid.
- Technical review was performed for projects in the design and construction phase of the project lifecycle.

Outreach to Customers

- The program continued to outreach to customers through partnerships with organizations such as the Building Industry Association (BIA), United States Green Building Council (USGBC), and the California Association of Building Energy Consultants (CABEC).
- The program shared the enrollment closing date with potential customers for their awareness and to drive participation.

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, targeting specific geographic areas to alleviate energy hardship and electric system constraints and to assist lower-income

¹³ California Building Energy Efficiency Standards, California Code of Regulations, Title 24. Link provided in *Appendix I*, below.

customers who are not eligible for income assistance programs. The program enhances the EE knowledge and program participation of the targeted residential market segment, to drive them to undertake deeper 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 a set of EE measures, as well as water conservation measures such as high-efficiency toilets, low-flow shower heads, and faucet aerators, resulting in thorough P program delivery.

Strategies Implemented in 2021

Core Function Activities

Continued installation of comprehensive EE measures (such as Smart Thermostat, Fan Delay Controller, Brushless Fan Motor, Duct Test and Seal,¹⁴ Low-Flow Showerhead, etc.) to optimize energy savings and help customers identify opportunities for demand response and efficient water use. The program's implementer continued to have face-to-face interactions with customers while following the safe work practices implemented during 2020 because of the COVID-19 pandemic.

Program Enhancements

To maximize cost-effective savings and boost Demand Response (DR) megawatt (MW) capacity, the program partnered with the DR Smart Energy Program (SEP) to enroll eligible customers in SEP by leveraging Smart Thermostat installations. A pre-screening process was used to identify SEP-eligible customers when scheduling Res DI installation appointments. During the appointment, the implementer promoted SEP and educated the customer on the benefits of participating. After obtaining customer consent for SEP enrollment, the implementer would register the newly installed Smart Thermostat for SEP.

Integrated Demand Side Management Activities

The Res DI Program exemplified integrated demand-side management (IDSMS) by helping to meet grid needs with increased DR MW capacity and improved cost-effectiveness for Res DI and SEP, resulting in a win-win for EE and DR:

- Res DI's cost-effectiveness improved by leveraging unspent IDSMS funds from Program Years 2018-2020 to cover the incremental cost of conducting SEP enrollment, and
- Res DI installed over 10,000 Smart Thermostats in 2021, and of those, almost 6,000 were enrolled in SEP, resulting in a 53% EE-to-DR enrollment conversion.

¹⁴ The Duct Test and Seal measure was implemented in accordance with the 2019 Building Energy Efficiency Standards – Title 24 (link provided in *Appendix I*, below). However, measure implementation did not incorporate the test-in and test-out requirements set forth in the measure package. As a result, all savings associated with this measure will be zeroed out for 2021 claims.

Outreach to Customers

- The program continued customer outreach and enrollment primarily through door-to-door canvassing and word of mouth. To assist with customer acquisition, the program established a landing page on SCE.com.¹⁵ The implementer also established a landing page on its website,¹⁶ specific to the Res DI-SEP integration, to assist with lead generation and customer acquisition.
- At the end of 2021, the program leveraged an SEP e-mail campaign to include messaging around Smart Thermostats offered through Res DI. The e-mail campaign only targeted customers who had previously participated in a DR program.

AB 793 Pay for Performance Program

Program Description

In 2017, California Assembly Bill (AB) 793¹⁷ and the associated CPUC Resolution E-4820¹⁸ mandated all the California IOUs to 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 in their homes or places of business.

Resolution E-4820¹⁹ also required SCE and the other IOUs to launch residential and SMB pay-for-performance (P4P) programs by the Fourth Quarter of 2017, with the goals of:

- Establishing a scalable P4P program model for residential EE in order to dramatically increase customer participation and measurable energy savings, and
- Effectively leveraging a set of meter-based energy savings calculation methods to measure Normalized Metered Energy Consumption (NMEC) savings across a pool of participating customers.

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. HomeIntel included a Smart Audit using meter data to provide savings recommendations and

¹⁵ Link to Residential DI Program landing page provided in *Appendix I*, below.

¹⁶ Link to Synergy Smart Energy Program page provided in *Appendix I*, below.

¹⁷ Assembly Bill (AB) 793, Energy Efficiency. Link provided in *Appendix I*, below.

¹⁸ Resolution E-4820, *Request for Approval of PG&E, SDG&E, SCE and SoCalGas' AB 793 Advice Letters* (ALs). Link provided in *Appendix I*, below.

¹⁹ *Ibid.*, OP 1.d.

feedback to participating customers, and provided energy coaches to help participants implement home energy savings projects. However, after more than a year of disappointing performance, SCE determined the HomeIntel Program was unsuccessful and discontinued it in mid-2019, and it has been inactive since that time.

For details on the Facility Assessment Services Program (FASP), see Chapter 12, Third Party-Implemented Programs, below.

Strategies Implemented in 2021

Due to low customer engagement and program performance, the HomeIntel Program was discontinued in 2019. As a result, in 2021, there was no activity for the HomeIntel Program. SCE has requested CPUC approval to close the Residential AB 793 Pay for Performance Program in the 2024-2031 Energy Efficiency Application.²⁰ Pursuant to the requirements of AB 793 and Resolution E-4820,²¹ SCE carried out the following activities in 2021 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.²²
- To meet the AB 793 P4P residential program requirements, SCE leveraged SCE's existing Home Energy Advisor Program²³ that includes the elements specified in the Assembly Bill. The Home Energy Advisor Program, which includes Home Energy Reports (HER), will continue through 2022 as the contract with its implementer was renewed for one year. This will cover the period until the new P4P Residential Behavior Program is launched by a third party implementer, ICF Resources.²⁴
- SCE followed up with customers by sending outreach letters to customers who had issues or complaints regarding payments and/or who were at risk of disconnection. Late in the year, because of new internal processing system changes, the letters were stopped and the follow-up effort was instead incorporated into SCE's Customer Call Center (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.

²⁰ 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*. Link provided in Appendix I, below.

²¹ Resolution E-4820, OP 1a-1e, OP 2a-2b, and OP 3.

²² See *Plug Load & Appliances Program*, above.

²³ See *Home Energy Advisor Program*, above.

²⁴ See *Chapter 12, Third Party-Implemented Programs*, below, for additional information on the ICF Residential Behavioral Program.

- SCE reported the 2018-2021 metrics in Table 1.1, the AB 793 Energy Management Technology (EMT) Metrics table, shown below.

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

Description		Metric	Marketing Target Segments	2018	2019	2020	2021
Customer Engagement	Marketplace Home Page	Count of clicks to Home Page	Mass Market / Low Income / DAC	393,940	371,356	351,926	543,512
	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
	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
	Energy Management Center Landings	Count of clicks on EMC landing page	Mass Market / Low Income / DAC	41,190	75,190	12,412	33,105
Customer Uptake	Smart Thermostat Rebates	Count of EE Rebates	Mass & Target Markets	52,526	24,222	-0-	-0-
		Count of DR Program Enrollment Rebates	Mass & Target Markets	20,695	14,358	6,745	12,197
	In-Home Display Device Rebates	Count of Rebates	Mass & Target Markets	61	51	171	200
	Green Button Download My Data*	Number of Green Button downloads	Mass Market	N/A	113,944	32,962	351,221
	Green Button Connect My Data	Count of completed 3rd Party authorizations	Mass Market	4,156	1,012	423	534

- * 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.

2. Commercial Energy Efficiency Programs

The Statewide Commercial Energy Efficiency (EE) Program offers 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. This program includes the following subprograms:

- Commercial Energy Advisor Program
- Commercial Calculated Energy Efficiency Program
- Savings By Design (SBD) Program)
- Commercial Deemed Energy Efficiency Program
- Midstream Point of Purchase (MPOP) Program
- Nonresidential HVAC Program, and
- Market-Based Incentives (MBI) Pilot Program.

Commercial Energy Advisor Program

Program Description

The Commercial Energy Advisor Program includes three components:

- Building Benchmarking, which aligns with Assembly Bill (AB) 802,²⁵ with California Energy Commission (CEC) benchmarking regulations, and with Public Resource Code §25402.10²⁶ which requires utilities to maintain records of the energy consumption data of all nonresidential buildings.
- Onsite Audit Services Information System (OASIS), a centralized and mobile-enabled on-site audit tool that provides capabilities to centralize and standardize audits delivering DSM recommendations for customers and integrates these findings with SCE's SAP customer database and processing system.
- Pump Efficiency Service (PES), also referred to as Hydraulic Services, which offers pump test services to SCE commercial customers such as water agencies. Pump tests are designed to help customers make informed decisions about improving inefficient pumping systems. The PES component also provides

²⁵ AB 802, Energy Efficiency. Link provided in *Appendix I*, below.

²⁶ California Public Resources Code 25402.10 (Chapter 5, Energy Resources Conservation). Link provided in *Appendix I*, below.

targeted education, training, technical support, and renovation and/or replacement incentives.

As of 2021, only the Building Benchmarking component of the Commercial Energy Advisor program remained active. The other two components were no longer part of the program, as follows:

- OASIS was used during pump tests to provide customers with a summary report of the opportunities to save energy. However, although the Energy Advisor Program no longer uses OASIS, SCE's Business Customer Division (BCD) continues to use OASIS exclusively for pump test audits.
- The PES (aka Hydraulic Services) transitioned away from EE funding because it no longer produces claimable energy savings, and was instead included in SCE's 2021 General Rate Case²⁷ (GRC) filing, since it aligns better with a customer service focus under GRC funding. With funding for the PES having moved to the GRC effective January 1, 2021, Onsite Audits were discontinued.

Strategies Implemented in 2021

In 2021, SCE implemented the following strategies for the Commercial Energy Advisor program:

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 ENERGYSTAR[™] Portfolio Manager (ESPM) system, which allows the building owners to receive the usage data from SCE and submit reports to the CEC.

In 2021, SCE's Benchmarking activities included:

- SCE fulfilled customer data requests for approximately 6,100 active buildings via the ABS system.
- In previous years SCE supported legacy benchmarking customers with usage data. (A legacy user is one who initiated a benchmarking request under Assembly Bill (AB) 1103,²⁸ which was replaced by AB 802 in 2017.) With the implementation of SCE's new customer data system via the Customer Service Replatform Project (CSR) in April 2021, all legacy benchmarking customers

²⁷ D.21-08-036, *Decision on Test Year 2021 General Rate Case for Southern California Edison Company*, §19.1.4.2. Business Account Management Services, pp. 314, 317. Link provided in *Appendix I*, below.

²⁸ AB 1103, Energy: commercial buildings: consumption. Link provided in *Appendix I*, below.

enrolled their buildings in the current Benchmarking Dashboard through SCE.com.

The CSRP system implementation impacted benchmarking data integrity and ABS functionality. These impacts included:

- Creation of some issues with aggregated building usage data accuracy, which SCE's Information Technology (IT) group is addressing, and
- Challenges regarding benchmarking data delivery to ENERGYSTAR[™] Portfolio Manager.

SCE continued to improve and work through solutions for the identified impacts.

Commercial Calculated Energy Efficiency Program

Program Description

The Commercial Calculated Energy Efficiency Program (also known as Customized Retrofit Offering Program) offers incentives for customized retrofit and BRO (Behavioral, Retrocommissioning and Operational)²⁹ EE projects. Through this program, customized incentives are paid based on a project's energy savings and permanent peak demand reduction above baseline energy performance — that is, above the requirements of state-mandated codes, federal-mandated codes, industry-accepted performance standards, or existing energy performance, as applicable.

Strategies Implemented in 2021

In 2021, SCE's focus was twofold, both promoting the Commercial Calculated Program's current EE measures and incentives and managing the closure of the program at year-end. The program was closed effective December 31, 2021,³⁰ but will continue managing approved projects in the pipeline until all are completed, which is expected to occur no later than December 2023.

Administrative Changes and Successes

- Transitioned to a new project tracking system, iEnergy. The iEnergy system was designed to capture more project-specific information, adding flexibility in accessing project data. iEnergy allows external stakeholders (Trade Professionals or "Trade Pros") to access specific information related to their projects in a secure environment which maintains the confidentiality of customer information.
- Developed alternative strategies to address the impact of COVID-19 on customer facilities. COVID-19 issues impacted the performance of energy audits as well as

²⁹ Formerly known as Retrocommissioning (RCx).

³⁰ AL 4633-E-A, *Southern California Edison Company's Energy Efficiency Program and Portfolio Annual Budget Advice Letter for Program Years 2022 and 2023*. Link provided in *Appendix I*, below.

pre-installation and post-installation inspections. Options implemented to resolve this issue included delaying inspections until the COVID-19 infection rate was identified as "low-risk" and — more often — conducting virtual inspections. All audits and inspections were performed in accordance with SCE and CPUC safety policies.

Core Function Activities:

- Implementing a targeted Exterior Port Lighting measure (Solution Code LT-21970). This measure was specially designed to reach customers with facilities billed under SCE tariff (rate schedule) ME (Maritime Entity).
- Continuing project coordination activities with the Southern California Regional Energy Network (SoCalREN) by providing guidance and reviews to qualify potential projects to participate in the program before its closing date.
- As a main area of focus, implementing the planned closure of the Commercial Calculated Program in order to enable a smooth transition to a new third party-implemented program.
- Continuing the management of approved projects in the pipeline until all are completed.
- Ensuring internal and external stakeholders were aware of the program's pending closure through communications which stated project submittal deadlines and program closure dates.

The program's anticipated closure and COVID-19 impacts created a difficult environment to achieve and validate energy savings. The program achieved approximately 6% of its kWh goal and 3% of its kW goal for the year.

Savings By Design Program

Program Description

The Savings By Design (SBD) program is a statewide nonresidential new construction (NRNC) program. This statewide program also includes Pacific Gas and Electric (PG&E), San Diego Gas and Electric (SDG&E), and the Southern California Gas Company (SoCalGas). The SBD Program provides 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.

Strategies Implemented in 2021

The Program's focus in 2021 was twofold:

- Promoting the program's current EE measures and incentives. Pursuant to this,

SBD developed the NAICS³¹ Reference Tool (NRT) to assist SCE's Business Customer Division in offering cost-effective commercial calculated measures to customers to help drive energy savings and program results. The NRT tool identified eligible commercial calculated measures in a summary format based on the specific customer's NAICS code.

- Managed the closure of the program in order to minimize disruption because of the implementation of the statewide third party-implemented new construction program, the California Energy Design Assistance (CEDA) Program. SBD closed to new enrollments effective March 31, 2021.³²

Administrative Changes and Successes

- SBD transitioned to a new project tracking system, iEnergy.
- SCE continued participation in the statewide CPUC-sponsored SBD team meetings discussing transition challenges and successes. Participation continued as the meeting topics evolved to address the successes and challenges encountered by the CEDA Program. To reflect this new focus, the meeting name was changed to "Statewide Monthly SBD and CEDA Meetings," and PG&E, the PA for CEDA, provided updates on program status to SCE and the other non-lead IOUs.
- SCE provided key input in the statewide meetings to address programmatic issues. One such issue discussed was the continued use of a 14-year default Equipment Useful Life (EUL) standard in SBD Whole Building Approach projects.

Core Function Activities and Retrofit Projects

- Continued managing approved projects in the pipeline and will continue until all are completed, which is expected to occur no later than December 2025.
- Ensured that internal and external stakeholders were aware of the program's pending closure through communications which stated project submittal deadlines and program closure dates.

The program's closure to new enrollments at the end of the First Quarter 2021 and the time needed to develop any new construction projects created a difficult environment in which to achieve energy savings. The SBD Program achieved approximately 163% of its kWh goal and 44% of its kW goal for the year.

³¹ North American Industry Classification System.

³² AL 4285-E-A, *Southern California Edison Company's Energy Efficiency Program and Portfolio Annual budget Advice Letter for Program Year 2021*. Link provided in *Appendix I*. below.

Commercial Deemed Energy Efficiency Program

Program Description

The Commercial Deemed Energy Efficiency Program (advertised to customers as "Energy Efficiency Express Solutions") offered eligible business customers incentives that encouraged common, standardized EE equipment retrofits. Deemed retrofit measures had fixed incentive amounts per measure unit and were intended for projects that had well-defined energy and demand savings. Projects were typically identified through customer communications with SCE representatives, SCE contractors, and/or partnerships with equipment vendors, distributors, and trade allies.

The top measures installed in 2021 were variable frequency drives (VFDs) on agricultural well pumps, efficient evaporator fan motors, adding glass doors to medium-temperature cases, and anti-sweat heater (ASH) controls.

The Commercial Deemed Program was closed effective July 1, 2021 in support of the new third party-implemented local commercial deemed and calculated EE Programs³³ launched in the Third Quarter of 2021.

See Chapter 12, Third Party-Implemented Programs, below.

Strategies Implemented in 2021

In 2021, SCE implemented the following strategies for the Commercial Deemed Energy Efficiency Program:

- Maintained useful tools and resources to assist SCE's Business Customer Division account managers in offering cost-effective deemed measures to commercial customers, including the NAICS Reference Tool (NRT).³⁴ This Excel tool references a NAICS code and displays eligible measures, which helps account managers offer relevant solutions to specific groups of customers based on approved building types mapped to the Database of Energy Efficient Resources (DEER).³⁵
- Updated SCE's Solutions Directory — a customer-facing document that describes SCE's nonresidential EE measures — each quarter to ensure that program offerings were current and met deemed workpaper requirements. At the beginning of 2021, deemed workpapers were updated at the statewide level, resulting in the creation of new solution codes. SCE conducted a mapping exercise to map the new solution codes to existing codes so that measure claims

³³ See also *Chapter 12, Third Party-Implemented Programs*, Willdan Commercial Energy Efficiency Program.

³⁴ See under *Savings By Design Program*, above.

³⁵ Database of Energy Efficient Resources (DEER). Link provided in *Appendix I*, below.

were accurate and customer-facing documents contained the correct measure eligibility requirements.

- Continued to utilize the Policy Product Change Checklist (PPCC) — an internal checklist used to communicate key program changes around policy, products, incentives, and measures — to enhance program communications to internal and external stakeholders. The PPCC ensured that all required changes and updates were made to systems and that all parties, internal and external, received updates about program changes in a timely manner.

Midstream Point of Purchase Program (MPOP)

Program Description

In 2021, SCE continued to offer the Midstream Point of Purchase (MPOP) Program as a deemed measure offering through June 2021. The MPOP Program offered point-of-purchase (POP) incentives on qualified LED lighting and food service technologies to nonresidential customers through a distributor delivery channel. SCE reimbursed participating distributors a pre-authorized incentive amount for each qualifying product sold to an eligible business customer. The distributor collected the customer information at the point of purchase and provided product data to SCE through an online tool for invoice processing. SCE validated the customer and product data and issued payment to the distributor.

The top measures by savings installed in the 2021 MPOP Program were LED T8 Type A tubes and LED high/low bays.

The MPOP Program was closed in support of the new third party-implemented California Statewide Lighting Program³⁶ that rolled out July 1, 2021.

Strategies Implemented in 2021

In 2021, SCE implemented the following strategies for the MPOP Program:

- Maintained approximately 69 distributor partners but did not actively recruit or enroll additional new partners since the program was in the process of ramping down until its closure effective July 1, 2021.
- During the first six months of 2021, MPOP continued to manage more than 100,000 eligible products and maintained product eligibility lists (based on three LED workpapers) by utilizing the Design Lights Consortium (DLC) Product List. This information was stored in SCE's Online Application Tool (OLT) for product eligibility validation when product data was submitted to SCE.

³⁶ See *Chapter 12, Third Party-Implemented Programs*, California Statewide Lighting Program, below.

- Continued to maintain and offer distributor- and customer-friendly product eligibility information sheets on LED high/low bay and LED Type A, B and C tube products, so that distributors and customers could easily view all product requirements in a single document.
- Continued to offer On-Bill Financing (OBF)³⁷ to customers for MPOP lighting measures.

Nonresidential HVAC Program

The Statewide Nonresidential HVAC (Heating, Ventilation & Air Conditioning) Program included three subprograms:

- Upstream HVAC Equipment Incentive Program
- HVAC Commercial Quality Installation (QI) Program, and
- HVAC Commercial Quality Maintenance (QM) Program.

The Nonresidential HVAC Program was closed³⁸ at the end of the First Quarter of 2021 as it was superseded by the new third party-implemented Statewide Nonresidential HVAC Program (administered by SDG&E) that was launched on April 1, 2021.

Upstream HVAC Equipment Incentive Program

Program Description

The Upstream HVAC Equipment Incentive Program offered incentives to distributors who sell qualifying high-efficiency HVAC equipment, in order to increase the regional stocking and promotion of such equipment. Upstream HVAC included an Early Retirement subprogram offering incentives to contractors to work with customers and influence them to replace old, inefficient operating equipment with new, high-efficiency equipment.

Strategies Implemented in 2021

In the First Quarter of 2021, SCE continued the following strategies for the Upstream HVAC Equipment Incentive program:

- Continued to actively promote the program to build on distributor and manufacturer participation and added two new distributors.
- Continued the "Non-DEER Chiller Performance Data Gathering and Evaluation Including the Workpaper Development Plan" study to support the broadening of available air-cooled and water-cooled chiller measures based on Title 24 Path

³⁷ See *Chapter 5, Finance Programs*, below.

³⁸ AL 4285-E-A, *SCE's EE Program and Portfolio Annual Budget Advice Letter for Program Year 2021*. Link provided in *Appendix I*, below.

B.39 The current Database for Energy Efficient Resources (DEER) approach is based on Title 24 Path A, although chiller distributors and SCE's program data suggest that the majority of chiller equipment distribution and implementation is based on Path B performance characterization.

- Activities of this study included:
 - Conducting a market assessment of available equipment
 - Gathering chiller performance data to develop performance curves, and
 - Identifying gaps and making recommendations for tier structures to promote the adoption of variable-speed machines with high efficiencies during part-load operations.
- The work on this study resulted in two critical items expected to improve program chiller offerings:
 - Improvements in policy (DEER2022 / E-508240) and tier efficiency levels for Non-DEER Path-B Chillers, and
 - The development of a Non-DEER Path-B Chillers workpaper (Measure Package), approved by the CPUC on October 25, 2021.⁴¹
- Supported the CPUC Statewide Lead Program Administrator (PA) model Decision.⁴²
- Coordinated with the lead Program Administrator, SDG&E, on monthly meetings to plan the rampdown of the program and the transition to the Statewide HVAC Upstream Program.

HVAC Commercial Quality Installation (QI) Program

Program Description

The HVAC Commercial Quality Installation (QI) Program was a subprogram of the nonresidential Statewide HVAC Program intended to continue the transformation of California's HVAC market. The QI Program was based on the premise that energy and demand savings are achievable through installation practices in accordance with the highest appropriate industry standards applied to commercial HVAC equipment, such as those of the following organizations:

39 California 2019 Building Energy Efficiency Standards, effective 1/1/2020 (Title 24, §110.2(a), Table 110.2-D; §140.4 (j)). Link provided in *Appendix I*, below.

40 Resolution E-5082, *Approval of the Database for Energy-Efficiency Resources Updates for Program Year 2022 and Revised Version for Program Years 2021 and 2020*. Link provided in *Appendix I*, below.

41 Non-DEER Path-B Chillers Workpaper link provided in *Appendix I*, below.

42 D.18-05-041, *Decision Addressing Energy Efficiency Business Plans*. Link provided in *Appendix I*, below.

- Air Conditioning Contractors of America (ACCA)
- Sheet Metal & Air Conditioning Contractors' National Association (SMACNA), and
- American Society of Heating, Refrigerating, & Air-Conditioning Engineers (ASHRAE.org).

Strategies Implemented in 2021

In the First Quarter of 2021, SCE's HVAC Commercial QI program:

- Continued to coordinate with the Workforce Education & Training (WE&T)⁴³ Program to provide classroom and hands-on training to HVAC students and technicians, and
- Coordinated with the lead Program Administrator, SDG&E, on monthly meetings to plan the rampdown of the program and the transition to the Statewide HVAC Upstream Program.

HVAC Commercial Quality Maintenance (QM) Program

Program Description

The HVAC Commercial Quality Maintenance (QM) Program addressed cooling and heating equipment maintenance practices to ensure that equipment was serviced per industry standards and that the maintenance efforts supported the long-term strategic goal of transforming the trade from commodity-based to quality-based.

Strategies Implemented in 2021

In the First Quarter of 2021, the QM Program continued to bolster performance by reviewing barriers described by participating contractors, customers, and the CPUC. Specific strategies included:

Core Function Activities

- Continued to offer cost-effective measures with high energy savings and discontinued incentives for measures with a TRC of 1.0 or lower.

Administrative Successes

- Continued to align with industry standard practice by allowing customers to enroll in a one-year maintenance agreement, as opposed to a three-year requirement. This aligned customer maintenance plan requirements with objectives described

⁴³ See *Chapter 8, Workforce, Education, and Training Programs*, below.

in Section 4 of ASHRAE Standard 180.⁴⁴

Collaboration With External Partners

- Coordinated with the lead Program Administrator, SDG&E, on monthly meetings to plan the rampdown of the program and the transition to the Statewide HVAC Upstream Program.

Market-Based Incentives (MBI) Pilot Program

Program Description

SCE filed Advice Letter 3992-E⁴⁵ with the CPUC on April 19, 2019, to request approval of a Market-Based Incentives (MBI) Pilot Program. The CPUC approved this Advice Letter on December 5, 2019 in Resolution E-5022.⁴⁶ The MBI Pilot Program was an online reverse auction for financial incentives, where pre-qualified customers submitted bids to receive incentives for EE process measures.

SCE, acting as a good steward of customer funds, developed the MBI Pilot to re-engage Large (≥ 1 MW) Commercial and Industrial (C&I) customers that have unique EE opportunities. MBI was also intended to test:

- Streamlined eligibility rules for targeted Customized EE customers
- A new and innovative incentive mechanism, and
- Financial influence as the driver for participation.

MBI was rolled out on April 1, 2020 and was marketed to eligible C&I customers through SCE's Business Customer Division account managers. However, between April 1 and December 31, 2020, no projects (or bids) were submitted. Analysis of the marketplace showed that interest was lacking even before the advent of the COVID-19 pandemic.

Consequently, despite efforts to drive program participation, the MBI Pilot was sunsetted effective December 31, 2020. SCE requested CPUC approval to close the Market Based Incentive Pilot Program in its *Annual Budget Advice Letter for Program Years 2022-2023*, filed on November 8, 2021 and approved on February 15, 2022.⁴⁷

⁴⁴ ASHRAE Standard 180, Standard Practice for Inspection and Maintenance of Commercial Building HVAC Systems. Link provided in *Appendix I*, below.

⁴⁵ AL 3992-E, *Southern California Edison Company's Request for Approval of Market-Based Incentive Pilot*. Link provided in *Appendix I*, below.

⁴⁶ Resolution E-5022, *Modifies and approves AL 3992-E which proposes a pilot program utilizing a modified energy efficiency custom projects application process for industrial and large commercial customers*. Link provided in *Appendix I*, below.

⁴⁷ AL 4633-E-A, *Southern California Edison Company's Energy Efficiency Program and Portfolio Annual Budget Advice Letter for Program Years 2022 and 2023*. Link provided in *Appendix I*, below.

3. Industrial Energy Efficiency Programs

The Statewide Industrial Energy Efficiency Program works 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 program is designed to overcome the traditional market barriers to energy efficiency (EE), while also advancing distributed generation (DG) and demand response (DR) opportunities. The four programs that provide the core EE products and services offered to industrial customers include:⁴⁸

- Industrial Energy Advisor Program
- Industrial Calculated Energy Efficiency Program
- Industrial Deemed Energy Efficiency Program, and
- Strategic Energy Management Program.

Industrial Energy Advisor Program

Program Description

The Industrial Energy Advisor Program included two components:

- Onsite Audit Services Information System (OASIS), a centralized and mobile-enabled on-site pump test audit tool that provides capabilities to centralize and standardize audits delivering DSM recommendations for customers, integrates these findings with SCE's SAP customer database and processing system.
- Pump Efficiency Service (PES), also referred to as Hydraulic Service, offers pump test services to SCE industrial customers. Pump tests are designed to help customers make informed decisions about improving inefficient pumping systems. The PES component also provides targeted education, training, technical support, and renovation and/or replacement incentives.

As of 2021 all components of the Industrial Energy Advisor Program were closed. However:

- OASIS was used during pump tests to provide customers with a summary report of the opportunities to save energy. However, although the Energy Advisor Program no longer uses OASIS, SCE's Business Customer Division (BCD) continues to use OASIS exclusively for pump test audits.
- The PES transitioned away from EE funding because it no longer produces claimable energy savings. Instead, it was included in SCE's 2021 General

⁴⁸ The Industrial Continuous Energy Improvement (CEI) Program was closed as of December 31, 2018.

Rate Case⁴⁹ (GRC) filing since it aligns better with a customer service focus under GRC funding. With funding for the Pump Efficiency Service moved to the GRC effective January 1, 2021, On-Site Audits were discontinued.

Strategies Implemented in 2021

There was no activity for the Industrial Energy Advisor Program in 2021. SCE requested CPUC approval to close the Industrial Energy Advisor Program in its 2022-2023 *Annual Budget Advice Letter* (ABAL),⁵⁰ filed on November 8, 2021, and approved on February 15, 2022.

Industrial Calculated Energy Efficiency Program

Program Description

The Industrial Calculated Energy Efficiency Program offered incentives for customized retrofit and Behavioral, Retrocommissioning and Operational (BRO) energy efficiency projects. Incentives were paid based on a project's energy savings and permanent peak demand reduction above baseline energy performance — that is, above the requirements of state-mandated codes, federal-mandated codes, industry-accepted performance standards, or existing energy performance, as applicable.

Strategies Implemented in 2021

In 2021, SCE's focus was twofold, both promoting the program's current energy efficiency measures and incentives and managing the closure of the program at year-end. The Industrial Calculated Program closed to new enrollments effective June, 2021,⁵¹ but will continue managing approved projects in the pipeline until all are completed, which is expected to occur no later than December 2023.

Administrative Changes and Successes

- Transitioned to a new project tracking system, iEnergy. The iEnergy system was designed to capture more project-specific information, adding flexibility in accessing project data. iEnergy allows external stakeholders (Trade Professionals or "Trade Pros") to access specific information related to their projects in a secure environment which maintains the confidentiality of customer information.
- Developed alternative strategies to work around the impact of COVID-19 on customer facilities. COVID-19 issues impacted the performance of energy audits

⁴⁹ D.21-08-036, *Decision on Test Year 2021 General Rate Case for Southern California Edison Company*, §19.1.4.2. Business Account Management Services, pp. 314, 317. Link provided in *Appendix I*, below.

⁵⁰ AL 4633-E-A, *Southern California Edison Company's Energy Efficiency Program and Portfolio Annual Budget Advice Letter for Program Years 2022 and 2023*. Link provided in *Appendix I*, below.

⁵¹ AL 4285-E-A, *Southern California Edison Company's Energy Efficiency Program and Portfolio Annual Budget Advice Letter for Program Year 2021*. Link provided in *Appendix I*, below.

and pre-installation and post-installation inspections. New project submittals were limited in 2021, mostly due to the pending closure of the program. Ultimately, COVID-19 had minimal impact on program performance.

Core Function Activities

- Continued project coordination activities with various SCE-recognized Trade Professional organizations and with the Southern California Regional Energy Network (SoCalREN).
- As a main area of focus for 2021, implemented a plan to close the Industrial Calculated Program and the other Calculated programs — Agricultural, Commercial, and Savings By Design (SBD) — in order to enable a smooth transition to new third party-implemented local and statewide programs.
- Because the Industrial Calculated program closed to new projects as of June, 2021,⁵² the program team ensured that internal and external stakeholders were aware of the program's pending closure through communications which stated project submittal deadlines and program closure dates.

The forecast for 2021 reflected the challenge of closing the program and diminished program participation compared to previous years. No projects were completed in 2021, resulting in no (zero) reportable kWh or kW by the year-end.

Industrial Deemed Energy Efficiency Program

Program Description

The Industrial Deemed Energy Efficiency Program (advertised to customers as "Energy Efficiency Express Solutions") offered eligible industrial customers incentives that encouraged common, standardized EE equipment retrofits. Deemed retrofit measures had fixed incentive amounts per measure unit and were intended for projects with well-defined energy and demand savings. Projects were typically identified through utility customer communications with local SCE representatives, SCE contractors, and/or partnerships with equipment vendors, distributors, and trade allies.

Strategies Implemented in 2021

In 2021, all strategies for the Industrial Deemed Energy Efficiency Program were undertaken in coordination with the Commercial and Agricultural Deemed Energy Efficiency Programs. Despite SCE's efforts, no Industrial Deemed projects were submitted in 2021.

⁵² Ibid., Table 10 – Summary of Program Changes for PY 2021, Page 22.

The Industrial Deemed Program was closed effective July 1, 2021 to new enrollments,⁵³ in support of the new third party-implemented local industrial deemed and calculated EE Programs that rolled out in the Third Quarter of 2021.

For more information on specific strategies, see the Commercial Deemed Energy Efficiency Program in Chapter 2, above. See also the Agriculture Deemed Energy Efficiency Program in Chapter 4, below.

Strategic Energy Management (SEM) Program

Program Description

The Strategy Energy Management (SEM) Program, launched statewide by the California IOUs in 2018, engages large industrial customers in 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* and the *California Industrial SEM Measurement and Verification (M&V) Guide*,⁵⁴ includes a full spectrum of services:

- Customer workshops with clearly defined learning objectives and well-facilitated peer-to-peer learning
- Biennial (that is, once during each two-year cycle) 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
- 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, Retrocommissioning 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.

Currently, the majority of SEM participants are located within SCE's Southern California service area. 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, and further

⁵³ Ibid.

⁵⁴ Links provided in *Appendix I*, below.

expanded into five cohorts in 2021 (see the table below). The implementer continues to target its recruitment efforts on industrial customers with high annual usage, working with SCE's Business Customer Division (BCD) to recruit and enroll customers into a cohort, and provides all SEM Program services.

Table 2.1. SEM Program Cohorts 2018-2021

Cohort	Cycle	Number of Participants	Two-Year Engagement Start & End Dates	Industry Types ("Verticals")
1 *	Cycle 1	8	8/1/2018 - 7/31/2020	<ul style="list-style-type: none"> • Beverages • Industrial gases • Food processing • Metal smelting • Plastic packaging • Water bottling
	Cycle 2	5	8/1/2020 - 7/31/2022	<ul style="list-style-type: none"> • Metal processing • Food processing • Water bottling • Industrial gases
2 *	Cycle 1	7	1/1/2020 - 12/31/2021	<ul style="list-style-type: none"> • Aerospace • Beverages • Cardboard packaging • Construction materials
3 **	Cycle 1	7	1/1/2020 - 12/31/2021	<ul style="list-style-type: none"> • Aerospace • Beverages • Food processing • Plastic formulation
2 / 3 *	Cycle 2	6	1/1/2022 - 1/1/2024	<ul style="list-style-type: none"> • Food processing • Aerospace • Construction materials • Plastic manufacturing
4 **	Cycle 1	10	01/01/2021 - 12/31/2022	<ul style="list-style-type: none"> • Aerospace • Food processing • Plastic manufacturing • Packaging manufacturing (paper and Styrofoam) • Mineral processing • Steel manufacturing
5 **	Cycle 1	10	11/01/2021 - 10/31/2023	<ul style="list-style-type: none"> • Cement • Water • Plastic manufacturing • Food processing

* Co-funded by SCE & SCG. In Cohort 1, five participants renewed their Program participation for an additional two-year engagement, from 9/1/2020 to 8/31/2022.

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

Strategies Implemented in 2021

Administrative Changes and Successes

- SEM Program staff, the implementer, and SCE's third-party technical reviewers streamlined all aspects of SEM Program administration in 2021, including early planning for the year-end savings review process, scheduling regular check-in meetings, and developing the reporting process for measurement & verification (M&V). The Program team adapted to COVID-19 restrictions, which continued to enable them to complete deliverables and meet key deadlines during 2021. As a result, the SEM Program was able to complete the end-of-year reporting process sooner than expected.
- SCE's SEM program manager led the SEM Best Practices Working Group in coordination with IOUs, SEM third-party implementers (Cascade Energy, CLEAResult, and Leidos), technical reviewers, and ED Evaluators (kW Engineering, Energy 350, and SBW, among others) to develop a series of best practices for a number of SEM-identified concerns. The team developed recommendations for the first set of topics (listed below), presented to the CPUC Energy Division (ED), to be considered and implemented in the SEM Program Cycle 3 Guides update in 2022. SCE is continuing to lead the Working Group with an additional (second) set of topics:
- First Set of Topics:
 - Positive and negative savings outcomes
 - Bottoms-up calculations
 - Annualized savings, and
 - Demand savings.
- Second Set of Topics:
 - Incremental savings
 - Deliverables
 - Logic model
 - Participation by sites not in traditional industrial NAICS codes
 - Facility existing conditions vs. local regulations or Industry Standard Practice (ISP), and
 - Non-IOU fuel source (expanding SEM investigatory, measurement, and reporting activities to all equipment at participating facilities, regardless of fuel type provided).

Core Function Activities

Adjustments to Program implementation were made in the Second Quarter of 2020 due to the COVID-19 pandemic, shifting the Program to remote activities. Starting in 2021, a number of team check-ins, Energy Management Site Audits (EMSAs), and Treasure Hunts

were held in person. All participants were deemed essential businesses and continued to operate, so it was possible to find and complete savings projects despite the challenges.

The Program has five cohorts in various stages:

- Cohort 1 started the second year of Cycle 2 on August 1, 2021
- Cohorts 2 and 3 completed the first two-year cycle on December 31, 2021, and are beginning Cycle 2 of the program as a combined cohort group
- Cohort 4 wrapped up their first program year on December 31, 2021, and
- Cohort 5 started their first program year on November 1, 2021.

Program Successes

- Five participants in Cohort 1 moved on to Cycle 2 (two more years). The average incremental savings for these customers in Cycle 1 was almost 3 million kWh.
- A participant in Cohort 1 highlighted their success with the SEM Program in their Corporate Social Responsibility Report.⁵⁵
- One participant in Cohort 3 finished its second program year with an energy savings rate of approximately 10.5%.
- Cohort 4 saw many successes in the first year of the program, with a mineral producer saving over 4 million kWh and another participant saving approximately 10% of their energy use.
- Participants were featured in several online publications highlighting their success stories.⁵⁶
- 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.
- The Program developed a pipeline of SEM-influenced custom capital projects that could potentially move through the standard custom (calculated) process in 2022.

⁵⁵ Bonduelle Fresh Americas, *Corporate Social Responsibility Report for Fiscal Year 2020*, p. 15. Link provided in *Appendix I*, below.

⁵⁶ Active Efficiency in Action, Alliance to Save Energy Case Study, "Strategic Energy Management at Bonduelle Fresh Americas - Active Efficiency Collaborative"; SCE's *Energized by Edison* newsletter of July 19, 2021, featured SEM customers Glanbia and Sierra Aluminum in "Energy Saved is Money Earned for High-Usage Customers" by Ben Gallagher; and the U.S. Dept. of Energy's ENERGY STAR[™] website published "With Strategic Energy Management, Continuous Savings Are the Name of the Game." Links provided in *Appendix I*, below.

Participants in all cohorts generated about 2,000 energy savings projects since the beginning of the Program, or more than 60 projects per site. More than 540 projects have been completed in the program since its inception, about 200 of which were completed in the 2021 calendar year.

Outreach to Customers

At the onset of 2021, the implementer finalized recruitment of ten large industrial sites into SEM Cohort 4. In the Third Quarter, the SEM Program began recruitment for a new cohort of ten more sites, which was successfully launched in November of 2021.

Market-Based Incentives (MBI) Pilot Program

Program Description

On April 19, 2019, SCE submitted Advice Letter (AL) 3992-E⁵⁷ to request Commission approval of a Market-Based Incentives (MBI) Pilot Program. The CPUC issued Resolution E-5022⁵⁸ approving AL 3992-E on December 5, 2019.

For a detailed program description, please see the Market-Based Incentives (MBI) Pilot Program in Chapter 2, Commercial Energy Efficiency Programs, above.

⁵⁷ AL 3992-E, *SCE Request for Approval of MBI Pilot*. Link provided in *Appendix I*, below.

⁵⁸ Resolution E-5022, *Modifies and approves AL 3992-E*. Link provided in *Appendix I*, below.

4. Agriculture Energy Efficiency Programs

The Statewide Agriculture Energy Efficiency (EE) Program offers Demand Side Management (DSM) 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.

This program includes the following subprograms:

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

Two key areas of focus for the agriculture subprograms in 2021 were:

- To continue operating programs as cost-effectively as possible, and
- Closing the programs to allow for a smooth transition to new third party-implemented programs.

Agriculture Calculated Energy Efficiency Program

Program Description

The Agriculture Calculated Energy Efficiency Program offered incentives for customized retrofit and Behavioral, Retrocommissioning and Operational (BRO) EE projects for agricultural customers. Incentives were paid based on energy savings and permanent peak demand reduction above baseline energy performance — that is, above the requirements of state-mandated codes, federal-mandated codes, industry-accepted performance standards, or existing energy performance, as applicable.

Strategies Implemented in 2021

In 2021, SCE's focus was twofold, both promoting the Agriculture Calculated Program's current EE measures and incentives and managing the closure of the program at year-end. The program closed effective December 31, 2021, but will continue managing approved projects in the pipeline until all are completed, which is expected to occur no later than December 2023.⁵⁹

Administrative Changes and Successes

- Transitioned to a new project tracking system, iEnergy. The iEnergy system was designed to capture more project-specific information, adding flexibility accessing project data. iEnergy allows external stakeholders (Trade Professionals

⁵⁹ AL 4633-E, *Southern California Edison Company's Energy Efficiency Program and Portfolio Annual Budget Advice Letter for Program Years 2022 and 2023*. Link provided in *Appendix I*, below.

or "Trade Pros") to access specific information related to their projects in a secure environment which maintains the confidentiality of customer information.

- Developed alternative strategies to work around COVID-19 impacted customer facilities. COVID-19 issues impacted the performance of energy audits as well as pre- and post-installation inspections. Options implemented to resolve this issue included delaying inspections until the infection rate was identified as "low-risk" and — more often — conducting virtual inspections. All audits and inspections were performed in accordance with SCE and CPUC safety policies.

Core Function Activities

- Continued project coordination with various SCE-recognized Trade Professional organizations and with the Southern California Regional Energy Network (SoCalREN).
- As a main area of focus, implemented a plan to close the Agriculture Calculated Program as well as the other Calculated programs — Commercial, Industrial, and Savings By Design (SBD) — in order to enable a smooth transition to new third party-implemented local and statewide programs.
- Ensured internal and external stakeholders were aware of the program's pending closure through communications which stated project submittal deadlines and program closure dates.

The program's anticipated closure and COVID-19 related impacts created a difficult environment to achieve and validate energy savings. The program was only able to achieve about 11% of its kWh goal, and none of the submitted projects resulted in any reportable kW reductions.

Agriculture Deemed Energy Efficiency Program

Program Description

The Agriculture Deemed Energy Efficiency Program (advertised to customers as "Energy Efficiency Express Solutions") offered eligible agricultural customers incentives that encouraged common, standardized EE equipment retrofits. Deemed retrofit measures had fixed incentive amounts per measure unit and were intended for projects that had well-defined energy and demand savings. Projects were typically identified through SCE's pump testing group, utility EE audits, customer communications with local SCE representatives, and/or partnerships with equipment vendors, distributors, and trade allies.

In its *Budget Advice Letter for Program Years 2022-2023*, filed on November 8, 2021, SCE requested CPUC approval to close the Agriculture Deemed EE Program.⁶⁰

⁶⁰ Ibid.

Strategies Implemented in 2021

In 2021, all strategies for the Agriculture Deemed Energy Efficiency Program were undertaken in coordination with the Commercial and Industrial Deemed Energy Efficiency Programs.

The top measures installed in 2021 continued to be variable frequency drives (VFDs) on well and booster pumps.

For more information on specific strategies, please see the *Commercial Deemed Energy Efficiency Program* in *Chapter 2*, above.

5. 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.

On-Bill Financing (OBF) Program

Program Description

SCE's OBF Program offers zero-interest, no fee financing for the installation of qualifying energy-efficient 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).⁶¹

The SCE programs eligible for OBF in 2021 included:

- Calculated Energy Efficiency (EE) Program
- Deemed ("Express Solutions") EE Program
- Midstream Point-of-Purchase (MPOP) Program
- Commercial HVAC Quality Maintenance Program
- Public Sector Performance Based Retrofit Program (PBRP)
- Strategic Energy Management (SEM) Program
- Various third party-implemented programs, and
- Local Government Partnership offerings.

In 2021, OBF funded over 95 loans covering more than 190 Service Accounts, representing over \$5 million in funded loans, and SCE received over \$7.5 million in loan repayments.⁶²

⁶¹ Link provided in *Appendix I*, below.

⁶² Figures represent projects installed in 2021, which may have been initiated or committed in previous program years.

Strategies Implemented in 2021

In 2021, 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:

Administrative Changes and Administrative Successes

- SCE implemented the Customer Service Replatform (CSRP) initiative, a company-wide project that replaced SCE's former customer database and processing system, CSS, in the largest cloud-based utility customer system implementation in North America. Impacts to the OBF Loan Agreements resulted from these system changes.
- To address these impacts, SCE filed Advice Letter 4403-E,⁶³ to implement minor changes, that do not impact loan amounts or terms, to the related OBF loan agreements resulting from CSRP.
- In another CSRP-related activity, the OBF Program team worked with SCE's Information Technology (IT) team to develop and update functional specifications, business requirements, and training documentation.
- SCE initiated a process to allow new third party-implemented projects to receive financing through OBF. This included Legal, Regulatory, and IT System assessments to ensure that OBF does not conflict with the newly implemented third party contracts.

Compliance with Decision (D.) 19-03-001

In order to address the safeguard and control requirement of D.19-03-001,⁶⁴ Ordering Paragraph (OP) 2, SCE continued to apply measures adopted in 2020 to reduce free ridership, including:

- Required a customer declaration to the OBF application stating that the project would not have been installed in the same fashion if it were not for the use of the OBF Program, and
- Utilized a Touchpoint Questionnaire to ask customers if the project would have been completed in the same capacity if not for the availability of OBF funding, and to confirm that all financed equipment is operational at the time of application.

⁶³ AL 4403-E, *Modification of Various Electric Tariffs Due to the Implementation of Southern California Edison Company's Customer Service Re-Platform*. Link provided in *Appendix I*, below.

⁶⁴ D.19-03-001, *Decision Granting Petition for Modification of Decision 09-09-047 Concerning On-Bill Financing*. Link provided in *Appendix I*, below.

SCE has internal safeguards to assure that customers are aware of the \$250,000 cap for OBF loans and incentives (so that SCE does not inadvertently pay incentives for projects where the customer intends to subsequently seek a loan for over \$250,000), such as:

- Having customers acknowledge the \$250,000 incentive cap on the OBF application,
- Communicating the \$250,000 cap to customers in the OBF Reservation Confirmation Letter they receive, and
- Using a Touchpoint Questionnaire to make sure customers understand that they are choosing financing over incentives.

In compliance with D.19-03-001, OP 4, SCE reports the following details for 2021:

- **Default Rates:** The OBF Program had no loan defaults in 2021. The total overall OBF Program default rate remained below 0.75% of all funded loan amounts since program inception.
- **Energy Savings:** The OBF Program does not claim energy savings directly. Instead, SCE will continue to report energy savings through the associated EE programs that OBF customers participate in.
- **Status of efforts to replace incentives with loans:** SCE did not fund individual OBF loans in 2021 over \$250,000; therefore, there is no data to report on the results of replacing incentives with loans.
- **Degree of free ridership, if any, associated with EE projects financed through the OBF Program:** Currently, the degree of free ridership is calculated in the Net-to-Gross (NTG) score for SCE's EE Incentive Programs. Additionally, SCE continued to use several safeguards and controls adopted in 2020 (outlined above) to avoid free ridership.

Marketing and Communications:

In 2021, SCE continued to promote the OBF Program through its Trade Professional (TradePro) network, SCE's Business Customer Division, and SCE's public website, SCE.com.

New Finance Offerings

Program Description

In accordance with D.13-09-044,⁶⁵ the IOUs, along with the California Alternative Energy and Advanced Transportation Financing Authority (CAEATFA, a subdivision of the

⁶⁵ D.13-09-044, *Decision Implementing 2013-2014 Energy Efficiency Financing Pilot Programs*. Link provided in *Appendix I*, below.

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,⁶⁶ commercially known as the GoGreen Home 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 residential properties and small businesses. The credit enhancements are expected to provide additional security to third-party lenders so that they can extend or improve credit terms for EE projects.

Strategies Implemented in 2021

In 2021, SCE worked with CAEATFA and the other IOUs to implement the following strategies for the New Finance Offerings:

Administrative Successes:

The CPUC issued an Order Instituting Rulemaking (OIR)⁶⁷ directing IOUs to explore financing solutions to incentivize the installation of clean energy solutions. As a result, the Commission issued Decision (D.) 21-08-006⁶⁸ which extended the CHEEF Program and authorized an additional \$75.2 million in ratepayer funds for Program implementation until June 2027. The estimated carryover amount from the original budget authorized by D.13-09-044 was \$23,986,777, and therefore, the incremental funding request from all IOUs was \$51,187,749. Out of this, SCE's funding allocation was \$14,898,169,

⁶⁶ Formerly also called the Residential EE Loan (REEL) Program.

⁶⁷ R.20-08-022, *Order Instituting Rulemaking to Investigate and Design Clean Energy Financing Options for Electricity and Natural Gas Customers*. Link provided in Appendix I, below.

⁶⁸ D.21-08-006, *Decision Extending California Hub for Energy Efficiency Financing Programs and Conditionally Approving Use of Platform for Non-Ratepayer Funded Programs*. Link provided in Appendix I, below.

corresponding to approximately 29.10%, which was requested through SCE's Advice Letter 4606-E,⁶⁹ filed jointly by the IOUs.

D.21-08-006 also authorized SCE to request recovery of up to \$500,000 annually to support information technology and marketing strategies. This funding request is part of SCE's EE funding application for 2024-2027, as indicated by Advice Letter 4595-E.⁷⁰

General Marketing Strategies

- The SCE program team, in coordination with CAEATFA and the IOU statewide team, deployed a comprehensive marketing strategy for the New Finance Programs in 2021 which included website landing pages, banner ads, translation services, printing, direct mail, e-mail "blasts," and social media.
- In coordination with the Center for Sustainable Energy (CSE), SCE's program team worked to increase traffic to the Pilots' statewide website, gogreenfinancing.com, by directing customers to the website from SCE's public website, SCE.com.

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.

GoGreen Home Program-Specific Strategies:

- SCE made over 120 GoGreen Home loans in 2021 that totaled over \$2.3 million.
- SCE's marketing team also worked with CSE, CAEATFA, and the IOU Statewide team to design marketing materials promoting GoGreen Home, including social media, e-mail, and direct mailing campaigns. Additionally, SCE provided customers with GoGreen program information through SCE's website,

GoGreen Business Program Pilot-Specific Strategies:

- The GoGreen Business Program has been available to SCE customers since 2019, but no loans were issued in 2021. The on-bill repayment (OBR) functionality that will allow customers to pay their loans through their electric bill is scheduled to go live in 2022.

⁶⁹ AL 4606-E, *SCE, PG&E, SDG&E, and SoCalGas Request for Approval of Incremental IOU Ratepayer Funding for CHEEF Programs through June 30, 2027*. Link provided in *Appendix I*, below.

⁷⁰ AL 4595-E, *Decision Extending CHEEF Programs and Conditionally Approving Use Of Platform For Non-Ratepayer Funded Programs*. Link provided in *Appendix I*, below.

- SCE's marketing team worked closely with CAEATFA and the statewide team to design and implement marketing campaigns promoting GoGreen Business that included Facebook, Twitter, and Instagram ads.
- SCE continued to promote the GoGreen Business Program through dedicated webpages on SCE.com.

GoGreen Multifamily Program Strategies:

- This pilot has been available to customers since 2019, but through 2021 the program did not make any loans in any of the IOUs' service territories.
- In 2021 SCE continued to support CAEATFA with the development of the OBR functionality for this pilot, as well as for the GoGreen Business Program Pilot. The OBR functionality for the GoGreen Multifamily Program is scheduled to go live in 2022.

6. Codes and Standards Program

Program Description

The Codes and Standards (C&S) Program includes three Statewide Advocacy subprograms:

- 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),⁷¹ 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). These Subprograms save energy 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.

Codes & Standards also includes three "local" Subprograms administered by SCE:

- The C&S Compliance Improvement Subprogram provides additional tools, resources, and training for compliance with all-electric options under the 2019 Title 24, Part 6 California Building Code by offering training and webinars (virtually in 2021, in response to the COVID-19 pandemic).
- 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 CEC, continually supports the California Building Energy Modeling (CalBEM)⁷² consortium to devise simple, elegant building energy modeling solutions to drive zero-carbon (or near-zero-carbon) building design and construction.

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 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

⁷¹ See *Appendix F, Statewide Third-Party Programs*, below.

⁷² Link to California Building Energy Modeling (CalBEM) website provided in *Appendix I*, below.

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^{73, 74}
- A cumulative doubling of statewide EE savings in electricity and natural gas final end-uses by January 1, 2030,⁷⁵ to reduce existing building energy usage by 50%, and
- Near-zero-emission building technologies to significantly reduce greenhouse gas (GHG) emissions from buildings,⁷⁶ in alignment with Executive Order B-55-18,⁷⁷ 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, Emerging Markets and Technology, 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 2021 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 Title 24, Part 6.⁷⁸
- Development of new cost-effectiveness studies to support local government reach codes, including tracking local governments' activities in addressing climate action plans and adopting reach codes by developing and continuously updating a web-based database.

⁷³ AB 398, California Global Warming Solutions Act of 2006: market-based compliance mechanisms: fire prevention fees: sales and use tax manufacturing exemption. Link provided in *Appendix I*, below.

⁷⁴ SB 32, California Global Warming Solutions Act of 2006: emissions limit. Link provided in *Appendix I*, below.

⁷⁵ SB 350, Clean Energy and Pollution Reduction Act of 2015. Link provided in *Appendix I*, below.

⁷⁶ SB 1477, Low-emissions buildings and sources of heat energy. Link provided in *Appendix I*, below.

⁷⁷ California Executive Order B-55-18 To Achieve Carbon Neutrality - State of California, September 10, 2018. Link provided in *Appendix I*, below.

⁷⁸ Building Energy Efficiency Title 24 Standards. Link provided in *Appendix I*, below.

- Long-term planning and coordination activities, including oversight of the California Building Energy Modeling (CalBEM) consortium,⁷⁹ to optimize 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.

Appliance Standards Advocacy Subprogram

Program Description

To comply with the Commission's Statewide program and outsourcing goals, the Appliance Standards Advocacy subprogram transitioned to a Statewide Codes and Standards Advocacy program, led by PG&E, which launched in early 2020. SCE supports PG&E with the review of comment letters. For more information on this subprogram, see *Appendix F, Statewide Third-Party Programs*, below.

Building Codes Advocacy Subprogram

Program Description

To comply with the Commission's Statewide program and outsourcing goals, the Building Code Advocacy subprogram transitioned to a Statewide Codes and Standards Advocacy program, led by PG&E, which launched in early 2020. For more information on this subprogram, see *Appendix F, Statewide Third-Party Programs*, below.

National and International Standards Subprogram

Program Description

To comply with the Commission's Statewide program and outsourcing goals, the National and International Standards Subprogram transitioned to a Statewide Codes and Standards Advocacy program, led by PG&E, which launched in early 2020.

2020 Strategies and Successes

For more information on this subprogram, see *Appendix F, Statewide Third-Party Programs*, below.

⁷⁹ Link to CalBEM website provided in *Appendix I*, below. See also *Planning and Coordination Subprogram* in this chapter, below.

Compliance Improvement Subprogram

Program Description

The Compliance Improvement (CI) Subprogram helps customers comply with building EE and appliance standards and supports local jurisdictions in improving the effectiveness of their code enforcement actions. 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, and technical support and resources to improve compliance with both building and appliance energy standards.

2021 Strategies and Successes

Throughout 2021, the CI Subprogram continued to employ a systematic approach to mobilize the market throughout the 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, and was completed in close collaboration with the CEC, which:

- Is closely involved in CI's tool development, and
- Reviews all course materials, fact sheets, and other resources for accuracy before they are released to the public.

Education & Training Highlights

The statewide training team continued its educational efforts in an almost exclusively online format, delivering more than 145 classes and workshops across numerous modalities, including webinars and on-demand self-study. The team reached more than 3,050 students and achieved a 97% satisfaction rate, with an average knowledge swing of 27%.

Additionally, new virtual courses were launched targeting the following audiences:

- Acceptance test technicians
- Residential and nonresidential HVAC technicians and estimators, and
- Permit technicians.

New SCE CI courses support the 2019 Title 24 All-Electric Compliance pathway, and additional provisions to be included in the upcoming 2022 Title 24 standards⁸⁰ were developed, including:

- A series of topic-specific courses called "Code Breakers" to fill a need expressed by various professional associations that seek compact learning seminars for delivery during monthly member meetings. The initial suite of Code Breaker topics was selected to help support decarbonization and facilitate the move towards all-electric buildings: photovoltaics and battery storage, nonresidential mechanical systems, single-family all-electric, multifamily all-electric, nonresidential all-electric, and accessory dwelling units (ADUs).
- A course designed to teach multifamily developers and architects about the options for cost-effectively implementing all-electric designs in the context of the 2019 and 2022 Title 24 Energy Standards, including the integration of electric vehicle charging infrastructure as required by the California Green Building Standards Code (CalGreen),⁸¹ and options for electric end-use building technologies.
- A series of certification programs and courses for realtors and appraisers, providing insight on homeowner preferences, incremental costs and savings, and the value proposition of EE measures and all-electric residential construction, including material highlighting key requirements of the 2019 and 2022 Title 24 Energy Standards.

The education and training team also:

- Continued delivery of the Plans Examiner and Building Inspector Workshop, the Nonresidential Standards for Architects Workshop, and EnergyPro software trainings.
- Updated the "Title 24: Where We're Headed with the 2022 Energy Standards" Workshop to incorporate the upcoming energy code provisions that will go into effect in January, 2023.
- Supported the administration of 2019 Certified Energy Analyst (CEA) exams⁸²— comprehensive certification examinations for energy modelers that incorporate the latest Title 24, Part 6, material — and revamped the CEA mentoring program, in partnership with the California Association of Building Energy Consultants (CABEC),⁸³ to facilitate direct knowledge sharing within the industry. Additionally, with the other statewide IOUs, supported a rigorous study comparing actual 2016 Energy Code compliance documentation that was

⁸⁰ Cited above, p. 43.

⁸¹ Link provided in *Appendix I*, below.

⁸² Link to California Association of Building Energy Consultants (CABEC) website provided in *Appendix I*, below.

⁸³ Ibid.

prepared by CEAs versus documentation prepared by uncertified energy consultants. The study found that CEAs were up to 50% more accurate than non-CEAs overall.

- Provided information to market actors through the EnergyCodeAce.com (ECA) YouTube channel,⁸⁴ garnering more than 5,000 views of the hosted videos which cover the following topics: modeling demonstrations, permit tech checklists, annotated compliance forms, and pool pump efficiency training for installers.
- Partnered with the California Lighting Technology Center (CLTC)⁸⁵ and the CEC to develop and make available on YouTube and the CLTC site a series of brief videos highlighting various requirements of the 2019 Title 24 lighting standards. The series⁸⁶ logged nearly 800 online views in less than six months.
- Distributed over 160 targeted e-mails to promote CI Subprogram role-based offerings and classes, in addition to connecting with market actors during virtual events. E-mails recorded an open rate that was 6% higher than industry average, indicating a significant level of stakeholder engagement.
- Developed a book of case studies⁸⁷ 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.

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. In 2021 alone, the CI Subprogram fielded over 1,200 e-mails, responding through e-mail conversations and/or in-depth phone calls with various types of code practitioners. EnergyCodeAce.com's user base and activity continue to grow:

- The number of Energy Code Ace subscribers climbed to over 15,000, and
- The number of visits increased by 27% from the previous year, and more than doubled in the past five years.

Tools and Resources Highlights

- Overhauled the web interface of the Energy Code Ace website, giving it a new graphical look and feel, refining search functionality, grouping relevant resources into curated "Collections," and enhancing the Timeline Ace and Reference Ace functionality.
- Expanded the automation of the Title 24 compliance process by enhancing the existing suite of dynamic compliance forms. The CEC has successfully uploaded

⁸⁴ YouTube link provided in *Appendix I*, below.

⁸⁵ Link to CLTC website provided in *Appendix I*, below.

⁸⁶ YouTube link provided in *Appendix I*, below.

⁸⁷ Link to CalBEM studies provided in *Appendix I*, below.

the dynamic forms to their website, and they have been used extensively since becoming available.

- The Energy Code Ace Virtual Compliance Assistant (VCA) not only helps people identify and complete the appropriate forms for their specific project, but also verifies compliance along the way and eases plans examiner review. Half of the more than 65,000 visits to the Tools Ace pages in 2021 went to the Virtual Compliance Assistant. Additionally, Nonresidential Compliance Inspection (NRCI) forms were added into the VCA functionality, and an importer was developed to populate information into the NRCI forms from the Nonresidential Compliance Certificates (NRCCs).
- Published a Market Transformation report to catalog the impact of the Energy Code Ace program and to highlight the accomplishments and evolution of the program's offerings over the 14 years since its inception.
- Worked with subject matter experts and the CEC to edit the vast library of existing code resources to provide more detailed and refined information relevant to the current 2019 code cycle and in anticipation of the upcoming 2022 standards, including the following expanded resources in the existing library:
 - Fact Sheets
 - Trigger Sheets
 - Quick Reference Sheets
 - Navigator and Installation Ace
 - Application Guides, and
 - Note Blocks.

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), and 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)
- National Association of Minority Architects (NOMA)
- International Code Council (ICC)
- California Retailers Association (CRA), and
- Compressed Air and Gas Institute (CAGI)

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 CALBO in its efforts to increase virtual training for its members by developing and administering two online courses, delivered by Energy Code Ace subject matter experts, for the CALBO Training Institute (CTI).
- 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 virtually during the early part of 2021 and adding several in-person engagements as local COVID restrictions loosened in the latter half of the year. 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 online CABEC "Solving the Energy Puzzle" conference in January
- Providing a virtual exhibit booth and hosting a lunch panel discussion about technology and energy codes during the AIA Los Angeles 1.5 Degree Climate Symposium in March
- Delivering virtual sessions on Multifamily Electrification and on Resiliency considerations for all-electric buildings and providing an in-person exhibit booth at the hybrid Net-Zero 2021 Conference in Los Angeles in September, and
- Providing an in-person exhibit booth at the CALBO Education Week events in October.

The CI Subprogram launched social media accounts in 2021 to better spread the word about available resources, engage with a broader audience, and utilize these popular engagement channels 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 the four months following the launch, the LinkedIn account⁸⁸ had nearly 100 followers and the Twitter account⁸⁹ had 35 followers, adding to the nearly 600 subscribers already engaged with the ECA YouTube channel.

Compliance improvement subject matter experts (SME) continued supporting Codes and Standards Enhancement (CASE) Study authors and the Title 24, Part 6 advocacy team

⁸⁸ Link provided in *Appendix I*, below.

⁸⁹ Ibid.

with 2022 CASE work by providing information from the implementers' point of view.⁹⁰ The CI team reviewed more than 27 CASE reports for clarity and enforceability, trained CASE authors on market actor roles, and worked with CASE authors to develop a new multifamily chapter of the California Energy Commission (CEC) *Compliance Manual*⁹¹ (a reference and instructional guide for anyone involved in the design and construction of energy-efficient nonresidential buildings) with project examples.

Measure-Specific Work

The CI Subprogram also continued to support Title 20⁹² compliance in 2021 by targeting key measures⁹³ conducting needs assessments, and developing work plans. Key activities included:

- Prepared industries for three new standards: computers and monitors, pool pumps and replacement motors, and air compressors.
- The CI team worked with the Compressed Air and Gas Institute to ensure the air compressor industry was aware of the new regulations and how to comply. After two months of the regulations being in effect, approximately 20,000 products were certified to the Modernized Appliance Efficiency Database System (MAEDbS).⁹⁴
- Established collaborations with two large retail industry associations in California — the California Retailers Association and the Retail Industry Leaders Association — and provided blog posts, newsletter articles, and regulatory updates to all of their members.
- Despite the COVID-19 pandemic continuing in 2021, the CI team attended four industry events, targeting retailers, lighting professionals, and pool suppliers.
- Five new measure fact sheets were published, in addition to updates to three existing measure fact sheets.

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

⁹⁰ Link provided in *Appendix I*, below (see Title 24 Stakeholders).

⁹¹ Link provided in *Appendix I*, below.

⁹² California 2019 *Appliance Efficiency Regulations* (Title 20, Public Utilities and Energy, Chapter 4, Energy Conservation, Article 4, Appliance Efficiency Regulations), effective 1/1/2020. Link provided in *Appendix I*, below.

⁹³ Key measures are defined as those having high savings paired with low compliance, and those that are newly regulated.

⁹⁴ Link provided in *Appendix I*, below.

minimum requirements for new buildings, additions, or alterations. Reach code support for local governments includes:

- Conducting research and analyses 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 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 energy use associated with carbon emissions. 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/or 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.

2021 Strategies and Successes

In 2021, throughout California, 20 jurisdictions adopted reach codes, including the following jurisdictions in SCE's service territory:

- The Ojai City Council passed an electrification ordinance⁹⁵ changing its municipal health and safety code. The ordinance requires all new residential and non-residential construction to be all-electric except for pool and spa heating, commercial kitchen cooking equipment, and Accessory Dwelling Units (ADUs).
- Santa Barbara passed their electrification reach code,⁹⁶ with exceptions for public interest projects (as defined by the City's Permitting Authority), laboratories, and clean rooms.

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 2021 to complete the following studies:

- Large Offices
- Single Family Battery Storage
- Existing Single Family Residential Building Upgrades
- New Accessory Dwelling Units (ADUs)
- Photovoltaic (PV) plus Heat Pump Water Heater (HPWH) or Heat Pump Space Heater, and
- Multifamily Residential Retrofits:
- Nonresidential Alterations
- Medium Office
- Stand-alone Retail Warehouse
- Quick-service Restaurant (QSR) and Full-service Restaurant (FSR)
- High-rise Multifamily (HRMF), and
- Small Hotel.

Several reach codes were adopted statewide in 2021 and approved by the Energy Commission based on IOU cost-effectiveness studies. Approved local ordinances may be found on the LocalEnergyCodes.com and CEC websites.⁹⁷

⁹⁵ Link provided in *Appendix I*, below.

⁹⁶ Link provided in *Appendix I*, below.

⁹⁷ Link to the California Energy Commission website provided in *Appendix I*, below

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:

- Partnered with local CCAs to develop a pipeline of jurisdictions interested in exploring reach codes, conduct stakeholder outreach, and provide letters of support to jurisdictions that requested them, and
- In coordination with SCE's Local Public Affairs department, provided letters of support upon request to local jurisdictions, such as the City of Santa Barbara, adopting local reach ordinances. These letters help jurisdictions address common concerns from stakeholders, including the gas industry, such as cost, grid resiliency, and reliability.

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 2021, 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 Reach Codes Subprogram continued to support the LocalEnergyCodes.com

website. Throughout the year, the number of site subscribers grew approximately 8% (from 397 to 429 subscribers).

- The Reach Codes 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 1000 downloads per month in 2021.⁹⁸
- In addition to fostering stakeholder engagement through the website, the Reach Codes team continued publishing the *Reach Codes News Brief*⁹⁹ 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 400 subscribers received the newsletters each month via e-mail.¹⁰⁰
- The subprogram completed 12 "Frontrunner" articles, featuring the Cities of Santa Barbara, Santa Monica, Campbell, Palo Alto, San Luis Obispo, Millbrae, Sunnyvale, Chula Vista, Albany, San Carlos, and Los Altos. In addition to being part of the *News Brief*, each Frontrunner is also featured on the website's home page carousel of images, and these together were downloaded more than 3,600 times in 2021.¹⁰¹

The Reach Codes team 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 100 followers.

Virtual Conferences and Events

The Reach Codes Program presented and participated in several conferences and held two technical webinars in 2021:¹⁰²

- *Alliance for Water Efficiency Peer to Peer Workshop*

⁹⁸ Statewide Reach Codes Program website. Link provided in *Appendix I*, below.

⁹⁹ Ibid.

¹⁰⁰ Ibid., *2021 Reach Codes Final Report*.

¹⁰¹ Ibid.

¹⁰² Links to the listed workshops and webinars provided in *Appendix I*, below.

- California Association of Building Energy Consultants (CABEC) Connect Local Government Sustainable Energy Coalition (LGSEC) webinar: *Chula Vista's Building Ordinances - Bringing Energy Savings to Existing Buildings*
- Reach Codes Program Webinar: *Single-Family Battery Storage Cost-Effectiveness Analysis*
- Collaborative Building Decarbonization Coalition (BDC) and Reach Codes Program Webinar, and
- California Climate and Energy Collaborative (CCEC) Forum Webinar.

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 towards 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) Subprogram¹⁰³ 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.)12-05-015.¹⁰⁴

Since SCE's creation of the California Building Energy Modeling (CalBEM) consortium,¹⁰⁵ 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
- Code baseline simulation
- Grid impacts simulation, and

¹⁰³ SCE's Planning and Coordination subprogram is similar to PG&E's Code Readiness and Planning and Coordination subprograms combined.

¹⁰⁴ D.12-05-15, *Decision Providing Guidance on 2013-2014 Energy Efficiency Portfolios and 2012 Marketing, Education, and Outreach*. Link provided in *Appendix I*, below.

¹⁰⁵ Link to California Building Energy Modeling website provided in *Appendix I*, below.

- Alternative metrics research.

CalBEM coordinates with the California Energy Commission 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). Additionally, CalBEM coordination activities seek to establish a common set of building energy model prototypes for the State of California and to work toward the implementation of a simplified baseline code compliance option. The CalBEM organization is facilitated by industry leaders who plan and drive progress through Action Plans focused on three core goals:

- Educating BEM users,
- Improving BEM capabilities and accuracy, and
- Streamlining and simplifying BEM processes.

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.

2021 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

- P&C drafted internal building electrification (BE) design assistance protocols and procedures to track electrification retrofit and new construction projects and offer cross-organizational technical support to customers. This building decarbonization design assistance will support the market ramp-up of decarbonization and will align with the services needed to support proposed building decarbonization programs. Tracking electrification projects will provide opportunities to study actual electrification load profiles and grid impacts from increased BE adoption, aid T&D planning and forecasting, and identify program gaps and opportunities.
- P&C led the California Decarbonization Forum in collaboration with ETCC.
- To support code readiness of electrification equipment, P&C committed to support commissioning, monitoring, and data analysis of central heat pump water heater (HPWH) boilers at a senior multifamily facility to support future training for central HPWH commissioning and monitoring of central HPWH performance.

- P&C collaborated with the California Air Resources Board (CARB) to update CalGREEN codes for electric vehicle (EV) parking space and infrastructure requirements.¹⁰⁶
- P&C supported South Coast Air Quality Management District's 2022 Air Quality Management Plan for requiring zero-emission appliances (especially for space heating and water heating) in the near future.¹⁰⁷
- P&C collaborated with the Air Conditioning Heating & Refrigeration Institute (AHRI) on direct expansion-dedicated outdoor air system performance and metrics development.¹⁰⁸

Grid Harmonization

- P&C drafted a scoping plan to develop a grid harmonization near- and medium-term action plan and roadmap, in order to increase the grid integration of flexible demand-side loads and support California's decarbonization goals. This cross-organizational effort with T&D is expected to finalize the scope in 2022, followed by the implementation of projects identified by the action plan.
- P&C supported and coordinated the Advanced Water Heating Initiative (AWHI)¹⁰⁹ that aims to scale HPWH installations in California. We collaborated with HPWH manufacturers, utilities, state agencies, and others to integrate ANSI Standard CTA-2045 with the OpenADR 2.0 Standard in order to align with current demand response programs' communication protocols, and to create educational materials.
- P&C collaborated with SCE's Emerging Products & Technologies (EP&T) Program, PG&E, and the Sacramento Municipal Utility District (SMUD) to specify the use of 120-volt HPWHs for demonstration and pilot projects.
- P&C continually supported the New Buildings Institute (NBI) GridOptimal Buildings Initiative,¹¹⁰ which outlines ways to optimize energy use at a site while minimizing impacts on the grid. In 2021, the initiative published design and operations guidance, which can further inform Leadership in Energy and Environmental Design (LEED) credits for optimizing a building's design of distributed energy resources in relation to the grid.
- P&C and SCE T&D established coordinated workstreams to provide continuous feedback loops to inform decarbonization, grid harmonization, and T&D planning activities. The workstreams supporting this coordinated effort include:

¹⁰⁶ Link provided in *Appendix I*, below.

¹⁰⁷ Link provided in *Appendix I*, below.

¹⁰⁸ Link provided in *Appendix I*, below.

¹⁰⁹ Link provided in *Appendix I*, below.

¹¹⁰ Link provided in *Appendix I*, below.

- Foundational Electrification Load Profile Analysis: Initial BE load profile modeling to understand grid impacts.
- Electrification Load Forecasting: A bottom-up approach to understand how BE will impact load forecasts and where all-electric new construction is planned and communities targeted.
- Distribution Design Standards (DDS) Analysis: Updates to DDS to incorporate all-electric residential new construction projects. This will also inform internal training of distribution planning teams.
- Electrification Grid Interconnection Cost Analysis: Assess the infrastructure costs of all-electric new construction projects based on Load Profile Analysis and DDS updates.
- Electrification Impact to Rates: Analyze how BE will impact rates for SCE customers as more buildings electrify.
- Electrification Service Application Process: Find opportunities to identify and track all-electric new construction projects in order to track progress towards electrification goals. Load behavior of new all-electric homes during occupancy will be assessed to update the Load Profile Analysis and subsequently inform all related workstreams.
- BE Academy Training: Take the findings and outcomes of the coordination workstreams to inform and update the trainings for internal stakeholders. Also informs other workstreams of knowledge gaps to address.

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 CalBEM¹¹¹ focusing on:

- Creating a streamlined process for building simulation,
- Educating building energy modeling (BEM) users and developing resources, and
- Advancing BEM simulation capabilities, accuracy, and metrics.

In May, 2021, CalBEM initiated a collaborative effort with the CEC to develop three-to-five year plans for the three working groups listed above.

P&C also commissioned the development of a whitepaper to investigate potential improvements to the California Utility Allowance Calculator (CUAC), a tool used by hundreds of affordable housing developments in California to estimate what tenants may expect to pay for utilities. While the CUAC software is updated annually with new rates by

¹¹¹ Link to CalBEM working groups webpage provided in *Appendix I*, below.

CEC staff, most of its underlying algorithms and capabilities have not changed since it was originally created in 2007. As a result, it does not reflect technology changes like LED lights and ENERGY STAR[™] dryers, and actual errors in its coding remain unaddressed. When completed, the whitepaper will create a roadmap to rectify these issues.

Program Coordination

- P&C initiated a project to help the CEC implement the Performance Rating Method (PRM) in the California Energy Commission's Title 24, Part 6 nonresidential compliance software, CBECC-Com.¹¹² The project seeks to determine the impacts of the new approach and provide the CEC with guidance on using PRM as a possible replacement to the current performance compliance pathway for the 2025 code cycle. Benefits of the approach include better alignment with national building standards and reduced costs for the CEC.
- P&C supported the development of the Clean Energy Homes (CEH) Pilot Implementation and Budget Advice Letter 4664-E,¹¹³ submitted on December 15, 2021, pursuant to Decision 21-06-015.¹¹⁴ CEH is designed to provide incentives to affordable housing builders to construct all-electric projects. The subprogram coordinated with the CEC Building Initiative for Low Emissions Development (BUILD) program management team to discuss CEH pilot eligibility requirements and coordination, design concepts, planning schedules, and design collaboration opportunities.
- P&C actively participated in Market Transformation Working Group (MTWG) Phase II meetings to discuss and conclude on the role of the Market Transformation Administrator, the scope of the Market Transformation Initiatives, and the methodology to attribute energy savings. A final report was completed by the MTWG and was submitted to the California Energy Efficiency Coordinating Committee (CAEECC).¹¹⁵

Code Harmonization

- P&C monitored the meetings and activities of various ASHRAE.org¹¹⁶ and International Code Council (ICC) national model energy code development committees to support alignment with California's Title 24, Part 6 Building Energy Efficiency Standards. This included monitoring the ANSI/ASHRAE/IES

¹¹² Link provided in *Appendix I*, below.

¹¹³ AL 4664-E. Link provided in *Appendix I*, below.

¹¹⁴ D.21-06-015, *Decision on Large Investor-Owned Utilities' and Marin Clean Energy's CARE, ESA, and FERA Program Applications For Program Years 2021-2026*. Link provided in *Appendix I*, below.

¹¹⁵ *CAEECC-Hosted Market Transformation Working Group – Phase II Report and Recommendations to the California Public Utilities Commission*. Link provided in *Appendix I*, below.

¹¹⁶ American Society of Heating, Refrigerating, & Air-Conditioning Engineers.

Standard 90.1¹¹⁷ Energy Cost Budget committee's meetings and activities to support alignment with CBECC-Com.

- P&C monitored the meetings of ANSI/ASHRAE/ICC/USGBC/IES Standard 189.1¹¹⁸ committee to support alignment with California's Title 24, Part 6 and Part 11 California Green Building Standards Code. This included the treatment of renewable energy (on-site and off-site), demand response requirements, and hourly long-run marginal forecasted GHG emission metrics.

¹¹⁷ ASHRAE Standard 90.1, Energy Standard for Buildings Except Low-Rise Residential Buildings. Link provided in *Appendix I*, below.

¹¹⁸ ASHRAE Standard 189.1, Standard for the Design of High-Performance Green Buildings Except Low-Rise Residential Buildings. Link provided in *Appendix I*, below.

7. Emerging Technologies Program

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.

ETP uses various tactics to achieve the objectives of these subprograms. Key tactics are described under each subprogram below. Most notably in 2021, ETP conducted and collaborated on projects in support of new measure development for the following technologies:

- High Performance Conveyorized Toaster
- Ammonia/CO2 Refrigeration System
- Non-DEER Air- and Water-Cooled Chillers Workpaper
- High-Mast LED
- Refrigerated Display Case Air Curtain Guiding Vanes
- Wastewater Driven Heat Pump Water Heater, and
- Unlocking Industrial Energy Efficiency Through Optimized Energy Management Systems (Air Compressor).

SCE's local ETP program started to ramp down its activities and is expected to complete program operations by 2025, as the new CPUC-authorized Statewide Electric Emerging Technologies Program (SWEETP) is set to launch in the Second Quarter of 2022.¹¹⁹ As statewide Program Administrator (PA), SCE solicited the market and awarded the SWEETP Program to a third-party implementer in 2021.

¹¹⁹ Advice Letter (AL) 4607-E, *SCE's Advice Letter for Approval of Statewide Electric Emerging Technologies EE Third Party Contract with Cohen Ventures dba Energy Solutions*. Link provided in Appendix I, below.

ETP Implementation Challenges

In all three subprograms, active project timelines previously delayed because of the COVID-19 pandemic continued to experience some limited delays. All project meetings and collaborative activities took place virtually. When field activities occurred, participants and SCE contractors followed SCE's COVID-19 Contractor Protocols.

Technology Assessment Subprogram

Subprogram Description

Through its Technology Assessment (TA) element, a historical core function 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 Work Paper, estimating energy and demand savings over the life of the measure.

Strategies Implemented in 2021

In 2021, the Technology Assessment subprogram implemented the following strategies:

- Collaborated with IOU and non-IOU partners in scanning a wide variety of sources for assessment candidates.
- Identified, screened, and prioritized technologies or strategies.
- Produced reports describing TA results, conclusions, and recommendations.
- Engaged the various EE programs, including commercial, residential, agricultural, and industrial resource programs and the Codes & Standards Program, and other program stakeholders (including demand response, building electrification, and income qualified programs), to provide input into project ideas and plans.
- Transferred TA results to EE program stakeholders, with technology study results successfully transferring to deemed (rebated) measures and customized (incentivized) measures.
- Coordinated intake ideas and assessments and shared technology information through the virtual Emerging Technologies (ET) Summit 2021.¹²⁰

¹²⁰ Link to the 2021 Emerging Technologies Summit provided in *Appendix I*, below.

- Coordinated to develop webinars with the Emerging Technologies Coordinating Council (ETCC)¹²¹ 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 2021

In 2021, SCE implemented the following strategies for the TDS Subprogram:

- 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 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.¹²²
- Continued ongoing business relationships with investors interested in funding cost-effective EE technologies.

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:

¹²¹ Link to ETCC website provided in *Appendix I*, below.

¹²² Link to CalTech RocketFund Program provided in *Appendix I*, below.

- 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.

Strategies Implemented in 2021

In 2021, SCE implemented the following strategies for the TIS subprogram:

- Conducted several single-family and multifamily residential whole-building demonstrations in partnership with home builders, multifamily low-income building owners and/or operators, the Electric Program Investment Charge (EPIC) Program, the Electric Power Research Institute (EPRI), and other partners, in support of advancing state goals and understanding of grid interaction.
- Scanned and screened a wide variety of sources for measures, coordinating closely with SCE's EE programs, and prioritized measures suitable for TIS projects.
- 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.
- Performed primary or secondary research, as necessary, to gain market insights on technologies.

Other Notable ET Program Activities in 2021

- In collaboration with ETCC leadership and partners, the local ETP Program successfully conducted a virtual ET Summit 2021, which attracted 195 unique attendees over two days.¹²³

¹²³ Link to the 2021 Emerging Technologies Summit provided in *Appendix I*, below.

- Collaborated with the ETCC and the other IOUs on various program-related activities such as new technology idea submissions, ETCC outreach webinars, and Virtual ETP Summit.
- Supported 37 bids with Letters of Support or Commitment to our industry partners in their pursuit of Grant Funding Opportunities issued by the California Energy Commission (CEC) for the Electric Program Investment Charge (EPIC), as well as Funding Opportunity Announcements released by the U.S. Department of Energy. The program supported these opportunities since they aligned with program objectives and gave SCE an excellent leveraging opportunity for program funds. Five of these bids were successful and grants were awarded.¹²⁴
- As statewide lead Program Administrator (PA), SCE released to market a Request for Proposals (RFP) for the Statewide Electric ETP Program, in collaboration with the SoCalGas Statewide Gas ETP PA, the non-lead funding IOUs, the SCE and SoCalGas Independent Evaluators (IEs), and the SCE Energy Efficiency Procurement Review Group (EE PRG).
 - Four bids from the RFP were selected for contract negotiations. Subsequently, a successful bid was selected and a contract was executed with the bidder on September 14, 2021.
 - Per the direction of the CPUC, SCE filed Advice Letter 4607-E,¹²⁵ and SCE received approval to proceed.
 - The program's Implementation Plan¹²⁶ (IP) was approved in early 2022 and program launch is expected in the Second Quarter of 2022.
- Because of the upcoming transition of the local ETP to third-party program implementation, SCE intake of new ideas was halted late in 2021 as the new SWEETP program prepared to take on scanning and screening activities, including the launch of a "new ideas intake" portal.
- In consultation with Energy Division staff, SCE proposed, developed, and implemented a Technology Acceleration Process Improvement Proposal, an initiative to help accelerate the introduction of emerging technologies into the market by leveraging the customized incentive process.

¹²⁴ For information on these CEC GFO Awards and DOE FOA Awards, contact SCE's TIS Program (CPSEmergingProducts@sce.com).

¹²⁵ AL 4607-E, cited above. Link provided in *Appendix I*, below.

¹²⁶ Program Implementation Plans are publicly available on the CPUC's California Energy Data and Reporting System (CEDARS) website. Link provided in *Appendix I*, below.

8. Workforce Education & Training Program

The Statewide Workforce Education and Training (WE&T) Program represents a portfolio of planning and implementation activities for education, training, and workforce development, funded by or coordinated with the Investor-Owned Utilities (IOUs). The Program includes two (2) subprograms:

- WE&T Integrated Energy Education and Training (IEET), and
- WE&T Connections.

In 2021, the WE&T Program continued to consider and implement enhancements to align with program evaluation and study recommendations. SCE and the other IOUs — PG&E, SDG&E, and SoCalGas — collaborated with a diverse set of stakeholders, professional and trade organizations, government agencies, and other education and training providers, focusing on three (3) primary areas:

- Expanding the WE&T Program's reach
- 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.

The following is an overview of the 2021 program highlights, by subprogram.

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

Subprogram Description

The IEET Subprogram is organized and delivered around cross-cutting sectors to facilitate demand-side management (DSM) through workforce knowledge and technical training. SCE's two Energy Education Centers (EECs or "Energy Centers") in Irwindale and Tulare, California, represent the largest component of this subprogram. The subprogram delivers educational workshops and seminars, provides tool loans, conducts equipment demonstrations, consultations, and holds community outreach events. These activities allow incumbent and potential energy efficiency (EE) workforce candidates to explore EE opportunities, gain awareness of DSM technologies, and acquire the more advanced technical skills necessary to act on those clean energy opportunities.

In 2021, the Energy Centers aligned their activities with the goals identified in the California Energy Efficiency Strategic Plan (CEESP). They did this through evaluating and implementing programs and projects, where applicable and appropriate, to better align their available offerings with:

- California's long-term decarbonization plan¹²⁷
- Southern California Edison's Green House Gas (GHG) reduction goals in support of SCE's Pathway 2045,¹²⁸ and
- Industry and market characterization evaluations.

This effort included internal collaboration with SCE's DSM Programs and engagement with external EE program and service educators, as well as with key stakeholders in various trade industries.

Noteworthy 2021 IEET Subprogram highlights include:

- In response to the COVID-19 pandemic and Energy Centers being physically closed to customers, the program continued delivery of online workshops, delivering approximately 450 workshops to customers, and
- Through trainings offered by the Institute of Heating and Air Conditioning Industries (IHACI) and the "It's About Q" program offered by HVACRedu.net, over 9,900 HVAC contractors and technicians were trained in 2021.

Strategies Implemented in 2021

In 2021, IEET continued to build upon previous efforts by:

- Enhancing existing cross-cutting industry stakeholder teams aimed at addressing specific EE and DSM workforce intervention opportunities
- Evaluating applicable career pathways to help upgrade the knowledge, skills, and abilities of the current and potential workforce in affected trades, and
- Continuing to expand existing online offerings to include additional topics and content relevant to the workforce.

Integrated Demand Side Management (IDSMD) Activities

IEET educational seminars and workshops included a number of IDSMD components. The specific classes listed below included additional information on the combined benefits of EE and DR. Over 750 customers and contractors attended these trainings:

- Basic HVAC
- Introduction to Programmable Logic Controllers: Energy Efficiency Applications
- Heat Pump in Retrofit Construction – Space Conditioning and Water Heating
- Title 24: Where We're Headed with the 2019 Standards
- Title 24: What's New in the 2022 Energy Code

¹²⁷ Link to CEC Building Decarbonization Assessment website provided in *Appendix I*, below.

¹²⁸ Link to SCE's Pathway 2045 Whitepaper provided in *Appendix I*, below.

- 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
- Clean Energy Homes: Key Systems and Energy Modeling.

Collaboration Among Partners

Some highlighted efforts included continued collaboration with relevant industry stakeholders and training organizations with the intent of expanding the access and reach of IEET offerings, including:

- A Strategic Partnership with the American Institute of Architecture (AIA) to establish an "Architecture at Zero" program, resulting in partnerships with El Camino College and Orange Coast College, and
- A Strategic Partnership with Strategic Energy Innovations (SEI), a third-party vendor, which was tasked with establishing relationships with several community colleges within SCE's service territory.

Irwindale and Tulare Energy Education Centers

In 2021, the Energy Centers in Irwindale and Tulare:

- Collaborated with PG&E and SDG&E WE&T teams to provide customers with a wider variety of online classes, which were delivered as online seminars and covered topics within the energy efficiency arena.
- Continued to provide technical upskill training for contractors and technicians who participate in SCE's HVAC programs. These programs were delivered in partnership with the Institute of Heating and Air Conditioning Industries (IHACI), HVACRedu.net, and the National Comfort Institute (NCI).
- Continued hosting a majority of training programs online to eliminate barriers presented by the COVID-19 pandemic.
- SCE's Tool Lending Library (TLL) remained fully open and loaned over 130 energy measurement and building performance evaluation tools. Customers who utilized the program included homeowners, business owners, and contractors throughout SCE's service territory.
- Efforts with NCI focused primarily 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
 - National Balancing Council (NBC), and
 - Performance-Based Selling of Energy Efficiency Systems.
- The NCI Training certified over 350 participants and awarded approximately 3,400 Continuing Education Units (CEUs) to participants in 2021. NCI also trained over 100 Unique Individuals from Disadvantaged Communities.
 - 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 teaches contractors to install and service HVAC&R systems that meet all installation requirements, ensuring that equipment is operating at the highest possible efficiency and capacity. Over 70 evening classes were delivered (online, due to the COVID-19 pandemic) in 2021.
 - Trained nearly 3,500 contractors and technicians in 2021 through online classes using both IHACI (QI, QM, and QS) 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
 - In November, offered new Mechanical Acceptance Testing Nonresidential Employer and Technician training classes.¹²⁹ SCE was the only utility offering these classes in 2021 to help employers and technicians gain certification. The California Energy Commission (CEC) expects authorities having jurisdiction to enforce the mechanical systems Acceptance Test Technician requirements for all nonresidential permit applications submitted on or after October 1, 2021.¹³⁰

¹²⁹ Acceptance Test Technician Certification Program. Link provided in *Appendix I*, below.

¹³⁰ California Energy Commission (CEC) Resolution *Mech-ATT Implementation*, Resolution No. 21-0414-08. Link provided in *Appendix I*, below.

- 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 2021, several HVAC&R building electrification classes were added to support California and SCE's decarbonization goals
 - One hundred seventy-four (174) NATE Core, Ready to Work and Specialty exams were delivered with a pass rate of 99.9%
 - Over 10,300 three-hour online class modules were completed, 87% of which were in the Beginner / Intermediate category, and 13% were in the Advanced category
 - All participants who completed the classes demonstrated an increase in knowledge as measured by pre- and post-training tests
- Continued partnership with the Codes & Standards Program (see Chapter 6, above) to deliver 40 online seminars on the following topics to over 800 customers throughout SCE's service area:
 - *Title 24 Part 11 CALGreen Codes*
 - *Title 24 Part 6 2019 Building Energy Codes*
 - *Title 24: What's New in the 2022 Energy Code*
 - *Title 24 Lighting (Residential and Nonresidential Standards)*
 - *Accessory Dwelling Units (ADU) and the California Energy Code*
 - *California's Title 24 Energy Code: What, Why and Where is it Going?, and*
 - *Energy Code Software (EnergyPro 8).*

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
- To support California's and SCE's 2045 Pathway decarbonization goals, continued partnership with the Codes & Standards Program to deliver many new Building Electrification (BE) classes. These classes were delivered throughout 2021:
 - *The Practical Guide to All-Electric, Lower Cost Multi-Family Buildings with Electric-Vehicle Charging*
 - *Clean Energy Homes: Key Systems & Energy Modeling, and*

- *Heat Pumps in Retrofit Construction, Spacing Conditioning and Water Heating.*
- Conducted Low Global Warming Potential (GWP) Training: In September 2021, the Energy Education Centers partnered with The ESCO Institute¹³¹ to host a two-part *Low GWP (A2L & A3) Refrigerants* training for commercial & residential HVAC contractors and their personnel on lowering GHG emissions, regulatory changes, and environmental considerations.

Foodservice Technology Center Activities

The Foodservice Technology Center (FTC) continued collaborations with the statewide IOU WE&T programs in 2021 to educate professionals at all levels of the commercial food service industry.

Due to construction in the FTC building, the FTC team was unable to reoccupy it until April, 2021. Then, because of the COVID-19 pandemic, the FTC building was closed to the public until August. However, despite these challenges, both FTC activities and attendance surpassed those of 2020. Activity for the FTC in 2021, including both in-person and virtual activity, is shown in Table 8-1, following:

Table 8-1. Foodservice Technology Center 2021 Customer Activities

Activity Types	Number of Events	Number of Attendees
Equipment Demonstrations	15	78
Seminars	15	984
Consultations	13	27
Tours	7	67
Trainings	11	198
Total	61	1354

- The FTC continued its Tabletop Induction Range Lending Program in 2021. Due to the pandemic, the program was closed for nine months, resulting in a reduction of loans for the year. During the downtime, the inventory was enhanced to include specialty cookware and accessories to support the introduction to induction cooking for both residential and commercial customers. A new software, "My Turn," was also introduced to streamline the customer experience for the program. A total of 16 units were loaned in 2021.

¹³¹ Link to the ESCO Institute website provided in *Appendix I*, below.

- The FTC continued to train culinary students and their teachers in high school, community college, and university programs, both in person and virtually, during the year. Through coordinated efforts between SCE's FTC and Emerging Technologies teams, commercial food service equipment tests and demonstrations have resulted in projects yielding energy savings potential for customers including retail chains, local governments, and educational institutions.

Table 8.2. 2021 Energy Education Centers Performance

Goal	Target	Results
Collaborations	4	6
Number of Participants	17,401	19,906
Number of Participants – Residential	6,560	11,017
Number of Participants – Commercial	10,841	8,889
Percentage of Target Audience Reached	12%	14%
Percentage of Disadvantaged Participants	43%	44%

WE&T Connections Subprogram

Subprogram Description

The WE&T Connections Subprogram promotes energy efficiency and other DSM concepts, as well as energy awareness and green career pathways, through age-appropriate education and teacher training in grade levels K-12, as well as through community outreach. WE&T Connections achieves its educational goals and promotes green career pathways by working with community-based organizations (CBOs), state education agencies, and educational stakeholders to help promote DSM concepts and green career awareness. WE&T Connections also imparts energy efficiency (EE), demand response (DR), and relevant green career messages through educational materials, student assemblies, teacher workshops, and outreach events.

SCE's WE&T Connections subprogram includes three (3) elements:¹³²

1. K-8 Subprogram (kindergarten through 8th grade).
2. 9-12 Subprogram (secondary grades, i.e., high school).
3. Mobile Education Unit Subprogram (community outreach).

¹³² SCE withdrew from participating in another element, the Statewide Post-Secondary Subprogram, in July, 2019.

Strategies Implemented in 2021

Core Function Activities

- Continued program implementation by cultivating existing relationships with teachers and partners for sustainable, project-based learning opportunities.
- Developed new relationships with teachers, schools, and partners to provide training and learning opportunities for new teachers and students in the upcoming school year.
- Initiated program ramp-down activities in preparation for the launch of the new Statewide WE&T Career Connections program led by PG&E.¹³³ The SCE program team informed stakeholders of the pending closure early in the year and provided information on the Statewide program to assist with the transition. WE&T Connections ended program implementation on June 30, 2021.

Outreach to Customers:

- Promoted program offerings at various events and workshops serving existing participants as well as reaching new participants within targeted areas, particularly those working with Disadvantaged Community (DAC) populations. Some of these events included:
 - *Environmental Education Collaborative Symposium*
 - *Engaging Girls in STEM*
 - *Municipal Green Building Conference + Expo*, and
 - US Green Building Council's *Los Angeles Chapter Sustainability Fundamentals* Workshops.

K-8 Subprogram Highlights

The K-8 Subprogram succeeded in reaching its targets for the year. Students learned to value energy and promote sustainable energy use in their homes, schools, and communities through four core principles:

- Shifting use to off-peak hours (demand response)
- Shrinking use through conservation and energy efficiency
- Exploring renewable energy (renewable resources and distributed generation), and
- Plugging into new and efficient technologies (energy efficiency).

¹³³ AL 4633-E-A, *Supplement to AL 4633-E, SCE's Energy Efficiency Program and Portfolio Annual Budget Advice Letter for Program Years 2022 and 2023*. Link provided in *Appendix I*, below.

Over 6,200 students were reached throughout SCE's service territory. Of the almost 60 schools that participated in the K-8 Subprogram, close to 50 were Title 1 schools.

K-8 Subprogram highlights include:

- As challenges continued for educators, students, and their families due to COVID-19, the K-8 Subprogram continued to offer its "PEAK@Home" curriculum:
 - The Subprogram adapted and modified the delivery and materials of over 35 student-facing lessons to ensure they covered items commonly found in homes, with the intention of making it easy for students and families to implement EE at home during distance learning.
 - Six new lesson adaptations were also developed to engage students and foster scientific inquiry during the spring and summer months.
 - The program continued to provide ongoing support for educators struggling with distance learning through PEAK@Home professional development training and live lesson webinars, in order to engage educators and their students in energy-saving actions and future STEM careers.

Over 2,200 students were reached through PEAK@Home in 2021.

- The program hosted a six-part Capacity Building webinar series titled "Master Your Virtual Classroom." This informational series was held once a week and focused educators who were interested in learning about using Google Classroom to enhance and enrich their virtual classrooms and those still needing confidence in virtual teaching. The series began with basic instructional information, including:
 - Creating an online classroom space using Google Classroom
 - Page customization
 - Creating assignments and posts, and
 - Adding students and co-teachers to the classroom.

The series gradually became more in-depth and specific with valuable tools and strategies that educators could use to enhance student learning:

- Additional covered topics included sharing resources with their students, creating effective communication, and personalizing their online classroom.
- Advanced topics covered organizational tips, presentation development, use of spreadsheets, and effective quiz creation.
- Each webinar held a 30-minute workshop where educators had the opportunity to practice their newly acquired knowledge and skills. During

the workshops, program staff answered questions and engaged in PEAK lesson incorporation. Over 80 educators participated in more than 700 hours of instructional training.

9-12 Subprogram Highlights

The 9-12 Subprogram continued to grow and develop strong relationships through project-based curriculum, teacher training, and student-led action projects while also reaching its targets for the year. Over 2,700 students and over 30 schools throughout SCE's service territory participated in the 9-12 Subprogram, with more than 25 of the schools being Title 1 schools.

Highlights of the 9-12 Subprogram include:

- Implemented the Earth Day Challenge, a month-long online competition that featured weekly challenge activities to allow students to learn more about sustainability and implement a climate action campaign. The challenges included:
 - Challenge 1, People & the Planet: Students engaged with videos or a video game to explore climate change, energy, air quality, waste, water, and transportation.
 - Challenge 2, Build Your Knowledge on the Environment: Students chose their sustainability topic of interest and used the CalEnviroScreen 4.0 tool to analyze pollution locally and learn about the disproportionate effects of pollution on low-income communities and communities of color.
 - Challenge 3, Plan Your Earth Day Campaign: Students took a deeper dive into resources to learn how to host an action campaign and ways to take action. They then completed planning documents to prepare to launch their own campaign.
 - Challenge 4, Launch Your Campaign: Students began their action campaigns to affect change in their community. Campaign materials were submitted by students to be entered to win prizes.

Over 250 students directly participated in the Earth Day Challenge, with an estimated reach of 6,000 students across California at participating high schools. The Earth Day Challenge resulted in 60 Sustainability Certificate recipients and 350 Challenge responses. (Sustainability Certificates are administered through the certification program Badgr, which students can add to their resumes and/or on LinkedIn, and includes metadata on standards, information on the Earth Day Challenge, and more.)

- Continued the Green Careers Webinar Series. The webinars transitioned from twice a week to a monthly format, allowing students from all over California to participate in career chats with a panel of sustainability professionals. All panels

were recorded and saved as distance learning resources to share with teachers and students who could not attend the live webinars. Panel topics included:

- Women in Engineering
- Environmental Justice, and
- Green Career Pathways in College.

Over 22,000 students now have access to the webinar recordings which remain available on the program implementer's website, <https://www.energizeschools.org/>.

- Continued virtual Teacher Trainings covering topics such as *Ecological Economics and Climate Policy*, *Renewables – Wind Energy*, and *Introduction to Green Buildings*. Each training included instructional support on key lessons and activities for each of the units.
 - For example, in the *Introduction to Green Buildings* training, curriculum included a brief overview of green design practices and Leadership in Energy and Environmental Design (LEED) certification, and culminated in a green building design challenge in which students created their own green building prototypes.
 - Sixty (60) teachers attended the training series, and the program has continued to support the teachers who attended by offering instructional planning support and resources. All trainings were recorded and added to the program curriculum packages for easy future access.

Mobile Education Unit Subprogram Highlights

The Mobile Education Unit Subprogram was historically used as the primary program for community outreach, attending various local and community events throughout SCE's service area. However, due to the COVID-19 pandemic, the events this program would typically attend were cancelled or delayed until further notice. As a result, the Mobile Education Unit Subprogram ceased all activity in 2020, continued to be inactive in 2021, and closed on June 30, 2021 along with the other WE&T Connection subprograms.

9. Statewide Marketing, Education & Outreach Program

Program Description

The Marketing, Education & Outreach (ME&O) Program aims to achieve California's energy efficiency, demand-side management, and clean energy goals by increasing consumer awareness and changing customer behavior. This program is implemented by a third party and co-funded by the investor-owned utilities, including Pacific Gas & Electric (PG&E), Southern California Gas Company (SoCalGas), and San Diego Gas & Electric (SDG&E).

Per CPUC Decision D.16-09-020,¹³⁴ the ME&O Program has been implemented statewide by a third-party implementer, DDB San Francisco (aka DDB), beginning on October 1, 2016. On January 10, 2019, the CPUC issued D.19-01-005¹³⁵ which authorized the renewal of PG&E's contract with DDB through the end of 2021, maintained the current annual budget levels for the program, and authorized three additional months of funding for October, November, and December 2021.

On April 5, 2017, DDB filed a Five-Year ME&O Strategic Roadmap¹³⁶ and 2017-2018 Joint Consumer Action Plan¹³⁷ (JCAP), which the CPUC approved on August 10, 2017:

- The Strategic Roadmap guided the statewide customer engagement campaign, including the Energy Upgrade California[®] (EUC) brand in its marketing efforts, and
- The Action Plan stated what the customer engagement campaign planned to accomplish.

On June 20, 2017, the Commission issued an amended scoping memo and ruling that expanded the scope of the ME&O proceeding¹³⁸ to allow the Commission flexibility to monitor the EUC Program.

On March 30, 2021, DDB submitted the 2021 JCAP for Energy Upgrade California (EUC) that described what the customer engagement campaign would accomplish in Year 5.¹³⁹ DDB's fifth and final JCAP remained in effect until December 31, 2021.

¹³⁴ D.16-09-020, *Decision Approving Implementer for the 2017-2019 Statewide Marketing, Education, and Outreach Program and Providing Guidance for 2017 Activities*. Link provided in *Appendix I*, below.

¹³⁵ D.19-01-005, *Decision Authorizing Renewal of the Contract with the Current Implementer of the Energy Upgrade California Program, to Extend Through the End of 2021*. Link provided in *Appendix I*, below.

¹³⁶ Advice Letter DDB-1, *Submission of DDB's Five-Year Marketing, Education and Outreach (ME&O) Strategic Roadmap*. Link provided in *Appendix I*, below.

¹³⁷ Advice Letter DDB-2, *Submission of DDB'S 2017-2018 Joint Consumer Action Plan*. Link provided in *Appendix I*, below.

¹³⁸ A.12-08-007, *Administrative Law Judge's Ruling Consolidating Applications and Setting Preliminary Schedule*. Link provided in *Appendix I*, below.

¹³⁹ Advice Letter DDB-8, *DDB's 2021 Year Five JCAP*, submitted March 30, 2021 and approved November 2, 2021. Link provided in *Appendix I*, below.

Strategies Implemented in 2021

DDB's 2021 JCAP outlined how DDB would execute strategies to support the objective of increasing customers' awareness of the State's energy efficiency (EE), demand-side management (DSM), and clean energy goals, and their intent to act based on such increased awareness, as previously detailed in the Strategic Roadmap. It included a review of lessons learned in Years 1 through 4 (2017, 2018, 2019, and 2020) and recommended how the customer engagement initiative could optimize and build upon that learning in Year 5 (2021).¹⁴⁰

The focus for Year 5 was a continuation of the "Year of Action" outlined in the Year 4 JCAP. The need to focus much of the prior year on COVID-19 customer response plans resulted in a delayed rollout of planned "community action" messaging. Year 5 communications demonstrated a continued focus on empowering communities to "Keep California Golden" through collective action. DDB also implemented an interactive text message campaign to drive awareness and adoption of energy-efficient actions and behaviors. In August, DDB implemented a digital advertising and social media campaign that promoted the income-qualified Energy Savings Assistance (ESA) Program.

Due to the December 31, 2021 "sunset" of the EUC statewide ME&O program,¹⁴¹ and cessation of DDB's contract, the Energy Division directed DDB to create "evergreen" assets and tools that could last beyond Year 5 with little to no modification or advertising agency support required.

¹⁴⁰ Ibid.

¹⁴¹ AL 3859-E, *Southern California Edison Company's 2019 Energy Efficiency Program and Portfolio Annual Budget Advice Letter*. Link provided in *Appendix I*, below.

10. Integrated Demand Side Management (IDSM) Program

For information on IDSM activities, see the following Chapters in this Report:

- *Chapter 1, Residential Programs:* Home Energy Advisor Program and Residential Direct Install Program
- *Chapter 8, Workforce Education & Training Program:* WE&T Integrated Energy Education and Training (IEET) Subprogram, and
- *Chapter 12, Third Party-Implemented Programs:* Solicitation Activities.

11. Local Programs

Energy Atlas

Project Description

The Energy Atlas is a tool or database of building energy consumption that links utility account information to building characteristics, socio-demographic data, and other significant attributes that can be expressed spatially. The public portion of the Energy Atlas is a front-end website that displays spatially aggregated energy consumption statistics at an annual temporal resolution for most neighborhoods, cities, and counties in Southern California. The California Analysis Tool for Locational Energy Assessment (CATALENA), described below, will be a new tool intended to include the functionality of Energy Atlas, but is a separate and distinct project. SCE will solicit for the development and implementation of the CATALENA tool on a statewide basis.

Developments in 2021

Southern California Edison (SCE) was assigned as the lead¹⁴² to administer a contract with the University of California at Los Angeles (UCLA) Center for Sustainability for the maintenance and operational cost of the Energy Atlas Tool. SCE continued to administer the contract and used its purchase order process for monthly payments to UCLA (from January through December of 2021). This allowed the Energy Atlas Tool to continue to operate while the new CATALENA tool, described below, is under construction. The costs of both the Energy Atlas and the CATALENA projects are funded by the Investor-Owned Utilities (IOUs), based on an agreed-upon cost-sharing percentage approved in SCE Advice Letters 3859-E¹⁴³ and 3859-E-A.¹⁴⁴

California Analysis Tool for Locational Energy Assessment (CATALENA) Project

Project Description

In its Decision (D.)18-05-041,¹⁴⁵ the Commission directed the IOU Program Administrators¹⁴⁶ (PAs) to select a lead to oversee the statewide deployment of the California

¹⁴² D.18-05-041, *Addressing Energy Efficiency Business Plans*, OP 32. Link provided in *Appendix I*, below.

¹⁴³ AL 3859-E, *Southern California Edison Company's 2019 Energy Efficiency Program and Portfolio Annual Budget Advice Letter*, p. 7. Link provided in *Appendix I*, below.

¹⁴⁴ AL 3859-E-A, *Supplement to AL 3859-E*. Link provided in *Appendix I*, below.

¹⁴⁵ D.18-05-041, cited above.

¹⁴⁶ SCE, Pacific Gas & Electric (PG&E) Company, San Diego Gas & Electric (SDG&E) Company, and Southern California Gas (SoCalGas) Company.

Analysis Tool for Locational Energy Assessment (CATALENA), a tool akin to the Energy Atlas described above, and competitively solicit a third party to:

- Implement the deployment
- Maintain data quality, consistency and security
- Continue development of the Energy Atlas's capabilities, and
- Encourage and support local governments that choose to participate.

With the concurrence of the other IOUs, SCE was selected as lead PA to oversee the statewide deployment of the new CATALENA tool.

The CPUC also directed the IOU PAs to:

- Allocate up to \$2 million to CATALENA, and
- Include annual management and maintenance costs for CATALENA in their annual budget advice letters, in proportion to their relevant energy efficiency (EE) programs.¹⁴⁷

In 2021, the IOUs created a work scope for the CATALENA website and database system that gives users access to aggregated energy use profiles of residential, commercial, industrial, and agricultural customers within the IOUs' service territories. CATALENA may also combine energy use data with other relevant information, potentially including:

- Energy efficiency program deployment
- Electric vehicle and charging station data
- Behind-the-meter solar and storage capacity, and
- Other relevant public data.

CATALENA is anticipated to be capable of displaying data through graphs, charts, and (potentially) an interactive map.

Strategies Implemented in 2021

In 2021, the IOUs' CATALENA Working Group ("Working Group"), led by SCE, worked with the California Public Utilities Commission's Energy Division (CPUC ED) to determine if the CATALENA work specifications included non-aggregated confidential customer usage data. SCE expressed concerns about including non-aggregated confidential customer usage data in the work specifications because of SCE's legal obligations to protect customer privacy. SCE also noted that including customer confidential data is not needed to comply with the CPUC's instructions.¹⁴⁸

¹⁴⁷ D.18-05-041, *Decision Addressing Energy Efficiency Business Plans*, OP 32. Link provided in *Appendix I*, below.

¹⁴⁸ *Ibid.*

Core Function Activities

The CATALENA Working Group achieved its key goal in 2021 of reaching agreement on the cost-sharing methodology for the ongoing operations and maintenance budget, which includes annual escalation and enhancement costs.

Collaboration with Others

To advance the development of the work specification, the Working Group held several update calls with the IOUs to apprise them of continued discussion with the CPUC ED on the need to provide disaggregated data to end-users.

Local Government Partnerships

In its 2022-2023 Annual Budget Advice Letter¹⁴⁹ (ABAL), SCE requested CPUC approval to close all of SCE's Local Government Partnerships (LGPs) by the end of 2021.

SCE's Local Government Partnerships were collaborations with public entities that shaped energy efficiency (EE) and sustainability at the local, regional, and statewide level. These partnerships aimed to meet the needs of local and state government entities to offer comprehensive, flexible, and innovative solutions that reflected the needs of their communities.

LGPs were the primary delivery channel supporting cities, counties, and other local agencies seeking energy savings and GHG emission reductions on the community scale. Promoting energy planning at a statewide and local level was a major market driver in increasing the uptake of local government EE projects and extending the reach and effectiveness of SCE's EE programs. Through LGPs, SCE leveraged the role of local governments to achieve deeper energy savings in both municipal facilities and the broader community. For Public Sector customers, the LGPs were marketed as "Energy Leader Partnerships" and "Energy Efficiency Partnerships."

A key goal of SCE's LGPs was helping cities and counties to lead by example, by addressing EE in their own municipal facilities first. The partnerships worked to expand the energy management policies and capacities of local governments in order to maintain a focus on long-term sustainability. They focused on delivering energy savings by bringing innovative strategies to Public Sector customers, because these customers face unique barriers to adopting EE measures that larger, better-resourced commercial facilities do not encounter.

SCE's LGPs were built around the communities that they serve. While local governments represented a majority of partners, some LGPs were led by local economic development groups, associations of governments, joint power authorities, or regional non-profit organizations. These local organizations have missions aligned with supporting the

¹⁴⁹ AL 4633-E, *SCE's Energy Efficiency Program and Portfolio Annual Budget Advice Letter for Program Years 2022 and 2023*, filed 11/8/2021. Link provided in *Appendix I*, below.

economic, environmental, and societal health of their communities. Local partners were best positioned to understand and identify customers within their communities and to partner effectively with program implementers to overcome barriers to energy efficiency adoption.

Over the past ten years, SCE's portfolio of LGPs grew to cover most of its service area. In 2021, SCE LGPs served 137 cities as well as Los Angeles, Riverside, and San Bernardino Counties.

LGP Strategies Implemented in 2021

SCE Business Customer Division (BCD) Account Managers worked directly with each Local Government Partnership to help serve the energy efficiency needs of that region. All efforts were identified by LGP partners or teams and implemented supported by the BCD Account Managers, who could also request technical assistance for project development from SCE Field Engineering.

Across most LGPs, no formal Partnership meetings occurred in 2021. However, BCD Account Managers continued to conduct business as usual, working with the LGPs to explore new opportunities in relation to EE, and helped push existing projects forward within their respective regions. The Account Managers also continued to educate the Cities and Counties on transportation electrification offerings and Public Safety Power Shutoff (PSPS) events, and delivered rate-related information throughout the year.

Communications went out to all partnership Cities and Counties via e-mail on three separate occasions during 2021, notifying them that all partnership activities would end by December 31, 2021. BCD Account Managers notified all the City and County partners while the Program Managers notified all the Implementers.

Program Closures in 2021

In Advice Letter 4633-E, filed on November 8, 2021, SCE requested CPUC approval to immediately close the following LGP programs by December 2021:

- Eastern Sierra Energy Leader Partnership
- Desert Cities Energy Leader Partnership
- Kern County Energy Leader Partnership ¹⁵⁰
- San Joaquin Valley Energy Leader Partnership ¹⁵¹
- Western Riverside Energy Leader Partnership
- High Desert Regional Energy Leader Partnership
- San Bernardino Regional Energy Leader Partnership ¹⁵²
- County of Riverside Energy Efficiency Partnership, and
- County of San Bernardino Energy Efficiency Partnership.

¹⁵⁰ Also known as the Kern Energy Watch Partnership.

¹⁵¹ Also known as the Valley Innovative Energy Watch (VIEW) Partnership.

¹⁵² Also known as the San Bernardino Association of Governments Partnership.

In the same Advice Letter 4633-E, SCE requested CPUC approval to close the following programs upon completion of existing commitments:

- 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 ¹⁵³
- South Santa Barbara County Energy Leader Partnership
- Ventura County Energy Leader Partnership ¹⁵⁴
- West Side Energy Leader Partnership
- North Orange County Cities, and
- County of Los Angeles Energy Efficiency Partnership.

Partnership Descriptions

Eastern Sierra Energy Leader Partnership

The Eastern Sierra Energy Leader Partnership was a partnership between SCE Program Managers and BCD Account Managers and jurisdictions in the Eastern Sierra region, including the Town of Mammoth Lakes, the City of Bishop, and Inyo and Mono Counties. The partnership identified opportunities for improving EE in Eastern Sierra jurisdictions, and offered customized incentives for municipal projects through SCE's core customized and deemed EE programs.

This partnership had no activity during 2021, and was closed as of December 31, 2021.

Desert Cities Energy Leader Partnership

The Desert Cities Energy Partnership Program was a local government partnership that included the Cities of Blythe, Cathedral City, Desert Hot Springs, Indian Wells, Palm Springs, Rancho Mirage, La Quinta, Coachella, and Indio, the Agua Caliente Tribe, the Southern California Gas Company (SoCalGas), the Imperial Irrigation District, and SCE. The program was designed to assist local governments to effectively lead their communities to increase energy efficiency, reduce greenhouse gas (GHG) emissions, increase renewable energy usage, protect air quality, and ensure that their communities are more livable and sustainable.

This partnership focused on installing measurable and persistent EE and conservation projects for the benefit of the partners, their residents and businesses, the State of California, and California IOU customers. Partnership activities focused specifically on implementing

¹⁵³ Also known as the South Bay Cities Council of Governments (SBCCOG) Energy Efficiency Partnership.

¹⁵⁴ Also known as the Ventura County Regional Energy Alliance (VCREA).

EE projects in municipal facilities. The Partnership established energy savings goals through partner-identified projects that were partly funded by incentives, provided technical assistance, and supported city and community EE efforts through marketing and outreach.

This partnership had no activity during 2021, and was closed as of December 31, 2021.

Kern County Energy Leader Partnership

The Kern County Energy Leader Partnership (also known as Kern Energy Watch Partnership) brought together three utilities — PG&E, SCE, and SoCalGas — with 11 local governments to improve EE throughout Kern County. The Partnership coordinated the EE efforts of the Cities of Arvin, Bakersfield, California City, Delano, Maricopa, McFarland, Ridgecrest, Shafter, Taft, Tehachapi, and Wasco. The Kern Economic Development Corporation (KEDC), Staples Energy, and the San Joaquin Valley Clean Energy Organization (SJVCEO) also participated with the Partnership in joint project, outreach, and training efforts.

This partnership had no activity during 2021, and was closed as of December 31, 2021.

High Desert Regional (HDR) Energy Leader Partnership

The High Desert Regional (HDR) Energy Leader Partnership (formerly known as the Adelanto Energy Leader Partnership) was a Local Government Partnership (LGP) between SCE and five local governments within San Bernardino County: the Cities of Adelanto, Barstow, Hesperia, and Victorville, and the Town of Apple Valley. The Partnership was implemented by the San Joaquin Valley Clean Energy Organization (SJVCEO).

The HDR Partnership identified opportunities for improved EE in municipal infrastructure, offered customized incentives for municipal projects, and conducted EE trainings.

The HDR Partnership had no activity during 2021, and was closed as of December 31, 2021.

San Bernardino Regional Energy Leader Partnership

The San Bernardino Regional Energy Leader Partnership (SBREP, also known as the San Bernardino Association of Governments Partnership) was a joint energy efficiency partnership between the San Bernardino Council of Governments (SBCOG), SCE, and SoCalGas. The Partnership extended to 12 cities within the San Bernardino Valley and Morongo Valley portions of the SBCOG region, including Chino, Chino Hills, Fontana, Highland, Montclair, Rancho Cucamonga, Redlands, Rialto, San Bernardino, Twentynine Palms, Upland, and Yucca Valley.

The primary objectives for SBREP included:

- Promoting integrated EE activities through identifying and helping coordinate opportunities for cost-effective implementation of natural gas and electric energy-savings projects
- Coordinating community outreach and training efforts to educate consumers and promote programs, and
- Identifying and offering financial packages that bundled practical utility incentives and provided various monetary incentives aimed at improving the participation of residents, businesses, and local government agencies.

The SBREP Partnership had one project active during 2021 that is expected to be completed during Program Year 2022.

Western Riverside Energy Leader Partnership

The Western Riverside Energy Leader Partnership (WRELP) delivered energy savings by implementing EE projects in municipal facilities. The partnership coordinated with core utility EE and DR programs in the 14 participating Cities of Hemet, Canyon Lake, Calimesa, Lake Elsinore, Menifee, Murrieta, Norco, Perris, San Jacinto, Temecula, Wildomar, Eastvale, Corona, and Moreno Valley.

The WRELP Partnership had three projects active during 2021 that are expected to be completed during Program Year 2022.

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 energy efficiency 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.

Partnership activities focused on addressing energy usage in municipal facilities and in the community. Analysis of municipal facilities was conducted to identify demand reduction projects with energy conservation measure (ECM) alternatives to optimize the energy and environmental performance of a new building design or an extensive retrofit project.

In addition, the Partnership placed great emphasis on serving as a resource for energy savings to the community by working closely with the City to identify and participate in community events that were best suited to provide resources to residents about relevant residential and business programs.

The City of Long Beach Energy Leader Partnership had six active projects during 2021, which are expected to be completed during Program Years 2022 and 2023.

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 worked to raise EE awareness, promoted long-term energy reduction goals within municipal building stock, and coordinated with the partner Cities to cross-promote utility residential and business EE programs in the communities.

In addition, the Partnership:

- Completed targeted retrofit and retrocommissioning (RCx) projects in municipal facilities, and
- Provided EE education, technical assistance, and RCx services, design consultation, energy analysis of new construction and renovation project plans, identification of demand reduction projects, and energy conservation measure (ECM) alternatives.

The Gateway Cities Energy Leader Partnership had 20 active projects during 2021, with one project completed during the year. The rest of the projects are expected to be completed during Program Year 2022.

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. In 2021 the principal Partnership activities were identifying and implementing EE retrofits for municipal facilities.

The Orange County Cities Energy Leader Partnership had three active projects during 2021, which are expected to be completed during Program Years 2022 through 2024.

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. The Partnership identified opportunities for improving EE in the 29 cities of the San Gabriel Valley, offered customized incentives for municipal projects, and conducted EE training and outreach events to drive participation in SCE's core customized and deemed EE programs.

The San Gabriel Valley Energy Leader Partnership had two active projects during 2021, which are expected to be completed during Program Year 2022.

San Joaquin Valley Energy Leader Partnership

The San Joaquin Valley Energy Leader Partnership, also known as the Valley Innovative Energy Watch (VIEW) Partnership, was an LGP between PG&E, SCE, SoCalGas, and local governments in Kings and Tulare Counties:

- In Kings County, the Cities of Avenal, Corcoran, Hanford, and Lemoore, and
- In Tulare County, the Cities of Dinuba, Farmersville, Lindsay, Porterville, Tulare, Visalia, and Woodlake.

The VIEW Partnership was implemented by the San Joaquin Valley Clean Energy Organization (SJVCEO).

The VIEW Partnership identified opportunities for improved energy efficiency in municipal infrastructure, offered customized incentives for municipal projects, conducted EE trainings, and hosted and participated in outreach events to drive participation in core EE programs.

The Program closed on December 31, 2021. The VIEW Partnership had four active projects during 2021, which are expected to be completed during Program Year 2022.

South Bay Energy Leader Partnership

The South Bay Energy Leader Partnership Program¹⁵⁵ provided integrated technical and financial assistance to help 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 provided performance-based opportunities and incentives from SCE core programs for fifteen (15) member cities to increase energy efficiency in local government facilities and their communities through energy-saving actions.

The South Bay Energy Leader Partnership had 26 active projects during 2021, which are expected to be completed during Program Year 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 generated energy savings by identifying municipal EE projects and providing education, training, and marketing and outreach. Cities completed retrofits of their own facilities and conducted community sweeps and outreach to their residential and business communities to increase participation in core EE programs. The Partnership:

- Funneled customers to existing SCE EE programs
- Acted as a portal for other demand-side management (DSM) offerings, including the income-qualified Energy Savings Assistance (ESA) and CARE Programs, demand response programs, and the Self-Generation Incentive Program (SGIP)
- Provided energy information to all market segments, and

¹⁵⁵ Also known as the South Bay Cities Council of Governments (SBCCOG) Energy Efficiency Partnership. Link to SBCCOG website provided in *Appendix I*, below.

- Identified projects for municipal retrofits.

The South Santa Barbara County Energy Leader Partnership had 22 active projects during 2021.

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, built on progress towards implementing a targeted program of energy savings for public agencies¹⁵⁶ throughout the Ventura County region. The Partnership supported efforts for the County of Ventura and ten cities, including Camarillo, Fillmore, Moorpark, Ojai, Oxnard, Port Hueneme, Santa Paula, Simi Valley, Thousand Oaks, and Ventura, and applied the strengths of the VCREA and its utility partners to help public agencies lead their communities to greater participation in EE programs.

The Ventura County Energy Leader Partnership had ten active projects during 2021, which are expected to be completed during Program Years 2022 and 2023.

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. Partnership activities focused on:

- Implementing EE in municipal facilities
- Promoting EE in the community
- Establishing energy savings goals for EE retrofits of city-owned facilities, and
- Identifying, scoping, and implementing EE projects.

The West Side Energy Leader Partnership had one active project during 2021, which is expected to be completed during Program Year 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. Partnership activities focused on implementing EE projects in municipal facilities and promoting EE in the community. The Partnership:

- Established energy savings goals for EE retrofit of city-owned facilities

¹⁵⁶ That is, city or county governments and any other public sector organizations.

- Identified, scoped and implemented EE projects

The North Orange County Cities Partnership had two active projects during 2021, which are expected to be completed during Program Years 2022 and 2023.

Local Government Partnerships – County Partnerships

The County Partnerships described in this section were originally authorized as part of the Institutional Partnership Program but were moved to the Local Government Partnerships for reporting purposes.

County of Riverside Energy Efficiency Partnership

In 2010, the County of Riverside formed a Partnership with SCE and SoCalGas to help the County achieve its green policy initiatives and formulate an integrated approach to EE. This collaborative effort sought to build an infrastructure that would efficiently deliver cost-effective EE projects to reduce the carbon footprint created by County facilities.

The Partnership improved EE in Riverside County municipal facilities by leveraging utility resources, customized to the County's unique needs. The Partnership also supported Riverside County in meeting, first, the CO₂ reduction requirements of AB 32,¹⁵⁷ and second, CPUC energy savings goals and objectives.

The County of Riverside Partnership had no activity during 2021 and was closed as of December 31, 2021.

County of San Bernardino Energy Efficiency Partnership

The County of San Bernardino Partnership Program was a local government partnership between the County of San Bernardino, SCE, and SoCalGas. The program was designed to assist the County in identifying energy efficiency opportunities. The County could then increase EE in more facilities, reduce greenhouse gas emissions, increase renewable energy usage, protect air quality, and ensure that their communities were more livable and sustainable.

The Partnership focused on installing measurable and persistent EE and conservation measures for the benefit of the County, its residents and businesses, the State of California, and California IOU customers. Partnership activities focused specifically on implementing EE measures in municipal facilities. The Partnership established energy savings goals through county-identified projects, funded by incentives and technical assistance.

The County of San Bernardino Partnership had no activity during 2021 and was closed as of December 31, 2021.

¹⁵⁷ AB 32, Air pollution: greenhouse gases: Global Warming Solutions Act of 2006. Link provided in *Appendix I*, below.

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). Energy efficiency projects focused on County-owned municipal buildings, and included lighting, HVAC, retrocommissioning, and Savings By Design (SBD) new construction projects for each of the 38 County departments served by the Energy Management division of the County Internal Services Department.

The County of Los Angeles Energy Efficiency Partnership had ten active projects, with two completed during the year. The rest of the projects are expected to be completed during Program Years 2022 and 2023.

Partnership Strategic Support Subprogram

Program Description

Through the Partnership Strategic Support Subprogram, SCE joined with the other three California IOUs — PG&E, SoCalGas, and SDG&E — to contract with the International Council for Local Environmental Initiatives (ICLEI), the Institute for Local Government (ILG), and the Local Government Commission (LGC) to implement the Statewide Energy Efficiency Collaborative (SEEC).¹⁵⁸ SEEC provided a coordinated statewide program of workshops, technical assistance, a recognition program, and other means to allow local governments to share best practices associated with energy management. The statewide Local Government EE Best Practices Coordinator, also funded by the four IOUs, coordinated this work.

Strategies Implemented in 2021

The Partnership Strategic Support Subprogram closed in 2020, and the final invoice was paid in early 2021.

¹⁵⁸ Link to the SEEC website provided in *Appendix I*, below.

Regional Energy Network Partnerships

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

Southern California Regional Energy Network Fiscal Oversight and Partnership

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. Subsequently, on June 6, 2018, the Commission approved SCE's 2018-2025 Energy Efficiency Rolling Portfolio Business Plan.¹⁵⁹ In December 2019, the Commission issued D.19-12-021,¹⁶⁰ 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, SoCalGas, and SoCalREN, with SoCalGas as the lead administrator, defines the SoCalREN Partnership, through which the Investor-Owned Utilities (IOUs) provide fiscal oversight for the programs but do not directly manage them.

Strategies Implemented in 2021

In 2021, SCE implemented the following strategies for the SoCalREN Partnership:

Program Activities:

- On a monthly basis, reviewed and processed for payment all program implementer invoices forwarded through SoCalGas for work performed in 2020 and 2021, and participated in working meetings with Los Angeles County's financial team to resolve invoice issues within 15 days of receipt of any monthly invoice package.
- Continued to keep records of customer account validation and past participation, and to store project data for reporting purposes.
- Collaborated with SoCalREN on updates to customer account data validation processing (for prior SCE program participation), since SCE's switch to the new iEnergy tracking system required new project numbering and account numbering conventions.

¹⁵⁹ D.18-05-041, *Decision Addressing Energy Efficiency Business Plans*. Link provided in *Appendix I*, below.

¹⁶⁰ D.19-12-021, *Decision Regarding Frameworks for Energy Efficiency Regional Energy Networks and Market Transformation*. Link provided in *Appendix I*, below.

Collaboration Among Partners

- SCE, SoCalGas, and SoCalREN worked together, as required by D.18-05-041, to develop a Joint Cooperation Memo (JCM) which detailed SoCalREN's 2022 programs, SoCalGas's and SCE's comparable 2021 programs, and the coordination among the Program Administrators (PAs) in overlapping service territories. The 2022 SoCalREN JCM¹⁶¹ was approved on July 15, 2021.
- Partnership committees continued meeting (virtually, due to the COVID-19 pandemic), which facilitated discussion and resolution of issues:
 - The IOU-SoCalREN Coordinating Committee met quarterly to discuss overarching and strategic issues.
 - The IOU-Southern California Public Agency Program Committee met monthly to discuss coordination of energy efficiency and demand response project development activities to minimize customer confusion.
 - Additional working meetings were conducted as needed to coordinate and support implementation of SoCalREN Residential, Finance, and Public Agency Programs.
 - SCE's Multifamily Energy Efficiency Rebate (MFEER) Program was closed at the end of 2020, so any continuing multifamily program coordination will be between SoCalREN and SoCalGas.

The SoCalREN Partnership also:

- Continued to refine the SoCalREN Public Agency Coordination Plan to streamline coordination of SCE's and SoCalGas's individual core program activities and third-party offerings, in order to minimize customer confusion when working with SoCalREN, and
- Actively participated in technical meetings and coordinated monthly subprogram meetings, as needed.

Tri-County Regional Energy Network Fiscal Oversight and Partnership

Program Description

The Tri-County Regional Energy Network (3C-REN), jointly administered by the Counties of San Luis Obispo, Santa Barbara, and Ventura, was approved as a pilot in D.18-05-041 (cited above). In December 2019, the Commission approved D.19-12-021,¹⁶²

¹⁶¹ AL 4519-E, *2022 Joint Cooperation Memorandum (JCM) of SoCalGas, SCE, and SoCalREN Pursuant to D. 18-05-041*. Link provided in *Appendix I*, below.

¹⁶² D.19-12-021, *Frameworks for EE Regional Energy Networks*. Link provided in *Appendix I*, below.

removing the pilot status of 3C-REN and authorizing the continuation of 3C-REN through the end of the business plan period.

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.

In 2021, SCE worked cooperatively and collaboratively with PG&E, SoCalGas, and 3C-REN to coordinate complementary services and create a positive, successful experience for customers.

Strategies Implemented in 2021

In 2021, SCE implemented the following strategies for the 3C-REN Partnership:

Program Activities:

- On a monthly basis, reviewed and processed for payment all program implementer invoices forwarded through 3C-REN for work performed in 2021, and
- Continued to develop a process to validate customers to ensure they were not claiming project incentives from more than one program (double-dipping).

Collaboration Among Partners:

- PG&E, SCE, SoCalGas, and 3C-REN worked together, as required by D.18-05-041, to develop 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, 2021.¹⁶³
- Partnership committees continued meeting (virtually, due to the COVID-19 pandemic), which facilitated discussion and resolution of issues:
 - The IOU and 3C-REN partners (IOUs and Counties) met as necessary to discuss overarching and strategic issues, and
 - Additional working meetings were conducted as needed to coordinate and support implementation of 3C-REN's Residential, Codes and Standards (C&S), and Workforce, Education and Training (WE&T) Programs.
- Coordinated WE&T training activities and provided 3C-REN with lists of classes available in the Tri-County area, such as Clean Energy Building Design.

¹⁶³ AL 4520-E, 2022 Joint Cooperation Memorandum (JCM) of SoCalGas, SCE, 3C-REN, and PG&E Pursuant to Decision (D.) 18-05-041. Link provided in Appendix I, below.

Institutional and Government Energy Efficiency Partnership Program

The Institutional and Government Energy Efficiency Partnership Program (IGPP) is an umbrella program comprising four (4) Statewide 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
- State of California Government.

The program's objective is to reduce energy usage through facility and equipment improvements, shared best practices, education, and training. The IGPP model raises awareness of energy consumption and efficiency, builds resources and skills, and delivers energy services for deep energy savings. To reduce peak demand and create energy savings in existing facilities, the Partnership team provides core program coordination to integrate SCE programs and services, and works with our CCC, UC, CSU, CDCR, and State of California Partners' staff to develop a pool of retrofit, new construction, and retrocommissioning projects for implementation.

2021 Program Implementation Barriers and Problems Encountered

The Statewide Energy Efficiency Partnerships were impacted both operationally and financially due to the outbreak of COVID-19 in the State of California, leading to Governor Newsom's declaration of a Statewide emergency on March 4, 2020 and issuance of a Stay-at-Home Order on March 19, 2020, which was not lifted until 2021. The significant impacts of COVID-19 to all operations and functions associated with Statewide customers continued in 2021, as follows:

- Educational institutions that had transitioned to virtual learning in 2020 began to conduct part-virtual, part-in-person (hybrid) classes
- Campus housing facilities that had been shut down began allowing students to move back into campus housing
- All medical facilities continued seeing significant uptakes in activity and patient load
- The operational changes that all State Agencies had made because of COVID-19 continued, and
- Significant COVID-19 outbreaks continued to impact all prison and inmate services, energy usage, and facility use patterns.

California Community Colleges Energy Efficiency Partnership

Program Description

The California Community Colleges / Investor-Owned Utility (CCC / IOU) Energy Efficiency Partnership is a unique statewide program to achieve immediate and long-term energy savings and peak demand reduction within California's higher education system. Statewide incentive funding is used to maintain the processes and framework established in previous program cycles for sustainable, comprehensive energy management at campuses served by California's four IOUs.

The program has a hierarchical management structure to ensure successful implementation. The Management Team meets quarterly to conduct business at the management level, and the Executive Team meets quarterly to discuss overall program status and policy issues. The Partnership also focuses heavily on outreach efforts in several areas, including:

- Development of a comprehensive list of technologies, project types, and offerings to be used by team members during campus visits to help generate project ideas
- Evaluation of new project technologies for suitability in the Community College market, and
- Planning and participation in CCC conferences and regional Campus Forums.

Strategies Implemented in 2021

Administrative Successes

- The Partnership held quarterly Management Team and Executive Team meetings to discuss overall program status, initiatives, and policy issues. In addition, joint Executive / Management Team meetings were held in June and December.

Retrofit Projects Implemented

- The IOUs worked closely with the California Community College Chancellor's Office to develop a process to integrate the resources and infrastructure of the Partnership into the CCC.
- The team actively tracked project savings data in a database tracking tool and continued to create regular reports showing the overall status of the program and providing forecasts relative to goals. These reports were reviewed by both Executive and Management Team members on an ongoing basis.

Education and Outreach

- The Management Team participated in several CCC conferences such as the California Higher Education Sustainability Conference (CHESC), Community

College Facilities Coalition Conference (CCFC), and the Association of College Business Officers (ACBO) Conference to reach a diverse audience of facilities' business officers, administration, and board members. All of these conferences were held virtually.

- In addition, the team participated in Northern and Southern California regional energy meetings organized by the Community Colleges (NorCal Summit, Southern California Facilities Officers) targeted towards campus facilities and energy managers. All of these meetings were held virtually.
- Outreach members conducted campus meetings with Facilities and O&M staff to review project opportunities and manage project development efforts both on-site at the colleges and while participating in the ACBO Facilities Task Force quarterly meetings.
- The team participated in Northern and Southern California quarterly Campus Forums to provide regional informational workshops targeted towards campus facilities and energy managers. All of these meetings and workshops were held virtually.

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

Program Description

The CDCR EE 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 CDCR institutions served by the IOUs. Through statewide coordination, the four IOUs worked with the Energy, Sustainability and Infrastructure Section (ESIS, under the Facility Planning, Construction and Management [FPCM] Division) of CDCR and with their contracted Energy Service Companies (ESCOs) to ensure implementation of projects that maximized energy savings opportunities in a cost-effective manner.

Complementing this were education and outreach efforts for prison facilities operations and maintenance staff:

- To adopt best EE and DR practices, and
- To support CDCR's pursuit of all types of financing to fund a robust pipeline of projects with deep energy savings.

Strategies Implemented in 2021

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.

Administrative Successes

- Regular management team meetings (every four weeks) and executive team meetings (quarterly) were key to identifying and managing projects, and to proactively addressing any challenges the program may face. These meetings were held virtually.
- The Partnership continued the effort to ensure that new construction projects, gas-saving projects, and water conservation projects were clearly tracked and proactively managed.
- Through the Partnership, energy audits were originally performed in 2006 for the institutions within the IOU territories. In 2021, CDCR and the IOUs continued to create a master schedule and to prioritize EE audits to use as a planning tool for future EE projects.

Retrofit Projects

- In 2021, CDCR continued to use over half of the energy consumed by state agencies under the Governor's executive authority. Though CDCR's budget for implementing EE projects was minimal, EE projects were identified through the Partnership and implemented through the IOU core and On-Bill Financing (OBF) Programs, with the support of the IOUs and the Program Administration Manager. On-Bill Financing remained the primary source of funding, a trend likely to continue because several IOUs have increased their OBF limits¹⁶⁴ to \$4 million per premise.
- In select instances, CDCR continued implementing retrofit projects and performing investment-grade audits, with OBF funds supplemented by either Special Repairs Project funding or the Department of General Service's GS\$mart Program.
- To support further project development, the IOUs performed energy audits of a subset of CDCR's facilities, which CDCR used to prioritize the next wave of projects.

Education and Outreach

- The Partnership continued to provide guidance and trainings for CDCR and their Energy Services Companies (ESCOs) to help ensure that financing options were identified early in the development cycle, so each project could capitalize on the unique and evolving mix of opportunities.

¹⁶⁴ AL 4051-E, *Request for Approval to Increase Loan Caps for Southern California Edison Company's On Bill Financing Program*, approved on October 4, 2019. Link provided in *Appendix I*, below. See also *Chapter 5, Finance Programs*, above.

Program Implementation Barriers or Problems Encountered

As mentioned above, all prison and inmate services saw a significant outbreak of COVID-19 and energy usage changed because of changes in facility use patterns.

State of California Energy Efficiency Partnership

Program Description

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. This was accomplished by collaborating with the Department of General Services (DGS) in establishing an Energy Services Company (ESCO) pool to help facilitate implementation of EE projects to achieve both immediate EE savings and long-term sustainability. The California Department of Finance Energy\$Mart Program provided financing for EE projects.

Strategies Implemented in 2021

This partnership transitioned to 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.

Administrative Successes

- The Partnership continued to attend the State of California's Sustainable Building Working Group (SBWG) virtually and to assist the SBWG with its task of planning and implementing all aspects of the Governor's *State of California Green Buildings* Executive Order B-18-12¹⁶⁵ and the Green Building Action Plan.¹⁶⁶
- The Partnership continued to support the DGS Statewide Energy Retrofit program by providing:
 - Technical assistance to influence projects in development and maximize energy savings, and
 - Incentive funds to help offset the projects' cost.

¹⁶⁵ Executive Order B-18-12, *State of California Green Buildings*. Link provided in *Appendix I*, below.

¹⁶⁶ *Green Building Action Plan for Implementation of B-18-12*. Link provided in *Appendix I*, below.

Retrofit Projects

- The IOUs continued to work with the State to prioritize agencies that may benefit from ESCO work, both for large and pooled small buildings. The Partnership provided extensive outreach and technical support to agencies including:
 - California Highway Patrol
 - Department of Motor Vehicles
 - Department of Parks and Recreation
 - Judicial Council of California, and
 - Department of Food and Agriculture.

Education and Outreach

- In a supporting role, the IOUs continued to attend the Sustainable Building Working Group meetings virtually to ensure that agency needs regarding energy data for benchmarking were met, and to continue to use this platform for agency outreach.
- In response to the Public Safety Power Shutoffs that occurred in 2021, the Partnership coordinated with various State of California departments and agencies on how to build resiliency for sites in the most critical zones. Outreach to these agencies yielded significant energy savings.

Program Implementation Barriers or Problems Encountered

As mentioned above, all State Agencies changed operations with a new focus on the impact of COVID-19.

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

Program Description

The UC / CSU Energy Efficiency Partnership is a unique, statewide program which includes 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. The program generates energy savings by identifying and implementing EE projects and supporting the projects through training and education.

The Partnership offers three main project types: retrofit, monitoring-based commissioning (MBCx), and new construction. Since its establishment in 2004, the Partnership has provided over 65 MW in demand reduction and delivers over 500 million kWh/year and over 25 million therms/year in energy savings statewide.

Strategies Implemented in 2021

Administrative Successes

As the transition to the new third-party programs was still in progress, the Partnership team decided to look at ways the current Partnership could be reinvigorated and could incorporate current priorities to enhance its value over the next two years. The following five priority areas were identified as offering the most value to UC and CSU:

- Carbon reduction
- Meter-based savings methodologies
- Financing
- Resiliency, and
- Human resources.

Throughout 2021, the team continued to discuss potential opportunities and to monitor progress of ongoing initiatives in these priority areas. In addition, with the assistance of and input from the University of California, the IOUs continued implementation and development of various program offerings and High Opportunity Projects or Programs (HOPPs), including a Whole Building Program consistent with SB 350,¹⁶⁷ AB 802,¹⁶⁸ and AB 1150,¹⁶⁹ to demonstrate a comprehensive whole-building approach to building efficiency.

Retrofit Projects

A significant volume of energy efficiency projects was delivered in 2021 and continues underway for future years:

- The Partners completed over 45 Retrofit, MBCx, and New Construction projects at 17 different UC and CSU campuses (including the UC Med Centers) in the IOUs' service areas, but no projects were completed in 2021 in SCE's service area, and
- SCE's Clean Energy Optimization Pilot (CEOP) began at several campuses on July 1, 2019, and will continue for a total period of four years. Pilot Year Two began October 1, 2021 after a pause due to the COVID-19 pandemic. CEOP and the Partnership are mutually exclusive, so Partnership activities at CEOP campuses are winding down.

Education and Outreach

- As a result of significant budget cuts in 2019, the Partnership discontinued the Partnership Training and Education Program.

¹⁶⁷ SB 350, Clean Energy and Pollution Reduction. Link provided in *Appendix I*, below.

¹⁶⁸ AB 802, Energy Efficiency. Link provided in *Appendix I*, below.

¹⁶⁹ AB 1150, Self-Generation Incentive Program. Link provided in *Appendix I*, below.

Program Implementation Barriers

- As mentioned above, all educational institutions in the State of California transitioned to virtual learning in 2020, and all campus housing facilities were shut down. In 2021, however, students began to return to on-site learning and the campuses reopened dormitories.
- Some campuses stopped pursuing certain projects due to incentive cuts resulting from non-utility supply hourly analysis. In addition, current Commission policy requiring energy savings above code (Title 24¹⁷⁰) and industry standard practice baselines is not always aligned with determining project financial impact to support project financing, or with translating savings to carbon reductions to meet university carbon-reduction goals.

Program Changes Made in 2021

- The Partnership focused on efforts surrounding normalized metered energy consumption (NMEC) in compliance with AB 802.¹⁷¹ SCE and SCG completed their first whole building HOPPs project at UC Santa Barbara, in parallel to the Partnership.
- In addition to NMEC projects, UC and CSU focused on:
 - Addressing barriers to energy efficiency
 - Developing new contracting mechanisms
 - Looking into opportunities for financing projects via OBF, and
 - Continuing work on a California Energy Commission (CEC) Grant to develop a Master Enabling Agreement for energy efficiency at UC and CSU campuses.

Public Sector Performance-Based Retrofit Program

Program Description

The Public Sector Performance-Based Retrofit Program¹⁷² (PSPBR) was designed to leverage smart meter investments while bringing the benefits of Normalized Metered Energy Consumption (NMEC) to Public Sector buildings. NMEC represents the next progression in energy efficiency (EE) by measuring, tracking, and incentivizing savings delivered at the meter.

The PSPBR Program complemented the goals of Public Sector programs by allowing participants to track savings and ensure the performance of their long-term EE investments,

¹⁷⁰ California Building Energy Efficiency Standards. Link provided in *Appendix I*, below.

¹⁷¹ AB 802, Section 6.

¹⁷² 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*. Link provided in *Appendix I*, below.

and supported their economic goals and climate action plans. The shift to NMEC made it possible to confirm to Program participants that their project could result in greater and more sustainable energy savings, a strong additional benefit of the methodology. By aligning with climate and cost-reduction goals, the Program also provided a valuable strategy for helping Public Sector customers meet their sustainability goals. SCE developed this Program to eliminate barriers, improve transparency, ensure persistence, and increase overall energy savings in the public sector.

Strategies Implemented in 2021

SCE's focus for the PSPBR Program during 2021 had three primary strategies:

- Promote the program's unique offering to as many public sector customers as possible.
- Continue the strong collaboration between the Southern California Gas Company (SoCalGas) and the Southern California Regional Energy Network (SoCalREN) to achieve comprehensive energy savings for public sector customers and demonstrate the effectiveness of the meter data analysis-based energy savings approach.
- Manage the year-end closure of the PSPBR Program, which closed to new enrollments effective December 31, 2021.¹⁷³ 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 meter-data analyses scheduled to occur at three, 12, and 24 months after each project installation is completed.)

In 2021, SCE implemented the following strategies for the PSPBR Program:

Administrative Changes and Successes

- Transitioned to a new project tracking system, iEnergy. The iEnergy system was designed to capture more project-specific information, adding flexibility in accessing project data and allowing SCE's technical review consultants to access specific information related to projects in a secure environment which maintains the confidentiality of customer information.
- Developed alternative strategies to work around the impact of COVID-19 on customer facilities. COVID-19 issues impacted the performance of energy audits as well as metered-data analyses and pre- and post-installation inspections. Options implemented to resolve these issues included:
 - Adjusting meter data timelines to better normalize the analysis

¹⁷³ AL 4633-E, *Southern California Edison Company's Energy Efficiency Program and Portfolio Annual Budget Advice Letter for Program Years 2022 and 2023*. Link provided in *Appendix I*, below.

- Delaying the performance of inspections until the COVID-19 infection rate was identified as "low-risk," and
- Conducting virtual inspections. All inspections were performed in accordance with SCE and CPUC safety policies.

Core Function Activities:

- Implemented the plan to close the PSPBR Program to enable a smooth transition to a new third party-implemented public sector program. PSBPR closed effective December 31, 2021.¹⁷⁴
- Ensured that internal and external stakeholders were aware of the program's pending closure through communications which stated project submittal deadlines and program closure dates.

The program's anticipated closure and COVID-19 impacts created a difficult environment to achieve and validate energy savings. The energy savings results for 2021 reflected this challenge. The program is headed towards achieving approximately 9% of its kWh goal, but had no claimable reduction in kWh.

¹⁷⁴ AL 4633-E, *Southern California Edison Company's Energy Efficiency Program and Portfolio Annual Budget Advice Letter for Program Years 2022 and 2023*. Link provided in *Appendix I*, below.

12. Third Party-Implemented Programs

Third Party-Implemented Programs deliver energy savings and demand reductions through contractors (program implementers) to commercial, industrial, and residential customers within SCE's service area (local third-party programs), within other IOUs' service areas (statewide third-party programs), and to a wide variety of specific industry sectors as defined by North American Industry Classification System (NAICS) codes. The implementers oversee all program activities from marketing and recruitment through installation of EE measures.

In 2021, third-party program implementers continued to perform site assessments and reports to identify energy efficiency (EE) savings opportunities, offer EE savings recommendations, and provide technical assistance, incentives, and rebates to program participants to support the installation of the recommended equipment.

Additionally, SCE continued the process of soliciting third-party program implementers to meet the 60% outsourcing threshold by December 31, 2022, per California Public Utilities Commission (CPUC or Commission) Decision (D.)18-01-004,¹⁷⁵ which directed IOUs to seek new programs that were both designed and delivered by third parties.

Transition to Third-Party Implementers

Traditional Third Party-Implemented Programs were SCE-designed programs that implementers delivered. D.18-01-004 not only directed the Investor-Owned Utilities (IOUs) to seek new programs that were both designed and delivered by third parties, but also:

- Established a process for third-party solicitations for EE rolling portfolio programs overseen by the IOU Program Administrators (PAs)
- Adopted a requirement that the IOUs use a two-stage process to solicit third party-designed and -implemented programs for the EE portfolio, and
- Refined budget targets to result in a smooth transition from a portfolio of programs 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.18-05-041,¹⁷⁶ 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. At the conclusion of 2021, SCE entered into contracts

¹⁷⁵ D.18-01-004, *Third Party Solicitation Process for EE Programs*. Link provided in *Appendix I*, below.

¹⁷⁶ D.18-05-041, *EE Business Plans*. Link provided in *Appendix I*, below.

with third-party implementers that totaled more than 40 percent of its EE budget and met both the 2019 and 2021 deadlines.

Solicitation Activities

In 2021, SCE used the two-stage solicitation process — a Request for Abstracts (RFA) followed by a Request for Proposals (RFP) — in accordance with D.18-01-004. As part of the two-stage process, SCE worked closely with its EE Procurement Review Group (EE PRG) and an Independent Evaluator (IE) in both stages of the solicitations, while also leveraging the standard solicitation processes SCE typically uses for competitive solicitations.

Integrated Demand Side Management (IDSMD) Activities

In 2021, SCE engaged third-party program implementers by requesting a preliminary budget forecast for IDSMD and EE/DR activities. The preliminary budget information was for informational purposes only and to assist SCE in understanding future budget obligations. SCE anticipates that a significant portion of future EE/DR funds will be allocated to third parties for EE / DR activities that meet the requirements and general policy principles described in D.18-05-041. Accordingly, SCE may provide EE/DR funds to third-party implementers for recently launched programs and for Statewide programs that may request EE/DR funding. For third-party programs that are currently in the solicitation phase that may request EE / DR funding in 2022, SCE will also allow access to such EE / DR funds.

Completed Solicitations in 2021

SCE completed three solicitations in 2021 that resulted in the award of contracts to three implementers:

- The Statewide Electric Emerging Technologies Program (SWEETP) Solicitation was for a non-resource program focused on helping California meet its energy reduction goals by identifying emerging (and underutilized) technologies that have the long-term potential to deliver cost-effective energy savings through the EE program portfolio and the Codes & Standards Program.

See Statewide Third Party-Implemented Programs — Statewide Electric Emerging Technologies Program, below.

- 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 (that is, by the State of California and California Department of Rehabilitation and Correction, Statewide Higher Education, and Statewide Water/Wastewater Pumping programs).

See Active Local Third Party-Implemented Programs — Public Energy Performance Program, below.

- The Local Agricultural Sector Solicitation was intended to address the needs of customers whose primary businesses are agricultural production, including field and seed crops, fruit and nut crops, vegetables and melons, livestock, poultry, floriculture, indoor agriculture, and/or on-site food processing of food in one of the foregoing categories.

See Active Local Third Party-Implemented Programs — Agriculture Energy Efficiency Program, below.

Active Solicitations

SCE is conducting two active solicitations as of the date of this report, including solicitations for Statewide Higher Education and Statewide Water/Wastewater programs.

Statewide Third Party-Implemented Programs

California Statewide Lighting Program

Program Description

The California Statewide Lighting (SWL) Program 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 lighting products through midstream channels. The third-party implementer, TRC Solutions, will achieve the Program's objectives through implementation of a cost-effective midstream program for the nonresidential (Commercial & Industrial) market throughout the IOUs' service areas.

Strategies Implemented in 2021

SCE submitted Advice Letter (AL) 4356-E¹⁷⁷ in 2020 to request approval for its California Statewide Lighting Program solicitation, and received a CPUC disposition letter approving the request, effective December 23, 2020. The Program, administered by TRC Solutions, launched on July 1, 2021. TRC Solutions completed approximately 80 projects with energy savings of over 490,000 kWh and demand savings of almost 70 kW.

Statewide Electric Emerging Technologies Program

Program Description

- The Statewide Electric Emerging Technologies Program (SWEETP) supports the advancement of knowledge technology performance, market knowledge and

¹⁷⁷ AL 4356-E, *Advice Letter for Approval of Statewide Lighting Energy Efficiency Third Party Contract for CA Statewide Lighting Program*. Link provided in *Appendix I*, below.

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

Strategies Implemented in 2021

SCE submitted Advice Letter (AL) 4607-E¹⁷⁸ in October, 2021 to request approval for its SWEETP solicitation, and received a CPUC disposition letter approving the request, effective November 24, 2021. The SWEETP contract was awarded to Cohen Ventures dba Energy Solutions in the Third Quarter of 2021.

Active Local Third Party-Implemented Programs

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 customers, in collaboration with local communities seeking to maximize service to their residents. The

¹⁷⁸ AL 4607-E, *SCE's Advice Letter for Approval of Statewide Electric Emerging Technologies Energy Efficiency Third Party Contract with Cohen Ventures dba Energy Solutions*. Link provided in *Appendix I*, below.

program, implemented in coordination with the Southern California Gas Company (SoCalGas), installs energy-efficient products at no charge in mobile home dwellings and the common areas of mobile home parks.

The target customers for this program are mobile homes and mobile home parks, which are difficult to reach through other EE programs. These mobile home customers are typically moderate- or fixed-income, elderly, retired, and/or disabled individuals. The program is designed to enhance EE knowledge and program participation in this market segment.

Strategies Implemented in 2021

Core Function Activities

- Continued installation of comprehensive EE measures (such as Smart Thermostat, Fan Delay Controller, Brushless Fan Motor, Duct Test and Seal,¹⁷⁹ Low-Flow Showerhead, etc.) to optimize energy savings and help customers identify opportunities for demand response and efficient water use.
- Identified measures that were expiring at the end of 2021 and explored opportunities to introduce new measures into the program in 2022.
- Identified additional Smart Thermostat makes and models that are more user-friendly as an option for the older demographic of CMHP customers.

Outreach to Customers

- Continued 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 and manufactured home parks and communities specific to residents ages 55+ was discontinued in 2020 and remained that way in 2021. The park managers for these age-specific parks continue to keep their doors closed to solicitations as a precautionary measure for their residents.

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.

¹⁷⁹ The Duct Test and Seal measure was implemented in accordance with the 2019 Building Energy Efficiency Standards – Title 24 (link provided in *Appendix I*, below). However, measure implementation did not incorporate the test-in and test-out requirements set forth in the measure package. As a result, all savings associated with this measure will be zeroed out for 2021 claims.

- 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.

Residential Behavioral Program

Program Description

The Residential Behavioral Program will drive adoption of behavioral changes in households through personalized Home Energy Reports (HERs) and Energy Advisor support. This Program will target residential customers across SCE's service territory for behavioral treatment to generate robust, cost-effective energy savings. The objectives are to amplify residential energy savings by delivering direct, relatable interventions with lasting impact for SCE customers and to better connect hard-to-reach (HTR), low-to-moderate income (LMI), and disadvantaged communities (DAC) segments to SCE.

The program will deliver paper and email HERs to residential customers, including a wave of participants that are HTR, LMI, and/or located in DACs. The program design will also incorporate additional tactics or channels, such as rewards and voice technology, to reach customers and meet the program objectives. The Residential Behavioral Program is a local program implemented by ICF Resources, and is expected to launch (enter into the market) in late 2022.

Activities Implemented in 2021

SCE submitted Advice Letter AL 4353-E¹⁸⁰ to request approval for the ICF Residential Behavioral Program and received a CPUC disposition letter approving the request on February 19, 2021. The program conducted multiple ramp-up activities in 2021, including hosting a stakeholder workshop, developing and submitting a program Implementation Plan (IP), and working with SCE's information technology (IT) team to develop business requirements for a secure data transfer to the implementer so they can analyze, launch, and implement the program.

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

¹⁸⁰ AL 4353-E, *SCE's Advice Letter for Approval of Residential, Commercial, and Industrial Energy Efficiency Third Party Contract for Residential Behavioral Program*. Link provided in *Appendix I*, below.

(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 a local program implemented by ICF Resources.

Activities Implemented in 2021

In 2021, the program focused on conducting necessary ramp-up activities to prepare BERs for launch to SMB customers in 2023. SCE submitted Advice Letter AL 4354-E¹⁸¹ to request approval for the ICF Commercial Behavioral Program and received a CPUC disposition letter approving the request on February 19, 2021. The program also hosted a stakeholder workshop, developed and submitted a program Implementation Plan (IP), and worked with SCE's IT team to develop business requirements for a secure data transfer to the implementer so they can analyze, launch, and implement the program.

Enervee Marketplace Program

Program Description

The Enervee Marketplace Program consists of an online marketplace that fulfills many of SCE's energy management technology marketplace obligations under CPUC Resolution E-4820.¹⁸² 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

¹⁸¹ AL 4354-E, *SCE's Advice Letter for Approval of Residential, Commercial, and Industrial Energy Efficiency Third Party Contract for Commercial Behavioral Program*. Link provided in *Appendix I*, below.

¹⁸² Resolution E-4820. *Request for Approval of PG&E, SDG&E, SCE and SoCalGas' Assembly Bill 793 (AB 793) Advice Letters (ALs)*. Link provided in *Appendix I*, below.

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 IOU ratepayer-funded EE rebates.

Eco Financing enables customers to purchase energy-efficient products using a term loan with no down payment and 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.¹⁸³ Customers will have the option to bundle installation and other services in their Eco Financing loan. Eco Financing offers instant online loan underwriting of long-term loans with minimal credit requirements.

Savings will be claimed for financed purchases only, although customers will have a choice of additional payment methods. The program will initially claim savings for eleven consumer product categories tied to financing offers for which ten approved workpapers are available, with the intention of expanding to additional measures, including fuel substitution measures.

The program will drive traffic and engagement with the site, using e-mail marketing to active SCE customers, and search functions and social digital media to help customers identify and choose energy-efficient products and facilitate purchases with Eco Financing.

The Enervee Marketplace eliminates the main barriers preventing private investment into energy-efficient consumer products:

- Lack of market transparency with respect to product efficiency
- Cognitive and psychological barriers that lead to poor product choices, and
- Up-front purchase price barriers (such as access to capital and incremental cost).

Strategies Implemented in 2021

SCE submitted Advice Letter (AL) 4355-E-B¹⁸⁴ in 2021 to request approval for the Enervee Marketplace Program, and received a CPUC disposition letter approving the request, effective November 22, 2021. Enervee Marketplace, administered by Enervee Corporation, is set to launch in the Third Quarter, 2022.

Willdan Commercial Energy Efficiency Program

Program Description

The Willdan Commercial Energy Efficiency Program (CEEP) provides comprehensive energy efficiency (EE) for commercial SCE customers with a monthly maximum demand greater than 20 kW in the Retail, Technology Industries, Lodging,

¹⁸³ See *Chapter 5, Finance Programs*, above.

¹⁸⁴ AL 4355-E-B, *SCE's Supplemental Advice Letter for Approval of Residential, Commercial, and Industrial Energy Efficiency Third Party Contract for Marketplace Program*. Link provided in *Appendix I*, below.

Restaurants, Grocery Stores, Warehouses / Refrigerated Warehouses, and Office & Miscellaneous segments of the Commercial sector.

The program's primary objective is to meet SCE's business plan goals and achieve deeper savings by influencing a significant increase in the adoption of EE measures among Commercial sector end-users, using the Deemed, Custom Calculated, and Normalized Metered Energy Consumption (NMEC) approaches.

The program goes beyond basic EE to include demand response (DR), energy management technologies, and fully integrated demand-side management (IDSMD) solutions. IDSMD and electrification upgrades are offered to customers, excluding any storage technology. This approach minimizes the barriers for customer participation, complies with SCE and CPUC requirements, and offers a consolidated approach.

The program includes an integrated team of highly experienced firms from varied disciplines to implement the program, leverage experienced channel partners, Trade Pros, and installers for project delivery, and utilize direct install (DI) and do-it-yourself (DIY) strategies. This integrated team will motivate comprehensive projects through outreach, sales, technical assistance, and connecting customers to tailored funding and financing options.

SCE submitted Advice Letter (AL) 4350-E-A¹⁸⁵ in 2021 to request approval for the Willdan Commercial EE Program,¹⁸⁶ and received a CPUC disposition letter approving the request, effective July 20, 2021.

Strategies Implemented in 2021

CEEP leverages the following primary strategies and tactics to drive goal attainment:

Table 12.1. CEEP Customer Service Approach Strategies and Tactics

Customer Service Approach	Strategy/Tactic
Prioritize existing relationships	<ul style="list-style-type: none"> Leverage relationships with contractors, municipalities, trade associations, and previous customers across previously engaged market segments, including healthcare, lodging, and communications Strategic partnerships with community choice aggregators (CCAs), CBOs, and faith-based organizations (FBOs)
Outreach to HTR/DAC customers	<ul style="list-style-type: none"> Partner with trusted HTR/DAC experts and community action partnerships (CAPs), such as San Joaquin Valley Clean Energy Organization (SJVCEO), RHA, Staples, and Matrix, to identify decision-makers, build customer trust, and reduce costs
Build awareness	<ul style="list-style-type: none"> Attend industry events

¹⁸⁵ AL 4350-E-A, SCE's Supplemental Advice Letter for Approval of Residential, Commercial, and Industrial Energy Efficiency Third Party Contract for Comprehensive Multifamily Program. Link provided in Appendix I, below.

¹⁸⁶ AL 4350-E-A also included the Willdan Residential and Industrial EE Programs, described below.

Customer Service Approach	Strategy/Tactic
	<ul style="list-style-type: none"> Perform customer education, relating EE/DR value to customer objectives and long-term planning goals
Instill confidence	<ul style="list-style-type: none"> Provide risk mitigation, tailoring solutions to minimize risk and increase customer buy-in Leverage network of channel partners, Trade Pros, and installers, all of which have been approved by the program, and allow for customers' preferred contractors to perform work The program website will include a list of all channel partners, Trade Pros, installers, and CBOs that are participating in the program so customers can verify that they are approved under the program Customers may choose to use their preferred contractor or Willdan or an authorized Trade Pro or installer for implementation
Face-to-face	<ul style="list-style-type: none"> Offer full-service approach by customizing program offerings (e.g., flexible incentives, technical support, financing, and DI services) to target customer needs Determine the most applicable savings platform based on the measures identified, cost-effectiveness of the project, and the customer's needs (e.g., budget available, willingness to use financing, long-term property plans, etc.) Translate EE and IDSM value through tailored reports and energy modeling that communicate benefits using relevant metrics Offer zero-upfront-cost financing, including five financing options
Continuous engagement	<ul style="list-style-type: none"> A Single Point of Contact (SPOC) works with clients throughout their journey to zero net energy (ZNE) with re-engagement and follow-up strategies Annual recognition awards highlight achievers, re-engage leads, and motivate additional savings

CEEP leverages the following specific strategies and tactics to reduce market barriers:

Table 12.2. CEEP Market Barriers

Market Barrier	Strategy	Tactics
Split incentives for multiple decision-makers	Transform energy savings to meet decision-makers' needs	<ul style="list-style-type: none"> Education: Explain the value proposition to decision-makers as increased control, revenue, resiliency, etc. Educate stakeholders about the financial benefit, the quality of products installed, and added benefits such as extended equipment life and reduced maintenance.
		<p>Benchmarking / Intelligent Outreach:</p> <ul style="list-style-type: none"> Use program software to demonstrate to stakeholders how similar properties have implemented EE and realized actual savings. Target customers with the greatest benefit to participate and bundle measures for maximum benefit.

Market Barrier	Strategy	Tactics
<p>Hassle and search cost</p>	<p>Concierge services bring every opportunity to the customer</p>	<p>SPOC:</p> <ul style="list-style-type: none"> Simplify participation by consolidating program services and assigning a Single Point of Contact (SPOC). This tactic improves customers' satisfaction and perception of SCE.
		<p>Simplify EE:</p> <ul style="list-style-type: none"> Leverage small business do-it-yourself (SB DIY) and perform DI whenever applicable to streamline the customer's experience. Recommend behavioral retrocommissioning and operational (BRO) measures, EMTs, and controls to align with customer's energy profile and reduce payback.
		<p>Partnering:</p> <ul style="list-style-type: none"> Leverage partner relationships and maintain an open Trade Pro network to build on successful customer relationships.
<p>Performance uncertainty of EE benefits</p>	<p>Ensure reliable, efficient equipment is installed with accurate savings</p>	<p>Quality Installations:</p> <ul style="list-style-type: none"> Conduct QA and QC on projects during both pre-installation and primary post-installation to confirm that the equipment installed meets program requirements and customer needs.
		<p>Training Trade Pros / Contractors:</p> <ul style="list-style-type: none"> During program launch, lead training and shadowing for Trade Pros and installers. Hold biennial Trade Pro and installer trainings to cover new measure and/or technology implementation, best practices, and safety.
<p>Access to investment capital and sufficient return on investment</p>	<p>Expand procurement vehicles and intervention strategies</p>	<p>Financing:</p> <ul style="list-style-type: none"> Offer financing options to overcome specific barriers associated with financing.
		<p>Flexible Incentives:</p> <ul style="list-style-type: none"> Offer flexible incentives to ensure programmatic investment is appropriately sized.
		<p>Leverage New Leases:</p> <p>Engage decision-makers during new leases to install upgrades before space is occupied and support green leases and installations with lease renewal to overcome split incentives.</p>
<p>Lack of participation by hard-to-reach (HTR) customers</p>	<p>Target HTR customers and/or those in disadvantaged communities (DACs).</p>	<p>Partner with trusted HTR/DAC experts and community-based organizations (CBOs) to identify decision-makers, build customer trust, and reduce costs.</p>

Willdan Residential Energy Efficiency Program

Program Description

The Willdan Multifamily Energy Efficiency Program (MFEEP) provides comprehensive energy efficiency (EE) for all multifamily (MF) customer segments of the residential sector across Southern California Edison's (SCE's) service territory.

The program's primary objective is to meet SCE's business plan goals and achieve deeper savings by influencing a significant increase in the adoption of EE technology and/or measures among the end-users of the Residential sector using the Deemed, Custom Calculated, and Normalized Metered Energy Consumption (NMEC) approaches.

The program goes beyond basic EE and includes demand response (DR), energy management technologies, integrated demand-side management (IDSM) solutions, and electrification upgrades offered to customers, excluding any storage technology. This approach minimizes the barriers for customer participation, complies with SCE and CPUC requirements, and offers a consolidated approach.

The program includes an integrated team with extensive MF experience that will:

- Implement the program
- Leverage experienced channel partners, Trade Pros, and installers for project delivery
- Utilize direct install (DI) and do-it-yourself (DIY) strategies
- Develop tailored responses
- Motivate comprehensive projects through outreach, sales, technical assistance, and connecting customers to tailored funding and financing options, and
- Draw on existing relationships with property owners to increase the number of completed projects.

SCE submitted Advice Letter (AL) 4350-E-A¹⁸⁷ in 2021 to request approval for the Willdan Residential EE Program,¹⁸⁸ and received a CPUC disposition letter approving the request, effective July 20, 2021.

Strategies Implemented in 2021

Working in the residential sector, and with a few minor exceptions, MFEEP leverages strategies and tactics to drive goal attainment, and faces barriers to customer participation, that are similar to those of the Commercial EE Program (CEEP).

See Table 12.1, "CEEP Customer Service Approach Strategies and Tactics," and Table 12.2, "CEEP Market Barriers," above, for details.

¹⁸⁷ AL 4350-E-A. Link provided in *Appendix I*, below.

¹⁸⁸ AL 4350-E-A also included the Willdan Commercial EE Program, described above, and the Industrial EE Program, described below.

The exceptions for MFEEP include the following items listed in Table 12.2, "CEEP Market Barriers":

- **Simplify EE:** MFEEP "leverages DIY for in-unit measures," not "small business do-it-yourself."
- **Quality Installations:** MFEEP provides "An accessible product listing ... hosted on the online platform to define measure eligibility, identify new equipment requirements, and support contractors in equipment selection."
- **Training Trade Pros / Installers:** MFEEP provides quarterly Trade Pro / installer trainings, rather than biennial trainings.

Willdan Industrial Energy Efficiency Program

Program Description

The Willdan Industrial Energy Efficiency Program (IEEP) provides comprehensive energy efficiency (EE) for industrial SCE customers with a monthly maximum demand greater than 20 kW in the following segments of the industrial sector:

- Mining
- Utilities
- Construction Industries
- Manufacturing
- Wholesale Trade
- Transportation and Warehousing, and
- Other Services (except Public Administration).

The program's primary objective is to meet SCE's business plan goals and achieve deeper savings by influencing a significant increase in the adoption of EE technology and/or measures among the end-users of the Industrial sector, using the Deemed, Custom Calculated, and Normalized Metered Energy Consumption (NMEC), where applicable, approaches.

The program complies with SCE and California Public Utilities Commission (CPUC) requirements and offers an integrated approach that includes segment-specific:

- Marketing
- Technical assistance
- Technologies
- Whole-plant opportunities
- Financing assistance
- Turnkey project implementation, and
- Measurement and verification (M&V).

The program goes beyond basic EE and includes demand response (DR), energy management technologies, integrated demand-side management (IDSM) solutions, and electrification upgrades offered to customers, excluding any storage technology. This approach minimizes the barriers for customer participation.

The program includes an integrated team with extensive Industrial sector experience to implement the program, leverage experienced channel partners, Trade Pros, and installers for project delivery, and will leverage existing relationships to increase the number of completed projects.

SCE submitted Advice Letter (AL) 4350-E-A¹⁸⁹ in 2021 to request approval for the Willdan Industrial EE Program,¹⁹⁰ and received a CPUC disposition letter approving the request, effective July 20, 2021.

Strategies Implemented in 2021

IEEP leverages the following primary strategies and tactics to drive goal attainment:

Table 12.3. IEEP Customer Service Approach Strategies and Tactics

Customer Service Approach	Strategy/Tactic
Prioritize existing relationships	<ul style="list-style-type: none"> • Leverage Willdan turnkey EE project solution capabilities and relationships with channel partners, municipalities, trade associations, and previous customers across industrial segments • Leverage relationships from previous utility programs, including the Non-Metallic Minerals Program (NMMP) • Develop strategic partnerships with community choice aggregators (CCAs), CBOs, and industry associations
Outreach to HTR/DAC customers	<ul style="list-style-type: none"> • Partner with trusted HTR/DAC experts and community action partnerships (CAPs) such as San Joaquin Valley Clean Energy Organization (SJVCEO), RHA, Staples, and Matrix to identify decision-makers, build customer trust, and reduce costs
Build awareness	<ul style="list-style-type: none"> • Attend industry segment events and participate in regional segment groups • Perform customer education, relating EE value to customer objectives and long-term planning goals (e.g., greenhouse gas [GHG] reduction goals and zero net energy [ZNE])
Instill confidence	<ul style="list-style-type: none"> • Provide risk mitigation by tailoring solutions to minimize risk and increase customer buy-in • Leverage network of channel partners, Trade Pros, and installers, all of which have been approved by the program, and allow for customers' preferred contractors to perform work. • The program website includes a list of all channel partners, Trade pros, Installers, and CBOs that are participating in the program so customers can verify that they are approved under the program.

¹⁸⁹ AL 4350-E-A. Link provided in *Appendix I*, below.

¹⁹⁰ AL 4350-E-A also included the Willdan Commercial and Residential EE Programs, described above.

Customer Service Approach	Strategy/Tactic
	<ul style="list-style-type: none"> Customers may choose to use their preferred contractor or Willdan or an authorized Trade Pro or installer for implementation.
Face-to-face	<ul style="list-style-type: none"> Offer full-service approach by customizing program offerings (e.g., flexible incentives, technical support, financing assistance, and DI services) to target customer needs Determine the most applicable savings platform based on the measures identified, cost-effectiveness of the project, and the customer's needs (e.g., budget available, willingness to use financing, long-term facility plans, etc.) Demonstrate EE and IDSM value through tailored reports and energy modeling to communicate benefits using relevant metrics analysis Offer zero-upfront-cost financing assistance, including analysis of multiple financing options
Continuous engagement	<ul style="list-style-type: none"> Have SPOCs work with clients throughout with re-engagement and/or follow-up strategies Leverage Willdan's Energy Management System (EMS) for continuous customer engagement: <ul style="list-style-type: none"> System-specific monitoring Analysis of inefficient operations Identification of potential new energy efficiency capital projects Assistance in long-term continuous improvement, and Ensuring persistence of savings from implemented energy efficiency solutions.

IEEP leverages the following specific strategies and tactics to reduce market barriers.

Table 12.4. IEEP Market Barriers

Market Barrier	Strategy	Tactic
Lack of Information / Lack of Time	Leverage Willdan Industrial team's knowledge & expertise	<p>Education:</p> <ul style="list-style-type: none"> Educate stakeholders about standard practice, higher efficiency options, and installation costs. <p>Develop Business Case and provide technical assistance:</p> <ul style="list-style-type: none"> Accurately assess the costs and financial benefits to support the selection of higher efficiency alternatives. Provide estimates of avoided energy cost and installation costs. Evaluate life cycle costs and added benefits, e.g., extended equipment life and reduced maintenance.
Perception of Risk	Emphasize turnkey project implementation expertise delivered by	<p>Education:</p> <ul style="list-style-type: none"> Demonstrate to stakeholders how similar facilities have implemented EE and realized actual savings. <p>Turnkey Expertise:</p>

Market Barrier	Strategy	Tactic
	a capable and experienced team	<ul style="list-style-type: none"> Leverage team track record and capabilities to instill confidence in successful outcomes for EE projects. Partnering: <ul style="list-style-type: none"> Leverage our relationships with technology providers, subcontractors and an open Trade Pro network to build successful customer relationships.
Lack of Technical Expertise	Leverage Willdan Industrial team's expertise and resources	Technical guidance: <ul style="list-style-type: none"> Use technical expertise to assist customers in evaluating alternative technology choices, including options related to implementation, operation and maintenance (O&M) of new technologies. Instill customer confidence is the solution selection process.
Capital Prioritization	Expand procurement vehicles and provide cash incentives and financial assistance	Financing: <ul style="list-style-type: none"> Offer financing assistance options to overcome specific barriers associated with financing and provide alternatives for project financing. Flexible Incentives: <ul style="list-style-type: none"> Offer flexible incentives to improve project return on investment.

Public Energy Performance Program

The Public Energy Performance (PEP) Program will combine traditional efficiency programs with supported energy action plan implementation and Strategic Energy Management. Strategic Energy Management (SEM) is a holistic, whole-facility approach that uses Normalized Meter Energy Consumption (NMEC) and a dynamic baseline model to determine energy savings from all program activity at a facility, including capital projects, custom and deemed calculated retrofits, maintenance and operations, and retrocommissioning projects. A SEM Program for the public sector requires a multi-year customer commitment to participation in multiple cohort-type training workshops and individual or cohort energy analysis site and Measurement and Evaluation (M&V) activities, based on characteristics of the facility's specific operations.

Strategies Implemented in 2021

The PEP contract was awarded to CLEAResult Consulting in the Fourth Quarter of 2021, and SCE submitted Advice Letter (AL) 4724-E¹⁹¹ on February 18, 2022 to request its approval.

¹⁹¹ AL 4724-E, SCE's Advice Letter for Approval of Local Public Sector Energy Efficiency Third Party Contract with CLEAResult Consulting Inc. Link provided in Appendix I, below.

Agriculture Energy Efficiency Program

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

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

Strategies Implemented in 2021

The AgEE contract was awarded to ICF Resources, LLC in the Fourth Quarter of 2021, and SCE submitted Advice Letter (AL) 4740-E¹⁹² in March, 2022 to request its approval.

Closed Local Third Party-Implemented Programs

In Advice Letter 3859-E,¹⁹³ filed on September 4, 2018, SCE requested CPUC approval to close the following programs after any existing commitments were completed, effective December 31, 2018:¹⁹⁴

- Healthcare Energy Efficiency Program
- Data Center Energy Efficiency Program
- Lodging Energy Efficiency Program
- Food & Kindred Products Program
- Oil Production Program, and
- Midsize Industry Customer EE (MICE) Program.

¹⁹² AL 4740-E, *SCE's Advice Letter for Approval of Local Agricultural Sector Energy Efficiency Third Party Contract with ICF Resources, LLC*. Link provided in *Appendix I*, below.

¹⁹³ AL 3859-E, *SCE 2019 EE Program and Portfolio Annual Budget Advice Letter*. Link provided in *Appendix I*, below.

¹⁹⁴ As outlined below, some of these closed programs remained open during 2021 to complete existing committed projects.

In Advice Letter 4068-E, filed on September 3, 2019, SCE requested CPUC approval to close the following programs after any existing commitments were completed, effective December 31, 2019:¹⁹⁵

- Enhanced Retro-Commissioning Program, and
- Comprehensive Chemical Products Program.

In Advice Letter 4285-E-A,¹⁹⁶ filed on November 20, 2020, SCE requested CPUC approval to close the following programs after any existing commitments were completed, effective December 31, 2020:

- Primary and Fabricated Metals Program.
- Nonmetallic Minerals and Products Program, and
- Comprehensive Petroleum Refining Program

The following program was extended one year and was closed to new applications effective December 31, 2021:

- Facility Assessment Services Program.

However, as outlined below, most of these closed programs continued to process existing projects through 2021.

Healthcare Energy Efficiency Program

Program Description

The Healthcare Energy Efficiency Program (HEEP) addresses the complex issue of this industry's hesitancy in adopting EE behaviors, initiating facility upgrades, and achieving significant, cost-effective energy savings. HEEP is a retrofit program that provides comprehensive EE services and establishes a framework for sustainable, long-term, comprehensive energy management programs at healthcare facilities served by SCE. A third-party consultant, Willdan Energy Solutions, provides audit and consulting services.

The Healthcare Innovative Technology EE Program (HITEEP), a retrofit subprogram of HEEP, as described in SCE's Healthcare Program Implementation Plan filing, serves small and mid-size healthcare customers. This subprogram primarily targets medical office buildings and acute care facilities that experience low levels of support from the Office of Statewide Health Planning and Development (OSHPD), and offers customized measure solutions, deemed measure solutions, and Demand Response solutions for these facilities' energy management needs. HITEEP provides complete audit and project identification

¹⁹⁵ AL 4068-E, *SCE 2020 EE Program and Portfolio Annual Budget Advice Letter*. Link provided in *Appendix I*, below.

¹⁹⁶ AL 4285-E-A, *Supplement to Advice 4285-E, SCE's EE Program and Portfolio Annual Budget Advice Letter for Program Year 2021*. Link provided in *Appendix I*, below.

services, in addition to incentives and fixed-unit-price measures (with or without a customer copayment) to qualified customers.

Strategies Implemented in 2021

Because the Total Resource Cost (TRC) for the Health Care Energy Efficiency Program was below SCE's minimum threshold, HEEP was closed to new applications as of December 31, 2018. In Advice Letter 3859-E, SCE requested CPUC approval to close the Program when existing commitments were fulfilled. In 2021, the Program continued to complete committed projects. As of December 31, 2021, the remaining projects of the program were submitted for final installation technical review.

Data Center Energy Efficiency Program

Program Description

The Data Center Energy Efficiency Program (DCEEP) encouraged this industry's adoption of EE behaviors. DCEEP was a comprehensive retrofit program targeting small, medium, and large data centers as well as other information technology (IT)-related facilities. The Program provided an integrated approach by delivering EE upgrades to IT equipment and optimizing cooling-related systems. A third-party consultant, Willdan Energy Solutions, provided audit and consulting services.

Strategies Implemented in 2021

In Advice Letter 3859-E, SCE requested CPUC approval to close the Program as a result of the Total Resource Cost (TRC) being below SCE's minimum threshold. Upon CPUC approval, the Program closed to new applications as of December 31, 2018, but continued to operate until existing commitments were fulfilled. In 2021, the last project was submitted and program closure activities, including the final invoice and Final Program Report, were completed.

Lodging Energy Efficiency Program

Program Description

The Lodging Energy Efficiency Program (LEEP) is a comprehensive EE retrofit program that delivers multi-measure retrofits and retrocommissioning to small, medium, and large lodging facilities. The Program provides a comprehensive approach to EE that is specifically tailored to the hotel and motel market segment, including spas and resorts, within SCE's service area. The Program also promotes DR opportunities to customers in this market segment. A third-party consultant, Willdan Energy Solutions, provides audit and consulting services.

Strategies Implemented in 2021

In Advice Letter 3859-E, SCE requested CPUC approval to close the Program when existing commitments were fulfilled, as a result of the Total Resource Cost (TRC) being below SCE's minimum threshold. On December 31, 2018, the Lodging Energy Efficiency Program closed to new applications; however, in 2021, the Program continued to complete committed projects. As of December 31, 2021, the remaining projects of the program were submitted for final installation technical review.

Food & Kindred Products Program

Program Description

The Food & Kindred Products Program delivers energy savings and reduces energy demand through program offerings including, but not limited to, EE facility audits, project design and engineering support, project implementation support, vendor review, measurement and verification, and payment of incentives for the installation of EE measures. The program targets qualifying customers in small to large food industry-related companies, such as producers of bread, breakfast cereals, and sugar, as well as providers of cold storage.

Strategies Implemented in 2021

Because the Total Resource Cost (TRC) for the Program was below SCE's minimum threshold, the Program was closed to new applications as of December 31, 2018. In Advice Letter 3859-E, SCE requested CPUC approval to close the Program when existing commitments were fulfilled. In 2021, the Program continued to complete committed projects. As of December 31, 2021, the remaining projects of the program were submitted for final installation technical review.

Primary and Fabricated Metals Program

Program Description

The Primary and Fabricated Metals Program delivers energy savings and reduces energy demand through program offerings including, but not limited to, EE facility audits, project design and engineering support, project implementation support, vendor review, measurement and verification, and incentives for the installation of EE measures. The program targets qualifying customer businesses and facilities in the primary and fabricated metals and industrial gas manufacturing industries within SCE's service territory.

Strategies Implemented in 2021

The Program was closed to new applications effective December 31, 2020, per Advice Letter 4285-E-A,¹⁹⁷ filed September 1, 2020. In Advice Letter 4633-E,¹⁹⁸ SCE requested a relatively small increase to this program's budget to account for final project and program closure activities.

In 2021, the Program continued to complete committed projects.

Nonmetallic Minerals and Products Program

Program Description

The Nonmetallic Minerals and Products Program provides 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 provides comprehensive assistance in identifying and implementing EE improvements at individual sites.

Strategies Implemented in 2021

The Program was closed to new applications effective December 31, 2020, per Advice Letter 4285-E-A, filed September 1, 2020. 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. The CPUC approved closing the Program upon completion of existing commitments in PY 2022 and 2023.

In 2021, the Program continued to complete committed projects.

Comprehensive Chemical Products Program

Program Description

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

- Oversees activities including marketing, recruitment, installation and verification of EE measures, and incentive or rebate payment.

¹⁹⁷ AL 4285-E-A, *Southern California Edison Company's Energy Efficiency Program and Portfolio Annual Budget Advice Letter for Program Year 2021*. Link provided in *Appendix I*, below.

¹⁹⁸ AL 4633-E, *Southern California Edison Company's Energy Efficiency Program and Portfolio Annual Budget Advice Letter for Program Years 2022 and 2023*. Link provided in *Appendix I*, below.

- Coordinates efforts of industrial end-users, vendors, trade associations, and utility personnel to overcome market barriers and maximize savings.
- Perform on-site audits to identify and prioritize potential energy-efficiency projects.
- Performs financial analyses to assist customers in understanding and justifying project expenditures, help them understand available incentives, assist them in completing the necessary paperwork, and refine energy savings calculations.

Strategies Implemented in 2021

The Program was closed to new applications effective December 31, 2019, per Advice Letter 4068-E, filed September 3, 2019. In 2021, the Program continued to work on completing committed projects. As of December 31, 2021, the remaining projects of the program were submitted for final installation technical review.

Comprehensive Petroleum Refining Program

Program Description

The Comprehensive Petroleum Refining program targets 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 achieves this goal by implementing a comprehensive set of calculated and deemed approaches to address every major electrical operation within the oil and petroleum refining industry. The program:

- Performs on-site audits to identify and prioritize potential energy efficiency projects, and
- Performs financial analyses to help customers understand and justify project expenditures, understand available incentives, complete the necessary paperwork, and refine energy savings calculations.

Strategies Implemented in 2021

The Program was closed to new applications effective December 31, 2020, per Advice Letter (AL) 4285-E-A, filed September 1, 2020. 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 2021, the Program continued to complete committed projects. SCE anticipates that pending projects will be completed and paid through 2023.

Oil Production Program

Program Description

The Oil Production Program targeted oil production facilities in SCE's service territory with the goal of producing long-term, cost-effective electrical energy savings by replacing or retrofitting existing motor and pumping systems with more efficient systems. The target market consisted of independent oil producers and their production wells. The Program:

- Performed on-site audits to identify and prioritize potential energy efficiency projects, and
- Performed financial analyses to help customers understand and justify project expenditures, understand available incentives, complete the necessary paperwork, and refine energy savings calculations.

Strategies Implemented in 2021

As a result of failing to meet SCE's minimum Total Resource Cost (TRC) threshold, the Program was closed to new applications as of December 31, 2018. In Advice Letter 3859-E, SCE requested CPUC approval to close the program when existing commitments were fulfilled. In 2021, the program completed its last committed project.

Midsize Industrial Customer EE (MICE) Program

Program Description

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. Due to their size, many customers are not adequately served by the Energy Services Company (ESCO) market, and their internal resources lack the time and expertise to identify potential measures and projects. When internal resources can identify potential measures and projects, they are often confronted with the problem of developing a plan that the customer's management is willing to spend capital on.

The MICE Program closed the gap by providing customers with detailed, in-depth energy assessments which identified EE opportunities, accurately estimated potential savings and costs, and provided a path to implementation. The program successfully enrolled and completed numerous projects, and it transitioned into SCE's core third-party offering in 2018.

Strategies Implemented in 2021

In Advice Letter 3859-E,¹⁹⁹ SCE requested CPUC approval to close the MICE Program as a result of not meeting SCE's minimum Total Resource Cost (TRC) threshold. Upon CPUC approval, the Program closed to new applications but continued operations until existing commitments (projects in the pipeline) were completed. However, because of the COVID-19 pandemic, there was no activity during 2021.

Enhanced Retro-Commissioning Program

Program Description

The primary objective of the Enhanced Retro-Commissioning Program is 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 technical services that the Program provides assist customers in identifying energy optimization opportunities in their qualifying facilities and, along with program incentives, encourage the implementation of qualifying energy-saving and demand reduction measures. These solutions ensure that energy savings and demand reduction will persist over time.

Strategies Implemented in 2021

The Program was closed to new applications effective December 31, 2019, per Advice Letter 4068-E, filed September 3, 2019. In 2021, the Program continued to work on completing the remaining "pipeline" projects.

Water Infrastructure System Efficiency (WISE™) Program

Program Description

The Water Infrastructure System Efficiency (WISE™) Program is a demand-side management (DSM) program designed to provide energy efficiency (EE) solutions to water production, distribution and treatment systems. WISE™ focuses on mid- to large-sized facilities and systems within SCE's service area, targeting 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. Upon CPUC approval, the Program closed to new applications but continued operations until existing commitments were

¹⁹⁹ Advice Letter (AL) 3859-E, *Southern California Edison Company's 2019 Energy Efficiency Program and Portfolio Annual Budget Advice Letter*. Link provided in *Appendix I*, below.

fulfilled. In 2021, the Program continued to complete committed projects and is set to close upon completion.

Strategies Implemented in 2021

Administrative Successes

The program team continued to meet on a bi-weekly basis to track project progress and address project issues for the remaining pipeline of active projects (those originally submitted by June 30, 2019). Monthly vendor invoicing, monthly activity reporting, and updating the Subcontractor Management and Reporting Tool (SMART) are ongoing until the project pipeline is cleared.

Core Function Activities

The program was heavily impacted by the COVID-19 pandemic as the program implementer experienced decreased communication with the water districts and limited site access availability, while customers experienced decreased project funding and customer project approval reviews and customer procurement processes were delayed. As a result:

- Twelve projects required a 12-month extension beyond the three-year approval period
- Twelve projects required a 24-month extension beyond the three-year approval period, and
- Three projects required 36-month extensions beyond the three-year approval period, which in turn will require an implementer contract extension through 2024.

However, the program was still able to complete five projects in 2021.

Customer Outreach

There were no further marketing or outreach activities for the program as the program closed to new enrollments as of June 30, 2019.

Facility Assessment Service Program

Program Description

In 2017, California Assembly Bill (AB) 793²⁰⁰ and the associated CPUC Resolution E-4820²⁰¹ mandated all the California IOUs to 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

²⁰⁰ AB 793, Energy Efficiency. Link provided in *Appendix I*, below.

²⁰¹ Resolution E-4820, *Request for Approval of PG&E, SDG&E, SCE and SoCalGas' Assembly Bill 793 (AB 793) Advice Letters (ALs)*. Link provided in *Appendix I*, below.

allow customers to better understand and manage electricity or natural gas in their homes or places of business. SCE and the other IOUs were also required to launch residential and SMB pay-for-performance (P4P) programs by the Fourth Quarter of 2017, with the following goals:

- Establish a scalable P4P program model for residential EE in order to dramatically increase customer participation and measurable energy savings, and
- Effectively leverage a set of meter-based energy savings calculation methods to measure Normalized Metered Energy Consumption (NMEC) savings across a pool of participating customers.

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, respectively.

For details on the HomeIntel Program, see Chapter 1, Residential Programs, above.

The Facility Assessment Service Program (FASP) for SMB customers was originally launched in 2018 and implemented by a third party, PowerTakeoff (PTO), to fulfill the SMB P4P program requirement ordered by AB 793. The program design was based on proprietary software to calculate energy savings using 15-minute interval data analyzed to provide energy savings suggestions. The Program provides services that help eligible SCE customers:

- Improve the management of their energy usage
- Identify Behavioral, Retrocommissioning, and Operational-based (BRO) energy savings opportunities, and
- Achieve energy savings through energy conservation measures, using energy management technology software.

The program targets qualifying small businesses within SCE's service territory.

Strategies Implemented in 2021

Program Activities

During 2018-2020, 97 projects were completed, three of which were selected by the CPUC for review. Based on this review, the CPUC required some changes to the project savings calculations. SCE decided that the same changes should be made to the remaining 94 projects and required PTO to revise the savings calculations for all, extending PTO's contract to allow for completion of the final invoice payment. As a result of the delay in payment, PTO decided not to renew the program contract.

SCE plans to leverage existing programs and activities to maintain current and future AB 793 compliance. There are many ongoing programs within the DSM portfolio that can

fulfill SCE's requirements to promote Energy Management Technology (EMT) as well as new programs planned to launch and operate over the years to come.

In 2021, the CPUC completed its review of all remaining projects and SCE completed its technical review to approve them. No further projects remained in the pipeline by the end of 2021. Program closure activities began, including final invoicing and production of a Final Program Report, expected to be completed in the 2nd Quarter of 2022. SCE requested CPUC approval to close the program in its 2024-2031 Energy Efficiency Application.²⁰²

In order to continue to meet the requirements of AB 793, a new P4P Small and Medium Business (SMB) Behavior Program (aka SMB/Commercial Program), implemented by a third-party implementer, ICF Resources, is undergoing development and expected to launch in 2023. The new program will provide "Business Energy Reports" to SMB customers, and the vendor performance costs will be paid based on savings.

See Active Local Third Party-Implemented Programs — Commercial Behavioral Program, above.

²⁰² 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. Link provided in *Appendix I*, below.

Appendix A.

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
ACBO	Association of Chief Business Officials, California Community Colleges
ADUs	Accessory Dwelling Units
AHRI	Air Conditioning, Heating and Refrigeration Institute
AIA	American Institute of Architects
aka	also known as
AL	Advice Letter
ANSI	American National Standards Institute
APR	Annual Percentage Rate
ASH	Anti-Sweat Heater
ASHRAE	ASHRAE.org, formerly American Society of Heating, Refrigeration, & Air-Conditioning Engineers
BBAL	Biennial Budget Advice Letter
BCD	(1) Business Customer Division; (2) Business Customer Development
BDC	Building Decarbonization Coalition
BE	Building Electrification
BRO	Behavioral, Retrocommissioning and Operational
BUILD	Building Initiative for Low Emissions Development
C&I	Commercial & Industrial
C&S	Codes and Standards
C/E	Cost-Effectiveness
CABEC	California Association of Building Energy Consultants
CAEATFA	California Alternative Energy and Advanced Transportation Financing Authority
CAEECC	California Energy Efficiency Coordinating Committee
CAGI	Compressed Air and Gas Institute
CAHP	California Advanced Home Program
CALBEM	California Building Energy Modeling
CALBO	California Association of Building Officials
CALGreen	California Green Building Standards Code
CalPlug	California Plug-Load Center
CalTech	California Institute of Technology
CARE	California Alternate Rates for Energy Program
CASE	Codes & Standards Enhancement Study

Acronym or Abbreviation	Explanation
CATALENA	California Analysis Tool for Locational Energy Assessment
CBECC	California Building Energy Code Compliance
CCC	(a) California Community Colleges [System]; (b) Customer Call Center
CCEC	California Climate and Energy Collaborative
CCFC	Community College Facilities Coalition Conference
CDCR	California Department of Corrections & Rehabilitation
CEA	Certified Energy Analyst
CEC	California Energy Commission
CEDA	California Energy Design Assistance
CEDARS	California Energy Data and Reporting System
CEEP	Commercial Energy Efficiency Program
CEESP	California Energy Efficiency Strategic Plan [<i>preferred acronym</i>]
CEH	Clean Energy Homes
CEI	Continuous Energy Improvement [Program]
CEOP	Clean Energy Optimization Pilot
CHESC	California Higher Education Sustainability Conference
CI	Compliance Improvement [Subprogram]
CLTC	California Lighting Technology Center
CMHP	Comprehensive Manufactured Homes Program
CO	Carbon monoxide
CO₂	Carbon dioxide
COVID-19	Coronavirus Disease 2019
CPUC	California Public Utilities Commission
CRA	California Retailers Association
CSE	Center for Sustainable Energy
CSRP	Customer Service Replatform Project
CSS	Customer Service System
CSU	California State University [System]
CTA	Consumer Technology Association
CTI	CALBO Training Institute
CUAC	California Utility Allowance Calculator
CUBE	Commercial Utility Building Efficiency [Program]
D&S	Demonstration and Showcase
DCEEP	Data Center Energy Efficiency Program
DDB	DDB (Doyle Dane Bernbach) San Francisco
DDS	Distribution Design Standards
DEER	Database for Energy Efficient Resources
DGS	[California] Department of General Services
DI	(a) Direct Install [Program] (b) Direct implementation
DIY	Do It Yourself

Acronym or Abbreviation	Explanation
DLC	Design Lights Consortium
DOE	U.S. Department of Energy
DR	Demand Response
DS	See D&S , above
DSM	Demand-Side Management
DWP	See LADWP , below
ECA	Energy Code Ace
ECM	Energy Conservation Measures
ED	[CPUC] Energy Division
EE	Energy Efficiency
EEAT	Energy Efficiency Online Audit Tool (aka Enhanced Energy Audit Tool)
EEC	Energy Education Center
e.g.	<i>Exempli gratia</i> : for example; such as
EM&V	Evaluation, Measurement & Verification
EMT	Energy Management Technologies
EPIC	Electric Program Investment Charge
EPRI	Electric Power Research Institute
ESA	Energy Savings Assistance [Program]
ESCO	Energy Services Company
ESIS	Energy, Sustainability and Infrastructure Section (see CDCR , above)
ESPI	Efficiency Savings and Performance Incentive
ESPM	ENERGYSTAR [™] Portfolio Manager
ETCC	Emerging Technologies Coordinating Council
ETP	Emerging Technologies [Program]
EUC	Energy Upgrade California [®] [Program]
EUL	Effective (or Estimated or Expected) Useful Life
EV	Electric Vehicle
FASP	Facility Assessment Service Program
FPCM	Facility Planning, Construction and Management [Division] (see CDCR , above)
FTC	(1) Federal Trade Commission; (2) Foodservice Technology Center
GHG	Greenhouse Gas
GRC	General Rate Case
GW, GWh	Gigawatts, Gigawatt-hours
GWP	Global Warming Potential
HAN	Home Area Network
HDR	High Desert Regional [Partnership]
HEA	Home Energy Advisor [Program]
HEEP	Healthcare Energy Efficiency Program
HER	Home Energy Report
HITEEP	Healthcare Innovative Technology EE Program

Acronym or Abbreviation	Explanation
HOPPs	High Opportunity Projects or Programs
HPWH	Heat Pump Water Heater
HTR	Hard-to-Reach
HVAC	Heating, Ventilation and Air Conditioning
HVAC/R	HVAC and Refrigeration
HVACRedu	HVACRedu.net
ICLEI	International Council for Local Environmental Initiatives
IDSM	integrated demand-side management
i.e.	<i>Id est</i> : that is; that is to say; namely; in other words
IE	Independent Evaluator
IET	Integrated Energy Education and Training (see WE&T , below)
IGPP	Institutional and Government Energy Efficiency Partnership Program
IHACI	Institute of Heating and Air Conditioning Industries
ILG	Institute for Local Governments
IOU	Investor-Owned Utility
IP	Implementation Plan
I-REN	Inland Regional Energy Network
IT	Information Technology
JCAP	Joint Consumer Action Plan
JCM	Joint Cooperation Memorandum
K-8, K-12	Kindergarten through 8th / 12th grade schools
KEDC	Kern Economic Development Corporation
kW, kWh	Kilowatts, Kilowatt-hours
LADWP	Los Angeles Department of Water & Power
LED	Light-emitting diode
LEED	Leadership in Energy and Environmental Design
LEEP	Lodging EE Program
LG	Local Government
LGC	Local Government Commission
LGP	Local Government Partnership
M&V	Measurement and Verification
MAEDbS	Modernized Appliance Efficiency Database System
MBI	Market-Based Incentives
MBCx	Monitoring-Based Commissioning
ME	Maritime Entity [tariff]
ME&O	Marketing, Education and Outreach
MFEER	Multifamily EE Rebate [Program]
MICE	Midsize Industrial Customer Energy Efficiency [Program]
MPOP	Midstream Point-of-Purchase [Program]
MTWG	Market Transformation Working Group

Acronym or Abbreviation	Explanation
MW, MWh	Megawatts, Megawatt-hours
NAICS	North American Industry Classification System
NATE	North American Technician Excellence
NBC	National Balancing Council
NBI	New Buildings Institute
NCI	National Comfort Institute
NMEC	Net (or Normalized) Metered Energy Consumption
NOMA	National Association of Minority Architects
NRCI	Nonresidential Compliance Inspection
NRNC	Nonresidential New Construction
NRT	NAICS Reference Tool
NTG	Net-to-Gross
O&M	Operations & Maintenance (or Operational & Maintenance)
OASIS	Onsite Audit Services Information System
OBF	On-Bill Financing
OBR	On-Bill Repayment
OLT	Online Application Tool
OP	Ordering Paragraph
OSHPD	[California] Office of Statewide Health Planning and Development
P4P	Pay for Performance
P&C	Planning & Coordination [Subprogram]
PA	Program Administrator
PSPBR	Public Sector Performance-Based Retrofit
PES	Pump Efficiency Services
PG&E	Pacific Gas & Electric Company
PLA	Plug Load and Appliances [Program]
POP	Point of Purchase (see MPOP , above)
POS	Point of Sale (see POP , above)
PPCC	Policy Product Change Checklist
PRG	Procurement Review Group
PRM	Performance Rating Method
PSPS	Public Safety Power Shutdown
PUC	(1) See CPUC , above; (2) Public Utilities Code
PV	PhotoVoltaic
QA	Quality Assurance
QC	Quality Control
QI	Quality Installation
QM	Quality Maintenance
QS	Quality Service
RC	Reach Codes [Subprogram]

Acronym or Abbreviation	Explanation
RCI	Residential, Commercial, and Industrial
RCx	Retrocommissioning
REEL	Residential Energy Efficiency Loan [Program]
REN	Regional Energy Network
RFA	Request for Abstract
RFP	Request for Proposal
RNC	Residential New Construction
SB	(a) Senate Bill; (b) Small Business
SBCOG	San Bernardino Council of Governments
SBD	Savings By Design [Program]
SBREP	San Bernardino Regional Energy Partnership
SBWG	Sustainable Building Working Group
SCE	Southern California Edison Company
SCG	Southern California Gas Company (aka SoCalGas or The Gas Company)
SDG&E	San Diego Gas & Electric Company
SEEC	Statewide Energy Efficiency Collaborative
SEI	Strategic Energy Innovations
SEM	Strategic Energy Management [Program]
SEP	Smart Energy Program
SFP	Scaled Field Placement
SGIP	Self-Generation Incentive Program
SJVCEO	San Joaquin Valley Clean Energy Organization
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association
SMART	Subcontractor Management and Reporting Tool
SMB	Small and Medium Business
SME	Subject Matter Expert
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]
SPOC	Single Point of Contact
STEM	Science, Technology, Engineering, and Math
Strategic Plan	See CEESP , above
SW or S/W	Statewide
SWEETP	Statewide Electric Emerging Technologies Program
SWL	Statewide Lighting
T20, T24	Title 20, Title 24
TA	Technology Assessment [Subprogram]
TDS	Technology Development Support [Subprogram]
TEC	The Energy Coalition

Acronym or Abbreviation	Explanation
TIS	Technology Introduction Support [Subprogram]
TLL	Tool Lending Library
TPI	Third-Party Implementer (or Third Party-Implemented)
TradePro	Trade Professional (formerly Customer's Authorized Agent)
TRC	(1) Total Resource Cost; (2) TRC Solutions, a consulting company
UAT	Universal Audit Tool
UC	University of California
UCLA	University of California at Los Angeles
USGBC	U.S. Green Building Council
VCA	Virtual Compliance Assistant
VCREA	Ventura County Regional Energy Alliance
VFD	Variable Frequency Drive
VIEW	Valley Innovative Energy Watch
WCEC	Western Cooling Efficiency Center
WE&T	Workforce Education & Training
WE&T IEET	Workforce Education & Training Integrated Energy Education and Training [Subprogram]
WISE	Water Infrastructure System Efficiency [Program]
WRELP	Western Riverside Energy Leader Partnership
ZNE	Zero Net Energy

Appendix B. Technical Appendices

Section 1: Energy Savings

Table 1a. Electricity and Natural Gas Savings and Demand Reduction (Net) ²⁰³

Southern California Edison 2021 Goal Achievement	GWh	MW	MM Therms	GWh	MW	MM Therms
	Portfolio without Codes and Standards			Portfolio with Codes and Standards		
2021 Total Installed Portfolio Savings	213	33	-	1,578	265	-
Adopted Goals (D.19-08-034)	336	69	-	998	204	-
Percentage of Goal Attainment	63%	48%	-	158%	130%	-
Fuel Substitution Goal Reduction See Tab 2, Table 2B	-	-	-	-	-	-
Goals less FS Goal Reduction (Rows 2-4 not reflected in CEDARS unless requested)	336	69	-	998	204	-

[1] Decision 19-08-034 removed Energy Savings Assistance Program (ESA) savings from Energy Efficiency goals. Therefore, the 2020 Annual Report Installed Savings does not include 44.38 GWh and 6 MW in First Year Net savings attributed to the ESA program. 2021 ESA Performance can be reviewed in the 2021 Low Income Annual Report.

In 2021, the following five programs and program strategies accounted for approximately 93 percent of SCE's portfolio energy savings results (excluding Codes & Standards and ESA programs).²⁰⁴

In 2021, Codes & Standards program savings accounted for approximately 87 percent of SCE's 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	Sum of First Year Net kWh	Sum of First Year Net kW
SCE-13-SW-001A	Energy Advisor Program (64%)	136,893,612	24,533
SCE-13-SW-001B	Plug Load and Appliances Program (20%)	42,898,999	48
SCE-13-SW-003D	Strategic Energy Management Program (5%)	10,182,315	1,814
SCE-13-SW-001G	Residential Direct Install Program (3%)	5,675,298	2,497
SCE_SW_HVAC_Up	Upstream HVAC (Comm + Res) (1%)	3,124,757	1,386

²⁰³ 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* (link provided in *Appendix I*, below). Values in table include market effects (ME) of 5% as consistent with CEDARS.

²⁰⁴ 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

2A. New Fuel Program Administrator Savings ^[1]										
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) ^[5]			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	145,199	kWh	42,553,659	-	SoCalGas	-	1,432,783	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	1,818	kWh	532,719	-	SoCalGas	-	17,937	N/A	N/A	N/A
Whole Building	271	kWh	79,518	-	SoCalGas	-	2,677	N/A	N/A	N/A
Total	147,288	-	43,165,896	-		-	1,453,397	\$ -	\$ -	\$ -

[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.
[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 required for Downstream measures only. See D.19-08-009 OP 4 for more information.
[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.
[9] Source file used to populate "New Fuel Savings Conversion" is Quarterly Claims 2021YR CET Output file available for download on CEDARS.

Table 2b. Original Fuel Utility Goals Reduction

2B. Original Fuel Utility Goals Reduction [9]						
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	-	-	-	-	-	-
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.

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Section 3: Emission Reductions (Environmental Impacts)

Table 3. Environmental Impacts (Net) ²⁰⁵

Environmental Impacts of EE Portfolio by Measure Use Category												
Measure Use Category	Gross annual tons of CO2 avoided	Net annual tons of CO2 avoided	Gross lifecycle tons of CO2 avoided	Net lifecycle tons of CO2 avoided	Gross annual tons of NOx avoided	Net annual tons of NOx avoided	Gross lifecycle tons NOx avoided	Net lifecycle tons NOx avoided	Gross annual tons PM10 avoided	Net annual tons PM10 avoided	Gross lifecycle tons PM10 avoided	Net lifecycle tons PM10 avoided
Appliance or Plug Load	79,248	24,240	851,220	226,420	25	8	228	61	8	3	76	20
Building Envelope	13,061	6,466	316,076	159,303	4	2	76	38	1	1	25	12
Compressed Air	1,505	539	28,360	10,163	0	0	7	3	0	0	2	1
Commercial Refrigeration	44,846	16,823	471,609	185,419	14	5	125	49	5	2	41	16
Codes & Standards	135,942	17,942	2,939,186	364,506	43	6	720	90	14	2	239	30
Food Service	147	96	2,058	1,344	0	0	1	0	0	0	0	0
HVAC	79,979	34,398	1,388,295	526,341	21	7	310	96	7	2	102	32
Irrigation	577	375	4,300	2,795	0	0	1	1	0	0	0	0
Lighting	621,376	220,115	12,186,265	4,284,259	195	69	3,022	1,064	65	23	1,000	352
Non-Savings Measure	-	-	-	-	-	-	-	-	-	-	-	-
Process Distribution	1,340	866	10,227	6,371	0	0	3	2	0	0	1	1
Process Drying	-	-	-	-	-	-	-	-	-	-	-	-
Process Heat	48	36	862	640	0	0	0	0	0	0	0	0
Process Refrigeration	-	-	-	-	-	-	-	-	-	-	-	-
Recreation	6,662	3,367	81,101	41,317	2	1	21	11	1	0	7	4
Service	34,429	36,150	34,429	36,150	11	11	11	11	4	5	4	5
Service and Domestic Hot Water	5,956	3,383	69,883	38,544	2	1	18	10	1	0	6	3
Whole Building	34,984	22,581	845,558	529,415	11	7	202	127	4	2	67	42
Total	1,060,098	387,378	19,229,430	6,412,988	329	118	4,745	1,562	110	40	1,572	518

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 *Appendix B Section 1*, 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 2021 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.

²⁰⁵ 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 (link provided in *Appendix I*, below).

Section 4: Expenditures

Table 4. 2021 Expenditures, Including Expenditures From Past Cycle Commitments, Paid in 2021²⁰⁶

Table 4 is available on the California Energy Data and Reporting System (CEDARS) home page 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 *Table 4* file is titled **SCE 2021 – Appendix B – Technical Appendices – Table 4.**

For the description of SCE's Partnership programs that were included in the portfolio in the past year, see *Chapter 11, Local Programs*, above.

For descriptions of programs that were selected as part of the competitive bidding process, see *Chapter 12, Third Party-Implemented Programs*, above.

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²⁰⁶ 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: Cost-Effectiveness

Table 5. Cost-Effectiveness (Net)

Cost Effectiveness (Net)									
Annual Results ^{[2][3]}	Total Cost (\$) to Ratepayers (TRC)	Total Savings (\$) to Ratepayers (TRC/PAC)	Net Benefits (\$) to Ratepayers (TRC)	TRC Ratio	Total PAC Cost	PAC Ratio	PAC Cost (\$/kW) ^[1]	PAC Cost (\$/kWh)	PAC Cost (\$/therm)
Total Portfolio w/o C&S	\$ 107,099,498	\$ 60,432,592	\$ (46,666,906)	0.56	\$ 89,430,623	0.68	N/A	0.08	N/A
Total Portfolio w/ C&S	\$ 451,275,253	\$ 1,539,157,851	\$ 1,087,882,598	3.41	\$ 101,281,082	15.20	N/A	\$ 0.0016	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 TRC Net Benefits (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.

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 07-09-043.²⁰⁷

- 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 Benefits, 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.

²⁰⁷ D.07-09-043, *Interim Opinion on Phase I Issues: Shareholder Risk/Reward Incentive Mechanism for Energy Efficiency Programs*. Link provided in *Appendix I*, below.

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 2021 programs. These tables provide energy savings and program costs associated with activity in 2021.
- 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 Remote Ex-Ante Database Interface (READI) v.2.5.1, which houses the Databases for Energy Efficient Resources (DEER).

For measures where the required load impacts for cost-effectiveness test inputs were not available in READI v.2.5.1, SCE has developed Work Papers that were approved in the process outlined in D.11-07-030.²⁰⁸

Units (Number and Definition)

Unit counts of each measure are displayed in the program tracking databases during 2021. The definition of a unit is tailored to the specifications of each individual measure offered by a program.

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 2021 programs. The measure-level savings information used to calculate the 2021 program results is based upon estimates contained in READI v.2.5.1. If READI v.2.5.1 does not contain an estimate, SCE's energy and capacity savings are documented in SCE's Work Papers that are approved in the process outlined in D.11-07-030.

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 upon 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

²⁰⁸ D.11-07-030, *Addressing Petition for Modification of Decision 09-09-047*. Link provided in *Appendix I*, below.

defined summer on-peak period for the particular measure, as defined in D.06-06-063.²⁰⁹ 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 READI v.2.5.1, as required by the Commission.

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 READI v.2.5.1, as required by the Commission.

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 READI v.2.5.1 for *ex ante* incremental measure cost values, as required by the Commission. If READI v.2.5.1 does not contain an estimate, SCE's incremental measure costs are typically derived from a recent measure cost study and documented in SCE's Work Papers that are approved in the process outlined in D.11-07-030.

Program Incentive Cost (Per Unit and Total)

Incentive costs are the amount of incentives paid to customers during 2021. 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.

²⁰⁹ D.06-06-063, *Interim Opinion: 2006 Update of Avoided Costs and Related Issues Pertaining to Energy Efficiency Resources*. Link provided in *Appendix I*, below.

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 2021 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 6: Bill Payer Impacts

Table 6: Average Billpayer Impacts from Net Savings²¹⁰

Average Billpayer Impacts from Net Savings				
2021	Electric Average Rate (Res and Non-Res) \$/kwh	Gas Average Rate (Core and Non-Core) \$/therm	Average First Year Bill Savings (\$)	Average Lifecycle Bill Savings (\$)
Southern California Edison	\$0.18	\$0.00	\$760,690,438	\$10,973,552,957
<p>[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] 2018 first year and lifecycle net kWh savings excluded Codes & Standards and Energy Savings Assistance.</p>				

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

In 2021, SCE was authorized to collect approximately \$ 122 million²¹¹ in rates to implement approved EE programs. Customer bills included the authorized collection on January 1, 2021, 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 2021.

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 2021 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.

²¹⁰ 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.

²¹¹ AL-4145-E, *Southern California Edison Company's 2020 Energy Efficiency and Demand Response Integrated Demand Side Management Revenue Requirement in Accordance with Decision 18-05-041 and Advice 4068-E and 4068-E-A*. Link provided in *Appendix I*, below.

- 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 7: Savings by End-Use

Table 7: Annual Savings By Use Category²¹²

Annual Savings By Use Category 2021													
Measure End Use Category	TRC	PAC	Gross GWh		Gross MW	Gross MM Therms		Net GWh		Net MW	Net MM Therms		
			First Year	Life Cycle	First Year	First Year	Life Cycle	First Year	Life Cycle	First Year	First Year	Life Cycle	
Appliance or Plug Load	2.17	203.61	328	2,986	51	100	802	17					
Building Envelope	2.08	346.62	50	960	19	25	484	12					
Compressed Air	2.25	354.48	6	92	-	2	33	-					
Commercial Refrigeration	4.50	39.47	184	1,667	26	69	658	9					
Codes & Standards	3.61	150.53	566	9,425	97	74	1,175	11					
Food Service	0.32	0.33	1	13	0	0	6	0					
HVAC	2.06	4.94	319	4,639	115	139	1,912	42					
Irrigation	0.57	0.97	2	16	1	2	10	1					
Lighting	8.38	292.17	2,547	39,459	311	903	13,886	103					
Non-Savings Measure	0.00	-	-	-	-	-	-	-					
Process Distribution	0.39	1.51	6	36	0	4	23	0					
Process Drying	0.00	-	-	-	-	-	-	-					
Process Heat	7.04	354.48	0	3	-	0	2	-					
Process Refrigeration	0.00	-	-	-	-	-	-	-					
Recreation	3.63	561.12	29	294	7	15	151	3					
Service	0.88	0.88	130	130	23	137	137	25					
Service and Domestic Hot Water	3.50	84.11	25	249	3	14	138	2					
Whole Buildings	1.65	37.56	146	2,657	71	94	1,661	41					
Grand Total	3.41	15.20	4,339	62,626	724		1,578	21,077	265				

[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 2021 results, by end use, of SCE's portfolio of EE programs.

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²¹² 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 (link provided in *Appendix I*, below).

Section 8: Commitments

Table 8: Commitments ²¹³

Commitments Made in the Past with Expected Implementation after December 2010-2012				
2010-2012	Committed Funds	Expected Energy Savings		
	\$	GWH	MW	MMth
Resource ^[1]		-	-	-
Non-Resource ^[2]		-	-	-
Codes & Standards		-	-	-
SCE Total		-	-	-
Commitments Made in the Past Year with Expected Implementation after December 2013-2015				
2013-2015	Committed Funds	Expected Energy Savings		
	\$	GWH	MW	MMth
Resource ^[1]	\$ 763,704	4.03	0.55	
Non-Resource ^[2]	132,090			
Codes & Standards				
SCE Total	\$ 895,794	4.03	0.55	-
Commitments Made in the Past Year with Expected Implementation after December 2016				
2016	Committed Funds	Expected Energy Savings		
	\$	GWH	MW	MMth
Resource ^[1]	\$ 1,557,027	14.04	3.31	
Non-Resource ^[2]	150,000			
Codes & Standards				
SCE Total	\$ 1,707,027	14.04	3.31	-
Commitments Made in the Past Year with Expected Implementation after December 2017				
2017	Committed Funds	Expected Energy Savings		
	\$	GWH	MW	MMth
Resource ^[1]	\$ 631,917	2.58	0.20	
Non-Resource ^[2]	1,121,352			
Codes & Standards				
SCE Total	\$ 1,753,269	2.58	0.20	-

Table continues on the next page

²¹³ Ibid.

(Table 8, continued)

Commitments Made in the Past Year with Expected Implementation after December 2018				
2018	Committed Funds	Expected Energy Savings		
	\$	GWH	MW	MMth
Resource ^[1]	\$ 518,248	1.93	0.20	
Non-Resource ^[2]	1,619,073			
Codes & Standards				
SCE Total	\$ 2,137,321	1.93	0.20	-
Commitments Made in the Past Year with Expected Implementation after December 2019				
2019	Committed Funds	Expected Energy Savings		
	\$	GWH	MW	MMth
Resource ^[1]	\$ 2,382,020	9.54	0.75	
Non-Resource ^[2]	3,160,185			
Codes & Standards	\$ 57,463			
SCE Total	\$ 5,599,668	9.54	0.75	-
Commitments Made in the Past Year with Expected Implementation after December 2020				
2020	Committed Funds	Expected Energy Savings		
	\$	GWH	MW	MMth
Resource ^[1]	\$ 2,641,731	11.14	1.74	
Non-Resource ^[2]	1,248,454			
Codes & Standards	\$ 184,020			
SCE Total	\$ 4,074,205	11.14	1.74	-
Commitments Made in the Past Year with Expected Implementation after December 2021				
2021	Committed Funds	Expected Energy Savings		
	\$	GWH	MW	MMth
Resource ^[1]	\$ 5,803,737	24.92	2.24	
Non-Resource ^[2]	3,410,303			
Codes & Standards	\$ 4,112,591			
SCE Total	\$ 13,326,631	24.92	2.24	-

Appendix C.

Southern California Edison Programs for 2021

This Appendix contains the list of programs included in SCE's 2021 EE Portfolio, and the years that programs were added or removed, where applicable.

Table: Programs Included in SCE's 2021 EE Portfolio

CPUC Program ID	Program Name	Start Year ²¹⁴	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	N/A
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	N/A
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	N/A
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	N/A
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
SCE-13-SW-003C	Industrial Deemed Energy Efficiency Program	2013	2021
SCE-13-SW-003D	Industrial Continuous Energy Improvement Program	2013	2018

²¹⁴ Start Year and End Year reflect reporting in CEDARS. A program's Start Year is the year the program was added to CEDARS. A program's End Year is the year in which all program activity has ceased.

CPUC Program ID	Program Name	Start Year ²¹⁴	End Year
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	N/A
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
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

CPUC Program ID	Program Name	Start Year ²¹⁴	End Year
SCE-13-SWME0	Statewide Marketing, Education & Outreach Program	2013	N/A
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	N/A
SCE-13-L-002C	City of Redlands Energy Leader Partnership (merged with SCE-13-L-002W SBREP)	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	N/A
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	N/A
SCE-13-L-002M	San Gabriel Valley Energy Leader Partnership	2013	N/A
SCE-13-L-002N	San Joaquin Valley Energy Leader Partnership	2010	N/A
SCE-13-L-002O	South Bay Energy Leader Partnership	2010	N/A
SCE-13-L-002P	South Santa Barbara County Energy Leader Partnership	2009	N/A
SCE-13-L-002Q	Ventura County Energy Leader Partnership	2009	N/A
SCE-13-L-002R	Western Riverside Energy Leader Partnership	2010	N/A
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	N/A
SCE-13-L-002U	Local Government Strategic Planning Pilot Program	2011	2019
SCE-13-L-002V	North Orange County Cities Energy Leader Partnership	2015	N/A
SCE-13-L-002W	San Bernardino Regional Energy Leader Partnership	2015	N/A
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	N/A

CPUC Program ID	Program Name	Start Year ²¹⁴	End Year
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	N/A
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	N/A
SCE-13-L-003G	UC/CSU Energy Efficiency Partnership	2010	N/A
SCE-13-L-003I	Public Sector Performance-Based Retrofit High Opportunity Program	2017	N/A
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	N/A
SCE-13-TP-008	Nonmetallic Minerals and Products Program	2013	N/A
SCE-13-TP-009	Comprehensive Chemical Products Program	2013	N/A
SCE-13-TP-010	Comprehensive Petroleum Refining Program	2013	N/A
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 Retrocommissioning Program	2013	N/A
SCE-13-TP-022	Water Infrastructure Systems EE Program (WISE)	2017	N/A
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

CPUC Program ID	Program Name	Start Year ²¹⁴	End Year
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	Enverve Marketplace Program	2020	N/A
SCE-3P-2020RCI-002	Residential Behavioral Program	2020	N/A
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 D. Final EE Monthly Report

To obtain a copy of SCE's December 2021 YR 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 E. 2021 List of EE Program Third-Party Implementers

Program ID	Program Name	Primary Sector (Market Segment)	Sector (Sub-segment / Type of Customer)	Delivery Channel	Vendor	Size of Customer ^{215, 216, 217}	Contract Length	Dollar Value	Account Services Opt-in (Y/N, or N/A) ²¹⁸
SCE-13-TP-001	Comprehensive Mobile Home Program	Residential	Residential	Downstream	Synergy Companies	N/A	2 years, 7 months, 10 days		N/A
SCE-13-TP-021	Enhanced Retro-commissioning (RCx)	Commercial	Commercial	Downstream	Nexant, Inc.	Mid-Size, Large	10 years, 8 months, 6 days		N/A
SCE-13-TP-005	Lodging Energy Efficiency Program (LEEP)	Commercial	Commercial	Downstream	Willdan Energy Solutions	Small, Mid-Size, Large	9 years, 2 months, 30 days		N/A
SCE-13-TP-004	Data Centers EE Program	Commercial	Commercial	Downstream	Willdan Energy Solutions	Small, Mid-Size, Large	9 years, 2 months, 30 days		N/A
SCE-13-TP-003	Healthcare Energy Efficiency Program (HEEP)	Industrial	Industrial	Downstream	Willdan Energy Solutions	Small, Mid-Size, Large	9 years, 2 months, 30 days		N/A
SCE-13-TP-008	Industrial Energy Efficiency Program for Non-metallic Mineral Product	Industrial	Industrial	Downstream	Willdan Energy Solutions (fka. Intergy Corp.)	Mid-Size, Large	11 years, 2 months, 30 days		N/A
SCE-13-TP-022	Water Infrastructure System Efficiency Program (WISE)	Cross-Cutting	Commercial	Downstream	Lincus, Inc.	Mid-Size, Large	8 years, 10 months, 6 days		N/A
SCE-13-TP-023	Medium Size Industrial Customer EE Pilot Program	Industrial	Industrial	Downstream	Onsite Energy Corporation (OEC)	Mid-Size	8 years, 25 days		N/A
SCE-13-SW-001G	Residential Direct Installation Services	Residential	Residential	Downstream	Synergy Companies	N/A	7 years, 5 months, 9 days		N/A
SCE-13-TP-010	Comprehensive Petroleum Refining Energy Efficiency Program	Industrial	Industrial	Downstream	CLEAResult Consulting, Inc.	Small, Mid-Size, Large	7 years, 2 months, 30 days		N/A
SCE-13-TP-009	Comprehensive Chemical Products and Transportation Equipment	Industrial	Industrial	Downstream	CLEAResult Consulting, Inc.	Small, Mid-Size, Large	6 years, 2 months, 30 days		N/A
SCE-13-TP-011	Energy Efficiency Services for Oil and Gas Extraction	Industrial	Industrial	Downstream	CLEAResult Consulting, Inc.	Small, Mid-Size, Large	5 years, 2 months, 30 days		N/A
SCE-13-TP-006	Food Manufacturers and Plastics and Rubber Product Manufacturers	Industrial	Industrial	Downstream	TRC Solutions, Inc.	Small, Mid-Size, Large	1 year, 9 months, 1 day		N/A
SCE-13-TP-007	Primary and Fabricated Metal, Computer, and Electronic Product Manufacturing	Industrial	Industrial	Downstream	TRC Solutions, Inc.	Small, Mid-Size, Large	6 years, 11 months, 12 days		N/A
SCE-13-SW-003D	Strategic Energy Management (SEM) Program	Industrial	Industrial	N/A	Cascade Energy	Large	5 years, 11 months, 21 days		N/A

²¹⁵ SCE's Amended Energy Efficiency Rolling Portfolio Business Plan for 2018-2025, Table 23, p. 89: "SCE Commercial Sector Segmentation for Energy Efficiency." A.17-01-013 (U 338-E), filed 2/10/2017. Link provided in Appendix I, below.

²¹⁶ Ibid., pp. 41-43.

²¹⁷ "Size of Customer" applies to nonresidential categories only.

²¹⁸ D.18-05-041, OP 17, Addressing EE Business Plans (link provided in Appendix I, below): "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." **This requirement applies to new third party programs only.**

Program ID	Program Name	Primary Sector (Market Segment)	Sector (Sub-segment / Type of Customer)	Delivery Channel	Vendor	Size of Customer 215, 216, 217	Contract Length	Dollar Value	Account Services Opt-in (Y/N, or N/A) 218
SCE-13-TP-024	Facility Assessment Service Program	Commercial	Commercial	N/A	Power TakeOff, Inc.	Small, Mid-Size	4 years, 1 month, 26 days		N/A
SCE-13-TP-024	HomeIntel Program	Residential	Residential	Downstream	Home Energy Analytics, Inc.	N/A	5 years, 10 months, 27 days		N/A
SCE_SW_UL	Statewide Lighting Energy Efficiency Program	Commercial, Industrial	Commercial, Industrial	Midstream	TRC Solutions, Inc.	Small, Mid-Size, Large	3 years*	\$36,000,000.00	N
SCE-3P_2020_102	Enervee Marketplace Program	Residential	Residential	Downstream	Enervee Corporation	N/A	3 years*	\$22,807,483.00	N
SCE-3P-2020RCI-002	Residential Behavioral Program	Residential	Residential	Downstream	ICF Resources LLC	N/A	3 years*	\$45,747,109.00	N
SCE-3P-2020RCI-003	Commercial Behavioral Program	Commercial	Commercial	Downstream	ICF Resources LLC	Small, Mid-Size	3 years*	\$7,836,356.00	N
SCE-3P-2020RCI-004	Willdan Multifamily Energy Efficiency Program	Residential	Residential	Downstream	Willdan Energy Solutions	N/A	5 years*	\$98,604,000.00	N
SCE-3P-2020RCI-005	Willdan Commercial Energy Efficiency Program	Commercial	Commercial	Downstream	Willdan Energy Solutions	Mid-Size, Large	5 years*	\$465,120,000.00	N
SCE-3P-2020RCI-006	Willdan Industrial Energy Efficiency Program	Industrial	Industrial	Downstream	Willdan Energy Solutions	Mid-Size, Large	5 years*	\$186,000,000.00	N
SCE_3P_2021AGPUB_001	Agriculture Energy Efficiency (AgEE) Program	Agricultural	Agricultural	Downstream	ICF Resources LLC	Small, Mid-Size, Large	3 years, 1 month*	\$11,499,813.00	N
SCE-13-TP-029	Public Energy Performance (PEP) Program	Public	Local Gov't, Education (K-12), Federal, Tribal	Downstream	CLEAResult Consulting, Inc.	N/A	3 years, 9 months*	\$22,762,103.00	N
SCE_SW_ETP_Elec	Statewide Electric Emerging Technologies Program (SWEETP)	Cross-Cutting	Cross-Cutting	N/A	Cohen Ventures dba Energy Solutions	N/A	5 years, 8 months*	\$67,553,848.00	N

* Contract Length for this program is based on the "Program Duration" in the contract between the implementer and SCE.

Appendix F.

Statewide Third-Party Programs

In Decision (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"²¹⁹ and "third-party"²²⁰ 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.²²¹ These directives set forth a new direction for PAs in administering programs.

Subsequently, in D.18-01-004,²²² 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, 2020.²²³ At the conclusion of 2020, SCE entered into contracts with third-party implementers for more than 40 percent of its EE budget and met both of the 2020 deadlines.

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.

SCE completed three solicitations in 2021 that resulted in the award of contracts to three implementers:

²¹⁹ D.16-08-019, *Decision Providing Guidance for Initial Energy Efficiency Rolling Portfolio Business Plan Filings*, OP 5. Link provided in *Appendix I*, below.

²²⁰ *Ibid.*, OP 10.

²²¹ *Ibid.*, OP 6.

²²² D.18-01-004, *Decision Addressing Third Party Solicitation Process for EE Programs*. Link provided in *Appendix I*, below.

²²³ 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."

- The Statewide Electric Emerging Technologies Program (SWEETP) Solicitation was for a non-resource program focused on identifying emerging (and underutilized) technologies.
- 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.

See Chapter 12, Third Party-Implemented Programs, above.

In addition, SCE is conducting two active solicitations, as of the date of this report, for Statewide Higher Education and Statewide Water/Wastewater programs.

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 Programs Budget

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.18-05-041.²²⁴ The IOUs proposed to submit annual true-up reports with the IOUs' annual EE reports submitted on May 1 of the following calendar year.²²⁵

See Table F-2, Statewide Programs Third-Party Projected Expenditures, on the next page.

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.²²⁶

²²⁴ 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). Link provided in *Appendix I*, below.

²²⁵ *Ibid.*, p. 3.

²²⁶ D.18-05-041, *Addressing EE Business Plans*, pp. 86-87. Link provided in *Appendix I*, below.

Table F-1. Local Programs Third-Party Projected Expenditures

1. Local Program Third-Party Budgets																
Name of Program	Counterparty Name	3P Procurement? (Y/N)*	Date Contract Signed ³	Date Contract Expires	Length (months) ⁴	Market Segment	Sub-Segment	Market Size	Types of Customers Addressed	Total Contract Amount (\$) ⁵	Projected Annualized Budgets or Approved Annual Budgets ⁵					Total ⁵
											2021	2022	2023	2024	2025	
Enervue Marketplace	Enervue Corporation	Y	9/29/2020	12/31/2024	36	Residential	N/A	N/A	Residential	\$ 22,807,483	\$ -	\$ 5,871,862	\$ 8,103,168	\$ 8,832,454	\$ -	\$ 22,807,483
Residential Behavioral Program	ICF Resources LLC	Y	9/29/2020	12/31/2025	36	Residential	N/A	N/A	Residential	\$ 45,747,109	\$ -	\$ 12,634,268	\$ 15,448,391	\$ 16,138,220	\$ 1,526,230	\$ 45,747,109
Commercial Behavioral Program	ICF Resources LLC	Y	9/29/2020	12/31/2025	36	Commercial	N/A	N/A	Commercial	\$ 7,836,356	\$ -	\$ -	\$ 2,897,827	\$ 2,779,748	\$ 2,158,781	\$ 7,836,356
Willdan Multifamily Program	Willdan Energy Solutions	Y	9/29/2020	12/31/2025	58	Residential	N/A	N/A	Residential	\$ 98,604,000	\$ 5,964,000	\$ 22,080,000	\$ 23,520,000	\$ 23,520,000	\$ 23,520,000	\$ 98,604,000
Willdan Commercial Program	Willdan Energy Solutions	Y	9/29/2020	12/31/2025	58	Commercial	N/A	N/A	Commercial	\$ 465,120,000	\$ 34,200,000	\$ 103,500,000	\$ 109,140,000	\$ 109,140,000	\$ 109,140,000	\$ 465,120,000
Willdan Industrial Program	Willdan Energy Solutions	Y	9/29/2020	12/31/2025	55	Industrial	N/A	N/A	Industrial	\$ 186,000,000	\$ 3,210,000	\$ 44,019,500	\$ 46,256,833	\$ 46,256,833	\$ 46,256,833	\$ 186,000,000
Agriculture Energy Efficiency Program	ICF Resources LLC	Y	12/20/2021	12/31/2025	48	Agricultural	N/A	N/A	Agricultural	\$ 11,499,813	\$ -	\$ 2,500,042	\$ 2,999,916	\$ 2,999,855	\$ 3,000,000	\$ 11,499,813
Public Energy Performance	CLEARresult Consulting, Inc.	Y	12/14/2021	12/31/2025	48	Public	N/A	N/A	Public	\$ 22,762,103	\$ -	\$ 5,344,880	\$ 6,122,441	\$ 6,555,868	\$ 4,738,914	\$ 22,762,103
*(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									Total	\$ 43,374,000	\$ 195,950,552	\$ 214,488,576	\$ 216,222,979	\$ 190,340,758	\$ 860,376,865	

Footnote (3): The "Date Contract Signed" are not the Effective Dates for the contracts. Effective Dates are determined by CPUC approval of the Advice Letters.

Footnote (4): Durations in "Length (months)" column align with program durations in contracts and do not align with the "Date Contract Signed" and "Date Contract Expires".

Footnote (5): PG&E has marked confidential the total contract amounts and projected annualized budgets or approved annual budgets for programs whose budgets have not been publicly shared as part of the solicitations process or implementation plans. This data is considered market sensitive and will be shared with Energy Division staff through secure file transfer.

Footnote (6): Forecast budgets may extend beyond current contract expiration dates and are provided for completeness.

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Table F-2. Statewide Programs Third-Party Projected Expenditures

Name of Program	Counterparty Name	Lead IOU	Date Contract Signed ³	Date Contract Expires	Length (months) ⁴	Market Segment	Sub-Segment	Market Size	Types of Customers Addressed	Total Contract Amount (\$) ⁵	Projected Annualized Budgets or Approved Annual Budgets ^{5,6}					Pro Rata Share (%)	IOU Share of Projected Annualized Budgets ⁵					Total ⁵
											2021	2022	2023	2024	2025		2021	2022	2023	2024	2025	
Statewide Upstream and Midstream HVAC Program	CLEAResult Consulting, Inc.	SDG&E	10/14/2020	12/31/2023	39	Commercial & Residential	Commercial & Residential	S/M/L	Commercial & Residential	\$ 36,974,313	\$ 10,195,516	\$ 13,097,047	\$ 13,681,749			32%	\$ 3,270,722	\$ 4,201,533	\$ 4,389,105	\$ -	\$ -	\$ 11,861,359
CA Statewide Lighting Program	TRC Solutions, Inc	SCE	9/1/2020	12/31/2024	35	Commercial	Commercial	N/A	Commercial	\$ 43,200,000	\$ 7,488,000	\$ 15,552,000	\$ 13,248,000	\$ 6,912,000	\$	40%	\$ 3,002,688	\$ 6,236,352	\$ 5,312,448	\$ 2,771,712	\$ -	\$ 17,323,200
Statewide Electric Emerging Technologies Program	Cohen Ventures, Inc.	SCE	9/14/2021	12/31/2027	75	Cross-Cutting	Cross-Cutting	S/M/L	Cross-Cutting	\$ 67,553,848	\$ -	\$ 14,016,955	\$ 17,819,947	\$ 17,819,947	\$ 17,896,999	40%	\$ -	\$ 5,620,799	\$ 7,145,799	\$ 7,145,799	\$ 7,176,697	\$ 27,089,093
Statewide Emerging Technologies, Gas	CF Resources, L.L.C.	SoCalGas	6/24/2021	6/30/2024	36	Cross-Cutting	Cross-Cutting	S/M/L	Cross-Cutting													
California Foodservice Instant Rebate Program	Energy Solutions	SoCalGas	12/9/2020	6/30/2024	42	Commercial	Commercial	N/A	Commercial													
Statewide Midstream Water Heating Program	DNV GL Energy Services USA Inc.	SoCalGas	12/4/2020	6/30/2024	42	Commercial	Commercial	N/A	Commercial													
Codes and Standards Building Codes Advocacy	Evergreen Economics Inc ¹	PG&E	8/20/2019	12/31/2020	17	Cross-Cutting	Cross-Cutting	S/M/L	Cross-Cutting													
Codes and Standards Building Codes Advocacy	UC Regents ¹	PG&E	10/18/2019	12/15/2020	14	Cross-Cutting	Cross-Cutting	S/M/L	Cross-Cutting													
Codes and Standards Building Codes Advocacy	Cohen Ventures Inc ¹	PG&E	6/2/2020	12/31/2020	7	Cross-Cutting	Cross-Cutting	S/M/L	Cross-Cutting													
Codes and Standards Building Codes Advocacy	Frontier Energy Inc ¹	PG&E	5/7/2020	12/31/2021	20	Cross-Cutting	Cross-Cutting	S/M/L	Cross-Cutting													
Codes and Standards Building Codes Advocacy	McHugh Energy Consultants Inc	PG&E	12/5/2019	3/31/2021	16	Cross-Cutting	Cross-Cutting	S/M/L	Cross-Cutting													
Codes and Standards Building Codes Advocacy (2022 T24 Project Coordinator)	Cohen Ventures Inc	PG&E	7/11/2018	12/31/2021	42	Cross-Cutting	Cross-Cutting	S/M/L	Cross-Cutting													

Name of Program	Counterparty Name	Lead IOU	Date Contract Signed ³	Date Contract Expires	Length (months) ⁴	Market Segment	Sub-Segment	Market Size	Types of Customers Addressed	Total Contract Amount (\$) ⁵	Projected Annualized Budgets or Approved Annual Budgets ^{5,6}					Pro Rata Share (%)	IOU Share of Projected Annualized Budgets ⁵					Total ⁵	
											2021	2022	2023	2024	2025		2021	2022	2023	2024	2025		
Codes and Standards Building Codes Advocacy (2025 T24 Project Coordinator)	Cohen Ventures Inc	PG&E	5/18/2021	1/31/2023	21	Cross-Cutting	Cross-Cutting	S/M/L	Cross-Cutting														
Codes and Standards Building Codes Advocacy (2025 and 2022 T24 Non-res CASE Support)	Cohen Ventures Inc ³	PG&E	11/9/2018	12/31/2025	86	Cross-Cutting	Cross-Cutting	S/M/L	Cross-Cutting														
Codes and Standards Building Codes Advocacy (2022 Program Evaluation Support)	Cohen Ventures Inc	PG&E	9/2/2020	4/30/2022	20	Cross-Cutting	Cross-Cutting	S/M/L	Cross-Cutting														
Codes and Standards Building Codes Advocacy (Software Enhancements and CALGreen)	Cohen Ventures Inc	PG&E	9/2/2020	12/31/2021	16	Cross-Cutting	Cross-Cutting	S/M/L	Cross-Cutting														
Codes and Standards Building Codes Advocacy (Compliance Software Support)	Cohen Ventures Inc ¹	PG&E	11/1/2018	12/31/2021	38	Cross-Cutting	Cross-Cutting	S/M/L	Cross-Cutting														
Codes and Standards Building Codes Advocacy (Software Enhancements)	Cohen Ventures Inc	PG&E	11/19/2021	1/15/2023	14	Cross-Cutting	Cross-Cutting	S/M/L	Cross-Cutting														
Codes and Standards Building Codes Advocacy (Software Enhancements)	Cohen Ventures Inc ¹	PG&E	11/1/2018	12/31/2021	38	Cross-Cutting	Cross-Cutting	S/M/L	Cross-Cutting														
Codes and Standards Building Codes Advocacy (Building Codes Strategy)	Cohen Ventures Inc	PG&E	10/28/2020	12/20/2021	14	Cross-Cutting	Cross-Cutting	S/M/L	Cross-Cutting														

Name of Program	Counterparty Name	Lead IOU	Date Contract Signed ³	Date Contract Expires	Length (months) ⁴	Market Segment	Sub-Segment	Market Size	Types of Customers Addressed	Total Contract Amount (\$) ⁵	Projected Annualized Budgets or Approved Annual Budgets ^{5,6}					Pro Rata Share (%)	IOU Share of Projected Annualized Budgets ⁵					Total ⁵
											2021	2022	2023	2024	2025		2021	2022	2023	2024	2025	
Codes and Standards Building Codes Advocacy (2025 and 2022 T24 Low Rise CASE Support)	Frontier Energy Inc ³	PG&E	9/26/2018	12/31/2025	87	Cross-Cutting	Cross-Cutting	S/M/L	Cross-Cutting	\$5,131,700	\$20,398	\$1,076,060	\$1,567,992	\$1,567,992	\$1,567,992	40%	\$8,180	\$431,500	\$628,765	\$628,765	\$628,765	\$2,325,974
Codes and Standards Building Codes Advocacy	TRC Solutions Inc ³	PG&E	9/25/2018	12/31/2025	87	Cross-Cutting	Cross-Cutting	S/M/L	Cross-Cutting	\$8,395,379	\$298,708	\$1,108,732	\$1,645,324	\$1,645,324	\$1,645,324	40%	\$119,782	\$444,602	\$659,775	\$659,775	\$659,775	\$2,543,709
Codes and Standards Appliance Advocacy	Cohen Ventures Inc	PG&E	2/5/2020	12/31/2022	35	Cross-Cutting	Cross-Cutting	S/M/L	Cross-Cutting													
Codes and Standards Appliance Advocacy	Cohen Ventures Inc	PG&E	2/5/2020	12/31/2022	34	Cross-Cutting	Cross-Cutting	S/M/L	Cross-Cutting													
Codes and Standards Appliance Advocacy	2050 Partners	PG&E	2/11/2020	12/31/2022	35	Cross-Cutting	Cross-Cutting	S/M/L	Cross-Cutting													
Codes and Standards National Codes Advocacy	Cohen Ventures Inc	PG&E	1/29/2020	12/31/2022	36	Cross-Cutting	Cross-Cutting	S/M/L	Cross-Cutting													
Codes and Standards National Codes Advocacy	Cohen Ventures Inc	PG&E	3/12/2020	12/31/2022	34	Cross-Cutting	Cross-Cutting	S/M/L	Cross-Cutting													
Codes and Standards National Codes Advocacy	2050 Partners	PG&E	2/11/2020	12/31/2022	35	Cross-Cutting	Cross-Cutting	S/M/L	Cross-Cutting	\$7,680,078	\$1,633,206	\$2,664,580	\$2,664,580	\$2,544,414	\$2,544,414	40%	\$654,916	\$1,068,497	\$1,068,497	\$1,020,310	\$1,020,310	\$4,832,529
New Construction - NonResidential - All-Electric ^{3,4}	Willdan Energy Solutions	PG&E	4/28/2021	12/31/2025	66	Agricultural, Multifamily High-Rise, Industrial, Public, Commercial	Agricultural, Multifamily High-Rise, Industrial, Public, Commercial	S/M/L	Agricultural, Multifamily High-Rise, Industrial, Public, Commercial	\$30,714,296	\$-	\$339,698	\$3,319,339	\$10,191,137	\$15,973,492	40%	\$-	\$136,219	\$1,331,055	\$4,086,646	\$6,405,370	\$11,959,290
New Construction - NonResidential - Mixed Fuel ^{3,4}	Willdan Energy Solutions	PG&E	4/28/2021	12/31/2025	66	Agricultural, Multifamily High-Rise, Industrial, Public, Commercial	Agricultural, Multifamily High-Rise, Industrial, Public, Commercial	S/M/L	Agricultural, Multifamily High-Rise, Industrial, Public, Commercial	\$50,697,244	\$-	\$983,492	\$8,746,903	\$16,627,662	\$16,423,773	32%	\$-	\$315,504	\$2,806,007	\$5,334,154	\$5,268,746	\$13,724,411

Name of Program	Counterparty Name	Lead IOU	Date Contract Signed ³	Date Contract Expires	Length (months) ⁴	Market Segment	Sub-Segment	Market Size	Types of Customers Addressed	Total Contract Amount (\$)⁵	Projected Annualized Budgets or Approved Annual Budgets ^{5,6}					Pro Rata Share (%)	IOU Share of Projected Annualized Budgets ⁵					Total ⁵
											2021	2022	2023	2024	2025		2021	2022	2023	2024	2025	
New Construction - Residential - All Electric	TRC Solutions Inc	PG&E	7/6/2021	12/31/2025	67	Residential	Residential, Low-rise Multifamily	N/A	Residential, Low-rise Multifamily	\$29,516,574	\$-	\$3,151,563	\$6,581,653	\$8,420,190	\$8,374,580	40%	\$-	\$1,263,777	\$2,639,243	\$3,376,496	\$3,358,206	\$10,637,723
New Construction - Residential - Mixed Fuel	TRC Solutions Inc	PG&E	7/6/2021	12/31/2025	67	Residential	Residential, Low-rise Multifamily	N/A	Residential, Low-rise Multifamily	\$11,100,009	\$-	\$1,895,840	\$2,545,541	\$3,093,053	\$3,156,096	32%	\$-	\$608,185	\$816,610	\$992,251	\$1,012,476	\$3,429,522
Institutional Partnerships - Government	Alternative Energy Systems	PG&E	6/24/2021	12/31/2025	72	Public	Public	S/M/L	Public	\$18,883,821	\$190,000	\$679,600	\$1,929,021	\$3,123,836	\$3,145,432	40%	\$76,190	\$272,520	\$773,537	\$1,252,658	\$1,261,318	\$3,636,223
Workforce Education and Training Career Connections	The Energy Coalition	PG&E	5/18/2021	1/31/2025	54	Cross-Cutting	Cross-Cutting	N/A	Cross-Cutting	\$3,094,000	\$266,000	\$456,000	\$456,000	\$456,000	\$456,000	40%	\$106,666	\$182,856	\$182,856	\$182,856	\$182,856	\$838,090
Workforce Education and Training Career & Workforce Readiness	Strategic Energy Solutions	PG&E	5/21/2021	12/31/2025	42	Cross-Cutting	Cross-Cutting	N/A	Cross-Cutting	\$5,962,555	\$561,943	\$800,761	\$862,427	\$912,000	\$912,000	40%	\$225,339	\$321,105	\$345,833	\$365,712	\$365,712	\$1,623,702

Footnote (1): PG&E included these SW 3P-qualified contracts as part of its compliance calculation towards the 25% milestone because they were under contract at the time of the June 30, 2020 compliance deadline. Applicable budgets from 2020 were included in 2020 Annual Report but are left blank here as no budgets were forecasted in 2021 ABAL

Footnote (2): PG&E included these SW 3P-qualified contracts as part of its compliance calculation towards the 25% milestone because it was under contract at the time of the June 30, 2020 compliance deadline and have maintained them here for completeness. Applicable budgets from 2020 were included in 2020 Annual Report in the 2021 budget column but values here in the 2021 budget column are from PG&E's 2021 ABAL forecast

Footnote (3): The "Date Contract Signed" are not the Effective Dates for the contracts. Effective Dates are determined by CPUC approval of the Advice Letters.

Footnote (4): Durations in "Length (months)" column align with program durations in contracts and do not align with the "Date Contract Signed" and "Date Contract Expires".

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Footnote (6): Forecast budgets may extend beyond current contract expiration dates and are provided for completeness.

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Statewide Programs

The Commission established Statewide Programs and the associated Lead IOUs²²⁷ in 2018, as described below:

Table F-3. 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 F-4. 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' 2021 Energy Efficiency Annual Reports for performance information on their respective Statewide Programs.

For more details on SCE's statewide third-party programs, please see Chapter 12, Third Party-Implemented Programs, above.

²²⁷ Ibid., OP 26.

Appendix G. Regional Energy Networks Joint Cooperation Memoranda

Per Decision 21-05-031,²²⁸ 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 18-05-041,²²⁹ except that the JCMs may be included for the upcoming program year as an attachment in each program administrator's Energy Efficiency Annual Report."

This Appendix includes the 2023 JCMs for the Southern California Regional Energy Network (SoCalREN) and the Tri-County Regional Energy Network (3C-REN), and the 2022 JCM for the Inland Regional Energy Network (I-REN).

Please note that I-REN does not have any changes to the content included in the 2022 JCM, submitted in January, 2022, other than to update 2022 budget numbers to 2023. As I-REN will not file an annual report this year, SCE is including the 2022 JCM for reference.

Southern California Regional Energy Network



2023 SoCalREN
JCM.pdf

Tri-County Regional Energy Network



3C-REN_JCM_2023_Fi
nal.pdf

Inland Regional Energy Network



I-REN_JCM_2022_FIN
AL.pdf

²²⁸ D.21-05-031, *Assessment of Energy Efficiency Potential & Goals and Modification of Portfolio Approval and Oversight Process*, OP 7, p. 82. Link provided in *Appendix I*, below.

²²⁹ D.18-05-041, *Decision Addressing Energy Efficiency Business Plans*. Link provided in *Appendix I*, below.

**SoCalREN, 3C-REN, SCE,
SoCalGas, and I-REN 2023 Joint
Cooperation Memorandum**

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I. SUMMARY OF SOCALREN, 3C-REN, I-REN, SCE, AND SOCALGAS PORTFOLIO COORDINATION

The California Public Utilities Commission’s (CPUC) Decision (D.)18-05-041 requires energy efficiency (EE) program administrators (PAs) with overlapping service areas to submit a joint cooperation memorandum (JCM) to coordinate program activities. Specifically, the directive states: “We will require the PAs (RENs, IOUs, and CCAs) to develop a joint cooperation memo to demonstrate how they will avoid or minimize duplication for programs that address a common sector (e.g., residential or commercial) but pursue different activities, pilots that are intended to test new or different delivery models for scalability, and/or programs that otherwise exhibit a high likelihood of overlap or duplication and are not targeted at hard-to-reach customers. For such programs, each PA must explicitly identify and discuss how its activities are complementary and not duplicative of other PAs’ planned activities.”¹

For their 2023 EE portfolios, Southern California Regional Energy Network (SoCalREN), Tri-County Regional Energy Network (3C-REN), Inland Regional Energy Network (I-REN), Southern California Edison (SCE), and Southern California Gas (SoCalGas) (hereinafter referred to as the “Joint PAs”) will continue to collaborate with each other with respect to the Joint PAs’ overlapping programs. As part of each of the Joint PAs’ focused transition to performance-based and comparatively cost-effective and cost-efficient EE portfolios, the Joint PAs will be continuing to collaborate to ensure that their respective overlapping regional programs do not result in unnecessary duplication or cause customer confusion. The Joint PAs can derive additional value by providing information and referrals to programs across all program implementers, including those outside each other’s implementation focus.

In addition, the Joint PAs will use 2023 to continue to conduct ongoing performance assessments, introduce program administrative and implementation adjustments to reduce costs and increase energy savings, and optimize performance of all their portfolios.

¹ D.18-05-041 at p.97

Details on how each of the Joint PA’s overlapping sector programs will collaborate, as necessary to comply with the Commission’s directives, between each PA are provided below in the following section.

II. SUMMARY OF SOCALREN PORTFOLIO OF PROGRAMS OFFERED FOR 2023 AND COMPARABLE PARTNER IOU 2023 PROGRAMS

A. RESIDENTIAL - SOCALREN MULTIFAMILY PROGRAM (SCR-RES-A1)

SoCalREN’s Multifamily Program provides energy assessments and improvement incentives to building owners for comprehensive EE upgrades to qualifying structures of at least five units. The SoCalREN Multifamily Program offers incentives to drive increased adoption of energy efficiency and program rules that require multi-measure upgrades. The program was developed as a flexible solution, composed of technical assistance, building audits, energy modeling, program implementation, and construction/installation incentives.

In addition, the SoCalREN Multifamily Program utilizes a collaborative approach that provides direct account management services to participating program contractors. This includes regular communication through various channels (e.g., conference calls, emails), as well as ongoing follow-up to develop project scopes, monitor construction progress and verify installation.

A primary objective for all SoCalREN strategies is to meet the needs of underserved, hard-to-reach markets and disadvantaged communities. SoCalREN leverages pre-existing government frameworks specifically designed for underserved and Disadvantaged Communities (DAC), reducing administrative, and delivery costs. SoCalREN leverages regional government partners to promote program services to underserved multifamily market sub-segment and local contractors who serve that market.

Multi-language SPOC

SoCalREN offers the RCC Multilanguage Single Point of Contact (SPOC) as a sub-strategy and the supporting multi-language tools. This strategy is used for direct outreach to small MF property owners and hard-to-reach customers whose primary language is not English.

1. Summary of SoCalREN’s Program Objectives

- a) To cost-effectively improve the efficiency of multifamily buildings through custom comprehensive retrofits.
- b) Provide a turnkey solution with financial incentives so property owners can adopt new and more efficient technologies and/or equipment, thus reducing energy waste.
- c) Leverage cross-cutting companion SoCalREN programs to drive participation in EE upgrades
- d) Offer multi-language strategies such as a multi-language SPOC to engage and support MF property owners.
- e) Meet a higher percentage of hard-to-reach and DAC multifamily properties.

2. Summary of Program Differentiation

The following table provides a summary of the Joint PAs’ respective multifamily programs.

Table 1: SoCalREN, SCE, SoCalGas, and 3C-REN Multifamily Program Summary

Program Parameters	SoCalREN Whole Building Comprehensive Multifamily Program	SCE Willdan Multifamily Energy Efficiency Program	SoCalGas – under the HUP umbrella	3C-REN Multifamily Home Energy Savings Program
Target Audience(s)	<ul style="list-style-type: none"> ✓ All multifamily customer segments (5 units and larger) of the residential sector across SCE and SoCalGas's service territory ✓ HTR-Multifamily property owners - Primary language spoken is a language other than English ✓ Multifamily property owners within DACs/DAC Communities. 	<ul style="list-style-type: none"> ✓ All multifamily customer (small, medium and large) segments of the residential sector across SCE's service territory including hard-to-reach (HTR) customers and/or those in disadvantaged communities (DACs). Property owners and managers of existing multifamily properties within SCE's service area. The program targets all levels of multifamily buildings (i.e., low-income, affordable-to-moderate income, market-rate). 	<ul style="list-style-type: none"> ✓ Property owners and managers within the SoCalGas territory who seek to make energy- efficient upgrades to their properties while making well-informed decisions regarding cost and investment for the future. ✓ Low income, affordable-to-moderate income, and market rate are eligible to participate. ✓ Property owners of multifamily complexes within DAC/DAC communities. 	<ul style="list-style-type: none"> ✓ All multifamily residential (5 or more units, existing buildings) customer segments in Ventura, Santa Barbara, and San Luis Obispo Counties ✓ Emphasis on targeting hard-to-reach (HTR) residential customers, including multifamily renters and owners, multifamily properties located in DACs, and moderate-income families not currently being served by, nor meeting the criteria of current ESA and LIHEAP.
Program Delivery Approach	<ul style="list-style-type: none"> ✓ Whole Building (common areas and in-unit) ✓ Custom and Deemed 	<ul style="list-style-type: none"> ✓ Whole-building (common areas and in-unit) ✓ NMEC-Based Site-Specific; Customized Calculated and 	<ul style="list-style-type: none"> ✓ Whole Building 	<ul style="list-style-type: none"> ✓ Whole Building (common areas and in-unit measures)

Program Parameters	SoCalREN Whole Building Comprehensive Multifamily Program	SCE Willdan Multifamily Energy Efficiency Program	SoCalGas – under the HUP umbrella	3C-REN Multifamily Home Energy Savings Program
		Deemed Approaches.		
Differentiating Programmatic Features	<ul style="list-style-type: none"> ✓ 60% Incentive Cost-Cap ✓ 75% Incentive Cost-Cap for DACs/HTR ✓ Incentives based on a \$/kWh and \$/therm basis ✓ Offers Program with Partner Gas Muni’s ✓ Multi-language SPOC (concierge-type support) ✓ Targeted marketing collateral ✓ Leverage existing relationships with property management firms ✓ Customer surveys 	<ul style="list-style-type: none"> ✓ Provides customers choice of incentive, financing, and/or services. ✓ Full-service building approach delivered through Trade Pros and Community-based Organization networks specializing in MF segment ✓ Integrated delivery team provides comprehensive services ✓ Intelligent outreach using proprietary software and modeling ✓ Simple, customer-friendly offer providing customers choice of financing, technical assistance, and flexible incentives. ✓ Single point of contact (SPOC or concierge-type support) ✓ Community blitzes (i.e., door-to-door canvassing) ✓ Strategic partnerships Direct install (DI) and do-it-yourself (DIY) measures ✓ Financing options (i.e., debt or loan financing, lease financing, 	<p>The program will implement maximum incentive levels based on the type of property.</p> <ul style="list-style-type: none"> ✓ Market Rate Projects will be incentivized up to 50% of total project cost. ✓ Affordable Projects can be incentivized up to 65% project cost. To qualify for the Affordable Incentive Path, a project must be classified as a Disadvantaged Community (DAC) or Hard to Reach (HTR). Additionally, projects that meet the Energy Savings Assistance program (ESA) guidelines are also eligible for the Affordable Incentive path. <p>Five incentive tiers are available.</p>	<ul style="list-style-type: none"> ✓ Addresses territory that is far removed from other PAs’ outreach and implementation efforts in Ventura, Santa Barbara, and San Luis Obispo Counties. ✓ Incentivizes property manager/owner to make EE upgrades by developing personalized energy upgrade plans based on the energy assessment of each property and by allowing them to work with contractors of their choice. ✓ Beneficial to both the resident and manager/owner ✓ Higher incentives for underserved properties ✓ Incentive adds for high performance measures

Program Parameters	SoCalREN Whole Building Comprehensive Multifamily Program	SCE Willdan Multifamily Energy Efficiency Program	SoCalGas – under the HUP umbrella	3C-REN Multifamily Home Energy Savings Program
		<p>performance contracts, property assessed clean energy [PACE], and energy efficiency as a service)</p> <ul style="list-style-type: none"> ✓ Targeted marketing collateral ✓ Simplified energy management technologies (EMTs) with demand response (DR) capabilities ✓ Leverage existing relationships with property management firms, and ✓ Customer surveys. 		
Resource or Non-Resource	Resource	Resource	Resource	Resource
Eligible Measures	<p>The program offers custom incentives for energy- efficiency measures for both common area and tenant units at multifamily properties located within the SoCalREN region. Eligible measures include: Appliances, HVAC, Lighting, Pumping, and Water Heating.</p>	<p>The program offers deemed, customized, and NMEC-based site specific approach measures for energy-saving equipment for both common and in-unit areas; end uses include HVAC and Lighting, and Water Heating, Pool pump, High efficiency kitchen appliances, Showerheads and Faucets and Energy Management Technologies.</p>	<p>Home Upgrade Program- Multifamily Whole Building Program promotes long-term energy benefits through comprehensive EE retrofit measures - including building shell upgrades, high-efficiency HVAC units, central heating and cooling systems, central domestic hot water heating, and other deep energy reduction opportunities.</p>	<p>The Multifamily Home Energy Savings program offers site-specific measures that achieve energy savings both in-unit and in common areas.</p>

Program Parameters	SoCalREN Whole Building Comprehensive Multifamily Program	SCE Willdan Multifamily Energy Efficiency Program	SoCalGas – under the HUP umbrella	3C-REN Multifamily Home Energy Savings Program
Budget	\$7,000,000	\$19,595,052	\$2,783,455	\$3,430,037

Similar to the SoCalGas Multifamily Whole Building Program and 3C-REN Multifamily Home Energy Savings Program that are currently offered to customers, SoCalREN’s multifamily projects must install at least three EE measures. SoCalREN’s Multifamily program includes a 60% total project incentive cost-cap for non-DAC/HTR (75% total project incentive cost-cap for DAC/HTR) multifamily properties.

The program’s primary objective is to meet SoCalREN’s business plan goals and achieve deeper savings through comprehensive solutions. Most importantly, the program aims to increase EE adoption rates within hard-to-reach (HTR) and/or disadvantaged communities (DACs) properties. An integrated team has been established over the last eight years with extensive MF experience that ensure continued successful delivery of deep energy savings projects.

SoCalGas’s Multifamily Whole Building Program has an incentive cost-cap of 50% of total project cost for Market Rate Properties and 65% for properties deemed as Affordable Projects; SoCalGas also promotes its On Bill financing Program (OBF) to be bundled in all projects eligible.

SCE has contracted with Willdan Energy Solutions to develop, implement, and offer an EE program to SCE multi-family customers. This Multifamily Energy Efficiency Program offers technical, engineering, and financial services, flexible incentives, DI or turnkey or DIY solutions for deemed, calculated, and/or NMEC approach EE measures energy-saving. SCE’s program offers incentives only for electric measures (i.e., single fuel), whereas SoCalREN’s program offers incentives for EE measures utilizing both gas and electric fuels.

3C-REN’s Multifamily Home Energy Savings (MHES) Program serves HTR multi-family building owners, renters, and DACs in Ventura, Santa Barbara and San Luis Obispo Counties. The program leverages existing relationships with local government agencies, housing authorities, and

community-based organizations for outreach to properties housing underserved multifamily customers such as farmworkers and formerly unhoused individuals. The incentive structure includes enhanced incentives for underserved properties, and adders for higher performance measures, such as heat pumps. In the Tri-County area, it is common for the resident to pay their energy bills, so property owners have little incentive to implement EE measures on their property. 3C-REN's Multifamily Program aims to target property owners in the Tri-County region with non-prescriptive measure mixes to meet the varied needs of multifamily property owners in 3C-REN territory.

SCE's program goes beyond basic EE and includes Demand Response (DR), energy management technologies, Integrated Demand-Side Management (IDSMS) solutions and electrification upgrades offered to customers, excluding any storage technology. This approach minimizes the barriers for customer participation. This Program offers full-service building approach to Multifamily properties throughout SCE's service territory. SoCalREN's Multifamily program will also go beyond basic EE by incorporating external funding resources that will enable multifamily dwellings to incorporate EVSE infrastructure funded by the California Energy Commission. 3C-REN's MHES program will leverage project team connections to layer 3C-REN incentives with other offerings such as TECH Clean California and LIWP, as well as solar and EVSE where appropriate, to increase financial benefits and clean energy impacts for property owners and tenants.

The following table compares the key program parameters of PAs' multifamily programs.

Table 2: Multifamily Program Comparison

Program Parameters	SoCalREN Whole Building Comprehensive Multifamily Program	SCE Willdan Multifamily Energy Efficiency Program	SoCalGas - under the HUP umbrella	3C-REN Multifamily Home Energy Savings Program
Project Delivery Model	Program team and Contractors identify project opportunities, work with program engineers to assess current property conditions and identify project scope. Incentive opportunity is presented to customers. Contractor then completes project installation based upon the agreed scope of work. Engineering team models baseline and as-built energy savings in EnergyPro and incentive is based on energy savings achieved.	Willdan along with its program partners will work with Customers to identify project opportunities. Program engineers will assess current property conditions and identify project scope, provide the customer with estimated kWh savings, customer’s enrollment options, measures, the price, and the billing cycle. Incentive opportunity and financing options are presented to the customers. Once the proposed project is accepted by Customer and subsequently approved for installation by SCE and CPUC, the project is installed through Willdan authorized installer or channel partner or customers may also choose to self-install or select contractor of choice for all incentivized measures.	All projects go through SoCalGas Consultant for review. Consultant provides technical and program assistance to encourage customers to add measures to their scope of work and educate them on the energy savings achieved. Customers install the agreed upon set of measures through the installer of their choice.	MHES program marketing and outreach leverages existing relationships and forming partnerships with local and regional stakeholders, and residents to advocate for the program. Enrolled property owners receive concierge-style technical assistance, site assessments, project scope, and hands-on support through contracting and installation.
Minimum Energy Savings Required per Project	10,000 kWh or 1,000 therms	N/A	5% (gas savings)	0.25MT CO ₂ e savings per apartment unit
Minimum Number of Measures	3 measure minimum. must include both electric and gas efficiency measures	1 measure	3 measure minimum and must include a core measure (installation of a major capital improvement).	3 measure minimum
Minimum Number of Dwelling Units	5 units	N/A	3 units	5 units

Program Parameters	SoCalREN Whole Building Comprehensive Multifamily Program	SCE Willdan Multifamily Energy Efficiency Program	SoCalGas - under the HUP umbrella	3C-REN Multifamily Home Energy Savings Program
Deemed vs Calculated	Measures are calculated using a combination of energy modeling results and ED approved workpapers or custom calculations.	Deemed, Calculated, NMEC-Based Site Specific Approaches	Measures are calculated using a combination of energy modeling results and ED approved workpapers or custom calculations. Energy models are calibrated when possible to historical energy use.	The Multifamily Home Energy Savings program will use a combination of energy savings calculations methodologies including EnergyPro Lite, workpapers, EnergyPro Model, and custom calculations.
Program Delivery Approach	Whole Building	Whole-building (common areas and in-unit)	Whole Building	Whole-building (common areas and in-unit)
Total Incentive Project Cost-Cap	60% non-DAC properties, 75% DAC/HTR properties	None	50% Market Rate 65% Affordable (DAC, HTR, ESA qualified).	Project cap of \$100,000 for Central HPWH systems
Assessment Structure	Program engineers conduct a property site assessment to inform the baseline energy model. Measure recommendations are provided to the customer in the Assessment Report which includes estimated energy savings and potential incentives available for the project.	SCE Third Party Contractor (Willdan) provides assessment as well as technical assistance and recommendations to assist customer and or customer's contractor. Willdan verifies customer's facility meets the program participation criteria, performs no-cost consultation/audit of customer's facilities, and provides energy efficiency/savings opportunities.	SoCalGas Consultant and program SPOC provides assessment as well as technical assistance and recommendations to assist customer and or customer's contractor.	Participants will work with a Technical Assistant (TA) to conduct an energy assessment to identify energy upgrades and associated GHG savings predictions and develop a project scope.

Program Parameters	SoCalREN Whole Building Comprehensive Multifamily Program	SCE Willdan Multifamily Energy Efficiency Program	SoCalGas - under the HUP umbrella	3C-REN Multifamily Home Energy Savings Program										
<p>Improvement Incentive Structure</p>	<p>Incentives are based on the energy savings modeled at project completion using the following rates:</p> <ul style="list-style-type: none"> • Properties located in Disadvantaged Communities (DACs) receive: <ul style="list-style-type: none"> ○ \$0.57/kWh ○ \$6.00/therm • Non-DAC Properties receive: <ul style="list-style-type: none"> ○ \$0.33/kWh ○ \$3.50/therm 	<p>Customer’s choice of incentive, financing, and/or services as agreed upon between Customer and Third- Party Contractor.</p>	<p>Incentives are tiered based on percent improvement in site gasenergy use, and multiplied times the number of units in the property. Total amountcannot exceed corresponding caps forMarket Rate or Affordable projects.</p> <div data-bbox="1008 846 1271 976" style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Energy Efficiency Incentives</p> <p><small>The incentive amount corresponds to the level of energy efficiency achieved</small></p> <table border="1"> <thead> <tr> <th>Natural Gas Savings*</th> <th>Incentive Per Unit</th> </tr> </thead> <tbody> <tr> <td>7-9%</td> <td>\$425</td> </tr> <tr> <td>10%</td> <td>\$575</td> </tr> <tr> <td>12%</td> <td>\$825</td> </tr> <tr> <td>15%</td> <td>\$1075</td> </tr> </tbody> </table> </div>	Natural Gas Savings*	Incentive Per Unit	7-9%	\$425	10%	\$575	12%	\$825	15%	\$1075	<ul style="list-style-type: none"> • \$500 per unit for general market properties • \$750 per unit for underserved properties <p>Additional incentives for higher performance measures, such as heat pumps.</p>
Natural Gas Savings*	Incentive Per Unit													
7-9%	\$425													
10%	\$575													
12%	\$825													
15%	\$1075													
<p>CAS Testing Requirements</p>	<p>None</p>	<p>None</p>	<p>Requires diagnostic “test-in” and “test-out” whole house assessments. The “test- in” assessments will generate a comprehensive work scope and the “test-out”assessments will be usedto document that specified improvements have beenproperly sized and installed</p>	<ul style="list-style-type: none"> • None 										

Program Parameters	SoCalREN Whole Building Comprehensive Multifamily Program	SCE Willdan Multifamily Energy Efficiency Program	SoCalGas - under the HUP umbrella	3C-REN Multifamily Home Energy Savings Program
Documentation Required	Property energy Assessment Report, EnergyPro simulation files, project and building information, proposed scope of work, Installation Report.	Verification of EE measure eligibility, approved workpaper (for Deemed measures), Pre-Installation Inspection Report and/or Post- Installation Inspection Report, and Early Screening Document, and Project Feasibility Study (for Calculated and NMEC measures).	Paid itemized sales receipt, contractor invoices, paid home improvement contracts, permit closure, product cut sheets, savings calculations workbook generated by consultant, and application forms (Investment Grade Energy Audit Request Form, Energy Audit Report, Energy Report with recommended improvements and cost).	Property project scope that meets the minimum GHG savings requirements, EnergyPro Lite model and report, project summary workbook, invoices for all installed measures, quality assurance report, measure specific calculators and proof of permit closure if applicable.
Project Measures Incentivized	Gas/ water/ electric measures (please see eligible measure list)	Lighting, HVAC, Water Heater, and other technologies, Pool pump, High efficiency kitchen appliances, Showerheads and Faucets and Energy Management Technologies.	All typical gas EE measures are eligible assuming savings can be modeled according to ED guidelines for whole building programs (EP5 simulation engine or outside calculations). No generation measures are eligible (solar thermal, solar PV). No fuel switching measures are eligible.	Eligible measures and services to reduce energy usage may include, but are not limited to, the following: <ul style="list-style-type: none"> • Domestic Hot Water • HVAC • Envelope improvement • Appliances • Lighting

3. Comparable SoCalGas Program – Home Upgrade Program - Multifamily Whole Building [SCG 3705]

As an extension of the existing Home Upgrade Program, the Multifamily Whole Building Program has as a primary purpose to test performance-based approaches in the multifamily housing

retrofit market. The Multifamily Whole Building Program utilizes professional energy consultants to perform energy audits using approved multifamily audit tools and procedures to evaluate potential EE measures based on a least cost, maximum benefit approach customized to each property's specific needs.

The Multifamily Whole Building Program seeks deeper energy savings through a comprehensive approach and provide guidance to customers across all their portfolios, while addressing the energy needs specific to each property. The program collaborates with customers' contractors/installers to address specific opportunities at any given property and develop achievable installation timelines. The program targets property owners/managers with scheduled project rehabilitation who are willing to invest in a performance-based whole-building approach. This performance-based approach aims to assist property owners and managers with making informed decisions, identify measures for energy savings, and maximize energy reductions for each property owner, manager, and tenant, as applicable. The incentives are designed to influence the implementation of comprehensive measures, and therefore are based on gas energy reduction achieved.

Furthermore, the Multifamily Whole Building Program recognizes the specific needs of Hard-to-Reach customers and those within Disadvantaged Communities; its incentive structure allows for higher incentive amount to assist with project costs.

SoCalGas team is comprised of a group of experts (internal and external) that meet regularly and work collaboratively for the customer's benefit to help realize maximum energy savings:

- External – Technical Consultant services are offered at no cost to the customer to facilitate program participation and offer meaningful guidance about the Energy Efficient project up front.
- Internal – Program Advisors, Single Point of Contact, Account Executive team, and On Bill Financing team provide information tailored specifically for each property in a comprehensive approach.

The entire team serves as a One Stop Shop to help customers and property management companies participate through the program. This approach is highly supported by the Single Point of Contact, who assists to remove barriers for participation by streamlining communications for customers.

In addition to SoCalGas' Multifamily Whole Building program, direct install and rebate programs are also offered through 3rd party implementers throughout the service territory. These programs will pursue partnership opportunities with other utility companies/municipalities within the service territory, where and when applicable.

The two Third Party Programs offered are as follows:

- *SCG 3889 Multifamily Energy Alliance (MEA)*: the program seeks to provide accessible solutions to SoCalGas customers through a direct install (no-cost to the customer) approach for thermostats, low flow showerheads, thermostatic shower valves, faucet aerators, and recirculation pump controls. Additionally, the program will aim to deliver a comprehensive deemed approach by also providing rebates for clothes washers, attic insulation, pipe/fitting insulation, energy star dryers, furnaces, tankless water heaters, pool/spa heaters, and boiler controls. One of the goals of the program is to serve Hard to Reach customers and customers in Disadvantaged Communities. The program will direct customers to SoCalGas' Energy Savings Assistance Program and Multifamily Whole Building Program when such programs are determined to represent a best fit solution for a project.
- *SCG 3888 Multifamily Space and Water Heating (MF SAWH)*: the program is implemented by a third party which specializes in hydronic systems. The program will target multifamily properties with 30 units or more that have combined central domestic hot water and space heating. The program will provide installation of the following measures at no cost to customers through a direct install approach: water heater VFD pump control, dual set point temperature control, pipe insulation, and faucet aerator (or under sink flow restrictor).

Additionally, SoCalGas offers rebates for deemed measures through the SoCalGas'

Multifamily Energy Efficiency Rebate (MFEER) Program for the purchase and installation of EE measures conducted by the property owner or manager. MFEER will coordinate with MEA to ensure all rebate opportunities are covered/offered while maintaining clarity of the options available within each program.

SoCalGas' Single Point of Contact (SPOC) will work with customers to facilitate the customer journey and notify customers of additional programs available that could complement or be a best fit for their property. SoCalGas' SPOC will also direct customers to SoCalREN staff whenever it is identified that the SoCalREN program can provide suitable solutions. Furthermore, SoCalGas will share opportunities with SoCalREN to promote the Multifamily programs together, through webinars or events that could be hosted jointly. This effort will ensure clarity of offerings within the Multifamily market and allow for cost savings.

Lastly, as a response to COVID-19 and to best serve customers during the pandemic, the Multifamily Whole Building Program has implemented virtual inspections as an alternative to in-person inspections. This has removed barriers when onboarding projects and closing them; customers feel empowered to continue to consider energy efficiency projects as they learn about processes that enable them to do so in a safely manner. The program will keep implementing this approach as long as possible to continue to allow for additional cost savings resulting from the removal of travel time/mileage to conduct assessments.

4. Comparable SCE Multifamily Energy Efficiency Program – Willdan [SCE_3P_2020RCI_004-]

SCE has contracted with Willdan Energy Solutions (Third-Party) to develop, implement, and offer this EE Program to SCE customers. This Third-Party program provides comprehensive EE for all multifamily (MF) customer segments of the residential sector across SCE's service territory. This program seeks to influence a significant increase in the adoption of EE technology and/or measures among the end-users of this market sector using the Deemed, Custom Calculated and Normalized Metered Energy Consumption approaches. The program offers a consolidated approach that includes segment-specific marketing, technical assistance, technologies, whole-facility opportunities,

financing, and measurement and verification (M&V).

As stated above, the program goes beyond basic EE to include Demand Response (DR), energy management technologies and fully Integrated Demand-Side Management (IDSM) solutions. IDSM and electrification upgrades are offered to customers, excluding any storage technology. This approach minimizes the barriers for customer participation.

This program will offer a single point of contact (SPOC) and a significant share of program services will be provided through Channel Partners, Trade Pros, Installers, and community-based organization (CBO) networks.

The program's primary objective is to meet SCE's business plan goals and achieve deeper savings through comprehensive energy management solutions. An additional objective is to increase EE adoption rates by targeting MF residential sub-segments including hard-to-reach (HTR) customers and/or those in disadvantaged communities (DACs). An integrated team with extensive MF experience will develop tailored responses that align with SCE's objectives and draws on existing customer relationships with property owners to increase the number of completed projects.

5. Comparable 3C-REN Program: Multifamily Home Energy Savings (MHES) Program [TCR-Res-002]

3C-REN's Multifamily Home Energy Savings (MHES) Program serves hard-to-reach (HTR) multi-family building owners, renters, and Disadvantaged Communities (DACs) in Ventura, Santa Barbara and San Luis Obispo Counties. Multifamily properties with five or more units are eligible to participate. The program includes site assessments, technical assistance, and a rebate structure that is based on the number of units in the complex. To qualify for the rebates, the project scope of work must achieve a minimum of 0.25MT CO₂e savings per apartment unit. The incentive structure also includes enhanced incentives for underserved properties, and adders for higher performance measures, such as heat pumps.

To participate in the program, property owners/managers (participants) can sign up on the 3C-REN website. Marketing efforts to drive participants to sign up will include events, calls, emails, etc.

Following sign up, participants will work with a Technical Assistant (TA) to conduct an energy assessment to identify energy upgrades and associated GHG savings predictions and develop a project scope. Once the scope has been developed (that meets the GHG savings requirements), a rebate will be reserved for the participant. The participant is responsible for implementing the project scope. It is expected that participants will work with contractors that they already have relationships with, or to review quotes from other area contractors. Although the responsibility lies with the participant to implement the project scope, the TA will provide assistance throughout the bid process and construction of the project. Technical assistance will also include support in identifying financing and accessing additional incentives beyond those offered in this program. Once construction is completed, the TA will verify the project and process incentive payments, which are paid directly to the participant.

The project scopes for each property will vary based on energy assessments, but can include whole building, common area, and in-unit measures. The program does not provide a prescriptive list of eligible measures, but will allow energy-saving upgrades for domestic hot water, HVAC, building envelope, appliances, and lighting.

6. Coordination Protocol Between Programs

A focus on collaboration among the PAs is critical to all multifamily programs' success. For its residential programs, the Joint PAs will communicate via email or in regular coordination meetings. The Joint PAs also will participate in Energy Division-led Program Coordination Groups (PCG), with the goal of reaffirming clearly defined program goals and messaging.

The Joint PAs realize there is an opportunity to continue and deepen coordination to serve the multifamily segment. Coordination within multifamily programs has the potential to lead to deeper EE retrofits. The Joint PAs will make each other aware of programs and resources available, including multifamily residential programs. The Joint PAs will provide notice once advice letters have been filed and implementation plans have been uploaded to CEDARS of any new program similar to other Joint PAs' programs. Through SoCalREN's Residential Community Coordinator (RCC), all available

information regarding all possible IOU, REN, and third-party program and incentive opportunities will be made available so that the Joint PAs’ constituents are informed about all available options, thus gaining deeper energy savings for the state.

7. Coordination Between SW Program(s)

The Joint PAs will continue to participate in Energy Division-led PCGs. The statewide PCG for multifamily programs enables collaborative statewide (SW) discussions regarding all multifamily programs across all PAs throughout the state, not just those in Southern California.

8. Compliance With D.12-11-015, SCR-RES-A1

The following table describes in further detail how SoCalREN’s Multifamily Program satisfies the REN criteria in D.12-11-015.

Table 3: SoCalREN’s 2023 Multifamily Program Compliance With D.12-11-015

REN Criteria	SoCalREN Multifamily Program (SCR-RES-A1)
1. Activities IOU cannot or does not intend to undertake	<ul style="list-style-type: none"> ✓ Leverage public agencies to drive multifamily downstream incentives to property owners. ✓ Will market an incremental installation phase approach to allow multiple measures over time for whole building.
2. Pilot activities where there is no IOU program offering and where there is potential for scalability	N/A
3. Activities in hard-to-reach markets, whether or not there is an IOU program that may overlap	<ul style="list-style-type: none"> ✓ SoCalREN’s multifamily program targets and provides special incentives for hard-to-reach customers and DACs; however, services will be offered to multifamily properties throughout its service territory.

B. SOCALREN KITS FOR KIDS (SCR-RES-A3)

The SoCalREN Kits for Kids program provides energy-saving measures to families within the service area who have third and fourth grade students attending local elementary schools. A set of measures will be offered at no cost to participating students and their families. These no-cost measures will provide realized energy savings for each household. In addition to the energy and cost saving

achieved by the student, Kits forKids will provide educators with a classroom grant. Kits for Kids will generate energy savings and provide relief to families who are impacted by high monthly utility bills, and to educate future household decision-makers to continue prioritizing energy efficiency in the future.

Kits for Kids provides a model wherein families are provided with a home-based educational activity (Energy Efficiency Scavenger Hunt) and kids an interactive online game/tool. The online game and family activity is designed to help the student make connections between concepts learned through third and fourth grade science and how the members of their household use energy at home, in a fun, hands-on fashion. The program’s primary objective is to drive knowledge that leads to energy champions within our communities.

1. Summary of Program Objectives

- Generate energy savings (kWh and therms) through the installation of measures in the homes of students participating in the Kits for Kids Program
- Provide financial relief to families/households through both energy cost savings and the no-cost measures provided to households
- Educate students, parents, and guardians about energy efficiency to help household members make informed decisions now, and to encourage the continuation of energy efficient behaviors by the students in the future.
- Drive climate action within residential communities.

2. Summary of Program Differentiation

The following table provides a summary of the PAs’ respective programs.

Table 4: SoCalREN, SCE, and SoCalGas Similar Program Summary

Program Parameters	SoCalREN	SCE	SoCalGas
Target Audience(s)	3rd and 4th grade students and their families residing in single and multifamily homes	N/A for all rows	6th grade students and their parents.
Resource or Non-Resource	Resource		Resource

Program Parameters	SoCalREN	SCE	SoCalGas
Eligible Measures	(2) LED Light bulbs (1) Showerhead (2) Faucet Aerators -1 Kitchen 1.5GPM -1 bath 1.0GPM		Aerators – lavatory 0.5 Aerators – Kitchen 1.5 Showerheads 1.5 Filter Tone Alarm
Budget	\$1,200,000		\$1,702,415

SoCalREN’s Kits For Kids program goes beyond other educational programs by incorporating an interactive online gaming tool. In addition, information gathered during the program activity will be used to verify existing conditions in the home (e.g. number of incandescent bulbs, etc.). This information will serve as key EM&V ex-post information and will assist in determining energy savings associated with the free measures provided for installation. These strategies go beyond existing similar programs within the market. Finally, this program will be focused in targeted areas in the SoCalREN service area that are currently underserved, DAC, rural and low-income communities.

The following table compares the key program parameters against similar PA’s applicable programs.

Table 5: REN and IOU Program Comparison

Program Parameters	SoCalREN	SCE	SoCalGas
Program Delivery Approach	<p>The Kits for Kids Program utilizes an interactive online game platform to inform kids about the benefits energy savings while engaging them on the installation process with the supervision of their parents.</p> <p>Program model also utilizes public agency partners specifically schools, school districts and Counties Education Offices to promote energy leadership and drive energy efficiency beyond the classrooms.</p>	N/A	<p>The LivingWise (LW) Program is a school-delivered residential energy savings program that provides a blend of classroom activities and take-home retrofit and audit projects which students complete as homework assignments with their parents and families. The LW Program is applied at the 6th Grade level in California to best align with State Learning Standards and is offered to eligible teachers as an elective program.</p>
Deemed vs Calculated	Deemed		Deemed
Incentive Structure	<ul style="list-style-type: none"> • 65% of Students must install measures for classroom incentive • Each classroom receives a \$500 or \$1,000 grant depending on class size 		<ul style="list-style-type: none"> • N/A
Approval	<ul style="list-style-type: none"> • Postcard submitted to teacher and online platform • game captures installation progress as kids/family's complete activity; • SoCalREN to process and verify via postcard submittal/online collection. 		<ul style="list-style-type: none"> • Program enrollment occurs when the teacher provides a teacher participation agreement by fax, email or online to receive energy efficiency services for their classroom
Project Measures Incentivized	<ul style="list-style-type: none"> • Gas/water • Electric measures provided but not qualified for deemed savings at this time 		<ul style="list-style-type: none"> • Gas/water

Program Parameters	SoCalREN	SCE	SoCalGas
Baseline/Data Collection	<ul style="list-style-type: none"> SoCalREN is leveraging this program to collect measures replaced so annually incremental estimation of attributable electric savings can be measures (i.e., CFL replacements) 		<ul style="list-style-type: none"> Monthly progress report and written report on teacher enrollment activities

3. Comparable SoCalGas Program – LivingWise [SCG 3764]

LivingWise is a residential energy education and savings program delivered through schools. Southern California Gas Company (SoCalGas) collaborated with seven different California municipalities, utilities, or water agencies. The Program is a 6th grade Education model built on a proprietary Measure-Based Education (MBE) methodology. This results in students who readily engage in the teacher-led education within their school and are empowered by the hands-on, lab-based take-home measure installations within their homes. This personalized education program delivers increased energy literacy, optimum installation rates, and a deeper understanding of energy efficiency concepts, including Integrated Demand Side Management (IDSMS). Teachers are incentivized to implement the program in its entirety and return Student Surveys for EM&V reporting. The program optimizes energy savings and behavior change while supporting California state standards-based core classroom curriculum while enabling teachers to control the timing and pace of the program delivery.

4. Comparable SCE Program – N/A

5. Coordination Protocol Between Programs – N/A

6. Compliance with D.12.-11-015, SCR-RES-A3

The following table describes in further detail how SoCalREN’s Kits for Kids Program satisfies the REN criteria in D.12-11-015.

Table 6: SoCalREN’s 2023 Kits for Kids Program Compliance With D.12-11-015

REN Criteria	SoCalREN Kits for Kids Program (SCR-RES- A3)
1. Activities IOU cannot or does not intend to undertake	Kits for Kids offers an online platform for students to learn about energy efficiency

2. Pilot activities where there is no IOU program offering and where there is potential for scalability	N/A
3. Activities in hard-to-reach markets, whether or not there is an IOU program that may overlap	Will emphasize HTR customers, DAC and Rural Communities

C. SOCALREN PUBLIC AGENCY ENERGY EFFICIENCY PROJECT DELIVERY PROGRAM, (SCR-PUBL-B1)

The SoCalREN Public Agency Energy Efficiency Project Delivery Program (EE PDP) offers services to identify and complete Public Sector projects that are customized to meet the unique needs of each agency. The Program provides objective, third-party expertise to help agencies implement the best measures to maximize energy cost savings. Savings attribution is channeled through the SCE, SoCalGas, and SoCalREN resource programs such as Metered Savings Program and Streamlined Savings Pathway because the SoCalREN Public Agency EE PDP is a non-resource program. In addition, SoCalREN’s EE PDP assists in the development and sharing of tools and resources through a peer-to-peer network to inspire local energy action.

Services include:

- ✓ Energy portfolio analysis tools and benchmarking support that help identify potential opportunities.
- ✓ Start-to-finish project management support
- ✓ Facility energy audit
- ✓ Exterior lighting retrofit audit and technical expertise
- ✓ Water and wastewater pumping and process optimization retrofits and other measures
- ✓ Retro-commissioning support
- ✓ Project financing analysis
- ✓ Support in access to financing, including EE financing and grant application services
- ✓ Development of contractor scope of work elements with EE performance specifications
- ✓ Access to competitively bid specialty contractors
- ✓ Assistance with utility incentive and rebate processing
- ✓ Construction management support
- ✓ Project close-out support and training
- ✓ Access to EE tools, resources & peer-to-peer learning opportunities
- ✓ Customized support to celebrate project success

1. Summary of Program Objectives

- a) Fill market gaps in the public sector and provide public agencies with an integrated, objective, and comprehensive EE solution for their

facilities and non-facility infrastructure.

- b) Increase the percentage of public agencies that engage their communities in energy actions and EE strategies, thereby reducing overall community energy consumption, with a focus on disadvantaged and HTR communities.
- c) Increase the ability of public agencies to meet local, regional, and state energy targets and policy goals.
- d) Increase the number of participating public agencies in the SoCalREN EE PDP across the entire regional territory, with an emphasis on HTR and DACs.
- e) To position public agencies and strategic regional partners to lead community awareness campaigns; engage stakeholders; build public awareness of local, regional, and state efforts; develop energy action plans with shovel ready project scopes; and drive participation in PA core resource programs.
- f) Expand the implementation of cost-effective EE projects

2. Summary of Program Differentiation

The following table provides a summary of the PAs’ public agency programs.

Table 7: SoCalREN Public Agency Energy Efficiency Project Delivery Program (PDP) and Other PAs’ Comparable Programs Summary

Program Parameters	SoCalREN	SCE	SoCalGas	I-REN
Target Audience (s)	Public Agencies: <ul style="list-style-type: none"> • Cities, counties, tribes, K-12 schools, local government hospitals and hospital districts, water districts, wastewater districts, sanitation districts, ports, airports, and other special districts. 	All eligible: <ul style="list-style-type: none"> • Local Government • Schools (K-12, local public and private primary and secondary education authorities) • Federal and Tribal Government 	All eligible: <ul style="list-style-type: none"> • Cities • Counties • Water/wastewater Districts • K-12 Schools • Special Districts • Tribes • POU's • Any Public Agencies 	<ul style="list-style-type: none"> • Counties of Riverside and San Bernardino • Cities, school districts, water districts, special districts, tribal communities • Disadvantaged, low income, other vulnerable communities • Community centers, libraries, senior centers, schools, fire and police buildings • Educational institutions
Resource or Non-Resource	Non-Resource	Resource	Resource & Non-Resource	Non-resource

Program Parameters	SoCalREN	SCE	SoCalGas	I-REN
Eligible Measures	N/A	Lighting, HVAC, Process, Food Service, Whole Building, Motors, Office Equipment, Building Envelope, Refrigeration	Pipe and Tank Insulation, Boilers, Water Heaters, Pool Covers, Food Service, HVAC, Building envelope, Central Plant, Non-building or systems	N/A
Budget	\$6,489,000	\$6,590,401	\$2,051,023	\$2,908,219

SoCalREN’s EE PDP offers services customized to serve the specialized needs of public sector customers. For example, in SoCalREN’s EE PDP, project management and technical support are offered throughout the entire project lifecycle, including technical assistance, procurement assistance, construction management support, financing support, and access to actionable reports on energy data. The IOUs’ third-party programs provide public sector customers with technical assistance primarily focused on project technical and financial details but does not include pre-OBF financing support, procurement assistance, or construction management support. SoCalREN EE PDP participants only need to be a SoCalREN enrolled agency to be eligible to participate in the program. In 2019, after an identification of a gap was presented due to the reduction of local government partnerships, the SoCalREN added the regional partnership strategy to its EE PDP. The goal of regional partnership strategy is to increase energy efficiency impacts through enrollments, enhanced engagement, and ultimately increase EE projects and their associated savings through resource program pipelines. The following table compares the key program parameters of PAs’ public sector programs.

Table 8: Public Sector Program Comparison

Program Parameters	SoCalREN: EE Project Delivery Program	SCE Public Sector Programs	SoCalGas Public Sector Programs	I-REN Technical Assistance and Strategic Energy Planning Program
Types of Public Agencies Served	All eligible: <ul style="list-style-type: none"> ● Cities ● Counties ● Water/wastewater Districts ● K-12 Schools ● Special Districts ● Tribes 	All eligible: <ul style="list-style-type: none"> ● Local Government ● Schools (K-12, local public and private primary and secondary education authorities) ● Federal and Tribal Government 	All eligible: <ul style="list-style-type: none"> ● Cities ● Counties ● State Government ● Federal Government ● Water/wastewater Districts ● K-12 Schools ● Community Colleges ● & Universities ● Special Districts ● Tribes ● POUs ● Any Public Agencies 	<ul style="list-style-type: none"> ● Members of the I-REN COGs, counties, cities, school districts, water districts, special districts, and tribal communities ● Hard-to-reach, disadvantaged, low income, and other vulnerable communities ● Public sector facilities, community centers, libraries, senior centers, schools, and fire and police buildings ● Educational institutions
Resource/Non-resource	Non-resource	Resource	Resource and Non-Resource	Non-resource
Procurement Assistance	Procurement and project delivery option analysis Access and extensive support to both customized and turnkey procurement approaches for energy projects Proposal and bid analysis Development of contractor scope of work with performance specifications Contractor cost estimate review	None	None	Support public agency staff in navigating procurement and approval process

Program Parameters	SoCalREN: EE Project Delivery Program	SCE Public Sector Programs	SoCalGas Public Sector Programs	I-REN Technical Assistance and Strategic Energy Planning Program
Technical Assistance	Customized technical engineering support from project identification to completion, including investment grade audits to identify all energy saving opportunities, technical performance specifications and provide construction management support.	Technical assistance, onsite or virtual assessments, potential for Strategic Energy Management (SEM) coaching	Customized technical assistance to identify all-natural gas energy saving opportunities.	Strategic energy planning; benchmarking; technical support to assess project options
Financial Support	<p>Financial Analysis for projects to compare different financing options</p> <p>Support with financing and incentive applications and process</p> <p>Assistance with non-ratepayer funded financing</p> <p>Access to financial advisory services</p>	SCE On-bill financing, alternative funds sourcing, and direct incentives	<p>Enhanced incentives for participation in downstream utility programs</p> <p>Support with financing and incentive applications and process through account representatives and/or Third Party implementers when applicable</p> <p>On-Bill Financing</p>	Provide information on I-REN financing options and other PA offerings

Program Parameters	SoCalREN: EE Project Delivery Program	SCE Public Sector Programs	SoCalGas Public Sector Programs	I-REN Technical Assistance and Strategic Energy Planning Program
Access to Energy Data	<p>Access to Utility API and ESPM data and customized reports to communicatedata.</p> <p>Benchmarkingsupport</p> <p>Detailed facility TOU loadprofiles</p>	<p>Agency usage-level dataon request</p> <p>Aggregate community-level data on request (EDRP Process)</p> <p>Green Button ConnectMy Data</p> <p>Energy Star Portfolio Manager</p> <p>Green Button DownloadMy Data</p> <p>Energy Atlas/CATALENA(under development)</p>	<p>Agency usage-level dataon request</p> <p>Aggregate community-level data on request (EDRP)</p> <p>Energy Atlas/CATALENA(under development)</p> <p>Automated electronic bill data delivery via secure file transfer protocol</p>	<p>Benchmarking and energy modeling support</p>
Energy Project Expertise to Implement Projects	<p>Provides support at each stage to each participatingagency through an assigned Project Manageralong with access to engineering and construction support</p>	<p>Provides support at the project identification and development phase through engineering assistance and SEM cohort workshops.</p>	<p>Account Representativesprovide project support</p> <p>Engineering support toall Public Sector customers</p> <p>Program Management support to coordinate technical assistance, leverage applicable Third-Party Program resources and engineering support</p>	<p>Support public agency decisionmakers and staff with concierge-style project management support</p>

Program Parameters	SoCalREN: EE Project Delivery Program	SCE Public Sector Programs	SoCalGas Public Sector Programs	I-REN Technical Assistance and Strategic Energy Planning Program
Community Marketing/ Outreach	<p>Development and sharing of tools and resources to promote regional and local energy action</p> <p>Customized support to engage community stakeholders and inspire regional and local energy action</p>	<p>Development of a multi-touch, multi-channel approach to nurture customers along their energy efficiency journey in a customized, personalized, and timely way.</p>	<p>Co-branded marketing to promote utility core programs</p> <p>Customized marketing support to engage communities and educate on other IDSM offerings that includes leveraging Core Program and Third-Party Program resources.</p>	<p>Outreach to local jurisdictions and agencies to educate them about the program offerings</p> <p>Create regionally-focused resources on public sector opportunities</p> <p>Collaborate with local governments, tribes, and special districts to design and deliver messaging to the community to promote local leadership in energy efficiency</p>
Sharing of Best Practices for Sustainability Efforts	<p>Sub-regional peer-to-peer workshops and trainings on relevant topics</p> <p>Access to shared online resources and learning communities</p> <p>Regular communication and coordination among Regional Partners and Advisory Committee members to share activities and best practices.</p>	<p>Achieved through SEM cohorts in training workshops and coaching sessions.</p>	<p>Regular communication with customers and regional events, support and coordinate with Third Party programs, Peer-to-peer meetings, Regional meetings</p>	<ul style="list-style-type: none"> • Convene stakeholders for strategic energy planning • Create local case studies to showcase achievements in the region <p>Create, distribute and promote regionally-focused tools and resources through e-communicators, social media, web, and at in-person events.</p>

3. Comparable SCE Programs – Local Public Sector Third-Party Program and Statewide Water/Wastewater Pumping Efficiency

SCE contracted with CLEAR result to deliver the Public Energy Performance program (PEP) to target the local public sector. PEP combines traditional efficiency programs with supported energy

action plan implementation and Strategic Energy Management. Strategic Energy Management (SEM) is a holistic, whole facility approach that uses Normalized Meter Energy Consumption (NMEC) and dynamic baseline model to determine energy savings from all program activity at the facility, including capital projects, custom and deemed calculated retrofits, maintenance and operation, and retro-commissioning projects. SEM for the public sector requires a multi-year customer commitment to participation in multiple cohort-type training workshops, individual or cohort energy analysis site and Measurement and Evaluation (M&V) activities based on information and characteristics of the facility's specific operations.

SCE's Statewide Water/Wastewater Pumping program is currently in solicitation and is expected to be in market around Q4 2022 to be delivered by the contracted third-party implementer. SCE's existing Water Infrastructure Systems Efficiency Program provides support to water and wastewater system operators (local governments, water and wastewater districts, etc.) to deliver EE in water distribution and treatment systems. The Program offers a comprehensive and turnkey solution, including no-cost project engineering services, project support, and financial incentives. SCE's WISE program stopped taking new program enrollment in 2019 but will continue to service the existing pipeline of projects until the new statewide water/wastewater program(s) begin implementation.

The Statewide Higher Education solicitation concluded in Q1 2022. SCE filed the advice letter and will provide notice once the implementation plan has been uploaded to CEDARS.

4. Comparable SoCalGas Public Sector Programs

SoCalGas Public Sector Programs focus on four major segments: local governments (City, County, Special Districts, other Public Agencies that include POU's), state government (Correctional Facilities, Hospitals, State Agencies & Departments), federal government (Military, Hospitals, Other Federal Agencies, Native American Tribes, and education (K-12, Higher Education, University Hospitals). SoCalGas intends to meet its Public Sector goals by following a comprehensive list of program intervention strategies at various intervals throughout the Rolling Cycle. SoCalGas Public Sector Programs also target jurisdictions with DACs, and rural and HTR communities.

In 2023, SoCalGas Public Sector Programs will transition from the 12 Local Government Partnership Programs (LGP) to a regional model (Public Sector Energy Pathways) that provides services and support to the broader public sector customers along with Public Sector Third Party programs. A Third Party implemented resource program (SCG3846) for small and medium public sector customers has been launched in 2021. This Third Party program is a turnkey cost-effective end-to-end solution for small and medium public sector customers. A Third Party program aimed at large public sector customers is currently being solicited and scheduled to launch in 2023. SoCalGas Public Sector Programs portfolio is designed to support all Public Sector customers including local governments and special districts in the following areas:

Government and Public Agency Facilities

- ✓ Retrofit
- ✓ Retro-commissioning
- ✓ Facility Energy Audit
- ✓ Integrated Demand Response
- ✓ Technical Assistance
- ✓ On-Bill Finance
- ✓ Inter-agency Coordination

Sustainability Support

- ✓ Benchmarking
- ✓ Guiding Document Support
- ✓ Peer to Peer Support, Best Practices

Core and Third Party Program Coordination

- ✓ Outreach & Education (WE&T, EE Training and Workshop, etc.)
- ✓ Third-Party Program Coordination
- ✓ Financing for the Community
- ✓ Technical Assistance

SoCalGas intends to expand its EE offerings and services in 2023 to all Public Sector customers, including those Public Agencies that are not in the current LGP through a suite of new program designs, improved strategies, offerings, and services, such as EE Direct Install, Public Sector Deemed and Calculated programs and new programs resulting from the Third-Party Solicitation process. Focused or tailored local and regional solutions may be adopted to achieve Public Sector goals. SoCalGas also has partnerships with many municipal utilities to jointly design and deliver EE programs to the shared customer base.

5. Comparable I-REN Program – Public Sector Technical Assistance and Strategic Energy Planning Program – IREN-PUBL-001

I-REN's Public Sector Technical Assistance and Strategic Energy Planning Program will provide short-term and mid-term technical support for local governments, special districts, school districts, and tribes to increase energy efficiency in publicly-owned facilities. The program will provide additional support and technical services to design high performing, energy efficient buildings.

The program will implement a strategy of developing a regional Building Upgrade Concierge (BUC) for local governments, special districts, and tribal communities with technical guidance and tools to inform and enable priority energy improvements. I-REN will provide person-to-person support for local governments to get higher levels of assistance and support for their energy efficiency projects, through concierge-style support to help fill gaps in staff capacity and resources at these local government jurisdictions.

I-REN's technical assistance support will build local government's capacity to tackle complex projects, from helping with benchmarking to navigating options and approaches for maximizing their investments and energy savings. I-REN will offer person-to-person support to help these local governments in making efficient equipment purchases and to implement energy efficiency projects. Resulting energy bill savings will benefit local governments and contribute to both local and statewide goals for energy efficiency and greenhouse gas reduction.

I-REN will also develop or enhance strategic energy plans to connect local government goals related to climate, resilience, and economic development to energy efficiency programs and adoption. Through this tactic I-REN will assess the current state of strategic energy planning and provide technical assistance to begin the process or help move the process forward, working in collaboration with jurisdiction stakeholders.

In addition, I-REN will create resources for the public sector to tap into EE and distributed energy resources programs offered by other providers and IOUs, acting as a clearinghouse for information about energy efficiency programs available in the region for the public sector, and will create and promote tools and resources to increase energy efficiency program participation among

their constituents.

I-REN will offer person-to-person concierge technical support services to serve the needs of public sector customers in its territory, including but not limited to strategic energy planning and procurement and project management assistance. I-REN will focus on underserved local governments including tribal communities with targeted non-resource efforts to drive participation to IOU programs and use information technology to help improve public sector customers' and local governments' access to energy efficiency opportunities. While the program will be open to all public building types, there will be a focus on community-serving buildings such as community centers, libraries, senior centers, schools, and fire and police buildings. I-REN will leverage its existing public sector partnerships and networks across the region to deliver personalized services through this program. Location of services in Riverside and San Bernardino counties, especially in underserved jurisdictions, and a more localized focus will differentiate I-REN's program from other comparable offerings.

6. Coordination Protocol Between Programs

In 2013, the Joint PAs worked closely together to produce a clear, concise project coordination strategy titled "SoCalREN-IOU Coordination Plan for Public Agencies" for SoCalREN's Public Sector Programs. The Coordination Plan is a living document and updated as needs arise for improved and enhanced protocols. This same document will be used as the coordination protocol for the EE PD Program, DER DAC Program, Streamlined Savings Pathway, and Public Agency NMEC Program (discussed in the next sections). This plan is closely followed by all parties and lays out all coordination regarding agency enrollment, commitment, and ongoing SoCalREN project delivery services. This document is provided in Appendix E.

In addition to the SoCalREN-IOU Coordination Plan implemented by the Joint PAs, there is also a monthly "program coordination call" and monthly SCE-specific "project coordination call." A monthly SoCalGas monthly project coordination call will be established in Q2 or Q3 2023. The Joint PAs will make each other aware of programs and resources available, including public sector programs. The IOUs will also provide notice once advice letters have been filed and implementation plans have been uploaded to CEDARS of any new program similar to SoCalREN's public programs.

At that time, the Joint PAs will work to update coordination documents.

SoCalREN coordinates with the IOUs and other relevant third-party or LGP stakeholders prior to any in-person engagement meeting to enroll a new agency. This "pre-coordination" helps to mitigate customer confusion and serves to keep all parties informed of ongoing projects. The Joint PAs will leverage this successful approach for other sectors in their 2023 portfolios.

As mentioned above, SoCalREN works with several "Regional Partners" that provide enhanced and customized outreach and engagement to regions throughout SoCalREN territory within their geographical region of influence. In cases where these Regional Partners support other IOU programs, all parties will work closely together to ensure the appropriate program(s) is being represented and coordinated among parties to eliminate customer confusion.

As a new PA, I-REN has not yet contracted with implementers. Within 60 days of implementer(s) being contracted for the relevant programs, the Joint PAs will reconvene to plan coordination activities specific to any I-REN program(s).

7. Coordination between SW program (s)

The IOUs will also provide notice once advice letters have been filed and implementation plans have been uploaded to CEDARS for the statewide water/wastewater program(s). At that time, the Joint PAs will work to determine best method of coordination with the statewide water/wastewater program(s).

8. Compliance with D.12-11-015, SCR-PUBL-B1

The following table describes in further detail how SoCalREN's EE PDP programs satisfies the REN criteria in D.12-11-015.

Table 9: SoCalREN’s 2023 EE PD Program Compliance with D.12-11-015

REN Criteria	SoCalREN Public Agency EE Project Delivery Program (SCR-PUBL-B1)
<p>1. Activities IOU cannot or does not intend to undertake</p>	<ul style="list-style-type: none"> ✓ One-stop, end-to-end service delivery that includes technical assistance, procurement assistance, financial support services, construction management support, and all project management until project completion for electrical and natural gas EE projects. Traditionally, IOU programs’ public sector technical assistance primarily focuses on project technical and financial details but does not include procurement assistance or construction management support. ✓ As a public entity, SoCalREN is able to offer valuable third-party advice to agencies as a trusted advisor and can help weigh the benefits and risks of implementing EE projects in their communities.
<p>2. Pilot activities where there is no IOU program offering and where there is potential for scalability</p>	<p>N/A</p>
<p>3. Activities in hard-to-reach markets, whether or not there is an IOU program that may overlap</p>	<p>N/A</p>

D. SOCALREN PUBLIC AGENCY DER DAC PROJECT DELIVERY PROGRAM, (SCR-PUBL-B2)

To further support the Public Sector and to expand on lessons learned from existing strategies utilized by SoCalREN in the Public Sector, the SoCalREN expanded its one-stop EE project delivery to include consideration of Distributed Energy Resources (DER) during EE audits and provide recommendations for the integration of DERs in implementation of EE projects. This Program is offered within DACs, rural, and low-income communities. Similar to SoCalREN’s existing Public Agency Energy Efficiency Project Delivery Program, the Distributed Energy Resource Disadvantaged Communities Project Delivery (DER DAC PDP) sub-program will provide all customized EE project management and educational services as listed in the EE PDP section above, but will also provide information and subject matter expertise regarding all aspects of possible DER and sustainability strategy implementation for all public agencies serving DACs, rural, and low-income communities, with

the goal of maximizing EE opportunities, while driving the integration of DERs to enable public agencies to achieve ZNE. SoCalREN DER DAC PDP implements program enhancements to its existing Energy Efficiency Project Delivery platform to include services that deliver DER and sustainability measure opportunity identification during EE audits, high level analysis, and educate agencies on available DER project services and resources.

SoCalREN has learned that for most public agencies that are enrolled in the program, EE retrofits are just the beginning. Many want to achieve deeper energy savings and greater energy self-reliance and resiliency through renewable generation, energy storage, and sophisticated energy management systems as well as greater water efficiency savings.

1. Summary of Program Objectives

- a) Increase the percentage of DAC public agencies that engage their communities in DER energy actions and strategies, thereby reducing overall community energy consumption.
- b) Increase the ability of public agencies to meet local, regional, and state DER and equity-related energy goals.
- c) Increase the number of public agencies participating in SoCalREN's EE programs, with an emphasis on DACs, rural, and low-income communities.

2. Summary of Program Differentiation

The following table provides a summary of the Public Agency DER DAC PDP. The utilities have a variety of programs that promote DER technologies, but SCE and SoCalGas do not have a Public Agency DER DAC PDP in their EE portfolios.

Table 10: SoCalREN Public Agency DER DAC Project Delivery Program Summary

Program Parameters	SoCalREN	SCE	SoCalGas
Target Audience (s)	Public Agencies in DAC, rural, and low income communities: <ul style="list-style-type: none"> ✓ Cities, counties, tribes, local government hospitals and hospital districts, K-12 schools, water districts, wastewater districts, sanitation districts, ports, airports, and other 	N/A	N/A
Resource or Non-Resource	Non-Resource	N/A	N/A
Eligible Measures	N/A	N/A	N/A
Budget	\$3,813,000	N/A	N/A

SoCalREN’s DER DAC PDP differs from any within its region. It leverages the Energy Efficiency Project Delivery program (EE PDP) implementation model to educate and inform public agencies on both EE and DER integration strategies. Identification of DER strategies in combination with EE projects will drive greater reductions in Greenhouse Gas (GHG) emissions from public agencies. Unique DER elements of this program enhancement include:

- ✓ Education and outreach in regard to DER portfolio services that include the integration of distributed generation, energy storage, demand response, energy management, and water efficiency optimization for public agencies.
- ✓ A process protocol of integrating DER activities into the Program’s one-stop process.
- ✓ Specific strategies, tools, and templates and integrate best industry standards into a project delivery manual.
- ✓ Identify the resources and high-level information for each of the DER resource areas so participating agencies are knowledgeable about opportunities to combine DERs and energy efficiency
- ✓ Build public agency expertise networks through training and development workshops related to best practices protocols across all DER energy service areas so this can be leveraged to assist current and potential SoCalREN enrolled public agencies.

This Program was launched to demonstrate essential components of the new project delivery system and approaches; so that if this approach proves successful in the integration of distributed energy resource implementation (i.e., EE, DR) for public agencies, it can be scaled or modeled by IOUs in the future. Through the use of non-CPUC funds (California Energy Commission (CEC) American Recovery and Reinvestment Act (ARRA) funding) the program has expanded its services offered to include DER technical assistance, on-site benchmarking, and water efficiency into participating projects.² Technical assistance may include DER measure audits and development of technical performance specifications which are not currently offered through the existing EE ratepayer funded programs. Through the County of Los Angeles, SoCalREN can leverage non-ratepayer funds for non-EE related activities, ensuring compliance with CPUC EE guidance and lessening the cost to ratepayers. This non-ratepayer funding capability is unique to SoCalREN.

While there is no current IOU program through the EE portfolio that targets DERs, the following table outlines the differences between the existing IOU custom process and the SoCalREN Public Agency DER DAC PDP.

Table 11: Public Agency DER DAC Program Comparison

Program Parameters	SoCalREN DER DAC PDP	SCG/SCE Customized and Third Party Program
Eligible Facilities	Buildings and Non-building facilities, e.g., exterior lighting (incl. Street lighting)	Buildings and Non-building facilities
Eligible Agencies	Eligible DAC, rural, and low- income Public Agencies only	All non-residential customers
Eligible Measures	Measures that may result in energy savings, energy generation, demand response savings or water savings	Measures that deliver to-code and above-code energy savings

² SoCalREN was allotted by the CEC half-million annually for the years 2020 and 2021 in re-purposed ARRA funding to provide full scale DER audits and on-site benchmarking for all program DER DAC participants. Subject to the performance results of the program additional funds may be allocated by the CEC for additional years.

Program Parameters	SoCalREN DER DAC PDP	SCG/SCE Customized and Third Party Program
Technical Assistance	Benchmarking support, Project Management, Financial Analysis & Services, Incentives Support, Auditing, Procurement support, technical specifications, and construction support	Third Party implementer
Performance Payment	No monetary incentives	Monetary incentives
Resource or Non-Resource	Non-resource – this program is similar to SoCalREN’s EE PDP– it offers customers a one-stop shop project delivery and will include education and outreach regarding all DERs; EE Funds will be limited to EE in-kind incentives and non-CPUC funds will be utilized for non-EE activities (i.e., DER technical assistance or audits).	Resource
Approval Process	None as the agency would be guided to EE resource programs as well as DER programs, e.g., SGIP, DR participation	Project application process by third-party implementer but with SCE project engineering review.
2023 status	In market since April 2019 and Accepting new projects for 2023	Accepting new projects
Funding	<ul style="list-style-type: none"> ✓ CPUC EE Ratepayer Funds ✓ American Recovery and Reinvestment Act (ARRA) and other sources 	CPUC EE

3. Comparable Joint PA Program

Currently there is no comparable program to the proposed SoCalREN Public Agency DER DAC PDP in any other Joint PA’s EE portfolio. The IOUs do, however, have programs that target various DER technologies outlined in the SoCalREN Public Agency DER DAC PDP. The SoCalREN Public Agency DER DAC PDP is the conduit that helps fuel participation in the IOU programs that target various DER technologies.

4. Coordination Protocol Between Programs

Although there are no current comparable programs in the other Joint PAs’ respective EE

portfolios, this Program can serve as a conduit of information between all the IOUs' applicable DER pilots/programs and public agencies. The Joint PAs will leverage the coordination protocol (in Appendix E) for program and project coordination to ensure that all available information is being provided to public agency participants and IOU partner programs. Additionally, should the IOU's third-party solicitation result in a similar program design, the IOUs will notify SoCalREN in the same manner as discussed above.

5. Coordination Between SW Program (s)

The IOUs will also provide notice once advice letters have been filed and implementation plans have been uploaded to CEDARS for the statewide water/wastewater program(s). At that time, the Joint PAs will work to determine best method of coordination with the statewide water/wastewater program(s). SoCalREN will adhere to the coordination protocols (Appendix E) that outline coordination processes. The document may be updated as needed as the parties learn more about the structure of the program.

6. Compliance With D.12-11-015, SCR-PUBL-B2

The following table describes in further detail how SoCalREN's Public Agency DER DAC PDP satisfies the REN criteria in D.12-11-015.

Table 12: SoCalREN’s Public Agency DER DAC PD Program Compliance With D.12-11-015

REN Criteria	SoCalREN Public Agency DER DAC PDP(SCR-PUBL-B2)
1. Activities IOU cannot or does not intend to undertake	<ul style="list-style-type: none"> ✓ One-stop end-to-end service delivery focused on all available EE and DER opportunities (energy storage, demand response, energy management, and water efficiency optimization) that improves the customer experience, builds capacity and expertise, and inspires a level of public agency awareness and motivates action.
2. Pilot activities where there is no IOU program offering and where there is potential for scalability	<ul style="list-style-type: none"> ✓ Maximizing EE opportunities, while driving the integration of DERs (energy storage, demand response, energy management, and water efficiency optimization) and increasing understanding of ZNE- pathways. ✓ Assists public agencies in understanding their choices and drives greater participation and higher adoption of DER programs, including all IOU partner programs. ✓ Designed to support upgrades of public agency buildings and facilities with an emphasis on supporting projects that serve DACs, rural, and low-income communities.
3. Activities in hard-to-reach markets, whether or not there is an IOU program that may overlap	<ul style="list-style-type: none"> ✓ Currently only available to DACs which fall within the recently adopted HTR definition as well as rural and low-income communities; ✓ This program will indirectly support HTR communities by encouraging public agencies to further building decarbonization and drive GHG reductions.

E. SOCALREN PUBLIC AGENCY NMEC PROGRAM, (SCR-PUBL-B3)

Under the Public Agency NMEC Program, SoCalREN employs a NMEC framework and targets projects that are identified by the SoCalREN EE PDP or SoCalREN DER DAC program and are limited by support and incentives through existing EE programs. This Program enables agencies to pursue stranded energy savings potential in public agency facilities and buildings. The NMEC program unlocks ongoing support through energy efficiency project implementation and beyond. It also offers a stop gap program after the closure of SCE’s Performance Based Retrofit Program to new applications and ahead of the full launch and implementation of SCE’s anticipated Public Sector program.

This Program is a resource program, so EE savings from these projects contribute to SoCalREN program goals and cost-effectiveness calculations. The program targets DAC, rural, and low-income communities by offering increased incentives for these equity communities.

1. Summary of Program Objectives

- ✓ To meet multiple NMEC Program objectives, including ensuring savings persistence, reducing multi-measure project complexity, and improving completion timelines in the public sector, with a focus on underserved public agencies.
- ✓ Provide training and educational materials to facility personnel to ensure persistence of savings.
- ✓ Increase deep energy retrofits, reduce grid impacts, and motivate GHG emission reductions in the public sector.

2. Summary of Program Differentiation

The following table provides a summary of the PAs’ Public Sector NMEC-based programs.

Table 13: SoCalREN, SCE, SoCalGas and I-REN NMEC-Based Programs Summary

Program Parameters	SoCalREN Public Agency NMEC Program, (SCR-PUBL-B3)	SCE CLEAResult Public Energy Performance Program	SoCalGas High Opportunity Projects and Performance-Based Retrofits (MPBR) Program	I-REN Public Buildings Normalized Metered Energy Consumption (NMEC) Program – I-REN-PUBL-002
Target Audience (s)	Public Agencies: <ul style="list-style-type: none"> • Cities, counties, tribes, local government hospitals and hospital districts, water districts, K-12 schools, wastewater districts, sanitation districts, ports, airports, and other special districts. 	<ul style="list-style-type: none"> • Local Government • Schools (K-12, local public and private primary and secondary education authorities) 	Public Sector	<ul style="list-style-type: none"> • Members of the I-REN COGs, counties, cities, school districts, water districts, special districts, and tribal communities • Hard-to-reach, disadvantaged, low income, and other vulnerable communities • Community centers, libraries, senior centers, schools, and fire and police buildings • Educational institutions
Resource or Non-Resource	Resource	Resource	Resource	Resource

Program Parameters	SoCalREN Public Agency NMEC Program, (SCR-PUBL-B3)	SCE CLEAResult Public Energy Performance Program	SoCalGas High Opportunity Projects and Performance-Based Retrofits (MPBR) Program	I-REN Public Buildings Normalized Metered Energy Consumption (NMEC) Program – I-REN-PUBL-002
Eligible Measures	CMPA Methodology – includes whole building retrofits and behavioral and operational savings	CMPA Methodology – includes whole building retrofits and behavioral and operational savings	CMPA Methodology – includes whole building retrofits and behavioral and operational savings	Any measure that reduces energy usage including but not limited to HVAC, controls, foodservice, appliances, water heating, lighting
Budget¹³	\$1,300,000	\$6,590,401	\$450,000	\$3,283,503

SoCalREN will target agencies who are enrolled in the EE PDP and DER DAC EE PDP and have facilities that have not recently participated in utility programs. Participating agencies also benefit from the SoCalREN Program’s project management expertise and technical services. Similar to the partner IOU NMEC programs, engineers with experience in ASHRAE energy savings calculation standards and International Performance Measurement and Verification Protocols (IPMVP) will be prioritized in executing NMEC projects. The SoCalREN Public Agency NMEC Program provides technical assistance, application technical review, staff training, and facility savings reports to ensure persistence of savings while adhering to CPUC NMEC Guidelines that go through the CMPA process. The SoCalREN Public Agency NMEC Program differs from the IOUs NMEC programs by providing staff training, regular savings reports post installation, and a focus on equity through the provision of enhanced incentives for equity communities.

This approach road-tests critical elements of NMEC implementation in a public agency context, such as normalized usage data and metered savings verification, as a comprehensive, whole-building approach to energy upgrades.

The following table compares the key program parameters of PAs’ NMEC-based programs.

Table 14: NMEC-Based Program Comparison

Program Parameters	SoCalREN NMEC Program	SCE CLEAResult Public Energy Performance Program	SoCalGas HOPPs Program	I-REN Public Buildings Normalized Metered Energy Consumption (NMEC) Program – IREN-PUBL-002
Eligible Facilities	Buildings	Buildings	Buildings	<ul style="list-style-type: none"> Buildings and non-facilities (e.g., exterior lighting) Special focus on community centers, libraries, senior centers, schools, and fire and police buildings
Eligible Agencies	Eligible sub-segment of Public Agencies (target DACs, rural, low-income communities)	<ul style="list-style-type: none"> Local Government Schools (K-12, local public and private primary and secondary education authorities) 	All Public Sector	Counties, cities, school districts, water districts, special districts, and tribal communities
Eligible Measures	Any measure that reduces energy usage	Any measure that reduces energy usage	Any measure that reduces energy usage to achieve 20% savings and a minimum of 7,000 Therms	Any measure that reduces energy usage including but not limited to HVAC, controls, foodservice, appliances, water heating, lighting
Technical Assistance	Modeling and M&V Plan, post implementation training, performance tracking and savings persistence	Technical assistance, onsite or virtual assessments, potential for Strategic Energy Management (SEM) coaching	M&V Plan, facility audits, energy efficiency education related to retrofits, performance tracking and savings persistence	Project scope development, procurement assistance, project management, operations and commissioning
Measurement	CMPA (IPMVP Option C)	CMPA (IPMVP Option C)	CMPA (IPMVP Option C)	TBD
Baseline	Existing conditions	Existing Conditions	Existing Conditions	Existing conditions

Program Parameters	SoCalREN NMEC Program	SCE CLEAResult Public Energy Performance Program	SoCalGas HOPPs Program	I-REN Public Buildings Normalized Metered Energy Consumption (NMEC) Program – IREN-PUBL-002
Performance Payment	Incentives provided in two phases: 1) post-implementation and 2) post-implementation measurement and verification of savings	Incentives dependent on implementer’s forthcoming implementation plan	Incentives provided on a post-implementation measurement of energy savings based on meter data.	Incentive payment based on energy savings achieved over 3-5 years
Resource or Non-Resource	Resource	Resource	Resource	Resource
Approval Process	Streamlined Process within CPUC NMEC Guidelines that will go through the CMPA	Approval process dependent on implementer’s forthcoming implementation plan but will adhere to NMEC Rulebook	CPUC HOPPs Guidelines	TBD
2023 status	In the market as of April 2019, accepting new projects	Will begin accepting new projects upon approval by CPUC	Accepting new projects	New/launching

3. Comparable SCE Public Sector Program – CLEAResult Public Energy Performance

CLEAResult’s PEP program will provide comprehensive solutions for public sector customers throughout SCE’s service territory PEP program. As described above, the PEP program will employ a mix of deemed, normalized metered energy consumption (NMEC), and custom measures. In addition to these downstream approaches, the PEP program contains a strategic energy management (SEM) approach in the public sector.

4. Comparable SoCalGas High Opportunity Projects and Program Public Sector Program – Metered and Performance Based Retrofit (MPBR) Program

The SoCalGas MPBR Program assists Public Sector customers in retrofitting existing facilities and incorporating innovative monitoring-based commissioning (MBCs). The Program

established a “proof of concept” that EE equipment retrofits in combination with monitoring-based commissioning of public sector buildings can achieve a higher level of cost-effective energy savings compared to traditional retrofits or retro-commissioning. Customers can streamline project implementation timelines by combining formerly separate EE actions. The MPBR Program is designed to incentivize projects to go from an existing condition baseline to or above code in order to encourage customers to implement retrofits that they would not have completed absent the Program incentive. These incentives are provided both on a pre- and post-measurement of energy savings. In support of participants employing a whole- building retrofit, the program offers other non-resource benefits such as facility audits, technical assistance, and EE retrofit education.

Additionally, SoCalGas provides an NMEC incentive pathway to its nonresidential and Public Sector calculated programs for customers to be able to participate in this approach.

5. Comparable I-REN Program – Public Buildings NMEC Program – IREN-PUBL-002

I-REN’s Public Sector—Public Buildings Normalized Metered Energy Consumption (NMEC) Program is a resource program (in year two of I-REN program administration) to provide incentives and financing for savings based on NMEC achieved over three to five years, with a special focus on HVAC improvements to community-serving buildings. The program’s objectives are to allow local governments to leverage an innovative approach that goes beyond code to achieve deep energy savings, and to help local governments afford and finance a range of energy efficiency upgrades.

6. Coordination Protocol Between Programs

As part of the Public Sector program coordination call, the Joint PAs will discuss marketing campaigns, continued coordination, any issues impacting the Joint PA implemented programs, and to learn about updates of other programs. The IOUs will also provide notice once advice letters have been filed and implementation plans have been uploaded to CEDARS of any new program similar to SoCalREN’s public programs. The Joint PAs developed and maintain an “NMEC Participation Coordination for Public Agencies” document. This document will serve as the coordination protocol for the Joint PAs’ in which all REN and IOU NMEC projects can coordinate and is attached in Appendix E. Upon notification, the Joint PAs will work to update coordination documents. As a new

PA, I-REN has not yet contracted with implementers. Within 60 days of implementer(s) being contracted for the relevant programs, the Joint PAs will reconvene to plan coordination activities specifically related to I-REN.

7. Coordination Between SW Program (s)

The Joint PAs will continue to participate in ED-led PCGs. The statewide PCGs for NMEC and Public Sector programs enables collaborative SW discussions regarding all Public Sector programs across all PAs throughout the state, not just those in Southern California.

8. Compliance With D.12-11-015, SCR-PUBL-B3

The following table describes in further detail how SoCalREN’s Public Agency NMEC Program satisfies the REN criteria in D.12-11-015.

Table 15: SoCalREN’s 2023 Public Agency NMEC Program Compliance with D.12-11-015

REN Criteria	SoCalREN Public Agency NMEC Program (SCR-PUBL-B1)
1. Activities IOU cannot or does not intend to undertake	<ul style="list-style-type: none"> ✓ A program design that offers an alternative to traditional rebate/incentive programs – incentives based on GHG emission reductions with increased incentive levels to equity communities. ✓ Performance incentives based on GHG emission reductions available to underserved and DAC communities.
2. Pilot activities where there is no IOU program offering and where there is potential for scalability	
3. Activities in hard-to-reach markets, whether or not there is an IOU program that may overlap	<ul style="list-style-type: none"> ✓ Designed to support upgrades of public agency buildings and facilities including prioritizing projects that serve DACs, rural, and low income communities.

F. SOCALREN PUBLIC AGENCY STREAMLINED SAVINGS PATHWAY, (SCR-PUBL-B4)

The SoCalREN Streamlined Savings Pathway (SSP) program serves as a temporary gap-filling program that will supplement the public sector segment while waiting for new third party IOU

programs to be on-boarded and enter the market. The program is designed to leverage both a deemed and custom approach to processing public agency projects that maximizes savings opportunities while minimizing processing times and will focus on electric measures only due to SoCalGas's holistic Third Party public agency program already in place. Public Agencies and the SoCalREN non-resource programs are highly dependent on IOU incentive programs. The SSP's primary objective is to ensure there is no gap in the market and to support the continued momentum of public agency project delivery.

This program is proposed to be piloted in 2022, and if needed 2023. The program will target local public agency projects that emphasize energy efficiency improvements in DACs, rural and underserved communities.

1. Summary of Program Objectives

- ✓ Meet REN criteria by addressing market segment gaps left by IOU program closures and third-party program limitations
- ✓ Maximize savings opportunities while minimizing processing times
- ✓ Focus on electric measures only due to SCG's holistic Public Sector Third Party program already in market
- ✓ Target public agencies with a focus on equity by providing higher incentives, based on deep energy reductions, to underserved communities
- ✓ Increase deep energy retrofits, reduce grid impacts, and motivate GHG emission reductions in the public sector.

2. Summary of Program Differentiation

The following table provides a summary of the PAs' available programs for 2023 Public Sector.

Table 16: SoCalREN, SCE, and SoCalGas Public Agency-Based Resource Programs Summary

Program Parameters	SoCalREN SSP (SCR-PUBL-B4)	SCE – CLEAResult Public Energy Performance Program	SoCalGas Public – Deemed Public - Calculated 3PP for Public
Target Audience (s)	Public Agencies: Cities, counties, tribes, local government hospitals and hospital districts, water districts, K- 12 schools, wastewater districts, sanitation districts, ports, airports, and other special districts	Local Government Schools (K-12, local public and private primary and secondary education)	All Public Agencies that include but not limit to cities, counties, local governments, public K- 12 schools, special districts, federal governments and agencies, Indian tribes, water districts
Resource or Non-Resource	Resource	Resource	Resource
Eligible Measures	Custom and deemed	Custom, Deemed, NMEC and SEM	Custom, Deemed and Direct Install
Budget	\$1,400,000	\$6,590,194	\$4,300,000

SoCalREN will target agencies who are enrolled in the EE PDP and DER DAC and have facilities that have not recently participated in utility programs. Participating agencies also benefit from the SoCalREN Program’s program management expertise and technical services. In addition, this program will build off lessons learned regarding IOU incentive program challenges and institute process improvements regarding incentive application review /processing thus alleviating project lag due to program performance. This streamlined efficiency could become a model for best practices in the future.

Table 17: Public Agency Resource Incentive Programs Comparison

Program Parameters	SoCalREN SSP Program	SCE - CLEAResult Public Energy Performance Program	SoCalGas
Eligible Facilities	Buildings and Non-building facilities; e.g., exterior lighting (incl. Street lighting)	Buildings and Non-buildings, Systems	Buildings and Non-buildings, Systems
Eligible Agencies	Eligible sub-segment of Public Agencies (target DACs, rural, low-income communities)	<ul style="list-style-type: none"> Local Government Schools (K-12, local public and private primary and secondary education) 	All Public Agencies
Eligible Measures	HVAC, Lighting, Commercial Refrigeration, Food Service, building envelope, appliance plug load, pumping, process optimization	Lighting, HVAC, Process, Food Service, Whole Building, Motors, Office Equipment, Building Envelope, Refrigeration	HVAC, water heating, steam plant/system, building envelope, food service equipment; gas engine, system optimization
Technical Assistance	Will leverage PDP and DER DAC offerings included above under program details.	Technical assistance, onsite or virtual assessments, potential for Strategic Energy Management (SEM) coaching	Technical assistance and EE audits
Measurement	Deemed and Custom	Custom, Deemed, NMEC and SEM	Custom, Deemed and Direct Install
Approval	Deemed and Custom	Approval process dependent on implementer's forthcoming implementation plan with SCE engineering project technical review	

Program Parameters	SoCalREN SSP Program	SCE - CLEAResult Public Energy Performance Program	SoCalGas
Performance Payment	Incentives based on lifetime GHGs avoided	Incentives will be established in the forthcoming program implementation plan	Incentive and rebate
Resource or Non-Resource	Resource	Resource	Resource

3. Comparable SCE Public Program – SCE Third Party Public Program(s)

CLEAResult’s PEP program will provide comprehensive solutions for public sector customers throughout SCE’s service territory PEP program. The PEP program will employ a mix of deemed, normalized metered energy consumption (NMEC), and custom measures. In addition to these downstream approaches, the PEP program contains a strategic energy management (SEM) approach in the public sector. SCE’s statewide water/wastewater solicitation will be releasing RFP in Q3 2021 with an expected selection by Q2 2022. The statewide higher education solicitation is in the RFP stage with an expected selection by Q1 2022. SCE will provide notice once advice letters have been filed and implementation plans have been uploaded to CEDARS of any new program similar to SoCalREN’s public programs.

4. Comparable SoCalGas Public Program – N/A

No gas measures

5. Coordination Protocol Between Programs

A focus on collaboration of the PAs is critical to this program’s success. As with SoCalREN’s other programs, SoCalREN will include coordination on this program with its monthly program coordination meetings specifically with the other relevant Joint PAs. SoCalREN will also utilize the document titled “SoCalREN-IOU Coordination Plan for Public Agencies” as the coordination protocol for this program as it does for its other programs. This plan is closely followed by all parties and lays out all coordination regarding agency enrollment, commitment, and ongoing

SoCalREN project delivery services. This document is provided in Appendix E.

In addition to the SoCalREN-IOU Coordination Plan implemented by the Joint PAs, there is also a monthly "program coordination call" and monthly IOU-specific "project coordination call" (to be established for SCG in 2023). The Joint PAs will make the e aware of programs and resources available, including public sector programs. The IOU’s will also provide notice once advice letters have been filed and implementation plans have been uploaded to CEDARS of any new program similar to SoCalREN’s public programs. At that time, the Joint PAs will work to update coordination documents.

6. Coordination Between SW Program(s) – N/A

7. Compliance With D.12-11-015, SCR-PUBL – B4

The following table describes in further detail how SoCalREN’s Public Agency Streamlined

Table 18: Savings Program satisfies the REN criteria in D.12-11-015.

REN Criteria	SoCalREN Public Agency Streamlined Savings Program (SCR-PUBL- B4)
1. Activities IOU cannot or does not intend to undertake	
2. Pilot activities where there is no IOU program offering and where there is potential for scalability	<ul style="list-style-type: none"> • Program addresses gaps left by IOU program closures and third party program limitations; SoCalREN will launch the Streamlined Savings Pathway in Q1 of 2023 and adjust as needed to not duplicate offerings as new third party programs are introduced to the market. • This program offers Public Agencies no loss in available services
3. Activities in hard-to-reach markets, whether or not there is an IOU program that may overlap	

G. SOCALREN PUBLIC AGENCY REVOLVING LOAN FUND, (SCR-FIN-C1)

The SoCalREN Revolving Loan Fund (RLF) Program serves as a companion to the Public Agency EE PDPs of the SoCalREN Portfolio. The SoCalREN RLF is designed to support upgrades of public agency buildings and facilities with a priority on supporting projects that serve DACs, rural, and

low- income communities. Financing through the RLF Program is designed to be a catalyst for accelerating project implementation. Loans serve as short-term construction financing and help under primarily two scenarios: bridge financing for approved On-Bill Financing (OBF) provided by the utility after project completion and bridge financing for approved but un-budgeted agency projects that would otherwise wait for budget allocation.

This offering serves as a catalyst for agency enrollment and project development, and as a potential magnet for increasing public agency participation in EE programs. The SoCalREN RLF Program will create a unique resource for public agencies in that it will have terms more advantageous than conventional loans and will significantly complement and supplement the IOU OBF Programs.

Loans will be financed by non-ratepayer funds. SoCalREN will leverage EE funds for the management and marketing of the fund.

1. Summary of Program Objectives

- a) To stimulate agency enrollment and project development and increase public agency participation in EE programs.
- b) Assist Public Agencies in overcoming the barrier to capital due to rigid funding and budget requirements/restrictions.
- c) Provide a low-cost solution for EE short-term project financing for public agencies.

2. Summary of Program Differentiation

The following table summarizes the PAs’ Public Sector Financing Programs.

Table 19: SoCalREN, SCE and SoCalGas Public Sector Financing Programs Summary

Program Parameters	SoCalREN Public Agency RLF, (SCR- FIN-C1)	SCE On-Bill Financing [SCE- 13- SW-007A]	SoCalGas – On-Bill Financing [SCG3735]
Target Audience (s)	Public Agencies: <ul style="list-style-type: none"> • Cities, counties, tribes, K-12, local government hospitals and hospital districts, water districts, wastewater districts, sanitation districts, ports, airports, and 	All non-residential customers, including all Public Sector customers	All non-residential customers, including all Public Sector customers

	other special districts.		
Resource or Non-Resource	Non-resource	Resource	Resource
Eligible Measures	N/A	N/A	N/A
Budget	\$550,000 (CPUC Funds) (\$2,200,000 Non CPUC funds)	\$781,544 (implementation budget) \$14,000,000 (total loan pool)	\$658,531 (Implementation Budget) \$5,500,000 (total loan pool)

SoCalREN’s RLF offers short-term construction and bridge financing available immediately to fund projects while waiting for budget allocation or other longer-term financing options as they become available. This short-term, zero-interest financing is currently not offered by the IOUs. In addition, the SoCalREN’s RLF leverages external funds such as ARRA funding, which differs from OBF programs that rely on California ratepayer funds. This will assist in reducing the cost to ratepayers. SoCalREN EE funds will be limited to administration, marketing, and DI costs.

The following table compares the key program parameters of the Joint PAs’ Public Sector financing Programs.

Table 20: Public Sector Financing Program Comparison

Program Parameters	SoCalREN: Revolving Loan Fund (RLF)	SCE comparable program: On-Bill Financing (OBF)	SoCalGas comparable program: On-Bill Financing (OBF)
Amount Financed	100% of project costs up to Program cap (no incentive provided)	Qualifying project cost, less approved rebates and incentives, up to Program cap by meter	Qualifying project cost, less approved rebates and incentives, up to Program cap by meter

Program Parameters	SoCalREN: Revolving Loan Fund (RLF)	SCE comparable program: On-Bill Financing (OBF)	SoCalGas comparable program: On-Bill Financing (OBF)
Timing of Loan Funds Distribution	Upfront - before project installation and upon receipt of signed RLF Loan Agreement	Post-Installation - After project installation, Installation Report approval and signed OBF Loan Agreement submitted	Post-Installation - After project installation, installation approval and signed OBF Loan Agreement submitted. Additionally, Public Sector customers are eligible to receive milestone payments during installation. After installation is complete, the prefunded loan amount will convert to a standard OBF loan.
Source of funds leveraged for financing	Non-ratepayer funding (ratepayer funds used for administration)	Ratepayer funding	Ratepayer funding
Term	Up to 5 years, regardless of installed equipment	Up to 10 years or EUL of installed equipment	Up to 15 years or EUL of installed equipment
Eligible Measures	All measures related to an EE project	Measures with Utility rebates and incentives	Measures with Utility rebates and incentives
Annual % interest rate	0%	0%	0%
Other Fees	One-time Administrative Fee	None	None
Repayment	Off-Bill	On-Bill	On-Bill

3. Comparable SCE and SoCalGas – On-Bill Financing [SCE-13-SW-007A and SCG3735]

The On-Bill Financing (OBF) Program offers zero-percent interest financing for the installation of qualifying EE measures. Loans are available to qualifying non-residential customers, including commercial, industrial, government, and institutional customers, and customers repay their loan as a line item on their bill. This Program supports the Strategic Plan's Commercial Sector goals

and strategies.

OBF is offered with other SCE and SoCalGas programs. SoCalGas Public Sector customers are also eligible to receive loan prefunding during installation in the form of milestone payments to contractors. The prefunding provided will then automatically convert an OBF loan upon project completion.

4. Coordination Protocol Between Programs

As part of the Public Sector program coordination call, SoCalREN, SCE, and SoCalGas program teams will discuss marketing campaigns, continued coordination, any issues impacting the programs, and to learn about updates of other programs (i.e., financing) that could benefit financed EE projects.

In addition, these calls will be utilized to discuss project status, updates, and coordination between the projects' participation in SoCalREN's RLF and IOU OBF Programs. These calls will also be utilized to identify any overlaps and mitigate customer confusion. Additionally, should the IOU's third-party solicitation result in a similar program design, the IOUs will notify SoCalREN as above.

5. Coordination Between SW Program(s)

The Joint PAs will continue to coordinate with the SW implemented financing programs so that customers are provided with all possible EE financing options. In addition, the Joint PAs will leverage lessons learned from SW implemented financing programs and provide feedback in public meetings held by the SW implementer for EE financing programs, California Alternative Energy and Advanced Transportation Financing Authority (CAEATFA). The CAEATFA programs focus on small business and residential customers at this time, and thus SoCalREN's program does not substantially overlap.

The Joint PAs will also leverage the coordination protocol (Appendix E) for program and project coordination to ensure all available information is being provided to public agency participants and IOU partner programs.

6. Compliance With D.12-11-015, SCR-FIN-C1

The following table describes in further detail how SoCalREN's Public Agency RLF Program

satisfies the REN criteria in D.12-11-015.

Table 21: SoCalREN’s 2023 Public Agency RLF Program Compliance with D.12-11-015

REN Criteria	SoCalREN Public Agency RLF Program (SCR-FIN-C1)
1. Activities IOU cannot or does not intend to undertake	<ul style="list-style-type: none"> ✓ Utilizing both ratepayer and non-ratepayer funds to provide financing for public agency EE projects;
2. Pilot activities where there is no IOU program offering and where there is potential for scalability	<ul style="list-style-type: none"> ✓ Provide public agencies short-term financing for EE projects. ✓ Designed to be a catalyst for accelerating EE project implementation. ✓ Terms more advantageous than conventional CEC loans. ✓ Complement and supplement the IOU OBF programs. ✓ Designed to support upgrades of public agency buildings and facilities with an emphasis on supporting projects that serve DACs.
3. Activities in hard-to-reach markets, whether or not there is an IOU program that may overlap	

H. SOCALREN WORKFORCE EDUCATION & TRAINING, (SCR-WET-D1)

SoCalREN has historically utilized policies and instruments for local hiring and workforce partnerships while developing infrastructure for small and minority contractors to access clean energy investments. SoCalREN’s WE&T Program offerings now emphasize a robust regional workforce education and training approach that supports underserved Disadvantaged Workers (DAW), Hard to Reach (HTR) and small, women, minority, and disabled veteran owned business enterprises (SWMDVBE). The primary goal of this Program is to build capacity within the EE industry with a local regional approach. Similar to its other non-resource programs, the SoCalREN WE&T Program leverages public agencies to reach and engage communities while simultaneously building its underserved workforce, thus providing long term workforce supply in the EE industry.

The SoCalREN WE&T Program provides: 1) comprehensive regional workforce education, training, and resources for DAW/HTRs and SWMDVBE contractors of all skill levels; 2) entry-level

workforce skills training for in-school youths 3) SWMDVBE contractors' local government public agency training and capacity building in regard to sustainability projects and RFPs; and 4) a green career pathway for classified at-risk and or homeless individuals, such as transition age at-risk foster youth.

1. Summary of Program Objectives

- a) Increase Southern California regional workforce and training infrastructure/partnerships, comprising community-based training organizations, K–12 and higher educational institutions, apprenticeship programs, and workforce investment boards; increase the quantity and skills of entry-level and incumbent workers in all levels of the demand-side management (DSM) and EE industry.
- b) Increase entry-level skills training and job opportunities for disadvantaged workers.
- c) Develop a regional energy management training program to increase the operational efficiencies of EE retrofit projects.
- d) Standardize local contracting policies and protocols into public bid/solicitation documents across the SoCalREN region to increase capacity and the participation of diverse, small, and disabled veteran–owned businesses in EE work.
- e) To leverage existing education offerings that provide training and certification support for individuals classified as at-risk youth or homeless.
- f) To provide a pathway to a career in the EE marketplace through direct partnerships that assist individuals receive on-the-job training as well as job obtainment support.

2. Summary of Program Differentiation

The following table summarizes the PAs' WE&T Programs.

Table 22: SoCalREN, SCE, SoCalGas, 3C-REN, and I-REN WE&T Programs Summary

Program Parameters	SoCalREN WE&T(SCR-WET-D1)	SCE WE&T Integrated Energy Education & Training Program –[SCE-13-SW-010A]	SoCalGas WE&T Integrated Energy Efficiency Training(IEET) [SCG3729]	3C-REN Workforce Education & Training (TCR-WET-001)	I-REN WE&T Programs
Target Audience (s)	<ul style="list-style-type: none"> • Architects, designers, engineers, contractors, building operators, technicians, craft/tradesmen, customers, youth, classified disadvantaged workers, and building owners • SWMDVBE that can potentially support IOU resource program sectors and local publicagencies sustainability projects. • Homeless (i.e., at-risk transition youth) 	Workers who are in or are pursuing occupations in the energy efficiency and other related professional fields that provide the technical capabilities that are needed to support the attainment of CAs and IOU Energy Saving and sustainability targets.	Workers in or pursuing occupations that can provide professional and technical capabilities needed by IOU resource program sectors.	Locally licensed public and private building professionals needing more in-depth training, such as contractors, HVAC, engineers, architects, designers, certified energy managers, local jurisdictions’ building & safety department staff, lighting professionals, real estate professionals, raters, entry-level workers, students, and professionals in DACs and HTR areas, and educational institutions, as well as other key market actors.	<p>WE&T Training and Education Program— IREN-WET-001</p> <ul style="list-style-type: none"> • Local providers, including higher education providers, high schools, adult schools, and professional training companies • Disadvantaged communities (DACs) <p>WE&T Workforce Development Program— IREN-WET-001</p> <ul style="list-style-type: none"> • State, regional, and local stakeholders, including workforce investment boards (WIBs) and economic development departments • Job seekers, including students; individuals who are unemployed, or underemployed; job seekers looking to enter the energy efficiency and advanced energy industry; and job seekers currently working in the industry who seek to make lateral career moves or advance in their fields.

Program Parameters	SoCalREN WE&T(SCR-WET-D1)	SCE WE&T Integrated Energy Education & Training Program –[SCE-13-SW-010A]	SoCalGas WE&T Integrated Energy Efficiency Training(IEET) [SCG3729]	3C-REN Workforce Education & Training (TCR-WET-001)	I-REN WE&T Programs
Resource or Non-Resource	Non-resource	Non-resource	Non-resource	Non-resource	Non-resource
Eligible Measures	N/A	N/A	N/A	N/A	N/A
Budget	\$800,000	\$8,840,814	\$4,350,000	\$1,910,021	WE&T Training and Education Program— IREN-WET-001 \$1,032,169 WE&T Workforce Development Program— IREN-WET-001 \$1,361,257

SoCalREN’s WE&T Program differs from the IOU WE&T programs by focusing all its WE&T resources on (1) entry-level workforce skills training infrastructure; (2) SWMDVBE contractor training;(3) in-school youth; and (4) at-risk youth (i.e., homeless, transitioning foster youth)so that these segments are enabled with pathways and training for certifications and credentials in energy-related industries. 3C-REN’s WE&T program is differentiated from the other Joint PAs’ programs by its focus on local building professionals, including those in HTR and DAC areas, within the counties of Ventura, Santa Barbara, and San Luis Obispo.

The following table compares the key program parameters of the PAs’ WE&T Programs.

Table 23: WE&T Program Comparison

Program Parameters	SoCalREN WE&T	SCE WE&T Integrated Energy Education & Training Program	SoCalGas WE&T Integrate Energy Education Training Program	3C-REN WE&T	I-REN WE&T Programs
Target Audience	<ul style="list-style-type: none"> • Targets the most underserved and disadvantaged workers (DAW) and Hard to Reach (HTR) • SWMDVBE that can potentially support IOU resource program sectors and local public agencies sustainability projects. • Homeless (i.e., at- risk transition youth) 	Workers who are in or are pursuing occupations in the energy efficiency and other related professional fields that provide the technical capabilities that are needed to support the attainment of CAs and IOU Energy Saving and sustainability targets.	Emphasis on Trade professionals and Workers in occupations supporting IOU resource program sectors, as well as food service commercial sector	<ul style="list-style-type: none"> • Emphasis on local building professionals needing more in-depth training. • Building professionals targeted include those in DACs and HTR areas, as well as other key market actors to help build a complete workforce. 	<p>WE&T Training and Education Program</p> <ul style="list-style-type: none"> • Local providers, including higher education providers, high schools, adult schools, and professional training companies • Disadvantaged communities (DACs) <p>WE&T Workforce Development Program Job seekers, including students; individuals who are unemployed, or underemployed; job seekers looking to enter the energy efficiency and advanced energy industry; and job seekers currently working in the industry who seek to make lateral career moves or advance in their fields.</p>
Location of Training	<ul style="list-style-type: none"> • Through local public agency training channels • In field and online 	<ul style="list-style-type: none"> • Energy Education Centers (Irwindale / Tulare) • Alternative training sites (On Location) • Virtual (Live Instructor Led) • Online On-Demand 	Training to be conducted at SoCalGas’ Energy Resource Center, alternative training sites, and through other distribution channels such as virtual and on-demand, in collaboration with industry and other training providers, as appropriate, for reaching	<ul style="list-style-type: none"> • In-person • Online • On-Demand 	<p>WE&T Training and Education Program</p> <ul style="list-style-type: none"> • In field/on-the-job • Online <p>WE&T Workforce Development Program N/A</p>

Program Parameters	SoCalREN WE&T	SCE WE&T Integrated Energy Education & Training Program	SoCalGas WE&T Integrated Energy Education Training Program	3C-REN WE&T	I-REN WE&T Programs
Training Types	In-person/online	In-person/online	In-person/online	In-person/online	WE&T Training and Education Program <ul style="list-style-type: none"> In-person/online Online WE&T Workforce Development Program N/A
Statewide/Local	Local	Statewide/local	Statewide/local	Local	Local
Partner Organization	<ul style="list-style-type: none"> Public Agencies Nonprofit organizations High schools Community Colleges Unions 3rd party implementers Workforce centers 	<ul style="list-style-type: none"> Other IOUs Industry associations Post-secondary education providers Business networks Regional Workforce Services Non-Profit Organizations 	Other IOUs, industry associations, post-secondary education, business networks, regional workforce services, and potential collaborators with common objectives of addressing EE workforce needs	<ul style="list-style-type: none"> Job placement entities Regional educational providers Local non-profit energy service providers Community Colleges 	WE&T Training and Education Program <ul style="list-style-type: none"> Educational institutions Trade associations Industry and non-profit organizations Certification organizations Government agencies WE&T Workforce Development Program State, regional, and local stakeholders, including workforce investment boards (WIBs) and economic development departments

3. Comparable SoCalGas WE&T Program –SoCalGas WE&T Integrated Energy Efficiency Training (IEET) – [SCG3729]

The SoCalGas WE&T Integrated Energy Efficiency Training (IEET) subprogram (formerly Centergies) offers both technical and foodservice workforce trainings that can leverage SoCalREN local contacts to inform and equip workforce talent with skills to assist in meeting the State’s energy and climate goals.

The WE&T Program contributes to the IOUs’ EE goals by empowering customers and market actors with the knowledge to make energy reduction decisions. WE&T’s primary target audience

includes market actors who design, build, maintain, and operate buildings and building systems—engineers, technicians, building operators, designers, contractors, etc. Additionally, WE&T supports post-secondary institutions who are training future generations of the energy workforce by providing them with energy efficiency, sustainability, and green career awareness materials and resources. Because these market actors have the potential to shape a building’s energy use, WE&T teaches them how to recognize energy savings and GHG-reduction opportunities, and then provides them with the skills, tools, and resources to act upon those opportunities.

4. Comparable SCE WE&T Program – Integrated Energy Education & Training Program – [SCE-13-SW-010A]

The SCE WE&T Integrated Energy Education & Training Program (IEET) offers resources and training programs that are aimed at shaping the current and future energy workforce through a series of occupational-, employer-, and technology-focused workshops and seminars, combined with workplace-based and hands-on technical training. This program aims to provide pathways to, and training for certifications and credentials in energy efficiency-related industries that also support California’s clean energy objectives.

In addition to the training courses offered, SCE maintains a Foodservice Technology Center where training is conducted, standards-based equipment is tested, and evaluations that further enhance the commercialization of emerging energy efficient technologies and programs. These services are delivered with technical integrity and scientific rigor to ensure our partners stay competitive and maintain cost effectiveness.

The Energy Centers provide a host of other value-added customer programs and services such as the Tool Lending Library, conduct technical tours, provide consultations, and offer on-site energy audits; all of which are available at no-cost to the customer.

5. Comparable 3C-REN WE&T Program – Workforce, Education & Training Program – [TCR-WET-001]

The 3C-REN Building Performance Training program offers career pathways and enrichment by providing access to in-person, on-demand, and on-line trainings; mentorship opportunities; and

cross promotion of IOU workforce trainings, engaging hard-to-reach (HTR) workers and those in identified disadvantaged communities (DACs). The 3C-REN delivers technical and soft skill trainings and certifications focused on high performance buildings. The program supports building professionals and those seeking career pathways in residential and commercial design, construction, and related industries.

The 3C-REN WE&T program has a goal to expand its partnerships to develop local career pathway options in building performance. This will be done by talking to career pathway programs established in the Tri-County area and identifying opportunities for collaboration and cross promotion. The program seeks to expand its engagement with career pathway stakeholders, such as community colleges, high schools, and workforce investment boards. The 3C-REN applies a holistic approach to the market with highly targeted training events, using apprenticeship and mentoring style models to enhance the workforce within the 3C-REN territory. 3C-REN's workforce training program goes beyond the classroom setting and skills are reinforced with real world on- the-job applications, while simultaneously influencing direct energy savings. As a result of a stronger workforce skills base, building professionals will increase efficiency and efficacy with existing resources.

6. Comparable I-REN WE&T Programs

Training and Education Program — IREN-WET-001

For its Cross-cutting Sector Workforce Education & Training (WE&T) Training and Education Program, I-REN will assess the current training marketplace in the Inland Empire and work with local providers, including higher education providers, high schools, adult schools, and professional training companies to tailor content to be relevant to the region's needs and ensure that disadvantaged communities are a focus. I-REN will collaborate with training providers to improve access to a broad spectrum of training opportunities in person, online, and in the field. The program's objective is to create a robust local network of training programs that increase capacity and knowledge related to energy efficiency in the building industry.

Workforce Development Program—IREN-WET-001

I-REN will convene and collaborate with state, regional, and local stakeholders, including workforce investment boards (WIBs) and economic development departments to develop a unified mission around the region's energy efficiency workforce, highlighting pathways for job seekers to enter the green jobs market and to increase access for disadvantaged communities. I-REN will facilitate identifying opportunities for employers and local workforce partners to network and connect. With its governing agencies' existing networks of contractors and training providers, I-REN is well positioned to help bridge the gap between the energy industry and the workforce.

I-REN also brings close connections with local government planning and building departments across the region. I-REN's proposed WE&T initiatives offer important opportunities for collaboration across other sectors through its work in the Public Sector and Codes & Standards (C&S) – both of which are important drivers of energy efficiency and advanced energy activity and employment in the region. I-REN will prioritize HTR, disadvantaged, underserved, and ESJ communities, and the organizations within those communities that support workforce development, and will help to raise the value of energy efficiency career paths within high schools, community colleges, and universities.

7. Coordination Protocol Between REN and IOU Programs

Coordination with the other Joint PAs is key to SoCalREN's intervention strategies, specifically the efforts related to WE&T. In 2013, a Workforce Advisory Committee and Small Business Advisory Committee were formed to create the framework for a collaboration and partnership that would enable SoCalREN to address barriers to education and training for entry- and mid-level workers, as well as competition and skills training for diverse SBE and DVBE firms. These partnership collaborations include labor, industry associations, community-based organizations, community colleges, utilities, and participating agencies. An expansion of these partnerships is ongoing to facilitate regional access as well as access within local communities.

In addition, the Joint PAs have regular coordination calls, on a regular quarterly cadence, so that strategies and tactics can be cross-leveraged and support the core activities the Joint PAs have to

offer. This quarterly coordination also helps to ensure that all constituents served by WE&T programs in the shared service territory are properly covered and receive the optimal level of WE&T opportunities.

As a new PA, I-REN has not yet contracted with implementers. Within 60 days of implementer(s) being contracted for the relevant programs, the Joint PAs will reconvene to plan coordination activities specific to I-REN.

8. Coordination Between SW Program(s)

With PG&E as the statewide administrator for the Career and Workforce Readiness (CWR) and Career Connections WE&T subprograms, the IOUs will coordinate with organizations that offer soft skills training and workforce development support as part of the SW Career and Workforce Readiness (CWR) Program in 2023. This Program will also be leveraged by SoCalREN to support the core WE&T activities of SoCalREN. In addition, the IOU local Integrated EE Training post-secondary program component can be leveraged to collaborate with post-secondary and similarly positioned education and training entities to increase the quantity and competency of all workers at all levels of EE industry sectors.

9. Compliance With D.12-11-015, SCR-WE&T-D1

The following table describes in further detail how SoCalREN’s WE&T Program satisfies the REN criteria in D.12-11-015.

Table 24: SoCalREN’s 2023 WE&T Program Compliance with D.12-11-015

REN Criteria	SoCalREN WE&T Program (SCR-WE&T- D1)
1. Activities IOU cannot or does not intend to undertake	<ul style="list-style-type: none"> ✓ Provides local government agency RFP solicitation training for SWMDVBE contractors enabling these small underserved enterprises to participate in government funded EE and sustainability projects.
2. Pilot activities where there is no IOU program offering and where there is potential for scalability	<ul style="list-style-type: none"> ✓ Provide training for certifications and credentials in energy-related industries for in-school youth and at-risk youth (homeless, transitioning foster youth)

3. Activities in hard-to-reach markets, whether or not there is an IOU program that may overlap

- ✓ An organized, comprehensive regional workforce education and training partnership and resource network solely for disadvantaged workers and contractors at all skill levels.
- ✓ Entry-level workforce skills training infrastructure that solely emphasizes assisting youths and SWMDVBE.
- ✓ A DBE/WBE/DVBE contractor training program.

III. SOCIALREN PROGRAM COMPLIANCE WITH D.12-11-015 AND D.19-12-021

In D.12-11-015 and reaffirmed in D.19-12-021, the CPUC directed the RENs to deliver programs and activities that met a threshold of criteria:^{3, 4, 5}

- ✓ Activities that utilities or CCAs cannot or do not intend to undertake.
- ✓ Pilot activities where there is no current utility or CCA Program offering, and where there is potential for scalability to a broader geographic reach, if successful.
- ✓ Pilot activities in HTR markets, whether or not there is a current utility or CCA Program that may overlap.

SoCalREN has exercised the power of governments to leverage alternative funding, community networks, and other government programs to enhance portfolio capacity, particularly in support of programs that fill gaps or represent scalable offerings. SoCalREN will continue to utilize this peer driven approach to leverage public agencies, with a focus on serving HTR and DACs in both its Public and Residential Sectors while maintaining a path to increased cost efficiency. SoCalREN’s services will continue to complement and supplement IOU programs and fill gaps and find synergies among approaches to maximize opportunities for customers and other market actors, which is in line with all the objectives laid out in D.12-11-015, D.16-08-019 and reaffirmed in D.19-12-021.

A. SOCIALREN UNDERTAKING ACTIVITIES THAT UTILITIES CANNOT OR DO NOT INTEND TO UNDERTAKE.

As a peer-driven organization, SoCalREN’s portfolio utilizes its local expertise and direct relationship networks to quickly survey the market in which they serve and undertake activities that IOUs cannot or do not intend to undertake, in other words RENs fill the Gap.

³ D.12-11-015, p. 17.

⁴ D.19-12-021, p. 32.

⁵ D.16-08-019, pp. 11-12.

Since the inception of SoCalREN, these activities have been developed based on market needs, lessons learned from historical IOU programs and peer-to-peer sharing which has brought innovation at a small replicable scale. Table 25 describes in detail many, but not all, the activities and strategies to be implemented in 2023 that “fill the gap” and define SoCalREN’s unique value.

Table 25: SoCalREN’s Activities That Fill Gaps and Strategies

SOCALREN PROGRAM	GAP	STRATEGY
EE PD Program	<ul style="list-style-type: none"> ✓ Local government partnerships diminished or eliminated ✓ No full scale one stop shop services for the entire project delivery path for all public agencies (including project management and procurement assistance) 	<ul style="list-style-type: none"> ➤ Regional Partnerships ➤ Full scale project services offered from project inception to project close out – at no cost to public agencies; Details provided in EE PDP section
DER DAC PD Program	<ul style="list-style-type: none"> ✓ Comprehensive DER audits not available through EE portfolio 	<ul style="list-style-type: none"> ➤ Full Scale project services offered which include DER audits and DER technical services
Public Agency RLF	<ul style="list-style-type: none"> ✓ No short-term construction financing offered for public agencies 	<ul style="list-style-type: none"> ➤ Short term 0% interest loan for public agency EE projects
Multifamily Program	<ul style="list-style-type: none"> ✓ Currently no regional electric Multifamily whole building retrofits offering 	<ul style="list-style-type: none"> ➤ Whole building electric and gas measure retrofits offered
WE&T Program	<ul style="list-style-type: none"> ✓ No local workforce offering for homeless and DAWs ✓ No training offered to assist WMDVBE’s participate in public agency EE project RFPs 	<ul style="list-style-type: none"> ➤ Workforce offering that provides certified pathways for homeless and DAWs ➤ Full-service training offered to assist WMDVBE’s in public agency EE project RFPs

SOCALREN PROGRAM	GAP	STRATEGY
Streamlined Savings Pathway	<ul style="list-style-type: none"> ✓ Program addresses gaps left by IOU program closures and third party program limitations; SoCalREN will launch the Streamlined savings pathway in Q1 of 2023 and adjust as needed to not duplicate offerings as new third party programs are introduced to the market. ✓ This program offers Public Agencies no loss in available services 	<ul style="list-style-type: none"> ➤ Provide a streamlined incentives pathway for public agencies projects ➤ Focus on projects serving or in rural, DAC and low-income communities
Kits for Kids	<ul style="list-style-type: none"> ✓ Currently no online interactive gaming platform that teaches 3rd and 4th grade students ✓ EE incentives for classrooms that support, promote EE installations. 	<ul style="list-style-type: none"> ➤ Online interactive gaming platform that educates elementary school children and their families while offering them no cost energy savings measures

SoCalREN’s RCC Program utilizes resources and local expertise to leverage local government agencies’ housing and community development programs and community- based organizations, programs not currently offered by the IOUs. SoCalREN will also organize events based on these government agencies’ relationships, that explain multifamily property EE upgrade benefits and connect community property owners and their residents with the education and resources needed to take action.

In addition, the SoCalREN public agencies offerings successfully complement and supplement the activities of existing LGP programs, as well as other Public Sector EE programs administered by partner utilities, SCE, and SoCalGas. Public agencies face unique challenges and barriers that include limited technical resources to identify, develop, and implement projects; inadequate and limited access to data about building performance; financing hurdles; unique procurement requirements; protracted decision-making processes; and managing within a political environment, among others. SoCalREN’s Public Agency EE PDP, DER DAC PDP, and NMEC

Program aim to address these unique challenges and provide the necessary services different from or not currently offered by IOU programs for public agencies.

B. SOCALREN UNDERTAKING PILOT ACTIVITIES WHERE THERE IS NO CURRENT UTILITY UNDERTAKING, AND WHERE THERE IS A POTENTIAL FOR SCALABILITY TO A BROADER GEOGRAPHIC REACH, IF SUCCESSFUL.

The SoCalREN strategies for its 2023 portfolio strive to enhance cross-cutting activities, collaboration, and leverage with the IOUs; but to also adjust and reform its overall program portfolio, consistent with and in furtherance of the Commission’s mandate for RENs to pilot new approaches and models that are scalable and replicable (D. 12-11-015). These approaches include:

- ✓ Public Agency Revolving Loan Fund – short-term construction financing [no current utility undertaking].
- ✓ DER DAC Program – comprehensive program that offers technical assistance that include DER energy audits alongside EE project implementation.
- ✓ Workforce Education & Training Program – targets homeless (specifically transition at -risk youth) and provides a certified career path to the EE industry.

These approaches currently are different from or not offered by the IOUs in SoCalREN’s overlapping service territory but do have the potential to be scaled and replicated if proven successful. SoCalREN’s 2023 Portfolio meets the criteria outlined in D.12-11-015 and D.19-12-021 by utilizing strategies intended to be unique, scalable, and cost-effective, with the potential to be long term.

C. SOCALREN UNDERTAKING PILOT ACTIVITIES IN HARD-TO- REACH MARKETS, WHETHER OR NOT THERE IS A CURRENT UTILITY PROGRAM THAT MAY OVERLAP.

A primary objective for all SoCalREN strategies is to meet the needs of HTR markets and DACs. As a PA managed by a local government, SoCalREN has an inherent duty to serve HTR markets and DACs. Regional government PAs are well-suited to address HTR markets and DACs, through deployment of independent yet parallel programs, initiatives, and actions specifically developed to respond to underserved constituents. As a result, the SoCalREN can cross-cut EE programs onto a number of pre-existing government frameworks specifically designed for underserved and DACs, reducing administrative, development, and other costs.

SoCalREN's Multifamily Program will work in parallel with its RCC to build relationships among its HTR constituents, such as multifamily property owners whose primary language is not English and who currently own properties in DACs. Public agency relationships will help to gain trust and confidence in REN offerings as well as their IOU partner program offerings. Building trust will in turn help these HTR constituents understand the value proposition of EE.

In addition, SoCalREN's WE&T Program market focus emphasizes tactics that reach the most under-represented disadvantaged populations currently in the EE industry, specifically Women Minority Disabled Veteran Business Enterprises (WMDVBE), youths and homeless. Through public agency and community engagement, SoCalREN will continue to identify and establish pathways for entry-level skills training through a network of public and non-profit training programs.

SoCalREN has structured its portfolio strategies to be administratively cost-efficient, with a focus on regional government capacities and systems already in-place to address HTR markets and DACs. These existing custom systems and capacities will further enable and support the State's EE Portfolio goals for the under-served and DACs through the rigorous deployment by REN PAs.

APPENDIX A: SUMMARY OF SOCALREN PROGRAM COMPLIANCE WITH D.12-11-015

Table A-1. SoCalREN D. 12-11-015 Compliance, by Program

Check D.12-11-015 Threshold Criteria that apply for each program	Comparable IOU Program, if applicable	1. Activities that utilities cannot or do not intend to undertake.	2. Pilot activities where there is no current offering, and where there is potential for scalability to a broader geographic reach, if successful.	3. Pilot activities in hard-to-reach markets, whether or not there is a current utility program that may overlap.
Multifamily Program [SCR-RES-A1]	SCE Willdan Multifamily Energy Efficiency Program (MFEEP) Program [SCE_3P_2020RCI_004] SoCalGas Multifamily Upgrade [SCG3705]	XX		XX
Kits for Kids [SCR-RES-A3]		XX		XX
Energy Efficiency Project Delivery Program [SCR-PUBL-B1]	SCE - CLEAResult Public Energy Performance SoCalGas Government ⁶	XX		

⁶ This includes all SoCalGas partnership programs with local governments

Check D.12-11-015 Threshold Criteria that apply for each program	Comparable IOU Program, if applicable	1. Activities that utilities cannot or do not intend to undertake.	2. Pilot activities where there is no current offering, and where there is potential for scalability to a broader geographic reach, if successful.	3. Pilot activities in hard-to-reach markets, whether or not there is a current utility program that may overlap.
DER DAC Project Delivery	Not Applicable	XX	XX	XX
Public Agency NMEC Program [SCR-PUBL-B3]	SCE - CLEAR Result Public Energy Performance SoCalGas High Opportunity Projects and Programs - Metered and Performance-Based Retrofits (MPBR) Program	XX	XX	XX
Public Agency Streamlined Savings Pathway [SCR-PUBL-B4]			XX	
Public Agency Revolving Loan Fund [SCR-FIN-C1]	SCE On Bill Financing Program [SCE-13-SW-007A] SoCalGas New Financing Offerings – GoGreen Home [SCG3737]	XX	XX	XX

Check D.12-11-015 Threshold Criteria that apply for each program	Comparable IOU Program, if applicable	1. Activities that utilities cannot or do not intend to undertake.	2. Pilot activities where there is no current offering, and where there is potential for scalability to a broader geographic reach, if successful.	3. Pilot activities in hard-to-reach markets, whether or not there is a current utility program that may overlap.
Residential Loan Loss Reserve [SCR-FIN-C2]	SCE New Financing Offerings [SCE-13-SW-007C] SoCalGas New Financing Offerings – GoGreen Home [SCG3737]		XX	XX
Workforce Education & Training [SCR-WET-D1]	SCE WE&T Integrated Energy Education & Training Program [SCE-13-SW-010A] SoCalGas' WE&T Integrated Energy Education Training Program [SCG3729]	XX	XX	XX

APPENDIX B: SOCALREN SUMMARY OF PROGRAMS OFFERED FOR 2023

Table B-1. SoCalREN Summary of Programs, 2023

REN Program Unique ID	Sector	Annual Budget	Eligible Measures
Multifamily Program [SCR-RES-A1]	Residential	\$8,217,671	Resource program.
Kits for Kids [SCR-RES-A4]	Residential	\$1,128,300	Not applicable. Non-resource program
Energy Efficiency Project Delivery Program [SCR-PUBL-B1]	Public	\$6,489,000	Not applicable. Non-resource program
DER DAC Project Delivery Program [SCR-PUBL-B2]	Public	\$3,813,000	Not applicable. Non-resource program
Public Agency NMEC Program [SCR-PUBL-B3]	Public	\$1,300,000	CMPA process; whole building measures
Public Agency Streamlined Savings Pathway [SCR-PUBL-B4]	Public	\$1,400,000	Resource Program
Public Agency Revolving Loan Fund [SCR-FIN-C1]	Cross-cutting: Financing	\$500,000	Not applicable. Non-resource program
Workforce Education & Training [SCR-WET-D1]	Cross-cutting: WE&T	\$800,000	Not applicable. Non-resource program

APPENDIX C: SCE, SOCALGAS, 3C-REN, AND I-REN SUMMARY OF COMPARABLE PROGRAMS

Table C-1. SCE Summary of Comparable 2023 programs

IOU Program Unique ID	Sector	Annual Budget	Eligible Measures
Willdan Multifamily Third- Party Energy Efficiency Program (MFEEP) [SCE_3P_2020RCI_004]	Residential	\$19,595,052	The program offers deemed, customized calculated, and NMEC-based site-specific approach measures for energy- saving equipment for both common and in-unit areas of multifamily properties; end uses include HVAC and Lighting, and Water Heating, Pool pump, High efficiency kitchen appliances, Showerheads and Faucets and Energy Management Technologies..
Statewide Finance Program – On-Bill Financing [SCE-13-SW-007A]	Cross-cutting: Financing	\$781,554 (implementation budget) \$14,000,000 (total loanpool)	Not applicable.
SCE – CLEAResult Public Energy Performance	Public	\$6,590,401	Custom, Deemed, NMEC and SEM
WE&T Integrated Energy Education & Training Program [SCE-13-SW-010A]	Cross-cutting: WE&T	\$ 8,840,814	N/A

Table C-2. SoCalGas Summary of Comparable 2023 Programs

IOU Program Unique ID	Sector	Annual Budget	Eligible Measures
Home Upgrade Program - Multifamily Home Upgrade Program [SCG3705]	Residential	\$2,361,124	Resource program
Residential Direct Install Program [SCG3883]	Residential	\$3,150,353	Resource program
Statewide – On-Bill Financing [SCG3735]	Cross-cutting: Financing	\$5,500,000 loan pool	Resource
New Financing Offerings [SCG3737]	Cross-cutting: Financing	\$43,919,485 in credit enhancements available statewide	Resource
Regional Energy Pathways [SCG3912]	Public	\$2,051,023	Resource
WE&T IEET [SCG3729]	Cross-cutting: WE&T	\$4,350,000	Not applicable. SW Non-resource program

Table C-3. 3C-REN Summary of Comparable 2023 Programs

IOU Program Unique ID	Sector	Annual Budget	Eligible Measures
3C-REN WE&T [TCR-WET-001]	Cross-cutting: WE&T	\$1,190,021	N/A
3C-REN Multifamily [TCR-Res-002]	Residential	\$3,430,037	Site-specific measures that achieve energy savings both in-unit and in common areas.

Table C-4. IREN Summary of Comparable 2023 Programs

REN Program Unique ID	Sector	Annual Budget	Eligible Measures
Technical Assistance and Strategic Energy Planning Program [IREN-PUBL-001]	Public	\$2,908,219	Not applicable; non-resource program
Public Buildings NMEC Program [IREN-PUBL-002]	Public	\$3,283,503	Any energy saving measure
WE&T Training and Education Program [IREN-WET-001]	Cross-cutting: Workforce Education & Training	\$1,032,169	Not applicable; non-resource program
WE&T Workforce Development Program [IREN-WET-001]	Cross-cutting: Workforce Education & Training	\$1,361,257	Not applicable; non-resource program

APPENDIX D: SOCALREN-IOU (SCE AND SOCALGAS) COORDINATION PLAN FOR PUBLIC AGENCIES

SoCalREN, SCE, SoCalGas Coordination Strategy for Public Agencies

Last Updated: May 2022

To be updated as needed upon completion of utility local public sector solicitations. Document is for current program offerings.

SoCalREN and IOUs will coordinate their respective programs including IOU's core and Third Party Programs (3PP) and resources to minimize duplicative offerings and work in an approach where the SoCalREN complements and supplements the IOU and IOU's 3PPs, yet understanding this is a reciprocal relationship. SoCalREN and IOUs should work toward a goal that minimizes duplication of programs consistent with the approved annual Joint Coordination Memo (JCM) and provides all public agencies a plethora of programs and offerings by Program Administrators allowing the customer to be the decision-maker. This approach is in the best interest of the customer by providing complementary tools that help bridge gaps in meeting their agency's goals.

Coordination laid out in this document is for agency enrollment, commitment, and ongoing delivery of SoCalREN's Public Agency non-resource programs, including:

- Project Delivery Program
- Distributed Energy Resources for Disadvantaged Communities Project Delivery Program, publicly known as the Pathway to Zero Program
- Revolving Loan Fund, publicly known as the Revolving Savings Fund

Additionally, this document outlines coordination protocols for the delivery of SoCalREN's Public Agency resource acquisition programs, including:

- Public Agency NMEC Program, publicly known as Metered Savings Program
- Streamlined Savings Pathway

As the SoCalREN Public Agency Programs continue to grow and evaluate additional services and offerings, this document along with the SoCalREN/IOU NMEC Participation Coordination document and the approved annual JCM will continue to serve as guidance for coordination activities between SoCalREN and the IOUs for agencies interested in and committed to energy efficiency project implementation.

How will SoCalREN and IOUs coordinate services and activities for all public agencies?

SoCalREN, SCE and SoCalGas will work collaboratively to develop coordinated strategies that enrich respective program offerings and elevate services to public agencies. Direct communications between SoCalREN Program Representatives, SCE program leads and representatives, SoCalGas program representatives (Public Sector Regional Program Managers, IOU/REN coordination leads, Account Executives, etc.), and 3PP implementers are intended to successfully drive energy efficiency project delivery and foster public agency satisfaction. Key coordination strategies include the following:

- IOUs will provide regular and timely information and updates to SoCalREN program representatives on core and 3PP available to public agencies.

- SoCalREN will provide regular and timely information and updates to IOU program representatives on SoCalREN Public Agency Programs.
- Any requests for presentations for IOU's core and 3PP should be coordinated through the respective IOU's and/or 3PP lead PM for IOU/REN coordination.

Customer Data & Information

- SoCalREN's preference is to obtain customer information directly from the customer. If requesting customer information directly from the IOUs, SoCalREN must provide the IOU written customer authorization (i.e. signed CISR form or Executed Authorization Form) to obtain additional customer information related to energy efficiency project delivery, as needed for SoCalREN enrolled participants.
- Upon request, IOUs will provide customer authorized project-level data to SoCalREN monthly upon request through the IOU/REN Data Transfer template for projects going through IOU programs and third-party programs.
 - SoCalREN will acquire written documentation of the customer's authorization (i.e., signed CISR Form or Executed Authorization Form) to obtain project-level data or information from an IOU. This documented authorization will be provided by SoCalREN to the appropriate IOU's lead PM for IOU/REN coordination.

Customer Engagement & SoCalREN Enrollment Activities

- If an IOU representative receives an inquiry about SoCalREN program services, the IOU representative will contact SoCalREN representatives and determine how best to set the follow-up meeting with the agency.
- Once the agency is enrolled, SoCalREN will provide quarterly updates to inform the IOU representatives on key project-related SoCalREN activities when the agencies are pursuing IOU core, 3PPs, and SoCalREN programs and keep IOUs informed of activities with those agencies.
 - Ad hoc email updates will be provided by SoCalREN to the IOUs as needed to communicate critical project development updates. These critical updates include the Initial Measures List presentation and incentive application submission updates.
- Once the agency is enrolled, IOU representatives will inform SoCalREN about any key SoCalREN project-related interactions with the agency in which SoCalREN representatives are not present, and keep SoCalREN informed of such activities with agencies.
- SoCalREN will timely inform appropriate SCE Account Managers and SoCalGas program representatives (Public Sector Regional Program Managers, IOU/REN coordination leads, Account Executives, etc.), of any engagement meeting prior to enrollment in EE Project Delivery services, and send an email survey to learn more about the customer's needs and opportunities. Notification of the enrollment meeting should happen typically two weeks prior to a meeting. In some cases, and based on customer needs, meetings may be scheduled with less than two weeks' notice. SoCalREN will make best efforts for advanced notice of enrollment meetings and accommodate utility representative schedules, as feasible, depending on the availability of the agency.
- Agency's past and present participation in utility programs will be addressed through an electronic survey sent to the IOUs to calibrate expectations of energy savings potential and ensure there is no double-dipping. IOUs will have one week to respond to the survey ahead of the enrollment meeting.
 - In the event that the email survey is not sufficient to address customer details, a pre-coordination meeting may be requested within 1 week of survey receipt and held on a case-by-case basis if deemed necessary by all parties.
- IOU attendance at engagement meetings is optional; however, reasonable efforts to arrange for

participation by interested IOU leads will be made by SoCalREN. SoCalREN will notify appropriate IOU partners of the meeting, and they may request to participate.

- No more than two (2) representatives from each IOU may participate at the engagement meeting (unless additional representatives' participation is identified and discussed prior to the meeting). IOU representatives will confirm ahead of the meeting which participants will attend.
- SoCalREN may elect to conduct the customer meeting during the enrollment process as a remote conference call or webinar. Preference stands for an in-person meeting, but consideration of travel-related resources may lead to remote venues for cost-effective purposes.
 - Enrollment meetings may include multiple eligible agencies to streamline coordination activities.
 - If the meeting is a remote webinar, the meeting should use an application that is accessible to the IOUs.
- Remote facilitation for the engagement meeting may be requested by an agency or SoCalREN at any time. When facilitating a meeting in-person, remote participation may also be coordinated as needed or if an alternative utility representative cannot be identified to attend.

Project Specific Activities

- Efforts will be made to present applicable utility core and 3PPs to customers by SoCalREN representatives when evaluating projects. SoCalREN will connect agencies with appropriate utility or 3PP representatives when interest is expressed, and utility leads will connect interested parties to SoCalREN representatives when interest in SoCalREN is expressed.
- SoCalREN will include the SCE Lead PM and SoCalGas Lead PM on communications to other IOU representatives related to SoCalREN activity as needed for successful project delivery. Conversely, IOU representatives will include SoCalREN PMs and SCE Lead PM and/or SoCalGas Lead PM on agency-directed communications where SoCalREN is supporting project development and implementation.
- SoCalREN will follow established processes for submitting incentive/rebate applications as the Trade Professional for core (SCG only) or 3PPs when the customer has asked SoCalREN to file the incentive/rebate applications on their behalf. SoCalREN will work with the appropriate IOU representative and/or 3PP implementer for timely completion of items such as a Project Feasibility Study and collecting influence documentation to ensure a complete application for submittal.
- SoCalREN will request SoCalGas review of measure specifications and equipment qualifications ahead of submitting rebate and incentive applications through SoCalGas core programs.
- For projects pursuing SoCalGas core programs, SoCalREN will provide a courtesy copy of incentive applications to Account Executives at the time of submittal where SoCalREN is acting as the Trade Professional.
- SoCalREN will hold monthly project coordination meetings with each utility to discuss active projects participating in utility core (SoCalGas only) or 3PP programs.

How will SoCalREN and SoCalGas Public Sector coordinate services and activities? SoCalGas continues to service all public sector customers through its Public Sector Energy Pathways. SoCalGas Public Sector program leads will continue to engage in IOU/REN coordination in 2022 and beyond.

SoCalREN and SoCalGas' program representatives (Public Sector Regional Program Managers, IOU/REN coordination leads, Account Executives, etc.) will prioritize collaboration and reciprocal communication with regards to energy efficiency project delivery services for public agencies as well as

engagement prior to enrollment in SoCalREN programs. Key coordination strategies include the following:

- When engaging agencies within a SoCalREN Regional Partnership territory, SoCalGas will be extended the opportunity to educate agencies on the Public Sector Program availability during appropriate meetings. SoCalREN & SoCalGas will align on the presentation facilitation and content ahead of such meetings.
- SoCalREN will include in the pre-enrollment survey a question to SoCalGas representatives (Public Sector Regional Program Manager and/or Account Executive) about technical assistance offerings to determine how to best collaborate on a strategy that helps meet the customer's needs, leveraging all feasible resources. Pre-coordination calls can be scheduled on an as-needed basis.
- Agency contacts, roles, and responsibilities will be confirmed, and communication strategies discussed during enrollment meetings.
- SoCalGas roles and responsibilities, including primary contact designation for agencies will be confirmed during enrollment meetings.
- If SCG's program representatives (Public Sector Regional Program Managers, IOU/REN coordination leads, Account Executives, etc.), receive an inquiry about SoCalREN program services, SCG's program representatives (Public Sector Regional Program Managers, IOU/REN coordination leads, Account Executives, etc.), will contact SoCalREN representatives and determine how best to set the follow-up meeting with the agency.
- Once the agency is enrolled, SoCalGas program representatives will inform SoCalREN Representatives on any key SoCalREN project-related interactions with the agency in which SoCalREN representatives are not present and keep SoCalREN informed of such activities with agencies.

How will SoCalREN and SCE/SoCalGas/3PPs coordinate services and activities?

SoCalREN may engage and coordinate with additional utility program leads in order to avoid duplication of efforts and offerings. Initial introductions to 3P or other utility Program Leads for coordination purposes will be initiated as follows:

- For SCE 3P programs, SoCalREN will coordinate directly with the 3P implementer and inform SCE lead of such coordination meetings.
- For SCG-led 3P programs, SoCalREN will coordinate directly with SoCalGas first. SoCalGas will lead the coordination effort.
- SoCalREN will need to initiate a coordination meeting with SCG before engaging with existing and new 3P implementers.
- As projects are developed, SoCalREN and SCG will identify which 3PP will be applicable to the measures and sites audited and coordinate with the 3PP implementers as needed for project handoff or coordinated project development.

How will outreach and education related to SoCalREN's Pathway to Zero be communicated to Public Agencies?

SoCalREN shall work with DER Program leads at SoCalGas and SCE on a quarterly basis to ensure that all SoCalREN DER materials are up-to-date and correct. SoCalGas and SCE Coordination leads will be responsible for coordinating with their respective internal contacts to notify SoCalREN of any programmatic changes at an annual check-in. Additionally, when presenting the Pathway to Zero program's Pathway to Zero Report to a local public agency, the SoCalREN PM will include relevant IOU program resources and information that has been identified to be of interest to that public agency.

How will SoCalREN and SCE/SoCalGas Coordinate services for public agency projects pursuing a

SoCalREN incentive program (Streamlined Savings Pathway or Metered Savings Program)?

- SoCalREN and IOU representatives will convene early in the project development process to discuss what gaps in the IOU core program and 3PP offerings are being addressed by the SoCalREN program during the Initial Measures List review.
- If the agency elects to pursue a SoCalREN incentive program, SoCalREN will not include IOU representatives in further project correspondences outside of the quarterly updates unless required for data collection or other project delivery needs.

How will outreach and education related to SoCalREN be communicated to Public Agencies?

Any requests for presentations about SoCalREN should be coordinated through SoCalREN. SoCalREN Program representatives are available to present program offerings to any audience.

How will Public Sector Account Managers and other Program leads learn about SoCalREN?

The IOUs will have lead responsibility for informing their program representatives (Public Sector Regional Program Managers, IOU/REN coordination leads, Account Executives, etc.), about the coordination strategy with SoCalREN.

Opportunities to learn about the program include:

- IOU representatives may visit socalren.org at any time to learn more about the public agency programs. A list of all enrolled agencies can be found on the Public Agencies - Program Information tab of the website.
- Attendance at a Joint IOU / SoCalREN Overview Workshop, which may be offered at various locations throughout the IOU territory or virtually in coordination with the IOUs.
- SCG program representatives (Public Sector Regional Program Managers, IOU/REN coordination leads, Account Executives, etc.), may request to coordinate with SoCalREN to jointly host meetings with public agencies to present SoCalREN's services.
- 3PP Managers may also choose to coordinate with SoCalREN to jointly host meetings with public agencies to present SoCalREN's services. For SCG 3P programs, SoCalREN will coordinate with the SCG 3PP Program Manager ahead of coordination with the 3PP.
- Additional opportunities for SoCalREN presentations will be offered on request.

How will SCE address public sector project delays due to prolonged project application review and approval timelines?

SCE and SoCalREN will work together to reduce project delays for the existing pipeline of projects prior to 3PP implementation. This will be accomplished by:

- Bi-weekly check-in meetings with the Commercial Custom Program Manager to review the status of all project applications.
- SCE will adhere to the below timelines for existing pipeline project Application Reviews:
 - SCE will notify SoCalREN staff of required missing documents/information in the applications within 10 business days
 - SCE will aim for technical review, prior to upload to CMPA, to take no more than 30 business days per the Statewide California Program Administrator Custom Project Review Process Timeline Guide
 - SCE will issue NRDs through the established formal process and will not issue informal requests after technical review has been completed

APPENDIX E: SOCALREN-IOU (SCE AND SOCALGAS) NMEC PARTICIPATION COORDINATION FOR PUBLIC AGENCIES

SoCalREN, SCE, SoCalGas NMEC Participation Coordination for Public Agencies

Last Updated: May 2022

To be updated upon completion of utility local public sector solicitations. Document is for current program offerings.

SoCalREN, IOUs and IOU third party program implementers (3PP) will coordinate their respective program offerings and resources to minimize duplicative offerings and work in an approach where the SoCalREN complements and supplements the programs with the understanding this is a reciprocal relationship. SoCalREN, IOUs, and 3PP implementers should work toward a goal that minimizes duplication of programs consistent with the approved annual Joint Coordination Memo (JCM), increases efficient promotion of existing programs and allows all public agencies a choice amongst all offerings of Program Administrators allowing the customer to be the decision-maker. This approach is in the best interest of the customer providing a range of options to help them meet their agency's goals.

Coordination laid out in this document is for public agency participation in Normalized Metered Energy Consumption (NMEC) resource programs offered by the IOUs and SoCalREN. These currently include:

- SCE High Opportunity Program and Projects (HOPPs), also known as the Public Sector Performance Based Retrofit Program (PBRP)
- SCG High Opportunity Program and Projects (HOPPs), also known as the Metered and Performance-Based Retrofits Program (MPBR)
- SoCalREN Public Agency NMEC program, also known as the Metered Savings Program.

As the SoCalREN Public Agency NMEC Program and IOU NMEC and 3PP programs continue to grow and evaluate additional services and offerings, this document along with the approved annual JCM will continue to serve as guidance for coordination activities between SoCalREN and the IOUs for agencies interested in and committed to energy efficiency project implementation using an NMEC approach.

How will SoCalREN and IOUs coordinate NMEC offerings?

SoCalREN, SCE and SCG will work collaboratively to develop coordinated strategies that elevate services to public agencies. Direct communications between SoCalREN Program Representatives, SCE Account Managers, SCG Account Executives, and IOU 3PPs are intended to successfully drive energy efficiency project delivery and foster public agency satisfaction. A project that is identified within a public agency that is enrolled in the SoCalREN Public Agency Programs will follow the attached *NMEC Decision Tree* with activities led by the SoCalREN Project Manager.

Eligibility for Program Participation

To be eligible for SoCalREN NMEC, the public agency must first be enrolled in the SoCalREN Public Agency Programs following the process described in the *SoCalREN, SCE, SoCalGas Coordination Strategy for Public Agencies*. Both the SCE and SCG HOPPs and/or 3PP programs are available to all public agencies. Project-specific eligibility requirements can be reviewed in each

respective program's Program Manual.

Additional Participation Considerations

Projects that meet the following criteria default to HOPPs and will not be offered the SoCalREN NMEC program unless they drop out of or decline HOPPs:

- They are in the queue for HOPPs prior to June 1, 2019. The queue is defined as receiving predictability analysis⁷ through the respective program.
 - Any projects that are not in the HOPPs queue by June 1, 2019 will follow the established process established to jointly present IOU and SoCalREN NMEC programs to the agency using documentation such as the Project Proposal slide deck.
- The IOU has provided audit services within the last 18 months.
 - Going forward, if an agency is enrolled in SoCalREN Public Sector Programs, IOUs should coordinate with SoCalREN prior to performing an audit.

Once an agency has selected a pathway and predictability analysis performed by the program, the agency will not be presented other program options unless they drop out of the selected program. Any project that drops out of an NMEC program, regardless of provider, can pursue a different NMEC program.

Communications with Public Agencies

When having the customer choose which path to pursue, the IOUs will be invited to be at the table, but their attendance is not mandatory. Conversely, when the IOUs are having NMEC program conversations with SoCalREN enrolled public agencies, SoCalREN will be invited to provide their service offerings. In addition, prior to SoCalREN presenting the NMEC program options to an agency for a project, applicable IOUs will receive the draft presentation slides to be presented to the agency. IOUs will have 7 business days to provide feedback, ask questions, or request a pre-coordination call if required. If SoCalREN does not receive a response within those 7 business days, they will move forward with the slides for the scheduled meeting with the agency.

How will SoCalREN and IOUs prevent Double Dipping?

The IOUs and SoCalREN are committed to coordinating to prevent double dipping between the SoCalREN NMEC program and IOU/3rd Party program offerings, including upstream/midstream programs. Early screening and ongoing communication on potential projects will support this activity. Additional protocols will be developed as projects emerge and new programs come online.

Can a single project participate in two NMEC programs?

A facility with one or more electric meters and one or more gas meters may participate in HOPPs for electric savings and SoCalREN Metered Savings Program for gas savings or it may participate in HOPPs for gas savings and SoCalREN Metered Savings Program for electric savings depending on the agency needs and project criteria. This would require additional coordination between the IOU and SoCalREN as a single measure could have both gas and electric savings. The interactive effects of measures would also need to be considered by the IOU and SoCalREN.

What SoCalREN services will be offered to projects that leverage an IOU NMEC or third party program? The SoCalREN Public Agency Energy Efficiency Project Delivery Program (EE PDP)

⁷ Analysis of pre-installation energy usage patterns of a facility or site to evaluate the feasibility for an NMEC program approach.

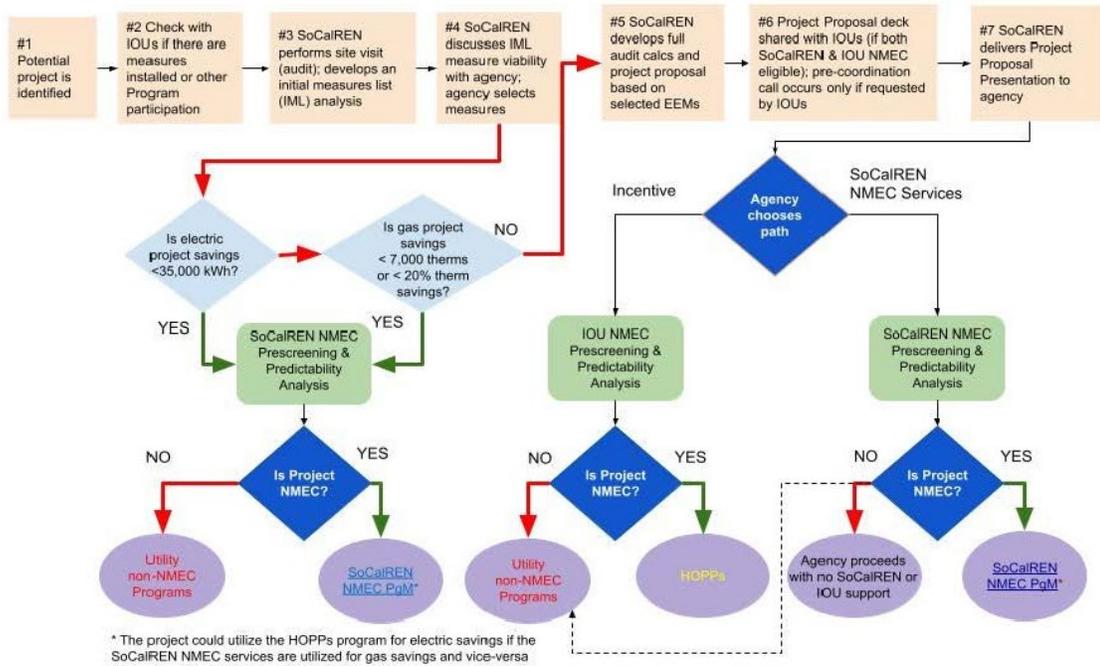
and the Distributed Energy Resources for Disadvantaged Communities Program (DER DAC) are non-resource programs that provide comprehensive support services to energy efficiency projects from identification to completion. The EE PDP and DER DAC programs will continue to support agencies with project identification and audit services, from which NMEC potential projects may be developed. NOTE: Future updates will be included as IOU 3PPs launch in the market. Following the delivery of the project proposal presentation (step 7 on the decision tree), the services will be available as follows to HOPPs projects:

- Projects in the queue prior to June 1, 2019 would continue to receive full EE PDP and DER DAC services through completion.
- Projects without IOU NMEC resources committed (baseline modeling completed) by June 1, 2019 to follow standard protocol
- New IOU NMEC projects identified past June 1, 2019 would no longer receive SoCalREN PDP and DER DAC services after the project proposal is presented and HOPPs pathway is selected by the customer.
- SoCalREN will develop the Form H, full audit calculations, influence narrative and timeline (not a full Project Feasibility Study [PFS]) for projects pursuing HOPPs as a deliverable during the IOU handoff.

How will outreach and education related to SoCalREN NMEC programs be communicated to Public Agencies and utilities?

Inquiries about the SoCalREN NMEC program should be directed to the program implementer. Any questions from utility staff should be directed to SCE/SCG lead PM

NMEC Decision Tree (NOTE: Future updates will be included as IOU 3PPs launch in the market.)



ATTACHMENT A

**3C-REN, SoCalGas, SCE, AND PG&E
2023 JOINT COOPERATION MEMORANDUM**

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APPENDIX A: IOU(s) SoCalGas, SCE, AND PG&E PORTFOLIO SUMMARY BY PROGRAMS OFFERED FOR 2023

APPENDIX B: WORKFORCE, EDUCATION, AND TRAINING CLASS LIST

I. 3C-REN PORTFOLIO SUMMARY OF PROGRAMS OFFERED FOR 2023

Table 1. 3C-REN Summary of Programs

3C-REN Program Unique ID	Sector	Approved Annual Budget	Eligible Measures
3C-REN WE&T (TCR-WET-001)	Cross-cutting	\$1,910,021	N/A
3C-REN C&S (TCR-CS-001)	C&S	\$1,884,021	N/A
3C-REN RES (TCR-Res-002 and TCR-Res-003)	Residential	\$8,380,011	Air sealing, insulation, HVAC measures, water flow controls, smart thermostat, power strip, duct system servicing, appliances, HVAC servicing, and water heating measures. ¹

II. SUMMARY AND COORDINATION OF 3C-REN AND IOU(s) SoCalGas, SCE, AND PG&E PROGRAMS OFFERED FOR 2023 THAT ARE COMPARABLE

A. 3C-REN WE&T Program [TCR-WET-001]

The 3C-REN will continue to offer a cross-cutting WE&T program designed to fill gaps in current investor-owned utilities² (IOU) offerings for the 3C-REN territory. The 3C-REN Building Performance Training program offers career pathways and enrichment by providing access to in-person, on-demand, and on-line trainings; mentorship opportunities; and cross promotion of IOU workforce trainings, engaging hard-to-reach (HTR) workers and those in identified disadvantaged communities (DACs).

Building professionals living and working in the 3C-REN territory face unique challenges given the dispersed nature of communities within the Tri-County Region. The region, and its building professional workforce, have historically struggled to fill key positions in energy efficiency, including the retrofit market and energy code compliant new construction. The 3C-REN WE&T activities

¹ This is a preliminary list of measure types; final measures are provided in the program Implementation Plan.

² For the purposes of this Joint Cooperation Memorandum, the IOUs consist of SoCalGas, SCE and PG&E.

address these challenges through collaboration with existing providers and programs; apprenticeship-style learning; targeted management, technical and soft-skill trainings for building professionals; and integrated resources for design and compliance professionals.

The 3C-REN territory is in need of high-performance buildings (i.e., energy efficient and resilient buildings) and a workforce of building professionals able to:

- Market, design, build, and retrofit buildings for high performance;
- Learn about, install, and maintain new technologies essential for high performance;
- Grow customer demand for energy efficiency (EE) by communicating the value of high-performance buildings; and
- Access local training and services customized to address the challenges above.

The 3C-REN delivers technical and soft skill trainings and certifications focused on high performance buildings. The program supports building professionals and those seeking career pathways in residential and commercial design, construction, and related industries. Trainings are delivered locally and designed to meet the unique needs of the Tri-County region.

The 3C-REN WE&T program has a goal to expand its partnerships to develop local career pathway options in building performance. This will be done by talking to career pathway programs established in the Tri-County area and identifying opportunities for collaboration and cross promotion. The program seeks to expand its engagement with career pathway stakeholders, such as community colleges, high schools, and workforce investment boards.

The 3C-REN applies a holistic approach to the market with highly targeted training events, using apprenticeship and mentoring style models to enhance the workforce within the 3C-REN territory. 3C-REN's workforce training program goes beyond the classroom setting and skills are reinforced with real world on-the-job applications, while simultaneously influencing direct energy savings. As a result of a stronger workforce skills base, building professionals will increase efficiency and efficacy with existing resources.

The program budget for 3C-REN WE&T, TCR-WET-001, is \$1,190,021.

The program targets local public and private building professionals needing more in-depth training, such as: contractors, HVAC technicians, engineers, architects, designers, certified energy managers, local jurisdictions' building & safety department staff, lighting professionals, real estate professionals, raters, including professionals in DACs and HTR areas, and educational institutions (e.g. community colleges, universities, adult ed, trade schools, & K-12), as well as other key market actors. The program leverages relationships with industry such as architectural and contractor associations to ensure broad engagement.

The 3C-REN's WE&T program is non-resource and serves to support 3C-REN and IOU programs in the region by training the workforce that can deliver resource programs and meet code. The program is designed to be complementary to IOU programs and to fill gaps in existing IOU programs while integrating with C&S compliance support.

1. Comparable SoCalGas, SCE and/or PG&E Programs

Table 2: WE&T Program Comparison

WE&T	3C-REN	PG&E	SCE	SoCalGas
Non-Resource Program Name	3C-REN WE&T Building Performance Training	PG&E WE&T Integrated Energy Education & Training (IEET) ³	SCE WE&T Integrated Energy Efficiency Training (IEET) ⁴	SoCalGas WE&T Integrated Energy Education Training (IEET)
Eligible Measures	N/A	N/A	N/A	N/A
2023 Budget	\$1,910,021	\$8,155,242	\$8,840,814	\$4,350,000

³ The C&S Compliance Improvement subprogram is also a comparable program. More information on this program is listed in Section B

⁴ The C&S Compliance Improvement subprogram is also a comparable program. More information on this program is listed in Section B

WE&T	3C-REN	PG&E	SCE	SoCalGas
Target Audience	Locally licensed public and private building professionals needing more in-depth training, such as contractors, HVAC, engineers, architects, designers, certified energy managers, local jurisdictions' building & safety department staff, lighting professionals, real estate professionals, raters, entry-level workers, students, and professionals in DACs and HTR areas, and educational institutions, as well as other key market actors.	Any person who designs, builds, maintains, plan checks, inspects, and/or operates buildings including engineers, architects, contractors, lighting designers, HVAC technicians, real estate professionals, building operators, facility managers, energy consultants, plans examiners, building inspectors, and more. Additionally, this program supports other organizations' instructors who are training a similar audience.	Workers who are in or are pursuing occupations in the energy efficiency and other related professional fields that provide the technical capabilities that are needed to support the attainment of CAs and IOU Energy Saving and sustainability targets	Workers in, or pursuing careers and occupations in energy efficiency, gaining and providing professional and technical capabilities, specifically useful for achieving CA-IOU energy savings targets. Training will be conducted at Energy Center, alternative site locations and distribution channels in collaboration as appropriate, with non-IOU sources, feasible for reaching target audiences.

Pacific Gas and Electric Company

PG&E WE&T Integrated Energy Education Training (IEET) - [PG&E21071]

The PG&E WE&T IEET subprogram offers hundreds of technical workforce trainings per year with the goal of equipping a California workforce with the tools, resources, and skills to meet the State's climate goals. Appendix B includes a categorized list of the residential, multi-family, and/or small business trainings conducted in 2021 and 2022 scheduled to date as an illustration of our potential 2023 offerings in the three areas that appear of greatest interest to the 3C-REN. Appendix B also includes a full list of the in-person, simulcast, webinar classes and on-demand classes in the same period.

Some of the classes listed in Appendix B are restricted to PG&E's Energy Training Center (ETC) in Stockton, the Food Service Technology Center (FSTC) in San Ramon, or other specific locations due to the need to use large teaching

props or laboratories. However, the majority of classes can be offered at off-site locations and/or via online simulcast or webinar, especially if a local organization will assist with marketing and outreach to ensure good attendance from the appropriate target audience. A class being offered at other locations is also dependent on the instructor being willing and able to travel. PG&E's WE&T program also has an online on-demand learning platform, where many classes are focused on residential construction and contractors. See Appendix B for a list of on-demand classes. Appendix B also includes more information on additional C&S training provided by the IOUs.

PG&E has a Tool Lending Library (TLL) with thousands of energy diagnostic tools available to borrow at no-cost to the borrower for short-term (~ 2 weeks) loans. The TLL addresses an up-front cost barrier faced by many small businesses and energy consultants. Once local health ordinances allow, tools will be available from the ETC in Stockton or from San Ramon. PG&E can also ship tools anywhere in California if the borrower or 3C-REN covers shipping costs.

The PG&E WE&T team does not offer soft skills training such as interviewing skills, resume writing, etc. A third-party implementer will coordinate with organizations that offer soft skills training as part of the statewide Career and Workforce Readiness (CWR) program launched in late 2021 (See Section 3 below).

PG&E WE&T does not offer the certifications listed in the 3C-REN Business Plan – BPI, HERS, or NATE; however, PG&E supports these certifications by providing classes that prepare students to take the tests and complete them successfully. Examples include PG&E's IHACI NATE Series, an 8-part class that prepares technicians to take the test. IHACI is an approved NATE testing proctor. Another example is PG&E's Combustion Safety and Depressurization class that prepares workers to take the BPI examination.

Southern California Edison

SCE WE&T Integrated Energy Education & Training Program – [SCE-13-SW-010A]

The SCE WE&T Integrated Energy Education & Training Program (IEET) offers resources and training programs that are aimed at shaping the current and future energy workforce through a series of occupational, employer, and technology-focused workshops and seminars, combined with workplace-based and hands-on technical training. This program aims to provide pathways to and training for certifications and credentials in energy efficiency-related industries

that also support California's clean energy objectives. Appendix B includes a list of trainings offered or scheduled for 2021 as an example of potential offerings for 2023.

In addition to the trainings offered, the Foodservice Technology Center conducts standards-based equipment testing and evaluation that enhance commercialization of emerging energy-efficient technologies and programs. These services are delivered with technical integrity and scientific rigor to ensure our partners stay competitive and maintain cost effectiveness.

The Energy Centers provide additional value-added customer programs and services such as the Tool Lending Library, tours, all of which are available at no-cost to the customer.

Southern California Gas Company

SoCalGas WE&T Integrated Energy Education Training (IEET) – [SCG3729]

The SoCalGas WE&T Integrated Energy Education Training (IEET) subprogram (formerly Centergies) offers both technical and foodservice workforce trainings that can leverage 3C-REN local contacts to inform and equip workforce talent with skills to assist in meeting the State's energy and climate goals. Appendix B includes a non-comprehensive list of expected trainings for 2023.

The WE&T Program contributes to the investor-owned utilities' (IOUs') energy efficiency goals by empowering customers and market actors with the knowledge to make energy reduction decisions. WE&T's primary target audience includes market actors who design, build, maintain, and operate buildings and building systems—engineers, technicians, building operators, designers, contractors, etc. Because these market actors have the potential to shape a building's energy use, WE&T teaches them how to recognize energy savings and balanced energy solutions to address GHG-reduction, and then provides them skills, tools, and resources to act upon those opportunities. Additionally, WE&T supports post-secondary institutions that are training future generations of the energy workforce by providing them energy efficiency, sustainability, and green career awareness classes, internships, materials and resources.

2. Coordination Protocol Between Programs

The goal of coordination between 3C-REN and the IOU WE&T programs, is to ensure that ratepayer funds deliver resources efficiently and effectively across the shared territories. The IOUs and 3C-REN will approach coordination with the

goal of offering transparency through regular communication, efficiency through a collaborative approach to any shared resources, and support for the success of programs across the service area. The IOUs and 3C-REN will meet regularly to coordinate the WE&T and C&S programs.

3C-REN aims to provide workforce, education, and training not currently being provided by the IOUs within the 3C-REN territory, as well as services targeting hard-to-reach markets that may complement existing IOU resources. To ensure 3C-REN can meet these eligibility categories, the IOUs will ensure their current list of scheduled WE&T trainings are available in their respective website for 3C-REN to use or provide 3C-REN with their list of scheduled WE&T trainings. Whenever feasible, 3C-REN will leverage existing IOU curriculum and training by communicating training needs via email or in regular coordination meetings with IOU partners. A clear chain of communication and identified contacts will be exchanged for each program and/or sub-program.

IOUs will provide their list of trainings to 3C-REN on a quarterly basis, and 3C-REN will provide a similar list to the four IOUs. The list of trainings will include the following information:

- Class name(s)
- Description(s)
- Instructor name(s)
- Whether IOUs owns content (as opposed to licensing it)
- Mode of access and location (ex: in-person, training center/city, online)
- Class schedule (if one exists) and URL for class calendar(s)

Each IOU and 3C-REN shall distribute this quarterly list of classes to the appropriate internal staff and/or consultant(s).

Additionally, a standing agenda item at the quarterly meeting will be to discuss the topics of trainings in development, even if only at a high level. This will reduce the potential of duplication of efforts.

Once 3C-REN reviews this list, 3C-REN will determine which of the IOUs' existing offerings should be leveraged and coordinate with the IOUs to deliver these resources. If 3C-REN determines there is a training gap, 3C-REN will develop additional training resources and communicate that to the IOUs, working to avoid duplication by leveraging any existing resources. The IOUs and 3C-REN will administer a post-course evaluation to course participants to assess the quality of the courses.

3. Coordination Between Statewide (SW) Program(s)

Working with PG&E as the statewide administrator for the Career and Workforce Readiness (CWR) and Career Connections (CC) WE&T subprograms, 3C-REN will leverage the coordination protocol described above to include any statewide considerations. The 3C-REN program is expanding and will include a career exploration series and would coordinate with the Career Connection sub-program team. The CWR implementer will be responsible for the design, implementation, and geographic distribution of the CWR program. Once the CWR implementer is under contract, PG&E will provide 3C-REN with the implementer's contact information.

B. 3C-REN C&S PROGRAM [TCR-CS-001]

The 3C-REN will continue to offer a cross-cutting C&S program designed to fill gaps in current IOU offerings for the 3C-REN territory. The 3C-REN C&S Energy Code Connect program offers local, in-person and on-line person-to-person trainings; Regional Forums; an Energy Codes Coach service that provides in-person, over the phone, texting, and online expert assistance for energy codes and green building standards; and a reach code support services in the northern portion of the 3C-REN territory (PG&E) that provides technical assistance and public outreach coordination similar to what SCE is offering in the lower half of the 3C-REN territory with Franklin Energy as a subcontractor. The use of Franklin Energy for this work was intentional and aids in offering a contiguous service without interruption throughout the territory. 3C-REN has had conversations with the SCE and PG&E Codes and Standards team to ensure the service is complimentary and not duplicative.

Through this program and its suite of services, public and private sector building professionals in the Tri-County region receive Energy Code and California Green Building Standards training and support for plan review and field compliance. All design and construction stakeholders, from architects to building inspectors and from mechanical engineers to plans examiners, are encouraged to attend these trainings. The Energy Codes Coach service, having local in-person and on-call experts for the region, fosters an environment where stakeholders have a deeper understanding of building performance, code compliance, and interrelated building practices. The goal is to increase comprehension, compliance, and enforcement of the Energy Code and Green Building Standards throughout the Tri-County region, providing the workforce with a more stable business climate and known code compliance resources. Lastly, the reach code

support service is designed to help jurisdictions develop and implement building codes that go beyond the current California energy code (Title 24, Part 6). This service will deliver support to jurisdictions in the northern Santa Barbara County and San Luis Obispo County with Franklin Energy as the implementer. 3C-REN will focus on these jurisdictions because SCE already delivers reach code support with Franklin Energy as an implementer in southern Santa Barbara County and Ventura County.

The program budget for 3C-REN C&S, TCR-CS-001 is \$1,884,021

The target audience is all public and private sector building professionals including construction and design-side stakeholders, architects and designers, building departments, contractors, architects, field inspectors, mechanical engineers, plans examiners checkers, and other stakeholders impacted by energy code. This is a non-resource program.

1. Comparable SCE and/or PG&E Programs

The IOU Compliance Improvement subprogram⁵ (of which Energy Code Ace is a key component) targets actors within the building and appliance energy code supply chains to maintain comprehensive statewide compliance with energy codes and appliance standards, such as: manufacturers, distributors, retailers, architects, energy consultants, contractors, plans examiners, building inspectors, etc. Whereas the California Energy Commission is responsible for implementing state policy by establishing new Codes and Standards, others (architects, energy consultants, mechanical engineers, IOUs, builders, contractors, etc.) are responsible for interpreting the code and completing compliance forms while jurisdictions' building departments are responsible for enforcing the code. Building codes and appliance standards can be difficult to understand and time consuming to implement, therefore some industry actors fail to comply with regulatory requirements fully.

Compliance improvement program needs are determined through a performance-based solution approach to identify training, tools, resources and outreach necessary to narrow the gap between actual and desired performance, and principals of adult learning theory are employed to improve knowledge swings during training and increase long-term retention. Multiple training modalities are used to maximize student participation. With a few exceptions, a consistent curriculum, featured on EnergyCodeAce.com, is developed by the compliance improvement program and delivered statewide by a team of subject

⁵ Note: The Compliance Improvement subprogram is administered statewide by PG&E, SCE, and SDG&E

matter experts.

The Reach Codes Subprogram, implemented by PG&E, SDG&E, and SCE, responds directly to California’s policy goal to significantly reduce greenhouse gas emissions and helps jurisdictions throughout the state leverage their unique authority to adopt ordinances that require increased efficiency and performance beyond the state’s minimum requirements. In addition to differentiating the jurisdiction as an efficiency leader, local energy ordinances accelerate the adoption of new equipment, technologies, code compliance, and energy-savings strategies to help pave the way for future code cycles. The subprogram experts develop robust toolkits as well as provide specific technical assistance to local jurisdictions (cities and counties) considering adopting energy reach codes. These include cost-effectiveness research and analysis, model ordinance language and other code development and implementation tools, and specific technical assistance throughout the code adoption process. The Reach Codes subprogram is a resource available to any local jurisdiction located throughout the state of California, regardless of who their energy providers are.

As mentioned, SCE also offers reach code support for jurisdictions with Franklin Energy as the implementer. This service is exclusive to SCE’s territory which includes southern Santa Barbara County and Ventura County.

Table 3: C&S Program Comparison

C&S	3C-REN	PG&E	SCE	SoCalGas
Non-Resource Program Name	3C-REN C&S Energy Code Connect	Statewide C&S Compliance Improvement Subprogram Statewide C&S Reach Codes Subprogram	Statewide C&S Compliance Improvement Subprogram Statewide C&S Reach Codes Subprogram	N/A
Eligible Measures	N/A	N/A	N/A	N/A
2023 Budget	\$1,884,021	Compliance Improvement: \$ 5,297,606 Reach Codes: \$2,074,846	Compliance Improvement: \$3,051,711 Reach Codes: \$1,379,860	N/A

C&S	3C-REN	PG&E	SCE	SoCalGas
Target Audience	All stakeholders impacted by energy code	Compliance Improvement: All stakeholders impacted by the energy code Reach Codes: Jurisdiction staff that develop energy ordinances; other market actors involved in the process	All stakeholders impacted by the energy code	N/A

2. Coordination Protocol between programs

The same coordination protocol as mentioned above for WE&T applies to C&S classroom and online trainings. Again, the goal of coordination between 3C-REN and the IOUs is to ensure that ratepayer funds deliver resources efficiently and effectively across the shared territories. With that in mind, the IOUs and 3C-REN will approach coordination with the goal of offering transparency through regular communication, efficiency through a collaborative approach to any shared resources, and support for the success of programs across the service area. The IOUs and 3C-REN will meet regularly to coordinate the WE&T and C&S programs.

3C-REN aims to provide coverage not currently being provided by the IOUs, as well as services targeting hard-to-reach markets that may complement existing IOU resources. The majority of 3C-REN's Energy Code Connect program activities are related to offering Energy Code and Green Building Standards trainings, Regional Forums, and the Energy Codes Coach service. This is also applicable for reach code support services in the PGE territory covered by 3C-REN. 3C-REN will deliver reach code support services to interested jurisdictions in northern Santa Barbara County and San Luis Obispo County while directing jurisdictions in southern Santa Barbara County and Ventura County to SCE and Franklin Energy for similar services.

The IOUs will provide 3C-REN with their respective lists of available C&S trainings including those in development stages. Whenever feasible, 3C-REN will leverage existing IOU curriculum and training by communicating training needs via email or in regular coordination meetings with the IOU. A clear chain

of communication and identified contacts will be exchanged for each program and/or sub-program.

IOUs' Compliance Improvement team representative will provide a list of trainings to 3C-REN on a quarterly basis and will include the following information:

- Class name(s)
- Description(s)
- Instructor name(s)
- Course length time
- Mode of access and location (ex: in-person, training center/city, online)
- Class schedule (if one exists)
- Course agenda

Additionally, a standing agenda item at the quarterly meeting will be to discuss the topics of trainings in development, even if only at a high level. This will reduce the potential for duplication of efforts.

Once 3C-REN reviews this list, 3C-REN will determine which existing offerings should be leveraged and coordinate with the IOUs to deliver these resources. 3C-REN will develop a calendar with potential dates, of when these offerings can be delivered to various audiences in the Tri-County region. This calendar will be shared with the IOU's and scheduled based on the availability and resource requirements. When 3C-REN determines there is a training gap, 3C-REN will develop additional training resources and communicate that to the IOUs, working to avoid duplication by leveraging any existing resources.

The IOUs will make the 3C-REN aware of resources available as courses are scheduled for delivery and new job aides (Energy Code Ace "resources" or "tools") are developed. A portion of the Statewide C&S Team's training schedule is set at the beginning of the year while the rest remains flexible since most courses are offered upon request as a result of the team's outreach efforts. All offerings are posted on the Energy Code Ace website training page as courses are scheduled.

3C-REN and the IOUs will plan to meet quarterly on reach codes, with the option of combining with the Compliance Improvement meeting for efficiency as needed. The IOUs will make the 3C-REN aware of Reach Code subprogram cost-effectiveness research and analysis, model ordinance language and other code development and implementation tools. The IOUs will invite the 3C-REN to statewide Reach Codes meetings where other RENs are included. The Reach

Code subprogram representatives will provide updates to the 3C-REN on relevant reach codes activities, at check-in meetings when reach codes are on the agenda or in ad hoc meetings as needed. The 3C-REN will reciprocate with updates on regional progress in supporting jurisdictions interested in developing energy ordinance and direct customers to IOU subprogram work products when they can be utilized in lieu of duplicating efforts.⁶

3. Coordination Between Compliance Improvement Subprogram(s)

As noted above, in addition to training offerings and Regional Forums, 3C-REN's C&S activities are also related to the Energy Codes Coach service which will refer customers who may benefit from statewide programs.

There is an extensive list of classes offered by the C&S team. The IOU Compliance Improvement team representative will provide their list of trainings to 3C-REN per the protocol listed above.

Should the need to coordinate efforts arise, 3C-REN will follow similar protocols as defined under the coordination protocol between programs. Specifically, 3C-REN will work with the local IOU administrators to identify appropriate program contacts, confirm existing resources, share existing resources, and collaboratively determine if resources should be jointly offered or if 3C-REN should build upon resources.

C. 3C-REN Residential Home Energy Savings Multifamily [TCR-Res-002] and Single Family NMEC [TCR-Res-003]

3C-REN will continue to target hard-to-reach (HTR) single-family residential customers in Ventura, Santa Barbara and San Luis Obispo Counties but will shift from direct install to a pay-for-performance model. The program will deliver incentives based on metered savings, using a population Normalized Metered Energy Consumption (NMEC) Measurement and Verification (M&V) approach. The program implementer, Recurve, will deliver energy upgrades utilizing a network of energy efficiency installers (aggregators) who will be paid incentives based on the metered savings achieved with their installations.

The aggregators will work directly with single-family residents to sell and install EE measures. The aggregators will be paid incentives based on the metered savings following the EE upgrades, allowing for flexibility in the measures offered and customer acquisition strategy not seen in prescriptive programs. The aggregators can offer a suite of measures that generate kWh, kW, and Therm

⁶ Example: Cost Effectiveness Explorer tool, <https://explorer.localenergycodes.com>

savings, which could include lighting, HVAC, water heaters, insulation, smart thermostats, water heater controls, storage, etc. The program will not have a list of eligible measures, but rather allow for customized solutions. The flexibility of the approach will allow aggregators to work directly with customers to meet their needs in designing a scope of work that leads to metered energy savings.

HTR customers will be prioritized in this program through an incentive design that pays more for the energy savings of HTR customers; the program will create the market forces to drive implementers to deliver comprehensive energy upgrades to those that need it most. Additionally, the program will seek to enlist local contractors as aggregators to support local economic growth and recognizing that local people are most connected to the target HTR customers. Efforts to engage the local workforce will also be aligned with 3C-REN's WET program goals.

The PAs are exploring the potential for the IOUs to provide both program participant and non-program participant data which 3C-REN views as integral to program delivery and calculating savings, identify HTR customers, determine eligibility, and create comparison groups. The PAs are in the process of investigating whether and what confidential data the IOUs are authorized and enabled to provide to 3C-REN and its third-party implementer for this program.

The program budget for 3C-REN Residential Home Energy Savings Single Family NMEC in 2023 will be \$4,949,974

In addition to serving single-family customers, 3C-REN launched its Multifamily Home Energy Savings program in October 2021. The program serves hard-to-reach (HTR) multi-family building owners, renters, and Disadvantaged Communities (DACs) in Ventura, Santa Barbara and San Luis Obispo Counties.

The program is a multi-measure, whole-building energy efficiency rebate program marketed to multifamily property owners and managers with the intent that the investments in multifamily properties will benefit both the manager/owner and the residents of the properties who often pay the energy bills directly.

Multifamily properties with five or more units are eligible to participate. The program includes site assessments, technical assistance, and a rebate structure that is based on the number of units in the complex. To qualify for the rebates, the project scope of work must achieve a minimum of 0.25MT CO₂e savings per apartment unit. The incentive structure also includes enhanced incentives for underserved properties, and adders for higher performance measures, such as

heat pumps.

To participate in the program, property owners/managers (participants) can sign up on the 3C-REN website. Marketing efforts to drive participants to sign up will include events, calls, emails, etc. Following sign up, participants will work with a Technical Assistant (TA) to conduct an energy assessment to identify energy upgrades and associated GHG savings predictions and develop a project scope. Once the scope has been developed (that meets the GHG savings requirements), a rebate will be reserved for the participant. The participant is responsible for implementing the project scope. It is expected that participants will work with contractors that they already have relationships with, or to review quotes from other area contractors. Although the responsibility lies with the participant to implement the project scope, the TA will provide assistance throughout the bid process and construction of the project. Technical assistance will also include support in identifying financing and accessing additional incentives beyond those offered in this program. Once construction is completed, the TA will verify the project and process incentive payments, which are paid directly to the participant.

The project scopes for each property will vary based on energy assessments, but can include whole building, common area, and in-unit measures. The program does not provide a prescriptive list of eligible measures but will allow energy-saving upgrades for domestic hot water, HVAC, building envelope, appliances, and lighting.

The 2023 program budget for 3C-REN Residential Home Energy Savings Multifamily will be \$3,430,037

The total budget for 3C-REN Residential Programs in 2023 will be \$8,380,011

1. Comparable IOU Programs

Table 4: RES DI Program Comparison

DI	3C-REN	SCE		PG&E		SoCalGas
Resource Program Name	TCR-Res-002 and TCR- RES -003 -Home Energy Savings Program	SCE_3P_2020RCI_004 Willdan Multifamily Energy Efficiency Program (MFEET)	SCE-13-SW-001G SCE Residential Direct Install Program	PGE Pay For Performance Programs: 1) Comfortable Home Rebates (PGE_Res_001a) 2) Home Intel (PGE_Res_001b),	PGE_Res_003 Multifamily Energy Savings Program (MESP)	SCG3861 – Residential – Community Language Efficiency Outreach SCG3883 – ResACE- Residential Advanced Clean Energy Program SCG3885 – Residential – Manufactured Mobile Homes

DI	3C-REN	SCE		PG&E		SoCalGas
<p>Eligible Measures</p>	<p>The Multifamily Home Energy Savings program offers site-specific measures that achieve energy savings both in-unit and in common areas.</p> <p>The Single Family Home Energy Savings program's population NMEC design pays incentives for any project that achieves metered kWh or therm savings. Therefore, there is not a measure list associated with the program; envelope, HVAC, lighting, water heating, and other measures may all be part a project.</p>	<p>The program offers deemed, customized calculated, and NMEC-based site-specific approach measures for energy-saving equipment for both common and in-unit areas of multifamily properties; end uses include HVAC and Lighting, and Water Heating, , Pool pump, High efficiency kitchen appliances, Showerheads and Faucets and Energy Management Technologies.</p>	<p>Fan Controller, Duct Seal, Smart Thermostat, Brushless Fan Motor, Faucet Aerators and Efficient Showerhead.</p>	<p>Customers across PG&E territory are eligible who have 12 month energy data:</p> <ol style="list-style-type: none"> 1) Comfortable Home Rebates: Home maintenance and upgrade program focused on Heating, cooling, water heating, insulation, duct work, air sealing, lighting, and pool pumps. Cost varies depending on measures selected, rebates from \$585 to \$3,500 depending on measures selected and CEC Climate Zone 2) Home Intel: No cost to customer, In-depth analysis of home's energy use, customized behavioral recommendations and energy coaches to help customers. Includes monthly energy efficiency progress report. 	<p>PG&E's Multifamily Energy Savings Program includes a direct install program option for multifamily properties within PG&E's service territory. Eligible measures include Low flow and thermostatic showerheads, Low flow sink/lavatory aerators, Smart Thermostats, Hot water pipe Insulation, Refrigerators and freezers, High efficiency furnaces, and common area Energy Star clothes washers, and NGAT testing where applicable.</p>	<p>Exhaust Venting (Kitchen/Bath) – cut opening with vent (Done in conjunction with attic insulation), Vent – Eave (Done in conjunction with attic insulation), Duct Repair – (Done in conjunction with attic insulation), Duct Testing, Duct Sealing, Duct Board Installation, Low Flow Kitchen Faucet Aerator, Low Flow Bathroom Faucet Aerator, Low Flow Showerhead, Low Flow Handheld Showerhead, Showerhead adaptor, Shower Diverter Valve (in conjunction with Low Flow Showerhead), Thermostatic Shower Valve, Smart Thermostat, Natural Gas Appliance Testing (NGAT) (done in conjunction with Duct Sealing).</p>

DI	3C-REN	SCE		PG&E		SoCalGas
2023 Budget	\$8,380,011	\$19,595,052	\$15,124,543	\$4,903,644 PGE_Res_001b: Home Intel - \$1,906,631	\$5,063,137	\$7,466,511
Target Audience	Will target hard-to-reach (HTR) residential customers, including single-family, multifamily renters and owners, and moderate-income families not currently being served by, nor meeting the criteria of current ESA and LIHEAP in Ventura, Santa Barbara and San Luis Obispo Counties.	All multifamily customer (small, medium and large) segments of the residential sector across SCE's service territory including hard-to-reach (HTR) customers and/or those in disadvantaged communities (DACs). Property owners and managers of existing multifamily properties. The program targets all levels of multifamily buildings (i.e., low-income).	Residential single-family home customers within SCE's service territory.	Single Family Residential with 12 months energy use data, within PG&E's service territory. Some Multifamily customers may be eligible for the Home Intel program. Some 2-4 unit buildings may be eligible for Comfortable Home Rebates. Home Intel and Home Energy Rewards are no-cost to customers and therefore customers of all incomes, above ESA eligibility, can be supported by these programs.	MESP has a target audience of all types of multifamily buildings that have 5 or more units. MESP has HTR and DAC goals	Mainstream, market rate homeowners.

Southern California Edison

SCE-13-SW-001G - SCE Residential Direct Installation Program (RES DI)

The RES DI program targets single-family residential customers. The program allows customers to realize the value of energy efficiency through a variety of no-cost products and services to meet individual customer needs and enable continuous energy management. Additionally, the services offered through the RES DI program are leveraged by various Water District agencies that deploy water conservation program offerings to deliver a comprehensive water energy nexus solution.

Target marketing is performed in select areas to create customer awareness and engagement. Customers are provided with education on the measures installed in their homes, other measures that could further improve their energy savings, and a general understanding about the importance of saving energy and the large impact everyday behavior has on conservation.

The program is integrated with the Demand Response (DR) Smart Energy Program (SEP) to deliver an Integrated Demand Side Management (IDSM) offering. Smart Thermostat installations performed under Res DI are leveraged to enroll eligible customers in SEP.

SCE_3P_2020RCI_004 - Willdan Multifamily Energy Efficiency Program (MFEPP)

SCE has contracted with Willdan Energy Solutions (Third-Party) to develop, implement, and offer this Energy Efficiency (EE) Program to SCE customers. This Third-Party program provides comprehensive EE for all multifamily (MF) customer segments of the residential sector across SCE's service territory. This program seeks to influence a significant increase in the adoption of EE technology and/or measures among the end-users of this market sector using the Deemed, Custom Calculated and Normalized Metered Energy Consumption approaches. The Program offers a consolidated approach that includes segment-specific marketing, technical assistance, technologies, whole-facility opportunities, financing, and measurement and verification (M&V).

The program goes beyond basic EE to include Demand Response (DR), energy management technologies and fully Integrated Demand-Side Management (IDSM) solutions. IDSM and electrification upgrades are offered to customers, excluding any storage technology. This approach minimizes the barriers for

customer participation.

This program will offer a single point of contact (SPOC) and a significant share of program services will be provided through Channel Partners, Trade Pros, Installers, and community-based organization (CBO) networks. The program's primary objective is to meet SCE's business plan goals and achieve deeper savings through comprehensive energy management solutions. An additional objective is to increase EE adoption rates by targeting MF residential sub-segments including hard-to-reach (HTR) customers and/or those in disadvantaged communities (DACs). An integrated team with extensive MF experience will develop tailored responses that align with SCE's objectives and draws on existing customer relationships with property owners to increase the number of completed projects.

Southern California Gas Company

SCG 3861 Community Language Efficiency Outreach (CLEO)

The CLEO program is a highly targeted residential EE Marketing, Education and Outreach (ME&O) and Direct Install (DI) program specifically targeted to the Vietnamese, Indian, Chinese Korean, Hispanic and African American (VICK-HA) speaking customers of SoCalGas. The CLEO has a unique, 100% in-language strategy which serves a key role in overcoming the English as a second language market barrier and targets hard-to-reach, low- and medium-income customers. The CLEO markets SoCalGas programs and offers energy efficiency education and training and participates in community events, where customers are encouraged to fill up energy efficiency surveys and sign up for direct install of EE measures. The CLEO's marketing efforts encourage and create participation in SoCalGas energy efficiency programs. The CLEO also targets SoCalGas customers in other Southern California Power Producers Association (SCPPA) municipal cities.

SCG3883 Residential Advanced Clean Energy Program

SoCalGas Residential Advanced Clean Energy Program is a comprehensive advanced clean energy solution for single-family customers. The advanced clean energy path begins with the delivery of cost-effective therm-rich direct install measures that transitions to an advanced clean energy opportunity for the single-family customer that can be financed by outside sources. The Residential Advanced Clean Energy Program leverages IOU electric, municipal electric, and local agency clean energy single-family opportunities offering, in addition to

natural gas clean energy, electric, and carbon emission reduction clean energy solutions.

SCG 3885 Manufactured Homes Program

The Manufactured Homes Program provides no- and low-cost energy-efficiency improvements and replacement appliances to SoCalGas customers living in mobile or manufactured homes. Qualifying manufactured home customers will be provided with energy conservation evaluations, installations of low-flow showerheads and faucet aerators and natural gas energy efficiency improvements, such as duct test and seal of HVAC systems and smart thermostats all at no cost. In addition to the no-cost energy-efficiency improvements, the program also provides incentives and financing to upgrade and replace inefficient gas appliances with advanced energy-efficiency technologies. These include high efficiency furnaces, high efficiency storage water heaters, and tankless water heaters. This program is currently available to residents of Fresno, Kern, Kings, San Luis Obispo, Santa Barbara, Tulare, and Ventura (CA) Counties

Pacific Gas and Electric Company

PGE_Res_001a, PGE_Res_001b, Pay for Performance (P4P) Programs (Comfortable Home Rebates, Home Intel)

Customers across PG&E territory who have 12 months of energy data are eligible to participate in PG&E's P4P programs, among other eligibility criteria. Under the Comfortable Home Rebates program, home maintenance and upgrades are focused on heating, cooling, water heating, insulation, duct work, air sealing, lighting, and pool pumps. Costs vary depending on measures selected by the customers and rebates vary between \$585 and \$3,500 depending on measures selected and CEC Climate Zone. Through the Home Intel program, there is no cost to customer. Energy coaches provide an in-depth analysis of a home's energy use and customized behavioral recommendations help customers. Customers receive a monthly energy efficiency progress report.

PG&E_Res_003 Multifamily Energy Savings Program

PG&E's Multifamily Energy Savings Program (MESP) is a third-party implemented program by TRC Solutions to serve multifamily properties of units five or greater within PG&E's service territory. MESP offers energy efficiency upgrade services to multifamily buildings through deemed and custom projects

as well as a direct install delivery channel. The direct install component offers multifamily properties low-cost/no-cost measures. Participation in the direct install track may serve as a springboard to a property participating in deemed or custom upgrade projects.

TRC began MESP ramp up activities following CPUC approval of the contract in October 2020, following the completion of the first wave of PG&E's third-party, multi-sector solicitations. MESP aims to serve multifamily customers, inclusive of smaller properties and underserved regions that will most benefit from property upgrades.

2. Coordination Protocol Between Programs

As described for previous programs, the IOUs and 3C-REN approach coordination with the goal of offering transparency through regular communication, efficiency through a collaborative approach to any shared resources, and support for the success of programs across the service area.

For its residential programs, 3C-REN and the IOUs will communicate via email or in regular coordination meetings. A clear chain of communication and identified contacts will be exchanged for each program. 3C-REN and the IOUs have also developed a protocol to verify customer eligibility to prevent "double dipping" and will use this protocol going forward.

The IOUs will make the 3C-REN aware of programs and resources available for multifamily and single family residential programs. The IOUs will provide written notice once advice letters have been filed and implementation plans have been uploaded to CEDARS of any new program similar to 3C-REN's residential programs. 3C-REN will determine whether resources, such as those for low and moderate- income families, should be jointly offered or if the 3C-REN will build upon IOU resources to offer such programs independently. This will assist with market penetration and afford both the IOU and 3C-REN cross promotion and continuity of services.

There may be instances where a customer may contact 3C-REN for resources, and 3C-REN may identify that the customer would be best served by an IOU program. 3C-REN and the IOUs have established a protocol for customer handoff should either program identify a referral opportunity for another organization's resources. The handoff protocol minimizes the number of customer touchpoints to maximize the potential for program participation. Ideally, 3C-REN will be able to provide a "warm" or immediate handoff to the IOUs or third-party implementer while the customer is actively engaged by email/phone,

so that the customer experiences a seamless service offering between 3C-REN and the IOUs.

3. Coordination Between SW Program(s)

The 3C-REN residential program offerings are not substantially similar to any statewide programs and therefore the parties to this JCM have determined that regular coordination to avoid duplication is unnecessary. However, there are some portions of the program that may allow for and require coordination among programs. In particular, 3C-REN will provide referrals to statewide financing programs to program participants when appropriate. 3C-REN will follow similar established coordination protocols for coordination with utility programs to ensure coordination with statewide programs.

III. 3C-REN PROGRAM COMPLIANCE WITH D.12-11-015

A. 3C-REN UNDERTAKING ACTIVITIES THAT UTILITIES CANNOT OR DO NOT INTEND TO UNDERTAKE.

Although the IOUs do offer C&S and WE&T resources, the IOUs are not currently delivering localized, hands-on services in the 3C-REN service area. The majority of the IOU trainings are offered virtually or at IOU training facilities, which are not located in 3C-REN service area. As noted in D.18-05-041 “3C-REN’s proposed activities for WE&T and code compliance have value in terms of the significant distance of its service area to the IOUs’ training centers.”⁷

For WE&T, the 3C-REN program offers regional, on-the-ground resources to address this gap. As noted in the 3C-REN Business Plan, “the current IOU training and education programs require substantial travel to energy centers outside of the area and are often not designed to meet the needs of a residential home performance workforce.” Specifically, the 3C-REN program helps build career pathways by providing access to in-person trainings and mentorships, including HTR workers and those in identified DACs. This includes local Energy Advisor services for in-field training to build capabilities and on-the-job skills, a service not offered by the IOUs. Separately, 3C-REN offers in-person training on technical and soft skills, a service not offered locally by the IOUs.

For C&S, the 3C-REN established a regional Energy Code Coach offering service to run concurrent to and alongside other training efforts. This approach provides

⁷ D.18-05-41, Finding of Fact 63

hands-on and locally relevant resources. Building departments professionals in the Region receive building performance support and mentoring for plan review and field compliance. All design-side stakeholders, from the architect to field inspector and from the mechanical engineer to the plan checker, are encouraged to attend trainings. The Code Coach approach, having local counter-to-counter and on-call experts for the region, fosters an environment where stakeholders have a deeper understanding of building performance and interrelated concerns.

B. 3C-REN UNDERTAKING PILOTS ACTIVITIES WHERE THERE IS NO CURRENT UTILITY UNDERTAKING, AND WHERE THERE IS A POTENTIAL FOR SCALABILITY TO A BROADER GEOGRAPHIC REACH, IF SUCESSFUL.

At this time, 3C-REN is not proposing a program using this threshold criteria for compliance with D.12-11-015. Instead, 3C-REN is proposing programs that both fill in gaps to IOU services and that target HTR markets.

C. 3C-REN UNDERTAKING PILOT ACTIVITIES IN HARD TO REACH MARKETS, WHETHER OR NOT THERE IS A CURRENT UTILITY PROGRAM THAT MAY OVERLAP.

As noted in D.18-05-041, the CPUC intends to “authorize 3C-REN’s proposed business plan activities for residential programs that target hard to reach customers.”⁸ Through its residential programs, 3C-REN targets hard-to-reach residential customers, including single family and multifamily, renters and owners, and DACs in Ventura, Santa Barbara and San Luis Obispo Counties.

3C-REN addresses this hard-to-reach market through its intervention strategies of “Strategy 1.” Build trust and interest in energy savings over time,” and “Strategy 2.” Apply neighborhood approaches to achieve scale in reach and savings.” Under the first strategy, activities include offering a direct install program targeting hard-to-reach customers, as well as simple upgrade packages offered for cost to streamline easy installation and adoption of deeper retrofits in hard to reach customers. Under the second strategy, 3C-REN deploys a neighborhood-based approach to engage hard-to-reach customers and integrate workforce development opportunities to build skills and community buy-in.

As noted in the Business Plan, “3C-REN intends to offer services to all residents in the three counties, however, the hard to reach populations of

⁸ D.18-05-41, Conclusion of Law 54

moderate income and rural areas will be targeted in marketing and outreach, as well as in program design.” There may be instances where a customer may contact 3C-REN, but the customer would be best served by an IOU program. 3C-REN and the IOUs established and use a protocol for customer handoff, as described above.

Table 5. 3C-REN CROSS-CUTTING & RESIDENTIAL D. 12-11-015 Compliance, by program

D.12-11-015 Threshold Criteria that apply for each program.	Comparable IOU Program if applicable.	1. Activities that utilities cannot or do not intend to undertake.	2. Pilot activities where there is no current offering, and where there is potential for scalability to a broader geographic reach, if successful.	3. Pilot activities in hard to reach markets, whether or not there is a current utility program that may overlap.
<p>3C-REN WE&T TCR-WET-001</p>	<p>PG&E Integrated Energy Education & Training (IEET)</p> <p>SCE WE&T IEET (SCE-13-SW-010A)</p> <p>SoCalGas WE&T Integrated Energy Efficiency Training (SCG3729).</p>	<p>Strategy 3. Establish local, targeted training for building professionals.</p> <ul style="list-style-type: none"> • Local Energy Advisor for in-field training to build capabilities and on-the-job skills • In-person training, hosted locally, on technical and soft skills. 		
<p>3C-REN C&S TCR-CS-001</p>	<p>Statewide C&S Compliance Improvement Subprogram</p> <p>Statewide C&S Reach Codes Subprogram</p>	<p>Strategy 4. Provide Regional assistance to Building Departments and Jurisdictions to help comply and adjust to Codes and future updates. Local Energy Code Coach service to provide ongoing technical training for building departments</p>		

D.12-11-015 Threshold Criteria that apply for each program.	Comparable IOU Program if applicable.	1. Activities that utilities cannot or do not intend to undertake.	2. Pilot activities where there is no current offering, and where there is potential for scalability to a broader geographic reach, if successful.	3. Pilot activities in hard to reach markets, whether or not there is a current utility program that may overlap.
<p>3C-REN Residential</p> <p>TCR-Res-002 and TCR-Res-003</p>	<p>SoCalGas Residential Energy Efficiency Program (SCG3702)</p> <p>SoCalGas Home Upgrade Program (SCG3705)</p> <p>SoCalGas RES ACE (SCG 3820)</p> <p>SCE RES DI (Formerly Energy Upgrade California – MIDI) (SCE-13- SW-001G)</p> <p>SCE Willdan Multifamily Energy Efficiency Program (MFEEP) (SCE_3P_2020RCI_004)</p> <p>PG&E Multifamily Energy Savings Program (MESP) (PGE_Res_003)</p> <p>PG&E Pay for Performance (P4P) Programs (PGE_Res_001a, PGE_Res_001b)</p>			<p>Strategy 1. Build trust and interest in deeper energy savings over time.</p> <ul style="list-style-type: none"> • Offer a programs targeting hard- to-reach customers • Develop simple upgrade packages to streamline and offer easy installation and adoption of deeper retrofits <p>Strategy 2. Employ neighborhood approaches to achieve scale in reach and savings.</p> <ul style="list-style-type: none"> • Integrate workforce development into neighborhood programs to build skills and community buy- in

IV. DATA SHARING PROTOCOL

The IOUs have data governance and protection obligations for sharing any customer data. Before the IOUs share data that they are authorized to share by applicable law and/or tariff for double-dip check purposes or to support a 3C-REN program, the following minimum data security and privacy protocols need to be completed:

- The party seeking customer data has a contract with the County of Ventura on behalf of 3C-REN or with the lead contractor for a 3C-REN program that includes acceptable privacy and data protection and liability provisions.
- The party seeking data has executed a Non-disclosure Agreement (NDA) with the IOU.
- The party seeking data has completed an IOU's Third-Party Security Review (TSR) and TSR renewals.

For avoidance of doubt, these requirements are non-exhaustive, and the parties will develop additional protocols.

APPENDIX A - IOU(s) PORTFOLIO SUMMARY OF PROGRAMS OFFERED FOR 2023

For information on IOUs portfolio of programs, please refer to the California Energy Data and Reporting System <https://cedars.sound-data.com/programs/list/>.

Table 1. PG&E Summary of Comparable Programs

IOU Program Unique ID	Sector	Annual Budget	Eligible Measures
PG&E Integrated Energy Education & Training [PGE21071]	Cross-cutting: WE&T	\$8,155,242	Not applicable. Non-resource program
PG&E Compliance Improvement Program [PGE21053]	Cross Cutting: C&S	\$5,297,606	Not applicable. Non-resource program
PG&E Reach Codes Program [PGE21054]	Cross Cutting: C&S	\$2,074,846	Not applicable. Non-resource program
PG&E Multifamily Energy Savings Program (MESP) [PGE_Res_003]	Residential	\$5,063,137	Low flow and thermostatic showerheads, Low flow sink/lavatory aerators, Smart Thermostats, Hot water pipe Insulation, Refrigerators and freezers, High efficiency furnaces, and common area Energy Star clothes washers, and NGAT testing where applicable.
PG&E Pay for Performance (P4P) Programs [PGE_Res_001a, PGE_Res_001b]	Residential	\$4,903,644 ⁹	This program claims savings through NMEC methodology and not deemed measures. However, the current measures are: behavioral, LEDs, Low flow sink/lavatory aerators, smart thermostats, Heating, cooling, water heating, insulation, duct work, air sealing, lighting, and pool pumps.

⁹ This total reflects the combined 2021 ABAL program budgets of three PG&E Residential P4P programs: Comfortable Home Rebates (\$3,478,918), Home Intel (\$667,404), Home Energy Rewards (\$757,322)The 2022 budget will be provided in the 2022-2023 BBAL.

Table 2. SCE Summary of Comparable Programs

IOU Program Unique ID	Sector	Annual Budget ¹⁰	Eligible Measures
SCE WE&T Integrated Energy Education & Training Program (formerly Centergies) [SCE-13-SW-010A]	Cross-cutting: WE&T	\$8,840,814	Not applicable. Non-resource program
SCE C&S – Compliance Improvement [SCE-13-SW-008C]	Cross Cutting: C&S	\$3,051,711	Not applicable. Non-resource program
SCE C&S – Reach Codes	Cross Cutting: C&S	\$1,379,860	Not applicable. Non-resource program
SCE Residential Direct Install [SCE-13-SW-001G]	Residential	\$15,124,543	Fan Controller, Duct Seal, Smart Thermostat, Brushless Fan Motor, Faucet Aerators and Efficient Showerhead.
SCE Willdan Multifamily Energy Efficiency Program (MFEEP) (SCE_3P_2020RCI_004)	Residential	\$19,595,052	The program offers deemed, customized calculated, and NMEC-based site-specific approach measures for energy- saving equipment for both common and in-unit areas of multifamily properties; end uses include HVAC and Lighting, and Water Heating, Pool pump, High efficiency kitchen appliances, Showerheads and Faucets and Energy Management Technologies.

¹⁰ 2023 Budgets are based on approved 2022-2023 Annual Budget Advice Letter (ABAL) filings (SCE AL 4633-E).

Table 3. SoCalGas Summary of Comparable programs

IOU Program Unique ID	Sector	Annual Budget	Eligible Measures
SCG3729 – WE&T-Integrated Energy Education Training (IET)	Cross Cutting	\$4,350,000	Not applicable.
<p>SCG3702 – RES-Residential Energy Efficiency Program</p> <p>SCG3705 – RES-Home Upgrade Program</p> <p>SCG3764 – RES-LivingWise</p> <p>SCG3861 – RES-Community Language Efficiency Outreach-Direct Install</p> <p>SCG3883 – RES-Residential Advanced Clean Energy</p> <p>SCG3885 – RES-Manufactured Home Program (Staples)</p> <p>SCG3888 – RES-Multi Family Space and Water Heating Controls</p> <p>SCG3889 – RES-Multifamily Energy Alliance</p>	Residential	\$35,580,979	<p>The residential programs listed encompasses various delivery channels and measures. These programs can have integrated direct install, co-pay, rebates, education, and whole building attached to these programs. For example, SCG 3705, uses approved a CEC software to create a whole building incentive program towards multifamily buildings. Listed below are some of the measures that are used by SCG’s contractors.</p> <ul style="list-style-type: none"> • Smart Thermostat (installation & setup) • Duct Sealing and Testing • Water Heater Pipe Wrap • Low-flow Showerheads • Faucet Aerators • Tub Spout & Thermostatic Shut-off Showerhead • Thermostatic Shower Valves • Premium High Efficiency Toilets • Smart Irrigation Water Controller with Weather-Based Capabilities • Smart Hose Bib with Weather-Based Capabilities • High Efficiency Furnaces • Tankless Water Heaters • Fireplace Inserts • Education • Insulation

APPENDIX B - WORKFORCE, EDUCATION, AND TRAINING CLASS LIST

Classes in Alignment with 3C-REN Focus Areas, Full Class List and On-demand Class List

PG&E Full Class List

Building Envelope	
1.	Advanced Framing for Energy and Resource Efficiency
2.	Air Sealing and Insulating Existing Homes: Addressing Air Leakage and Thermal Performance in Ceilings without Attics
3.	Air Sealing and Insulating Existing Homes: Addressing Common Hazards During Energy Upgrades
4.	Air Sealing and Insulating Existing Homes: Air Leakage Control for Interstitial Cavities
5.	Air Sealing and Insulating Existing Homes: Attic Ventilation for Efficiency, Access, and Wildfire Safety
6.	Air Sealing and Insulating Existing Homes: Creating Continuity in Ceiling Air Barrier
7.	Air Sealing and Insulating Existing Homes: Developing a Work Scope for Attic Efficiency Upgrades
8.	Air Sealing and Insulating Existing Homes: Improving the Thermal Performance of Attic Knee Walls
9.	Air Sealing and Insulating Existing Homes: Interpreting and Prioritizing Infrared and Blower Door Results
10.	Air Sealing and Insulating Existing Homes: Recessed Fixtures in Vented Attics
11.	Air Sealing and Insulating Existing Homes: Ventilation Terminations and the Enclosure
12.	Air Sealing Strategies for Zero Net Energy Homes
13.	Air Sealing with Low VOC Materials
14.	Balanced Ventilation for Better Health, Comfort, and Energy Efficiency: IAQ, OAQ, Ventilation and Filtration
15.	Balanced Ventilation for Better Health, Comfort, and Energy Efficiency: System Types, Install Strategies, Duct Design and Critical Details
16.	Basics of Photovoltaic (PV) & Energy Storage Systems (ESS) for Grid-Tied Applications (2-Part)
17.	Building Envelope Commissioning Case Studies (Previously Recorded)
18.	Building Science 1.0: Overview and Introduction to Control Layers
19.	Building Science 2.1: Introduction to Heat Transfer
20.	Building Science 2.2: Airtightness and Air Barriers
21.	Building Science 2.3: Understanding and Limiting Thermal Bridging
22.	Building Science 2.4: Introduction to Continuous Insulation and Cladding Attachment
23.	Building Science 2.5: Introduction to Windows, Curtain Walls, Window Walls and Shading Design
24.	Building Science 2.6: Introduction to Moisture and Buildings
25.	Building Science 2.7: Understanding the Psychrometrics of Condensation
26.	Building Science 2.8: Introduction to the Control of Rain and Groundwater Penetration
27.	Carbon Free Homes: Features, Benefits, Valuation
28.	Design Tools, Methods and Case Studies on the Design of High-Performance Facades - (Previously Recorded)
29.	Enclosure Systems and Materials: Architectural Precast
30.	Enclosure Systems and Materials: Portland Cement Plaster on Framed Walls
31.	Enclosure Systems and Materials: Unitized Curtainwall
32.	Energy Efficiency and Solar For Homeowners

33.	Energy Resiliency for Homes (Previously recorded)
34.	Energy Savings through Process Improvement and Optimization
35.	Home Electrification Retrofits Without Upsizing the Electric Panel - (Previously Recorded)
36.	Home Energy Series: Session 2: Home Systems: Understanding Your Home's Building Enclosure and its Major Systems
37.	How to Design and Build High-Performance Attics
38.	How to Design and Build High-Performance Walls
39.	How to Plan and Build Multifamily Passive House for Less
40.	Introduction to Passive House Trades
41.	Introduction to the Passive House Standard
42.	Modular Construction & Panelized Facades
43.	Retrofitting Crawlspace: Air Barrier and Thermal Barrier Alignment in Crawlspace
44.	Retrofitting Crawlspace: Air Sealing and Insulating Crawlspace Subfloors
45.	Retrofitting Crawlspace: Installing Ground Cover for Vapor, Air, and Thermal Control
46.	Retrofitting Crawlspace: Insulation Systems for Stem Walls
47.	Retrofitting Crawlspace: Prepping Crawlspace for Moisture Management and Efficiency
48.	Retrofitting Crawlspace: Updating Foundation Vents for Efficiency, Rodent Control, and Wildfire Safety
49.	Retrofitting Homes for Electrification and Decarbonization
50.	Selling High Performance Homes: How Realtors Earn Stellar Referrals While Boosting Profits -
51.	Window Installation Procedures to Provide Real World Performance and Prevent Water Intrusion
52.	Window Selection for New and Existing Homes
Energy Code and Standards	
53.	The Architecture 2030 ZERO Code and California (Previously Recorded)
54.	The Quest for Performance and California Code Commissioning Requirements (Previously Recorded)
55.	Title 24 (2019): Where We're Headed With the Residential Standards
56.	Title 24 Documentation for Architects: EUI, 2030 Goals, and Getting the Most from Consultants (Previously Recorded)
HVAC/R	
57.	3D Residential HVAC Design (No CAD Required) (2-Part)
58.	ACCA CCA Dry Climate Nonresidential Manual N, CS, and QD Series with Wright soft (3-Part)
59.	ACCA Manual D Part 1, Duct Design
60.	ACCA Manual D Part 2, Duct Design with WrightSoft
61.	ACCA Manual H, Residential Heat Pump, Design and Installation
62.	ACCA Manual J and S
63.	ACCA Manual J and S, Equipment Selection & Sizing
64.	ACCA Manual J Mobile-Cool Calc
65.	ACCA Manual J Mobile-Wrightsoft
66.	Advanced HVAC Control Approaches for Variable-Air-Volume Systems (Previously Recorded)
67.	Airflow Testing and Diagnostics Live Online (2-Part)
68.	Basic Heating, Ventilating, & Air Conditioning
69.	Case Studies for Residential Electrification Retrofits

70.	COVID-19 Series, Session 1: Human Health & the Built Environment in the Endemic Era
71.	COVID-19 Series, Session 3: The Role of HVAC Systems - (Previously Recorded)
72.	Ductless Mini Split Design, Installation, & Performance
73.	Electric Heat Pumps for Space Heating and Cooling
74.	Electric Heat Pumps for Water Heating
75.	Gas Heating CAQI/QM/QS
76.	Heat Pump Technologies for Space Conditioning and Water Heating
77.	Heat Pump Water Heater Retrofit - Energy Cost Estimator: Overview and Demonstration (Previously Recorded)
78.	Heat Pumps in Retrofit Construction - Space Conditioning and Water Heating
79.	Heating Hot Water and Steam Systems: Design, Performance, and Commissioning (2-Part)
80.	HVAC - Chilled Water Systems (4-Part)
81.	HVAC Fundamentals: New Ideas for Novices (2 Day Class)
82.	HVAC Heat Pump Retrofit - Energy Cost Estimator: Overview and Demonstration (Previously Recorded)
83.	HVAC System Testing for Energy Efficiency (3-Part)
84.	IHACI: AC-HP Refrigeration Module (4-Part)
85.	IHACI: Air Distribution Module (4-Part)
86.	IHACI: Electrical Module (4-Part)
87.	IHACI: Gas Heating CAQI/QM/QS (2-Part)
88.	IHACI: NATE AC-HP Refrigeration & Air Distribution Training (4-Part)
89.	IHACI: NATE Core & Gas Heating Training (4-Part)
90.	IHACI: NATE HVAC-R New Hire (4-Part)
91.	IHACI: NATE HVAC-R Support Training (4-Part)
92.	IHACI: System Diagnostics Module (4-Part)
93.	Implementing Heat Pumps Water Heaters in Replacement Scenarios: Why They Make Sense
94.	Intro to Residential HVAC Design in 3D
95.	Kicking Carbon Out of Buildings - Design for Decarbonized Building
96.	NATE HVAC-R New Hire (4-Part)
97.	NATE HVAC-R Support Training (4-Part)
98.	Noninvasive Refrigerant Charge Testing and Low GWP Refrigerants
99.	Optimizing Residential Forced-Air HVAC Systems: Airflow for Comfort and Efficiency
100.	Optimizing Residential Forced-Air HVAC Systems: Load Calculations, Equipment Selection and Layout
101.	Optimizing Residential Forced-Air HVAC Systems: Low-Loss Duct Systems
102.	Overcoming Installation Challenges for Heat Pump Water Heater Retrofits
103.	Overcoming Installation Challenges for Heat Pumps in HVAC Retrofits
104.	Packaged Terminal Heat Pumps: Benefits and Best Practices
105.	Selling Heat Pumps for HVAC Retrofits System Efficiencies, Costs, and Why They're Ideal for California
Other: Integrated Building Design, Renewable Energy, Software, Water and Energy	
106.	2020 WCS: Analysis of MWEL0: Is It Working? (Previously Recorded) Water Conservation Showcase

107.	2020 WCS: Emerging Technologies in the Water Sector (Previously Recorded) Water Conservation Showcase
108.	2020 WCS: How to Build Your Career in the Water Industry (Previously Recorded) Water Conservation Showcase
109.	2020 WCS: Laundry to Landscape (Previously Recorded) Water Conservation Showcase
110.	2020 WCS: New California Conservation Framework (Previously Recorded) Water Conservation Showcase
111.	2020 WCS: Plant Talk (Previously Recorded) Water Conservation Showcase
112.	2020 WCS: Qualified Water Efficient Landscaper (QWEL) Certification Program (Previously Recorded) Water Conservation Showcase
113.	2020 WCS: Stormwater Bioretention Systems (Previously Recorded) Water Conservation Showcase
114.	2020 WCS: The California State of Onsite Water Reuse (Previously Recorded) Water Conservation Showcase
115.	2020 WCS: Water and Energy Nexus: Applications and Outcomes (Previously Recorded) Water Conservation Showcase
116.	2020 WCS: Watersheds as Engagement Tool (Previously Recorded) Water Conservation Showcase
117.	2020 WCS: Workshop - Smart Controllers - Wi-Fi Controllers - Secrets to Success (Previously Recorded) Water Conservation Showcase
118.	2021 WCS: Climate Positive Landscape Design: Going Beyond Neutral (Previously recorded)
119.	2021 WCS: Connecting with Nature through Citizen Science (Previous Recording)
120.	2021 WCS: Plant Talk #2 (Previously Recorded)
121.	2021 WCS: Trends in Water Use, Efficiency Technologies, and Conservation Priorities (Previously Recorded)
122.	2021 WCS: Water/Energy Interactions: Covid-19 and Other Factors Impacting the Water/Energy Nexus (Previously Recorded)
123.	2021 WCS: Watershed Stewardship from Snowflake to the Bay (Previously Recorded)
124.	Ag Irrigation Technology Virtual Field Day
125.	Ag Tech Day-Innovations in Ag Irrigation Technology Demonstration and Showcase
126.	Ag. Power Quality Workshop (Previously Recorded)
127.	Basic Excel for Energy Professionals
128.	Basics of Solar Electric Systems
129.	Carbon Sequestration in the Landscape Series: #1 Nurture Soil to Sequester Carbon (Previously Recorded)
130.	Carbon Sequestration in the Landscape Series: #2 Protect Water & Air Quality to Reduce Emissions (Previously Recorded)
131.	Carbon Sequestration in the Landscape Series: #3 Save Water for Climate Resilience (Previously Recorded)
132.	Carbon Sequestration in the Landscape Series: #4 - Act Local to Mitigate Climate Change (Previously Recorded)
133.	Carbon Sequestration in the Landscape Series: #5 - Conserve Energy to Reduce GHG's (Previously Recorded)
134.	Carbon Sequestration in the Landscape Series: #6 - Reduce Waste to Reduce Greenhouse Gas Emissions (Previously Recorded)
135.	Carbon Sequestration in the Landscape Series: #7 - Carbon Sequestration to Mitigate Climate Change (Previously Recorded)
136.	Carbon Sequestration in the Landscape Series: #8 - Protect Habitat for Climate Resilience (Previously Recorded)
137.	Clean Energy Homes: Key Systems & Energy Modeling

138.	Cost-Effective Approaches for Energy Efficient Remodels
139.	Decarbonizing the Built Environment Day (2-Part)
140.	Electric Vehicle Chargers: Design and Installation Strategies for New and Existing Homes - (Previously Recorded)
141.	Electric Vehicles (EVs): What you need to know
142.	Electric Vehicles (EVs): What you need to know - 2022
143.	Electrification for Small Houses: ADU-s, Tiny Homes, and Manufactured Homes
144.	Flowmeters: You need to measure water to manage water!
145.	Getting a Multi-Condition Pump Efficiency Test
146.	Getting Your Deep Well and Booster Pump on a Single Smart Meter Tested
147.	Graphic Representation of Data: Making Charts that Matter
148.	High-Efficiency Laundry Dryers for All-Electric Homes (Previously Recorded)
149.	Home Energy Series: Session 3: Home Energy: Creating Your Whole Home- Based Solar Strategy
150.	How to Get Started with an EE Survey
151.	How To Interpret Pump Efficiency Results and Track Pump Performance
152.	Inspecting Photovoltaic (PV) & Energy Storage Systems (ESS) for Code Compliance (2-Part)
153.	Inspecting Photovoltaic (PV) Systems for Code Compliance (2-Part)
154.	Integrated Design for Non-Residential and Multi-Unit Residential: Projects of All Sizes and Delivery Methods
155.	Integrated Thinking: Early Stage Building Science for Enclosure & Mechanical Systems
156.	Latest Information on California Water Regulations: SGMA and ILRP
157.	Lawn Conversion Workshop
158.	Mechanical Rooms: Strategies for Electrification Retrofits in Homes
159.	Model Water Efficient Landscape Ordinance (MWELo) and the New Normal for California Landscaping (Previously Recorded)
160.	MWELo Enforcement Workshop for Local Agencies
161.	Novel Energy and Water Use Tracking Technology in Agriculture
162.	Pathways to a Zero Net Energy Home
163.	Plant Talk #3 (Previously Recorded)
164.	Photovoltaic (PV) Site & Energy Storage Systems (ESS) Analysis and System Sizing (2-Part)
165.	Plant Talk IV
166.	Practical Efficient Hot Water Delivery: Structured Plumbing Applied in Retrofit and New Construction
167.	Pump Tester Training
168.	PV + Batteries: Integrating Storage with Grid-Tied Photovoltaic Systems (3-Part)
169.	SGMA Updates - Water Infrastructure in California
170.	Solar PV: Technology and Valuation
171.	Spring Irrigation System Field Maintenance
172.	Surviving Drought An example on the Fresno State Farm for Better Water Management
173.	VFDs for Pumping Applications
174.	Water Audit Basics for Small to Medium Size Businesses

PG&E On-Demand Class List

1. 2020 WCS: Watersheds as Engagement Tool (Previously Recorded) Water Conservation Showcase
2. 2020 WCS: Analysis of MWEL0: Is It Working? (Previously Recorded) Water Conservation Showcase
3. 2020 WCS: Emerging Technologies in the Water Sector (Previously Recorded) Water Conservation Showcase
4. 2020 WCS: How to Build Your Career in the Water Industry (Previously Recorded) Water Conservation Showcase
5. 2020 WCS: Laundry to Landscape (Previously Recorded) Water Conservation Showcase
6. 2020 WCS: New California Conservation Framework (Previously Recorded) Water Conservation Showcase
7. 2020 WCS: Plant Talk #1 (Previously Recorded) Water Conservation Showcase
8. 2020 WCS: Qualified Water Efficient Landscaper (QWEL) Certification Program (Previously Recorded) Water Conservation Showcase
9. 2020 WCS: Stormwater Bioretention Systems (Previously Recorded) Water Conservation Showcase
10. 2020 WCS: The California State of Onsite Water Reuse (Previously Recorded) Water Conservation Showcase
11. 2020 WCS: Water and Energy Nexus: Applications and Outcomes (Previously Recorded) Water Conservation Showcase
12. 2020 WCS: Workshop - Smart Controllers - Wi-Fi Controllers - Secrets to Success (Previously Recorded) Water Conservation Showcase
13. 2021 WCS: Water Efficiency Standards: National and California Legislative Update (Previously Recorded)
14. 2021 WCS: Water Equity: Collaboration, Capacity Building and Capital (Previously Recorded)
15. 2021 WCS: Climate Positive Landscape Design: Going Beyond Neutral (Previously recorded)
16. 2021 WCS: Connecting with Nature through Citizen Science (Previous Recording)
17. 2021 WCS: Plant Talk #2 (Previously Recorded)
18. 2021 WCS: Trends in Water Use, Efficiency Technologies, and Conservation Priorities (Previously Recorded)
19. 2021 WCS: Water/Energy Interactions: Covid-19 and Other Factors Impacting the Water/Energy Nexus (Previously Recorded)
20. 2021 WCS: Watershed Stewardship from Snowflake to the Bay (Previously Recorded)
21. ADR 101: Understanding Automated Demand Response (Previously Recorded)
22. ADR 102: Automated Demand Response Deep Dive (Previously Recorded)
23. Advanced HVAC Control Approaches for Variable-Air-Volume Systems (Previously Recorded)
24. Affordable and Sustainable Multi-Family Housing: Strategies and Case Studies (Previously Recorded)
25. Ag. Industrial Refrigeration Systems Efficiency (Previously Recorded)
26. Ag. Power Quality Workshop (Previously Recorded)
27. Air Tight Buildings
28. Air-Sealing for an Efficient New Home
29. At the Frontiers of Sustainable Urban Housing (Previously Recorded)
30. Attic-Roof Insulation and Air Sealing

31. Automation, EMS Systems, and PLCs
32. Basics of Solar Electric Systems
33. Best Practices in Residential Water Heating
34. Blower Door Testing
35. Building Envelope Commissioning Case Studies (Previously Recorded)
36. Building Envelope Retrofit Strategies
37. Building Science 1.0: Overview and Introduction to Control Layers
38. Building Science 2.1: Introduction to Heat Transfer
39. Building Science 2.2: Airtightness and Air Barriers
40. Building Science 2.3: Understanding and Limiting Thermal Bridging
41. Building Science 2.4: Introduction to Continuous Insulation and Cladding Attachment
42. Building Science 2.5: Introduction to Windows, Curtain Walls, Window Walls and Shading Design
43. Building Science 2.6: Introduction to Moisture and Buildings
44. Building Science 2.7: Understanding the Psychrometrics of Condensation
45. Building Science 2.8: Introduction to the Control of Rain and Groundwater Penetration
46. California Greenin': How the Golden State Became An Environmental Leader (Previously Recorded)
47. Carbon Sequestration in the Landscape Series: #1 Nurture Soil to Sequester Carbon (Previously Recorded)
48. Carbon Sequestration in the Landscape Series: #2 Protect Water & Air Quality to Reduce Emissions (Previously Recorded)
49. Carbon Sequestration in the Landscape Series: #3 Save Water for Climate Resilience (Previously Recorded)
50. Carbon Sequestration in the Landscape Series: #4 - Act Local to Mitigate Climate Change (Previously Recorded)
51. Carbon Sequestration in the Landscape Series: #5 - Conserve Energy to Reduce GHG's (Previously Recorded)
52. Carbon Sequestration in the Landscape Series: #6 - Reduce Waste to Reduce Greenhouse Gas Emissions (Previously Recorded)
53. Carbon Sequestration in the Landscape Series: #7 - Carbon Sequestration to Mitigate Climate Change (Previously Recorded)
54. Carbon Sequestration in the Landscape Series: #8 - Protect Habitat for Climate Resilience (Previously Recorded)
55. Case Studies for Residential Electrification Retrofits - (Previously Recorded)
56. Combination Ovens, the Key to the Energy-Effective Kitchen of the Future (Previously Recorded) CEW Attendance
57. Combustion Safety and Efficiency
58. COVID-19 Series, Session 1: Human Health & the Built Environment in the Endemic Era - (Previously Recorded)
59. COVID-19 Series, Session 3: The Role of HVAC Systems - (Previously Recorded)
60. Deep Energy Retrofits
61. Design Professional's Guide to Zero Net Energy Buildings (Previously Recorded)
62. Design Strategies for New Buildings
63. Design Tools, Methods and Case Studies on the Design of High-Performance Facades - (Previously Recorded)
64. Designing Commercial Spaces with Modern Ceiling Fans
65. Designing for Light and Health - What You Need to Know (Previously Recorded)
66. Electric Vehicle Chargers: Design and Installation Strategies for New and Existing Homes - (Previously Recorded)
67. Electric Vehicles (EVs): What you need to know

68. Electric Vehicles (EVs): What you need to know - 2022
69. Emerging Smart Building Technology & Enhanced Building Performance (Previously Recorded)
70. Energy Audit Bootcamp Day 1 (Previously Recorded)
71. Energy Audit Bootcamp Day 2 (Previously Recorded)
72. Energy Efficiency 101 for Culinary Students: Mission College
73. Energy Efficiency and Storage Opportunities for PG&E Hospitality Customers - (Previously Recorded)
74. Energy Math
75. Energy Resiliency for Homes (Previously recorded)
76. Energy Resiliency for Non-Residential Facilities (Previously Recorded)
77. Fault Detection and Diagnostics Demo Series: Buildings IoT onPoint (Previously Recorded)
78. Fault Detection and Diagnostics Demo Series: ClimaCheck's ClimaCheck Online (Previously Recorded)
79. Fault Detection and Diagnostics Demo Series: Clockworks Analytics' FDD Platform (Previously Recorded)
80. Fault Detection and Diagnostics Demo Series: Ezenics' FDD Platform (Previously Recorded)
81. Full Scale Induction for Commercial Kitchens (Previously Recorded) CEW Attendance
82. Grid-Interactive Efficient Buildings (Previously Recorded)
83. Heat Pump Technologies for Space Conditioning and Water Heating
84. Heat Pump Water Heater Retrofit - Energy Cost Estimator: Overview and Demonstration (Previously Recorded)
85. Heat Recovery Dishmachines and Heat Pump Water Heaters: The Hidden Keys to a Zero Net Carbon Kitchen (Previously Recorded) CEW Attendance
86. High-Efficiency Laundry Dryers for All-Electric Homes (Previously Recorded)
87. Home Electrification Retrofits Without Upsizing the Electric Panel - (Previously Recorded)
88. Home Heating and Cooling Basics
89. How to Use Energy Efficient Countertop Equipment to Increase Production (Previously Recorded) CEW Attendance
90. How to Use the Common App
91. HVAC Heat Pump Retrofit - Energy Cost Estimator: Overview and Demonstration (Previously Recorded)
92. Induction Cooking and Holding - Energy Efficiency and Performance for Commercial Kitchens
93. Induction Cooking and Holding - Energy Efficiency and Performance for Residential Kitchens
94. Induction Woks - Types, Uses, Performance and Efficiency in Mandarin - (Previously Recorded)
95. Kitchen Makeover: Replacement Equipment to Boost Profits and Cut Carbon (Previously Recorded) CEW Attendance
96. Low-Cost Hot Water System Retrofits (Previously Recorded) CEW Attendance
97. Model Water Efficient Landscape Ordinance (MWELO) and the New Normal for California Landscaping 2020 (Previously Recorded)
98. Model Water Efficient Landscape Ordinance (MWELO) and the New Normal for California Landscaping 2021- (Previously Recorded)
99. Needs, Wants and Expectations: A Panel Discussion on Building Commissioning (Cx) Services (Previously recorded)
100. New Developments in Fault Detection and Diagnostics (Previously Recorded)

101. NMEC 1: Measurement and Verification (M&V) and Normalized Metered Energy Consumption (Previously Recorded)
102. NMEC 10: Normalized Metered Energy Consumption: Calculator Demonstrations 8: Bill Koran's ECAM - 2.25.2021 (Previously Recorded)
103. NMEC 2: Normalized Metered Energy Consumption 2 Calculator Demonstrations (Previously Recorded)
104. NMEC 3: Normalized Metered Energy Consumption: Calculator Demonstrations 1: kW Engineering's nmecr - 01.21.2021 (Previously Recorded)
105. NMEC 4: Normalized Metered Energy Consumption: Calculator Demonstrations 2: Recurve's Resource Planner, Fleet Manager and Flex Ledger - 01.28.2021 (Previously Recorded)
106. NMEC 5: Normalized Metered Energy Consumption: Calculator Demonstrations 3: Cascade Energy's Energy Sensei Platform - 02.02.2021 (Previously Recorded)
107. NMEC 6: Normalized Metered Energy Consumption: Calculator Demonstrations 4: AESC's Praxis - 02.04.2021 (Previously Recorded)
108. NMEC 7: Normalized Metered Energy Consumption: Calculator Demonstrations 5: Evergreen's AMICS Tool - 2.10.2021 (Previously Recorded)
109. NMEC 8: Normalized Metered Energy Consumption (NMEC) Calculator Demonstrations 6: Enpira's Building Portfolios - 2.16.2021 (Previously Recorded)
110. NMEC 9: Normalized Metered Energy Consumption: Calculator Demonstrations 5: EnergyRM's Insights, DeltaMeter and Transactions- 2.23.2021 (Previously Recorded)
111. Optimizing Kitchen Ventilation and Restaurant HVAC for Maximum Health and Safety and Minimum Cost-to-Operate (Previously Recorded) CEW Attendance
112. Plant Talk #3 (Previously Recorded)
113. Plant Talk #4 (Previously Recorded)
114. Plant Talk #5 (Previously Recorded)
115. Public Safety Power Shutoffs and PG&E Demand Response: 2021 Updates for Hospitality Customers (Previously Recorded)
116. RCx101: Identifying and Assessing Common Retro-Cx Opportunities (Previously Recorded 5/5/21)
117. RCx101: Identifying and Assessing Common Retro-Cx Opportunities (Previously recorded)
118. Recent Insights on Building Science Research from UC Berkeley's Center for the Built Environment - (Previously Recorded)
119. Re-designing Good Design: High-performance Architecture for a Low-carbon World (Previously Recorded)
120. Residential Energy Auditing
121. Restaurant Rebound - Operating an Energy Efficient Kitchen (Previously Recorded) CEW Attendance
122. Specifying Efficient Equipment for Production Kitchens (Previously Recorded) CEW Attendance
123. Symposium on Research and Design Practice Related to Window Views (Previously Recorded)
124. Testing Range Tops: Anatomy of a Test Method and Range Performance Comparisons - (Previously Recorded) CEW Attendance
125. The Architecture 2030 ZERO Code and California (Previously Recorded)
126. The Benefits and Challenges of R290 as a Refrigerant (Previously Recorded) CEW Attendance
127. The Quest for Performance and California Code Commissioning Requirements (Previously Recorded)
128. Title 24 (2019): Where We're Headed With the Nonresidential Standards

- 129. Title 24 (2019): Where We're Headed With the Residential Standards
- 130. Title 24 Documentation for Architects: EUI, 2030 Goals, and Getting the Most from Consultants (Previously Recorded)
- 131. Using Building Energy Simulation
- 132. Using Energy Efficiency to Decarbonize Commercial Kitchens (Previously Recorded)CEW Attendance
- 133. Using Personal Comfort Devices to Save Energy and Improve Comfort (Previously Recorded)
- 134. Where are we with Integrating Lighting and Whole Building Controls? (Previously Recorded)
- 135. Window Selection and Replacement
- 136. Zero Net Energy Introduction & Project Showcase

SCE Full Class List:

1. 2019 Title 24 Requirements for Non-Residential Lighting (WEBCAST)
2. 2019 Title 24 Requirements for Non-Residential Lighting (WEBCAST)
3. 2019 Title 24 Requirements for Non-Residential Lighting (WEBCAST)
4. 2019 Title 24 Requirements for Non-Residential Lighting (WEBCAST) for AIA Chapters
5. 2019 Title 24 Requirements for Residential Lighting (WEBCAST)
6. 2019 Title 24 Requirements for Residential Lighting (WEBCAST)
7. 2019 Title 24 Requirements for Residential Lighting (WEBCAST)
8. 2019/2022 Title 24 Requirements for Non-Residential Lighting (Webcast)
9. 2019/2022 Title 24 Requirements for Residential Lighting (Webcast)
10. 3D Residential HVAC Design (No CAD Required) - Part 1 (WEBCAST)
11. 3D Residential HVAC Design (No CAD Required) - Part 2 (WEBCAST)
12. A Class for Control Freaks: Getting the Most from your Building Automation System (Webcast)
13. ACCA Manual H, Residential Heat Pump, Design and Installation (WEBCAST)
14. ACCA Manual J and S, Equipment Selection & Sizing (WEBCAST)
15. Accessory Dwelling Units (ADU) and the California Energy Code for AIA Chapters (Webcast)
16. ADR 101: Understanding Automated Demand Response
17. ADR 102: Automated Demand Response Deep Dive
18. Advanced Concepts in Designing and Retrofitting Energy Efficient Data Centers
19. Advanced Energy Management Strategies Part 1
20. Advanced Energy Management Strategies Part 2
21. Advanced EnergyPro 8 Non-Residential (WEBCAST)
22. Advanced EnergyPro 8 Non-Residential (WEBCAST)
23. Advanced EnergyPro 8 Non-Residential (WEBCAST)
24. Advanced EnergyPro 8 Non-Residential (WEBCAST)
25. Advanced EnergyPro 8 Residential (WEBCAST)
26. Advanced EnergyPro 8 Residential (WEBCAST)
27. Advanced EnergyPro 8 Residential (WEBCAST)
28. Advanced EnergyPro 8 Residential (WEBCAST)
29. Advanced Framing for Energy and Resource Efficiency
30. Advanced Lighting Control Systems: No Longer Relays & Occ Sensors (WEBCAST)
31. Advanced Lighting Control Systems: No Longer Relays & Occ Sensors (Webcast)
32. Advanced Lighting Control Systems: No Longer Relays & Occ Sensors (Webcast)
33. Advanced Lighting Control Systems: No Longer Relays & Occupant Sensors (WEBCAST)
34. Ag Irrigation Technology Virtual Field Day - 3 hours Nitrogen Management Self-Certification CEUs/ 3 hours of Certified Crop Advisor CEUs
35. Air Sealing and Insulating Existing Homes: Addressing Common Hazards During Energy Upgrades (WEBCAST)
36. Air Sealing and Insulating Existing Homes: Creating Continuity in Ceiling Air Barrier (WEBCAST)
37. Air Sealing and Insulating Existing Homes: Interpreting and Prioritizing Infrared and Blower Door Results (WEBCAST)
38. Air Sealing and Insulating Existing Homes: Recessed Fixtures in Vented Attics (WEBCAST)
39. Balanced Ventilation for Better Health, Comfort, and Energy Efficiency: IAQ, OAQ, Ventilation and Filtration (WEBCAST)
40. Balanced Ventilation for Better Health, Comfort, and Energy Efficiency: System Types,

- Install Strategies, Duct Design and Critical Details (WEBCAST)
41. Basic Heating, Ventilating and Air Conditioning (HVAC) (WEBCAST)
 42. Basic Heating, Ventilating and Air Conditioning (HVAC) (WEBCAST)
 43. Basic Heating, Ventilating and Air Conditioning (HVAC) (WEBCAST)
 44. Basic Heating, Ventilating and Air Conditioning (HVAC) (WEBCAST)
 45. Basic Pump Efficiency
 46. Basic Pump Efficiency in English (Webcast)
 47. Basic Pump Efficiency Translated to Hmong (WEBCAST)
 48. Basic Pump Efficiency Translated to Spanish (Webcast)
 49. Basics of Photovoltaic (PV) & Energy Storage Systems (ESS) for Grid-Tied Applications (Part 1)
 50. Basics of Photovoltaic (PV) & Energy Storage Systems (ESS) for Grid-Tied Applications (Part 2)
 51. Beginning EnergyPro 8 Non-Residential (WEBCAST)
 52. Beginning EnergyPro 8 Non-Residential (WEBCAST)
 53. Beginning EnergyPro 8 Non-Residential (WEBCAST)
 54. Beginning EnergyPro 8 Non-Residential (Webcast)
 55. Beginning EnergyPro 8 Residential (WEBCAST)
 56. Beginning EnergyPro 8 Residential (WEBCAST)
 57. Beginning EnergyPro 8 Residential (WEBCAST)
 58. Beginning EnergyPro 8 Residential (WEBCAST)
 59. Calculating Photometric Lighting Solutions - Learning Units: BOC 3.5
 60. CALGreen Title 24 Part 11 (WEBCAST)
 61. CALGreen Title 24 Part 11 with 2021 Updates (WEBCAST)
 62. CALGreen Title 24 Part 11 with 2021 Updates (WEBCAST)
 63. California Energy Wise Foodservice – Frontier
 64. California Energy Wise Foodservice – Frontier
 65. California Energy Wise Foodservice – Frontier
 66. California Energy Wise Foodservice – Frontier
 67. California Energy Wise Foodservice – Frontier
 68. California Energy Wise Foodservice – Frontier
 69. California Energy Wise Foodservice – Frontier
 70. California Energy Wise Foodservice – Frontier
 71. California Energy Wise Foodservice – Frontier
 72. California Energy Wise Foodservice – Frontier
 73. California Energy Wise Foodservice – Frontier
 74. California Energy Wise Foodservice – Frontier (Webcast)
 75. California's Title 24 Energy Code: What, Why and Where is it Going? (Webcast)
 76. Carbon Free Homes: Features, Benefits, Valuation (WEBCAST)
 77. Carbon Free Homes: Features, Benefits, Valuation (Webcast)
 78. Case Studies for Calculating Lighting Solutions - Learning Units 3.5 AIA-HSW / 3.5 BOC
 79. Central Heat Pump Water Heaters (HPWHs): Engineering Deep Dive Part 1 of 2 (WEBCAST)
 80. Central Heat Pump Water Heaters (HPWHs): Engineering Deep Dive Part 2 of 2 (WEBCAST)
 81. Central Heat Pump Water Heating Systems for Clinical and Hospital Settings (WEBCAST)
 82. Central Heat Pump Water Heating Systems for Clinical and Hospital Settings (WEBCAST)
 83. Central Heat Pump Water Heating Systems for Multifamily Buildings (WEBCAST)

84. Central Heat Pump Water Heating Systems for Multifamily Buildings (WEBCAST)
85. Clean Energy Homes: Key Systems & Energy Modeling (WEBCAST)
86. Clean Energy Homes: Key Systems & Energy Modeling (WEBCAST)
87. Clean Energy Homes: Key Systems & Energy Modeling (Webcast)
88. Clean Energy Homes: Key Systems & Energy Modeling (WEBCAST)
89. Clean Energy Homes: Key Systems & Energy Modeling Santa Monica
90. Commercial & Multifamily Heat Pump Water Heating Engineering and Design Deep Dive (Part 1 of 2) (WEBCAST)
91. Commercial & Multifamily Heat Pump Water Heating Engineering and Design Deep Dive (Part 2 of 2) (WEBCAST)
92. Commercial HVAC Bootcamp Part 1 of 6 (WEBCAST)
93. Commercial HVAC Bootcamp Part 2 of 6 (WEBCAST)
94. Commercial HVAC Bootcamp Part 3 of 6 (WEBCAST)
95. Commercial HVAC Bootcamp Part 4 of 6 (WEBCAST)
96. Commercial HVAC Bootcamp Part 5 of 6 (WEBCAST)
97. Commercial HVAC Bootcamp Part 6 of 6 (WEBCAST)
98. Commercial Quality Maintenance and Installation of Economizers (Part 2 of 2) (WEBCAST)
99. Commercial Quality Maintenance and Installation of Economizers Part 1 Learning Units: NATE – 3 credits / BOC – 2 credits
100. CoolSave - Saving Energy in Grocery Refrigeration (WEBCAST)
101. Daylighting Metrics (WEBCAST)
102. Decarbonizing the Built Environment Day 1 (WEBCAST)
103. Decarbonizing the Built Environment Day 2 (WEBCAST)
104. Demand Control Ventilation (DCV) and Variable Speed Fans Non-Residential (WEBCAST)
105. Demand Control Ventilation (DCV) and Variable Speed Fans Non-Residential (WEBCAST)
106. (WEBCAST)
107. Designing for Light and Health - What You Need to Know (WEBCAST)
108. Direct Digital Controls (DDC) Bootcamp Part 1 of 6 (WEBCAST)
109. Direct Digital Controls (DDC) Bootcamp Part 2 of 6 (WEBCAST)
110. Direct Digital Controls (DDC) Bootcamp Part 3 of 6 (WEBCAST)
111. Direct Digital Controls (DDC) Bootcamp Part 4 of 6 (WEBCAST)
112. Direct Digital Controls (DDC) Bootcamp Part 5 of 6 (WEBCAST)
113. Direct Digital Controls (DDC) Bootcamp Part 6 of 6 (WEBCAST)
114. Don't Touch That Thermostat
115. Ductless Mini Split Design, Installation, & Performance (WEBCAST)
116. Ductless Mini Split Design, Installation, & Performance (WEBCAST)
117. Electric Vehicle Chargers: Design and Installation Strategies for New and Existing Homes (Webcast)
118. Embodied Carbon vs. Operational Carbon: The Lesser of the Two Evils (Webcast)
119. Emergency Lighting and Power Systems: Codes, Circuits, Controls and Calculations (WEBCAST)
120. Emergency Lighting and Power Systems: Codes, Circuits, Controls and Calculations (WEBCAST)
121. Emergency Lighting and Power Systems: Codes, Circuits, Controls and Calculations (WEBCAST)
122. Enclosure Systems and Materials: Architectural Precast
123. Enclosure Systems and Materials: Portland Cement Plaster on Framed Walls

- (WEBCAST)
124. Enclosure Systems and Materials: Unitized Curtainwall (WEBCAST)
 125. Energy and Financial Calculations for Lighting Retrofits
 126. Energy and Financial Calculations for Lighting Retrofits (Webcast)
 127. Energy Auditing Bootcamp Part 1
 128. Energy Auditing Bootcamp Part 2
 129. Energy Auditing Techniques for Small & Medium Commercial Facilities - Day 1 of 3 (Webcast)
 130. Energy Auditing Techniques for Small & Medium Commercial Facilities - Day 2 of 3 (Webcast)
 131. Energy Auditing Techniques for Small & Medium Commercial Facilities - Day 3 of 3 (Webcast)
 132. Energy Auditing Techniques for Small & Medium Commercial Facilities (3-Day Class)
 133. Energy Auditing Techniques for Small & Medium Commercial Facilities (Day 2 of 3)
 134. Energy Auditing Techniques for Small & Medium Commercial Facilities (Day 3 of 3)
 135. Energy Efficiency and Solar for Homeowners
 136. Energy Efficient Design and Control of Chilled Water Plants (WEBCAST)
 137. Energy Efficient Design and Retrofit of Laboratory Buildings (WEBCAST)
 138. Energy Impact from ASHRAE COVID-19 HVAC Recommendations (WEBCAST)
 139. Energy Management Systems (EMS) Part 1 of 2 (WEBCAST)
 140. Energy Management Systems (EMS) Part 2 of 2 (WEBCAST)
 141. Energy Resiliency for Homes
 142. Energy Resiliency for Non-Residential Facilities
 143. Energy Savings Through Process Improvement and Optimization
 144. Evaluating and Selecting Luminaires -WEBINAR
 145. Evaluating and Selecting Luminaires Workshop (Webcast)
 146. Evaluating and Selecting Luminaires Workshop -WEBINAR
 147. Evaluating Pump Efficiency Results with Pump Curves
 148. Evaluating Pump Efficiency Results with Pump Curves (WEBCAST)
 149. Exploring Ventless Technologies: High Tech Equipment for the Modular Kitchen (Webcast)
 150. Exterior Insulation and Designing and Building High Performance Walls (Webcast)
 151. Field Data Collection for Lighting Audits and Retrofits
 152. Field Data Collection for Lighting Audits and Retrofits (Webcast)
 153. Flowmeters: You Need to Measure Water to Manage Water! (Webcast)
 154. Full-Scale Induction for Commercial Kitchens (Webcast)
 155. Fundamental Concepts in Operating and Retrofitting Energy Efficient Data Centers
 156. Green Building: Hype or Help? (Webcast)
 157. Heat Pumps in Retrofit Construction - Space Conditioning and Water Heating (WEBCAST)
 158. Heat Pumps in Retrofit Construction - Space Conditioning and Water Heating (WEBCAST)
 159. Heat Pumps in Retrofit Construction - Space Conditioning and Water Heating (WEBCAST) for SoCal REN
 160. Heat Recovery Dishmachines and Heat Pump Water Heaters: The Hidden Keys to a Zero Net Carbon Kitchen (Webcast)

161. High Performance Chilled Water Plant Design Workshop
162. High Performance Homes: Valuation 2 (Webcast)
163. High Performance Homes: Valuation 2 (Webcast)
164. Home Performance for Solar Professionals (Webcast)
165. Horticulture and Indoor Agricultural Lighting (Webcast)
166. How to Design and Build High-Performance Walls
167. How to Get Started with an EE Survey (Webcast)
168. How to Interpret Pump Efficiency Results & Tracking Pump Performance
169. How to Interpret Pump Efficiency Results & Tracking Pump Performance (Webcast)
170. How to Use Energy Efficient Countertop Equipment to Increase Production (Webcast)
171. IAQ - How to Prepare Your Commercial HVAC for Pandemics/Wildfires (WEBCAST)
172. IAQ - How to Prepare Your Commercial HVAC for Pandemics/Wildfires (WEBCAST)
173. Identifying Existing Lighting Technologies - Knowing What to Replace and How - Learning Units: 3.5 AIA - HSW
174. IHACI NATE AC/HP & Air Distribution Training Part 1 (WEBCAST)
175. IHACI NATE AC/HP & Air Distribution Training Part 2 (WEBCAST)
176. IHACI NATE AC/HP & Air Distribution Training Part 4 (WEBCAST)
177. IHACI NATE Core & Gas Heating Training Part 1 (WEBCAST)
178. IHACI NATE Core & Gas Heating Training Part 2 (WEBCAST)
179. IHACI NATE Core & Gas Heating Training Part 3 (WEBCAST)
180. IHACI NATE Core & Gas Heating Training Part 4 (WEBCAST)
181. IHACI Non-Res ATE Acceptance Testing Employer Training Part 1 (WEBCAST)
182. IHACI Non-Res ATE Acceptance Testing Employer Training Part 2 (WEBCAST)
183. IHACI Non-Res ATT Acceptance Testing Technician Training Part 1 (Webcast)
184. IHACI Non-Res ATT Acceptance Testing Technician Training Part 2 (Webcast)
185. IHACI: (CAQI/QM/QS) AC/HP Refrigeration Part 1 - Practical Fundamentals and Theory of the Refrigeration Circuit (WEBCAST)
186. IHACI: (CAQI/QM/QS) AC/HP Refrigeration Part 2 - CAQI of Air Conditioning and Heat Pump Systems (WEBCAST)
187. IHACI: (CAQI/QM/QS) AC/HP Refrigeration Part 3 - CAQM of Air Conditioning and Heat Pump Systems (WEBCAST)
188. IHACI: (CAQI/QM/QS) AC/HP Refrigeration Part 4 - CAQS of Air Conditioning and Heat Pump Systems (WEBCAST)
189. IHACI: (CAQI/QM/QS) Air Distribution Module Part 1 - Practical Fundamentals and Physical Properties of Air (WEBCAST)
190. IHACI: (CAQI/QM/QS) Air Distribution Module Part 1 - Practical Fundamentals and Physical Properties of Air (Webcast)
191. IHACI: (CAQI/QM/QS) Air Distribution Module Part 2 - Practical Fundamentals and Theory of Proper Air Distribution Design (WEBCAST)
192. IHACI: (CAQI/QM/QS) Air Distribution Module Part 2 - Practical Fundamentals and Theory of Proper Air Distribution Design (WEBCAST)
193. IHACI: (CAQI/QM/QS) Air Distribution Module Part 3 - Fundamental Theory and Techniques of Air Side Design and Installation (WEBCAST)
194. IHACI: (CAQI/QM/QS) Air Distribution Module Part 3 - Practical Fundamental Theory and Techniques of Air Side Design and Installation (WEBCAST)
195. IHACI: (CAQI/QM/QS) Air Distribution Module Part 4 - Advanced Theory and Techniques of Air Side Design and Installation (WEBCAST)

196. IHACI: (CAQI/QM/QS) Air Distribution Module Part 4- Advanced Theory and Techniques of Air Side Design and Installation (WEBCAST)
197. IHACI: (CAQI/QM/QS) Electrical Module Part 1 - Practical Fundamentals and Theory of HVAC/R Systems (WEBCAST)
198. IHACI: (CAQI/QM/QS) Electrical Module Part 2 - Essential HVAC/R System Motor Theory for the Field Technician (WEBCAST)
199. IHACI: (CAQI/QM/QS) Electrical Module Part 3 - Different Electrical Components Found in the HVAC/R Industry (WEBCAST)
200. IHACI: (CAQI/QM/QS) Electrical Module Part 4 - Electrical Schematics: A Roadmap to Diagnosing a HVAC/R System (WEBCAST)
201. IHACI: (CAQI/QM/QS) Gas Heating Module Part 1- Practical Fundamentals and Theory of Gas Heating (WEBCAST)
202. IHACI: (CAQI/QM/QS) Gas Heating Module Part 2- Quality Installation, Maintenance, and Service of Gas Heating Systems (WEBCAST)
203. IHACI: (CAQI/QM/QS) HVAC System Diagnostics Part 1 - Practical Fundamentals, Theory, Methodology and Mind-set of True System Diagnostics (WEBCAST)
204. IHACI: (CAQI/QM/QS) HVAC System Diagnostics Part 1 - Practical Fundamentals, Theory, Methodology and Mind-set of True System Diagnostics (WEBCAST)
205. IHACI: (CAQI/QM/QS) HVAC System Diagnostics Part 2 - Essential Field Techniques Required to Investigate the HVAC/R System (WEBCAST)
206. IHACI: (CAQI/QM/QS) HVAC System Diagnostics Part 2 - Essential Field Techniques Required to Investigate the HVAC/R System (WEBCAST)
207. IHACI: (CAQI/QM/QS) HVAC System Diagnostics Part 3 - Evaluating, Analyzing and Ultimately Identifying the Root Causes of the HVAC/R System (WEBCAST)
208. IHACI: (CAQI/QM/QS) HVAC System Diagnostics Part 3 - Evaluating, Analyzing and Ultimately Identifying the Root Causes(s) of the HVAC/R System(WEBCAST)
209. IHACI: (CAQI/QM/QS) HVAC System Diagnostics Part 4 - Accurate Elimination and Verification of the Root Causes(s) of the HVAC/R System (WEBCAST)
210. IHACI: (CAQI/QM/QS) HVAC System Diagnostics Part 4 - Accurate Elimination and Verification of the Root Causes(s) of the HVAC/R System (WEBCAST)
211. IHACI: (CAQI/QM/QS) System Performance Module Part 1 - Thermodynamics: Heat In Motion (WEBCAST)
212. IHACI: (CAQI/QM/QS) System Performance Module Part 2 - A Sub-System of the Building (WEBCAST)
213. IHACI: (CAQI/QM/QS) System Performance Module Part 3 - Heating System: Comfort with Energy Efficiency (WEBCAST)
214. IHACI: (CAQI/QM/QS) System Performance Module Part 4 - Cooling System: Comfort with Energy Efficiency (WEBCAST)
215. IHACI: AC/HP Refrigeration Module Part 1 - Practical Fundamentals and Theory of the Refrigeration Circuit (WEBCAST)
216. IHACI: AC/HP Refrigeration Module Part 2 - CAQI of Air Conditioning and Heat Pump Systems (WEBCAST)
217. IHACI: AC/HP Refrigeration Module Part 3 - CAQM of Air Conditioning and Heat Pump Systems (WEBCAST)
218. IHACI: AC/HP Refrigeration Module Part 4 - CAQS of Air Conditioning and Heat Pump Systems (WEBCAST)
219. IHACI: Boiler Module Part 1 - Fundamental Theory & Basic Operation of Commercial Boiler Systems (WEBCAST)
220. IHACI: Boiler Module Part 2 - Installation, Operation and Service Practices of

- Commercial Boiler Systems (WEBCAST)
221. IHACI: CA 2019 Title 24 Module Part 1 (WEBCAST)
 222. IHACI: CA 2019 Title 24 Module Part 2 (WEBCAST)
 223. IHACI: Chiller Module Part 1 - Fundamental Theory & Basic Operation of Commercial Chillers (WEBCAST)
 224. IHACI: Chiller Module Part 2 - Installation, Operation and Service Practices of Commercial Chillers (WEBCAST)
 225. IHACI: Commercial Refrigeration Module Part 1 - Fundamental Theory and Basic Operation of Commercial Refrigeration Systems (WEBCAST)
 226. IHACI: Commercial Refrigeration Module Part 2 - Installation, Operation and Service Practices of Commercial Refrigeration Systems (WEBCAST)
 227. IHACI: Cooling Tower Module Part 1 – Fundamental Theory & Basic Operation of Commercial Cooling Towers (WEBCAST)
 228. IHACI: Cooling Tower Module Part 2 – Installation, Operation and Service Practices of Commercial Cooling Towers (WEBCAST)
 229. IHACI: HVAC/R New Hire Module Part 1 (WEBCAST)
 230. IHACI: HVAC/R New Hire Module Part 2 (WEBCAST)
 231. IHACI: HVAC/R New Hire Module Part 3 (WEBCAST)
 232. IHACI: HVAC/R New Hire Module Part 4 (WEBCAST)
 233. IHACI: NATE AC/HP & Air Distribution Training Part 3 (WEBCAST)
 234. IHACI: NATE Certification Training Series - Air Conditioners and Heat Pumps: Part 1 (Introduction) (WEBCAST)
 235. IHACI: NATE Certification Training Series - Air Conditioners and Heat Pumps: Part 2 (Installation & Service) (WEBCAST)
 236. IHACI: NATE Certification Training Series - Air Distribution: Part 1 (Introduction) (WEBCAST)
 237. IHACI: NATE Certification Training Series - Air Distribution: Part 2 (Installation & Service) (WEBCAST)
 238. IHACI: NATE Certification Training Series - Core: Part 1 (General Skills) (WEBCAST)
 239. IHACI: NATE Certification Training Series - Core: Part 2 (Electrical Skills) (WEBCAST)
 240. IHACI: NATE Certification Training Series - Gas Heating: Part 1 (Introduction) (WEBCAST)
 241. IHACI: NATE Certification Training Series - Gas Heating: Part 2 (Installation & Service) (WEBCAST)
 242. IHACI: NATE HVAC/R Support Training Module Part 1 (WEBCAST)
 243. IHACI: NATE HVAC/R Support Training Module Part 2 (WEBCAST)
 244. IHACI: NATE HVAC/R Support Training Module Part 3 (WEBCAST)
 245. IHACI: NATE HVAC/R Support Training Module Part 4 (WEBCAST)
 246. Induction Woks - Types, Uses, Performance and Efficiency
 247. Industrial Lighting Workshop – WEBINAR
 248. Industrial Lighting Workshop – WEBINAR
 249. Industrial Lighting Workshop (Webcast)
 250. Inspecting Photovoltaic (PV) Systems for Code Compliance Part 1 of 2
 251. Inspecting Photovoltaic (PV) Systems for Code Compliance Part 2 of 2
 252. Integrated Thinking: Early Stage Building Science for Enclosure & Mechanical Systems (Webcast)
 253. Integrating Building Performance Simulation into the Design Process (Webcast)
 254. Intro to Hands-On Lighting Controls (WEBCAST)
 255. Intro to Residential HVAC Design in 3D (WEBCAST)

- 256. Intro to Supermarket CO2 Systems (WEBCAST)
- 257. Introduction to Passive House Trades (Webcast)
- 258. Introduction to Programmable Logic Controllers: Energy Efficiency Applications (WEBINAR)
- 259. Introduction to Programmable Logic Controllers: Energy Efficiency Applications (WEBINAR)
- 260. Introduction to the Passive House Standard
- 261. Irrigation Scheduling: How Long Should I Run My Pump?- Learning Units: 2 BOC
- 262. Irrigation System Field Maintenance - Learning Units: Nitrogen Management Plan self certificaion 2 Hours/ CCA CEUs 2 Hours
- 263. It'sAboutQ Online HVAC/R Training
- 264. It'sAboutQ Online HVAC/R Training
- 265. It'sAboutQ Online HVAC/R Training
- 266. It'sAboutQ Online HVAC/R Training
- 267. Let SCE help Make You Ready for Fleet Electrification (Webcast)
- 268. Lighting Fundamentals - Part 1: Terminology, Vision and Color
- 269. Lighting Fundamentals Part 2: Light Sources, Luminaires and Controls
- 270. Lighting Fundamentals Part 3: Design Process, Light Measurement, Codes & Standards
- 271. Low GWP (A2L) Refrigerants Part 1 - Introduction (WEBCAST)
- 272. Low GWP (A2L) Refrigerants Part 2 – Application (WEBCAST)
- 273. Low-Cost Hot Water System Retrofits for Commercial Food Service
- 274. Manitowoc Ice Machine Service Training (WEBCAST)
- 275. Multifamily Electrification: Introduction
- 276. Multifamily Electrification: Retrofit Applications and Electrical Assessments (WEBCAST)
- 277. Multifamily Electrification: Space Conditioning and Water Heating (WEBCAST)
- 278. Multifamily Electrification: Space Conditioning Deep Dive & Emerging Technologies (WEBCAST)
- 279. Municipal Pump and Well Efficiency with an Emphasis on Variable Frequency Drives
- 280. MWELo Enforcement Workshop for Local Agencies (Webcast)
- 281. Navigating Lighting Design Decisions
- 282. Navigating SCE Programs, Rates, and Services - What you really need to know (Webcast)
- 283. NCI: Airflow Testing & Diagnostics Live Online Day 1 of 2 (WEBCAST)
- 284. NCI: Airflow Testing & Diagnostics Live Online Day 1 of 2 (WEBCAST)
- 285. NCI: Airflow Testing & Diagnostics Live Online Day 1 of 2 (WEBCAST)
- 286. NCI: Airflow Testing & Diagnostics Live Online Day 1 of 2 (WEBCAST)
- 287. NCI: Airflow Testing & Diagnostics Live Online Day 2 of 2 (WEBCAST)
- 288. NCI: Airflow Testing & Diagnostics Live Online Day 2 of 2 (WEBCAST)
- 289. NCI: Airflow Testing & Diagnostics Live Online Day 2 of 2 (WEBCAST)
- 290. NCI: Airflow Testing & Diagnostics Live Online Day 2 of 2 (WEBCAST)
- 291. NCI: Carbon Monoxide & Combustion Recertification Live Online Day 1 of 2 (WEBCAST)
- 292. NCI: Carbon Monoxide & Combustion Recertification Live Online Day 2 of 2 (WEBCAST)
- 293. NCI: Combustion Performance and Carbon Monoxide Safety Certification Program Part 1 - CO Safety Testing & Diagnostics
- 294. NCI: Combustion Performance and Carbon Monoxide Safety Certification

- Program Part 1 - CO Safety Testing & Diagnostics
295. NCI: Combustion Performance and Carbon Monoxide Safety Certification
Program Part 2 - Combustion Performance & Diagnostics
296. NCI: Combustion Performance and Carbon Monoxide Safety Certification
Program Part 2 - Combustion Performance & Diagnostics
297. NCI: Combustion Performance and Carbon Monoxide Safety Certification
Program Part 3 - CO/Combustion Review & Certification
298. NCI: Combustion Performance and Carbon Monoxide Safety Certification
Program Part 3 - CO/Combustion Review & Certification
299. NCI: Commercial Air Balancing Certification Program Part 1 - The Key Elements
of Air Balancing
300. NCI: Commercial Air Balancing Certification Program Part 1 - The Key Elements
of Air Balancing
301. NCI: Commercial Air Balancing Certification Program Part 1 - The Key Elements
of Air Balancing
302. NCI: Commercial Air Balancing Certification Program Part 2 - Balancing
Principles, Techniques and Reporting
303. NCI: Commercial Air Balancing Certification Program Part 2 - Balancing
Principles, Techniques and Reporting
304. NCI: Commercial Air Balancing Certification Program Part 2 - Balancing
Principles, Techniques and Reporting
305. NCI: Commercial Air Balancing Certification Program Part 3 - Economizers &
Kitchen Exhaust Systems: Certification Exam
306. NCI: Commercial Air Balancing Certification Program Part 3 - Economizers &
Kitchen Exhaust Systems: Certification Exam
307. NCI: Commercial Air Balancing Certification Program Part 3 - Economizers &
Kitchen Exhaust Systems: Certification Exam
308. NCI: Commercial System Performance Certification Program Part 1 - The Key
Elements of HVAC System Performance
309. NCI: Commercial System Performance Certification Program Part 2 - Measure,
Diagnose and Improve Poor Performance
310. NCI: Commercial System Performance Live Online Certification Program – Day
1 of 4 Day Series (WEBCAST)
311. NCI: Commercial System Performance Live Online Certification Program – Day
1 of 4 Day Series (WEBCAST)
312. NCI: Commercial System Performance Live Online Certification Program – Day
2 of 4 Day Series (WEBCAST)
313. NCI: Commercial System Performance Live Online Certification Program – Day
2 of 4 Day Series (WEBCAST)
314. NCI: Commercial System Performance Live Online Certification Program – Day
3 of 4 Day Series (WEBCAST)
315. NCI: Commercial System Performance Live Online Certification Program – Day
3 of 4 Day Series (WEBCAST)
316. NCI: Commercial System Performance Live Online Certification Program – Day
4 of 4 Day Series (WEBCAST)
317. NCI: Commercial System Performance Live Online Certification Program – Day
4 of 4 Day Series (WEBCAST)
318. NCI: Duct System Optimization Certification Program Part 1 - Introduction to Air
Distribution Upgrade
319. NCI: Duct System Optimization Certification Program Part 2 - Optimize the Duct
System: Certification Exam

320. NCI: Duct System Optimization Live Online Certification Program – Day 1 of 4 Day Series (WEBCAST)
321. NCI: Duct System Optimization Live Online Certification Program – Day 1 of 4 Day Series (WEBCAST)
322. NCI: Duct System Optimization Live Online Certification Program – Day 2 of 4 Day Series (WEBCAST)
323. NCI: Duct System Optimization Live Online Certification Program – Day 2 of 4 Day Series (WEBCAST)
324. NCI: Duct System Optimization Live Online Certification Program – Day 3 of 4 Day Series (WEBCAST)
325. NCI: Duct System Optimization Live Online Certification Program – Day 3 of 4 Day Series (WEBCAST)
326. NCI: Duct System Optimization Live Online Certification Program – Day 4 of 4 Day Series (WEBCAST)
327. NCI: Duct System Optimization Live Online Certification Program – Day 4 of 4 Day Series (WEBCAST)
328. NCI: Explore HVAC Field Performance Live Online (WEBCAST)
329. NCI: HVAC Field Training (Adelanto)
330. NCI: HVAC Field Training (Anaheim)
331. NCI: HVAC Field Training (Buena Park)
332. NCI: HVAC Field Training (Chino)
333. NCI: HVAC Field Training (Corona)
334. NCI: HVAC Field Training (Corona)
335. NCI: HVAC Field Training (Fullerton)
336. NCI: HVAC Field Training (Los Alamitos)
337. NCI: HVAC Field Training (Mission Viejo)
338. NCI: HVAC Field Training (San Bernardino)
339. NCI: HVAC Field Training (Santa Ana)
340. NCI: HVAC Field Training P-1 (Chino)
341. NCI: HVAC Field Training P-1 (San Bernardino)
342. NCI: HVAC Field Training P-2 (Chino)
343. NCI: HVAC Field Training P-2 (San Bernardino)
344. NCI: Improve Economizer Performance & Meet Today's Ventilation Standards – Live Online Certification Program Day 1 of 4 (WEBCAST)
345. NCI: Improve Economizer Performance & Meet Today's Ventilation Standards – Live Online Certification Program Day 2 of 4 (WEBCAST)
346. NCI: Improve Economizer Performance & Meet Today's Ventilation Standards – Live Online Certification Program Day 3 of 4 (WEBCAST)
347. NCI: Improve Economizer Performance & Meet Today's Ventilation Standards – Live Online Certification Program Day 4 of 4 (WEBCAST)
348. NCI: Introduction to Hydronic Testing, Adjusting, & Balancing Certification Program Part 1 – Hydronics Overview
349. NCI: Introduction to Hydronic Testing, Adjusting, & Balancing Certification Program Part 2 – Testing, Balancing, Reporting
350. NCI: Performance-Based Selling Live Online - Day 1 of 4 Day Series (WEBCAST)
351. NCI: Performance-Based Selling Live Online - Day 1 of 4 Day Series (WEBCAST)
352. NCI: Performance-Based Selling Live Online - Day 2 of 4 Day Series (WEBCAST)
353. NCI: Performance-Based Selling Live Online - Day 2 of 4 Day Series

- (WEBCAST)
354. NCI: Performance-Based Selling Live Online - Day 3 of 4 Day Series
(WEBCAST)
355. NCI: Performance-Based Selling Live Online - Day 3 of 4 Day Series
(WEBCAST)
356. NCI: Performance-Based Selling Live Online - Day 4 of 4 Day Series
(WEBCAST)
357. NCI: Performance-Based Selling Live Online - Day 4 of 4 Day Series
(WEBCAST)
358. NCI: Refrigerant-Side Performance Certification Program Part 1 – Equipment Performance of the Air & Refrigerant-Side
359. NCI: Refrigerant-Side Performance Certification Program Part 2 – Refrigerant-Side Basics, Diagnostics, and Opportunities
360. NCI: Refrigerant-Side Performance Live Online Certification Program Day 1 of 4
(WEBCAST)
361. NCI: Refrigerant-Side Performance Live Online Certification Program Day 2 of 4
(WEBCAST)
362. NCI: Refrigerant-Side Performance Live Online Certification Program Day 3 of 4
(WEBCAST)
363. NCI: Refrigerant-Side Performance Live Online Certification Program Day 4 of 4
(WEBCAST)
364. NCI: Residential Air Balancing Certification Training - Testing & Balancing Residential Systems
365. NCI: Residential Air Balancing Certification Training - Testing & Balancing Residential Systems
366. NCI: Residential Air Balancing Live Online Certification Program Day 1 of 2
(WEBCAST)
367. NCI: Residential Air Balancing Live Online Certification Program Day 2 of 2
(WEBCAST)
368. NCI: Residential HVAC System Performance Certification Program Part 1 – The Key Elements of HVAC System Performance
369. NCI: Residential HVAC System Performance Certification Program Part 2 – Measure, Diagnose and Improve Poor System Performance
370. NCI: Residential System Performance Live Online Certification Program – Day 1 of 4 Day Series (WEBCAST)
371. NCI: Residential System Performance Live Online Certification Program – Day 2 of 4 Day Series (WEBCAST)
372. NCI: Residential System Performance Live Online Certification Program – Day 3 of 4 Day Series (WEBCAST)
373. NCI: Residential System Performance Live Online Certification Program – Day 4 of 4 Day Series (WEBCAST)
374. NCI: Test & Certify Ventilation Systems and Economizers – Certification Program Part 1
375. NCI: Test & Certify Ventilation Systems and Economizers – Certification Program Part 2
376. NCI: Test & Certify Ventilation Systems and Economizers– Certification Program Part 1
377. NCI: Test & Certify Ventilation Systems and Economizers– Certification Program Part 2
378. Optimizing Kitchen Ventilation and Restaurant HVAC for Maximum Health and Safety and Minimum Cost-to-Operate

- 379. Optimizing Kitchen Ventilation and Restaurant HVAC for Maximum Health and Safety and Minimum Cost-to-Operate (WEBCAST)
- 380. Optimizing Residential Forced-Air HVAC Systems: Airflow for Comfort and Efficiency (WEBCAST)
- 381. Optimizing Residential Forced-Air HVAC Systems: Low-Loss Duct Systems (WEBCAST)
- 382. Orosi H.S. Engineering Automation & Technology
- 383. Orosi H.S. Introduction to Programmable Logic Controllers: Part 1
- 384. Orosi H.S. Introduction to Programmable Logic Controllers: Part 2
- 385. Orosi H.S. PLC LEVEL 1, Part 1
- 386. Orosi H.S. PLC LEVEL 1: Part 2
- 387. Orosi H.S. PLC LEVEL 1: Part 3
- 388. Orosi H.S. PLC LEVEL 2: Part 1
- 389. Orosi H.S. PLC LEVEL 2: Part 2
- 390. Orosi H.S. PLC LEVEL 2: Part 3
- 391. Orosi H.S. PLC LEVEL 3: Part 1
- 392. Orosi H.S. PLC LEVEL 3: Part 2
- 393. Orosi H.S. PLC LEVEL 3: Part 3
- 394. Orosi H.S. PLC LEVEL 4: Part 1
- 395. Orosi H.S. PLC LEVEL 4: Part 2
- 396. Orosi H.S. PLC LEVEL 4: Part 3
- 397. Outdoor Lighting Workshop – (WEBCAST)
- 398. Outdoor Lighting Workshop – (WEBCAST)
- 399. Outdoor Lighting Workshop – (Webcast)
- 400. Outdoor Lighting Workshop – (Webcast)
- 401. Overcoming Installation Challenges for Heat Pump Water Heater Retrofits (WEBCAST)
- 402. Overcoming Installation Challenges for Heat Pumps in HVAC Retrofits (WEBCAST)
- 403. Packaging Your Lighting Recommendations
- 404. Pathways to a Zero Net Energy Home
- 405. Phenomenal LED
- 406. Phenomenal LED (WEBCAST)
- 407. Phenomenal LED 3 Hours BREA/ DRE Continuing Education Units
- 408. Photovoltaic (PV) Site & Energy Storage Systems (ESS) Analysis and System Sizing Day 1 - Learning Units: NABCEP 2
- 409. Photovoltaic (PV) Site & Energy Storage Systems (ESS) Analysis and System Sizing Day 2 - NABCEP 2 Learning Units
- 410. Preparation for Lighting Controls Success - Using an OPR (Owner's Project Requirements), a BOD (Basis of Design) and a SOO (Sequence of Operations)
- 411. Pump and Well Efficiency for Potable Water Systems
- 412. Pump Efficiency Testing & Determining OPE
- 413. Pump Efficiency Testing and Determining OPE (Webcast)
- 414. Pump Efficiency Testing and Determining OPE (Webinar)
- 415. PV + Batteries: Integrating Storage with Grid-Tied Photovoltaic Systems (Part 2 of 2)
- 416. PV + Batteries: Integrating Storage with Grid-Tied Photovoltaic Systems Part 1 of 2
- 417. Radiant Cooling and Heating Systems for Large Commercial Buildings (WEBCAST)
- 418. Remote Well and Pump Monitoring using the Smart Meter

- 419. Residential Energy Efficient Lighting
- 420. Residential Lighting Controls
- 421. Restaurant Rebound - Operating an Energy Efficient Kitchen
- 422. Retrofitting Homes for Electrification and Decarbonization
- 423. SCE 2021 Annual Water Conference (Online Only Event) (WEBCAST)
- 424. Selecting Fresh Air Ventilation Systems & Fundamentals of Indoor Air Quality
(Webcast)
- 425. Selecting Retrofit or Replacement Lighting (WEBCAST)
- 426. Selling High Performance Homes (Webcast)
- 427. Selling High Performance Homes (Webinar)
- 428. Solar and Energy Storage for Small Businesses (Webcast)
- 429. Solar PV: Technology and Valuation (Webcast)
- 430. Street Lighting 101: Getting Started with the Basics (Webcast)
- 431. The Benefits and Challenges of R290 as a Refrigerant
- 432. The Practical Guide to All-Electric, Lower Cost Multi-Family Buildings with
Electric-Vehicle Charging (WEBCAST)
- 433. The Practical Guide to All-Electric, Lower Cost Multi-Family Buildings with
Electric-Vehicle Charging (WEBCAST)
- 434. The Practical Guide to All-Electric, Lower Cost Multi-Family Buildings with
Electric-Vehicle Charging (WEBCAST) for AIA Chapters
- 435. The Worlds of 0-10V, DALI and DMX Dimming (Webcast)
- 436. Thousands of Hours of Accredited HVAC/R Programs & Courses
- 437. Thousands of Hours of Accredited HVAC/R Programs & Courses
- 438. Thousands of Hours of Accredited HVAC/R Programs & Courses
- 439. Thousands of Hours of Accredited HVAC/R Programs & Courses
- 440. Thousands of Hours of Accredited HVAC/R Programs & Courses
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- 442. Thousands of Hours of Accredited HVAC/R Programs & Courses
- 443. Thousands of Hours of Accredited HVAC/R Programs & Courses
- 444. Title 24 Part 6 Energy Code for SoCalREN (WEBCAST)
- 445. Title 24: What's New in the 2022 Nonresidential Energy Code (WEBCAST)
- 446. Title 24: What's New in the 2022 Nonresidential Energy Code (WEBCAST)
- 447. Title 24: What's New in the 2022 Residential Energy Code (WEBCAST)
- 448. Title 24: What's New in the 2022 Residential Energy Code (WEBCAST)
- 449. Title 24: What's New in the 2022 Residential Energy Code (WEBCAST)
- 450. Title 24: Where We're Headed with the 2019 Standards
- 451. Title 24: Where We're Headed with the 2019 Standards (WEBCAST)
- 452. Title 24: Where We're Headed with the 2019 Standards (WEBCAST)
- 453. Title 24: Where We're Headed with the 2019 Standards (WEBCAST)
- 454. TRANSFORMERS: Turning Existing Buildings "Green" (Webcast)
- 455. Transport Energy: Motors, Fans, and Pumps (Webcast)
- 456. Troubleshooting Commercial Refrigeration Part 1 of 2 (WEBCAST)
- 457. Troubleshooting Commercial Refrigeration Part 2 of 2 (WEBCAST)
- 458. Understanding a Pump Efficiency Test
- 459. Using Soil Moisture Sensors to Inform Irrigation Strategies (Webcast)
- 460. Variable Frequency Drives (VFDs) for Pumping Application
- 461. Variable Speed Drives for Agricultural Applications
- 462. VFDs for Ag Irrigation Applications (Webcast)
- 463. VFDs for Pumping Applications (WEBCAST)
- 464. VRF/VRV Install & Service Training (WEBCAST)
- 465. Welcome to Facility Management (WEBCAST)

- 466. Window Installation Procedures to Provide Real World Performance & Prevent Water Intrusion
- 467. Window Installation Procedures to Provide Real World Performance and Prevent Water Intrusion (Webcast)
- 468. Window Selection for New and Existing Homes
- 469. Window Selection for New and Existing Homes (WEBCAST)
- 470. Working with High Glide Refrigerants (WEBCAST)

SoCalGas Prospective Class List:

- IHACI - NATE HVAC/R Support Training – 4 Part Series
- IHACI - Gas Heating Module – 2 Part Series
- IHACI - System Diagnostics Module – 4 Part Series
- IHACI - System Performance Module – 4 Part Series
- IHACI - Air Distribution Module – 4 Part Series
- IHACI - Chiller Module – 2 Part Series
- IHACI - Commercial Cooling Tower Module – 2 Part Series
- NATE Core & Gas Heating Training – 4 Part Series
- NATE AC/HP Refrigeration & Air Distribution Training – 4 Part Series
- NATE Certification Examination
- EnergyPro 9 Software - Residential (Introduction)
- EnergyPro 9 Software - Residential (Advanced)
- EnergyPro 9 Software – Non-Residential (Introduction)
- EnergyPro 9 Software – Non-Residential (Advanced)
- Title 24 - Codes & Standards (Non-Advocacy – Education on Implemented C&S only)
- Manual J – WEBINAR
- Manual S – WEBINAR
- Manual D- WEBINAR
- HVAC Airflow - WEBINAR
- HVAC System Performance Testing PLUS – WEBINAR
- EPA 608 Certification Test Preparation - WEBINAR
- HVAC Airflow – WEBINAR
- 2019 California Residential Code PLUS Intro to 2022 -Webinar
- Refrigerant Charge Basics, for Home Energy Raters and Contractors
- 2022 Residential HVAC System Performance Testing PLUS
- Preventative Maintenance for Commercial Foodservice Equipment
- 2022 Foodservice Industry Outlook
- Culinary Spotlight: Cooking Techniques with Plant-Based Foods
- Preventative Maintenance for Foodservice Facilities
- Garland XHP Foodservice Live Demo Presentation
- Water Conservation in the Kitchen
- Culinary Spotlight: Asian American Pacific Islander Cuisine
- Culinary Comeback: SoCalGas California Community College Symposium
- Commercial Kitchen Ventilation for Safe and Efficient Operation
- Foodservice 2022 Energy Efficiency Programs and Services
- Advanced Water Heating for Foodservice Facilities
- Culinary Spotlight: African American Cuisine
- IAPMO Natural Gas Foodservice Equipment Installer Certification
- Best Practices in Food Safety Operations
- Culinary Spotlight: Hispanic Cuisine
- Foodservice Expo
- Advanced Ventilation: 100% Outdoor Air Handlers for HVAC/CKV systems
- Commercial Kitchen Water Heating Best Practices



County of Riverside • City of Banning • City of Beaumont • City of Calimesa • City of Canyon Lake • City of Corona • City of Eastvale
City of Hemet • City of Jurupa Valley • City of Lake Elsinore • City of Menifee • City of Moreno Valley • City of Murrieta • City of Norco
City of Perris • City of Riverside • City of San Jacinto • City of Temecula • City of Wildomar • Eastern Municipal Water District •
Western Municipal Water District • Riverside County Superintendent of Schools

January 21, 2022

Advice No. 1-E-G

(Inland Regional Energy Network ID #246)

Advice No. 16-E/16-G

(Southern California Regional Energy Network ID #940)

Advice No. 4697-E

(Southern California Edison Company ID U 338 E)

Advice No. 5930

(Southern California Gas Company ID U 904 G)

Public Utilities Commission of the State of California

Subject: 2022 Joint Cooperation Memorandum (JCM) of I-REN, SoCalREN, SCE, and SoCalGas' Pursuant to Decision (D.) 18-05-041 and D.21-11-013

Purpose

The Western Riverside Council of Governments (WRCOG), for itself and on behalf of the San Bernardino Associated Governments and the Coachella Valley Association of Governments for the Inland Regional Energy Network (I-REN), and on behalf of Southern California Regional Energy Network (SoCalREN), Southern California Edison Company (SCE), and Southern California Gas Company (SoCalGas),¹ hereby submits this Tier 2 Advice Letter (AL) pursuant to Decision (D.) 18-05-041, Ordering Paragraph (OP) 38² and D.21-11-013 Conclusions of Law (COL) 10.³ This AL seeks approval from the California Public Utilities Commission (Commission or CPUC) for the 2022 Joint Cooperation Memorandum submitted by I-REN, SoCalREN, SCE and SoCalGas (2022 JCM). The 2022 JCM includes details regarding I-REN's programs, SoCalREN, SoCalGas and SCE's comparable programs, and the coordination among the Program Administrators (PAs) on overlapping service territories.

Background

On June 5, 2018, the Commission issued D.18-05-041, *Decision Addressing Energy Efficiency Business Plans*, which adopted PAs' business plans, sector strategies, and associated budgets for the years 2018 through 2025. In addition, D.18-05-041 requires the PAs to submit a Joint Cooperation Memorandum (JCM) between energy efficiency program administrators with overlapping service areas. Specifically, the directive states: We will require the PAs (RENs, IOUs and CCA) to develop a joint cooperation memo to demonstrate how they will avoid or minimize duplication for programs that address a common sector but pursue different activities. For such programs, each PA must explicitly identify and discuss how its activities are complementary and supplementary, and not duplicative of other PAs' planned activities. Staff will utilize these memos in their reviews of the PAs'

¹ Together referred to as the Joint Program Administrators (Joint PAs).

² D.18-05-041 at 190.

³ D.21-11-013 at 32.

specific activities and programs to confirm that they conform with the memos, or more broadly with D.12-11-015 and D.16-08-019⁴. I-REN hereby submits its 2022 annual JCM AL submittal on behalf of itself, SoCalREN, SCE and SoCalGas.

2022 Joint Cooperation Memo

Attachment A of this AL contains the Joint PAs' response to the Commission's directive. The JCM is divided into four sections. The first section describes an overview of the Joint PAs' portfolio coordination. The second section provides a summary of each of I-REN's 2022 sectors and their objectives. The third section is organized into six subsections, each subsection representative of an I-REN program. Each subsection presents a summary of the I-REN program offering and its objectives, a summary of all PA's program differentiation, a summary of comparable SoCalREN, SCE and SoCalGas programs, details regarding the program coordination between the Joint PAs, specifics regarding coordination between statewide programs and a summary of I-REN's program compliance with D.12-11-015. The fourth section provides further details regarding I-REN's program compliance with D.12-11-015.

The Joint PAs make note that the budgets and programs outlined in this memo are the best estimates of 2022 offerings at the time of submittal. In addition, this JCM includes several appendices to provide relevant information for Energy Division staff. Appendices included in the Joint PAs 2022 JCM are as follows:

- Appendix A: Summary of I-REN Programs Compliance with D.12-11-015
- Appendix B: I-REN Summary of Programs Offered For 2022
- Appendix C: SoCalREN, SCE and SoCalGas Summary of Comparable Programs Offered for 2022

Protests

Anyone may protest this AL to the Commission. The protest must state the grounds upon which it is based, including such items as financial and service impact, and should be submitted expeditiously. The protest must be made in writing and must be received within 20 days of the date this AL, which is February 10, 2022. Due to COVID-19, all requirements for hard copy service of documents pursuant to the Commission Rule of Practice and Procedure, hard copies of all electronically served documents, are suspended until further notice.

A copy of the protest should be sent via e-mail to the attention of the Energy Division Tariff Unit (EDTariffUnit@cpuc.ca.gov). Please submit protests or comments to this AL via e-mail to the addresses shown below on the same date they are emailed to the Commission.

For I-REN:

Casey Dailey
Director of Energy & Environmental Programs
Western Riverside Council of Governments
3390 University Ave., Suite 200
Riverside, California 92501
Office: (951) 405-6720
E-mail: cdailey@wrcog.us

⁴ D.16-08-019 at 97.

For SoCalREN: Minh Le
General Manager, Energy and Environmental Services
County of Los Angeles
1100 N. Eastern Avenue
Los Angeles, California 90063
Office: (323) 267-2006
E-mail: MSLe@isd.LAcounty.gov

For SCE: Shinjini C. Menon
Managing Director, State Regulatory Operations
Southern California Edison Company
8631 Rush Street
Rosemead, California 91770
Telephone (626) 302-3377
Facsimile: (626) 302-6396
E-mail: AdviceTariffManager@sce.com

And

Tara S. Kaushik
Managing Director, Regulatory Relations
c/o Karyn Gansecki
Southern California Edison Company
601 Van Ness Avenue, Suite 2030
San Francisco, California 94102
Facsimile: (415) 929-5544
E-mail: Karyn.Gansecki@sce.com

For SoCalGas: Ray B. Ortiz
Tariff Manager – GT14D6
555 West Fifth Street
Los Angeles, CA 90013-1011
Telephone: (213) 244-3837
Facsimile No.: (213) 244-4957
Email: ROrtiz@socalgas.com

Effective Date

Per D.18-05-041, OP 38, this AL is subject to Energy Division disposition and should be classified as Tier 2 (effective after staff approval) pursuant to General Order (GO) 96-B. The I-REN respectfully requests that this submittal be made effective on February 20, 2022, which is 30 days from the date submitted.

Notice

A copy of this AL is being sent to the Commission's service lists for A.17-01-013 (et al.) and R.13-11-005. For changes to A.17-01-013 (et al.) and R.13-11-005 service lists, please contact the Commission's Process Office at 415-703-2021 or by electronic mail at process_office@cpuc.ca.gov.

Should you have any questions please feel free to contact me at (951) 405-6720 or cdailey@wrcog.us.

Thank you,

A handwritten signature in black ink, appearing to read 'Casey Dailey', with a stylized flourish at the end.

Casey Dailey
Director of Energy & Environmental Programs



ADVICE LETTER SUMMARY

ENERGY UTILITY



MUST BE COMPLETED BY UTILITY (Attach additional pages as needed)

Company name/CPUC Utility No.: Inland Regional Energy Network #246

Utility type:

- ELC GAS WATER
 PLC HEAT

Contact Person: Casey Dailey

Phone #: 951-405-6720

E-mail: cdailey@wrcog.us

E-mail Disposition Notice to: cdailey@wrcog.us

EXPLANATION OF UTILITY TYPE

ELC = Electric GAS = Gas WATER = Water
 PLC = Pipeline HEAT = Heat

(Date Submitted / Received Stamp by CPUC)

1/21/2022

Advice Letter (AL) #: 1-E-G

Tier Designation: 2

Subject of AL: Inland Regional Energy Network, Southern California Edison, SoCalGas®, and Southern California Regional Energy Network 2022 Joint Cooperation Memo

Keywords (choose from CPUC listing): Energy Efficiency

AL Type: Monthly Quarterly Annual One-Time Other:

If AL submitted in compliance with a Commission order, indicate relevant Decision/Resolution #: D.18-05-041 and D.21-11-013

Does AL replace a withdrawn or rejected AL? If so, identify the prior AL: N/A

Summarize differences between the AL and the prior withdrawn or rejected AL: N/A

Confidential treatment requested? Yes No

If yes, specification of confidential information: N/A

Confidential information will be made available to appropriate parties who execute a nondisclosure agreement. Name and contact information to request nondisclosure agreement/ access to confidential information: N/A

Resolution required? Yes No

Requested effective date: 2/20/22

No. of tariff sheets: N/A

Estimated system annual revenue effect (%): N/A

Estimated system average rate effect (%): N/A

When rates are affected by AL, include attachment in AL showing average rate effects on customer classes (residential, small commercial, large C/I, agricultural, lighting).

Tariff schedules affected: N/A

Service affected and changes proposed¹: N/A

Pending advice letters that revise the same tariff sheets: N/A

¹Discuss in AL if more space is needed.

Protests and all other correspondence regarding this AL are due no later than 20 days after the date of this submittal, unless otherwise authorized by the Commission, and shall be sent to:

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ENERGY Advice Letter Keywords

Affiliate	Direct Access	Preliminary Statement
Agreements	Disconnect Service	Procurement
Agriculture	ECAC / Energy Cost Adjustment	Qualifying Facility
Avoided Cost	EOR / Enhanced Oil Recovery	Rebates
Balancing Account	Energy Charge	Refunds
Baseline	Energy Efficiency	Reliability
Bilingual	Establish Service	Re-MAT/Bio-MAT
Billings	Expand Service Area	Revenue Allocation
Bioenergy	Forms	Rule 21
Brokerage Fees	Franchise Fee / User Tax	Rules
CARE	G.O. 131-D	Section 851
CPUC Reimbursement Fee	GRC / General Rate Case	Self Generation
Capacity	Hazardous Waste	Service Area Map
Cogeneration	Increase Rates	Service Outage
Compliance	Interruptible Service	Solar
Conditions of Service	Interutility Transportation	Standby Service
Connection	LIEE / Low-Income Energy Efficiency	Storage
Conservation	LIRA / Low-Income Ratepayer Assistance	Street Lights
Consolidate Tariffs	Late Payment Charge	Surcharges
Contracts	Line Extensions	Tariffs
Core	Memorandum Account	Taxes
Credit	Metered Energy Efficiency	Text Changes
Curtable Service	Metering	Transformer
Customer Charge	Mobile Home Parks	Transition Cost
Customer Owned Generation	Name Change	Transmission Lines
Decrease Rates	Non-Core	Transportation Electrification
Demand Charge	Non-firm Service Contracts	Transportation Rates
Demand Side Fund	Nuclear	Undergrounding
Demand Side Management	Oil Pipelines	Voltage Discount
Demand Side Response	PBR / Performance Based Ratemaking	Wind Power
Deposits	Portfolio	Withdrawal of Service
Depreciation	Power Lines	

Attachment A

Inland Regional Energy Network, Southern California Edison, SoCalGas[®], and Southern California Regional Energy Network

2022 Joint Cooperation Memo

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I. SUMMARY OF I-REN, SOCALREN, SCE, AND SOCALGAS PORTFOLIO COORDINATION

D.18-05-041 and D.21-11-013 require Program Administrators (PAs) to submit a joint cooperation memorandum (JCM) between Energy Efficiency (EE) PAs with overlapping service areas. Specifically, the directive states: “We will require the PAs (RENs, IOUs, and CCAs) to develop a joint cooperation memo to demonstrate how they will avoid or minimize duplication for programs that address a common sector (e.g., residential or commercial) but pursue different activities, pilots that are intended to test new or different delivery models for scalability, and/or programs that otherwise exhibit a high likelihood of overlap or duplication and are not targeted at hard-to-reach customers. For such programs, each PA must explicitly identify and discuss how its activities are complementary and not duplicative of other PAs’ planned activities.”¹

The I-REN, SoCalREN, SCE, and SoCalGas’ (hereinafter referred to as the “Joint PAs”) 2022 portfolio will focus on collaboration with respect to the Joint PAs’ overlapping territories, as I-REN begins to contract implementers and launch its first ratepayer-funded energy efficiency programs as a new PA. As part of the Joint PAs’ focused transition to performance-based and comparatively cost-effective and cost-efficient 2022 portfolios, the Joint PAs will be deepening collaboration to ensure that their respective overlapping regional programs do not result in unnecessary duplication or cause customer confusion. PAs can derive additional value by providing information and referrals to programs across all program implementers, including those outside each other’s implementation focus.

¹ See D.18-05-041, p. 97

In addition, the Joint PAs will use 2022 to continue to conduct ongoing performance assessments, introduce program administrative and implementation adjustments to reduce costs and increase energy savings, and optimize performance of all their portfolios.

Details on how each of the Joint PAs' overlapping sector programs will collaborate between each PA, as necessary to comply with the Commission's directives, are provided below in the following section.

II. SUMMARY OF I-REN BUSINESS PLAN SECTORS

A. PUBLIC SECTOR

I-REN's public sector offerings will serve the members of the three Councils of Government (COGs) represented in I-REN, including the Coachella Valley Association of Governments (CVAG), San Bernardino Associated Governments (SANBAG), Western Riverside Council of Governments (WRCOG), and the cities, school districts, water districts, special districts, and tribal communities they represent. These regional programs will target, but not be limited to, upgrades to existing public buildings and facilities with high energy use and older equipment. While the offerings will consider all public building types, there will be a focus on community-serving buildings such as community centers, libraries, senior centers, schools, and fire and police buildings. Through energy efficiency projects in these facilities, I-REN can provide benefits that will flow to disadvantaged, low income, and other vulnerable communities. The I-REN programs will be multi-beneficial in nature, layering energy efficiency strategies with greenhouse gas reductions, community resilience and climate adaptation measures.

I-REN's local governments have limited capacity to complete energy upgrades and are challenged to maintain and upgrade these facilities due to lack of funding for capital

improvements, a lack of awareness related to energy efficiency and other energy efficiency program opportunities, limited time and staff resources, along with conflicting priorities. Further, State mandates such as building energy benchmarking (AB 802) requirements, energy code compliance, and climate adaptation planning are additional unfunded regulations and requirements on local governments and are difficult to meet given competing priorities. These challenges are exacerbated now due to the COVID-19 pandemic, the associated economic downturn and increased pressure on local government agencies to respond to a variety of issues.

To address these challenges, I-REN will leverage its existing public sector partnerships and networks across the region to offer technical assistance, implement resource program options, and improve access to financing. Implementing these initiatives will further I-REN's goals of encouraging resilience and continuous capacity building for local governments, thereby strengthening their ability to serve their community through energy efficiency projects in their own facilities, while also saving on building operations costs and contributing to local and statewide goals for energy savings, climate resilience, and greenhouse gas emissions reduction.

1. Summary of I-REN's Public Sector Program Objectives

- a. Local governments have support and resources to develop and implement their strategic energy plans and energy efficiency projects.
- b. Help local governments afford and finance a range of energy efficiency upgrades through innovative financing options.

B. CODES AND STANDARDS SECTOR

I-REN is proposing a dynamic and targeted set of offerings for the Codes and Standards (C&S) Sector to assist its local government agencies in better understanding and enforcing

energy building codes. The I-REN's Codes and Standards program (IREN-CS-001) will consist of two components: training and education, and technical support. In addition, I-REN will support the region's building industry to better conform to and implement these codes. This could include but is not limited to identifying gaps in training and education and code compliance, supporting enforcement, and working with the Statewide IOU C&S Compliance Improvement Team to ensure that statewide, CEC-vetted, consistent support is provided to their constituents. I-REN may also offer outreach for compliance support to non-electric IOU areas served by SoCalGas that include the City of Riverside and the Imperial Irrigation District (IID) service area. Should I-REN serve areas that are served by a single IOU, I-REN will coordinate with SoCalGas as the fiscal and contracting agent. Compliance with California Energy Code (Title 24, Part 6) and California Green Building Standards Code (Title 24, Part 11) is required for new construction of, and additions and alterations to, residential and nonresidential buildings.

The authorities having jurisdiction or "AHJs" that provide permits for these projects and enforce codes and standards are found at the city and county level and are expected to enforce the California Energy Code without additional state budget resources. Increased contractor compliance with the Energy Code, particularly related to residential HVAC, is identified as an important strategy to increase energy efficiency and home safety. The CEC has established a goal to increase compliance by 80% by 2021.²

Energy code enforcement has historically been difficult for local jurisdictions, particularly smaller communities with fewer resources. Conflicting priorities and a focus on life

² California Energy Commission, "2019 California Energy Efficiency Action Plan," December 2019, page 40.

and safety codes relegates energy code to a secondary (or tertiary) position. I-REN's service territory includes many AHJs that face significant challenges in enforcing energy codes and standards with their current resources and capacity. These jurisdictions are small in population size, geographically dispersed, challenged by extreme climate conditions, and disadvantaged by pollution and other factors. I-REN has significant opportunity to support compliance and enforcement, to ensure building department knowledge, awareness, and realization of energy-savings measures.

As an organization led by and dedicated to serving local governments, I-REN can provide flexible and adaptable solutions to help bridge the gap and assist local jurisdictions, including but not limited to jurisdictions outside of IOU service areas . I-REN's C&S initiatives will offer locally focused training, education, and tools to support codes and standards implementation, gap filling, code enforcement, and compliance activities. Locally-focused training and educational resources will be informed by and targeted specifically to address the needs of jurisdictions in the region, which will be identified during activities related to Tactic 3.3.1: Identify and address the areas of greatest need for improved code compliance, in collaboration with local governments and the building industry, as described in I-REN's Business Plan³ approved in D.21-11-013. To ensure statewide consistency in compliance improvement support I-REN will coordinate and collaborate with the IOU C&S team.

³ Motion of the Western Riverside Council of Governments on Behalf of the Inland Regional Energy Network (I-REN), for Approval of its Energy Efficiency Rolling Portfolio Business Plan and Budget, p. 3.20.

1. Summary of I-REN's Codes and Standards Program Objectives

- a) Improve the understanding of energy efficiency and fuel substitution codes and standards among local building departments and the building industry to increase implementation and compliance.
- b) Make code compliance a valuable element of the region's energy efficiency and decarbonization goal attainment with engagement regionwide.
- c) Deliver locally informed resources and tools that streamline code compliance and enforcement and increase permit closeout.

C. WORKFORCE EDUCATION AND TRAINING SECTOR

The I-REN's Workforce Education and Training program (IREN-WET-001) will consist of two components: training and education, and workforce development. Workforce Education and Training (WE&T) initiatives may now be more important than ever due to the COVID-19 pandemic the U.S. faced for the majority of 2020 and continued to face throughout 2021. As a locally-focused and locally-led advocate for economic development in the Inland Empire, I-REN is distinct in its ability to respond to this crisis and help support the region's recovery. The COGs that make up I-REN's governing agencies have direct connections to local governments and community stakeholders to make this effort as effective as possible.

Agility and collaboration will be required to mount a response to the economic devastation caused by the pandemic. I-REN, as a consortium of San Bernardino and Riverside government representatives, can effectively link to local needs, workforce providers, and employers to create a more robust environment for job creation and skills development. Employment and training are issues that have specific opportunities and challenges that need to

be addressed by those who are in the area and connected directly to the range of potential actors. This is also a long-term need that will require relationship building and trust building with underserved communities, and the existing providers.

I-REN will serve as a vital link between workforce skills and training providers such as community colleges and employers to build a more robust market and increase the number of skilled EE contractors in the Inland Empire. These activities will promote job market recovery and progress toward statewide goals regarding energy efficiency, air quality, and support for hard-to-reach (HTR), underserved, rural, tribal, and disadvantaged communities (DACs). Both Senate Bill (SB) 350 and SB 535 prioritize these communities for initiatives to improve air quality, increase energy efficiency, and address economic conditions. SB 350 emphasizes workforce development and increased project penetration in underserved communities.⁴ I-REN has an opportunity to support these goals through its WE&T initiatives.

1. Summary of I-REN's Workforce and Education Sector Program Objectives

- a. Create a robust local network of training programs that increase capacity, knowledge, and awareness of energy efficiency as a valuable component of the building industry.
- b. Increase the number of skilled energy efficiency workers in the region.

⁴ California Senate Bill 350, Sec. 8.25943.a.1;.c.7-8.

III. SUMMARY OF I-REN PORTFOLIO OF PROGRAMS OFFERED FOR 2022 AND COMPARABLE PARTNER PROGRAM ADMINISTRATORS 2022 PROGRAMS

A. PUBLIC SECTOR—TECHNICAL ASSISTANCE AND STRATEGIC ENERGY PLANNING – IREN-PUBL-001

I-REN’s Public Sector Technical Assistance and Strategic Energy Planning Program will provide short-term and mid-term technical support for local governments, special districts, school districts, and tribes to increase energy efficiency in publicly-owned facilities. The program will provide additional support and technical services to design high performing, energy efficient buildings.

The program will implement a strategy of developing a regional Building Upgrade Concierge (BUC) for local governments, special districts, and tribal communities with technical guidance and tools to inform and enable priority energy improvements. I-REN will provide person-to-person support for local governments to get higher levels of assistance and support for their energy efficiency projects, through concierge-style support to help fill gaps in staff capacity and resources at these local government jurisdictions.

I-REN’s technical assistance support will build local government’s capacity to tackle complex projects, from helping with benchmarking to navigating options and approaches for maximizing their investments and energy savings. I-REN will offer person-to-person support to help these local governments in making efficient equipment purchases and to implement energy efficiency projects. Resulting energy bill savings will benefit local governments and contribute to both local and statewide goals for energy efficiency and greenhouse gas reduction.

I-REN will also develop or enhance strategic energy plans to connect local government goals related to climate, resilience, and economic development to energy efficiency programs and adoption. Through this tactic I-REN will assess the current state of strategic energy planning and provide technical assistance to begin the process or help move the process forward, working in collaboration with jurisdiction stakeholders.

In addition, I-REN will create resources for the public sector to tap into EE and distributed energy resources programs offered by other providers and IOUs, acting as a clearinghouse for information about energy efficiency programs available in the region for the public sector, and will create and promote tools and resources to increase energy efficiency program participation among their constituents.

1. Summary of I-REN’s Technical Assistance and Strategic Energy Planning Program Objectives

- a) Local governments have support and resources to develop and implement their strategic energy plans and energy efficiency projects.

2. Summary of Program Differentiation

The following table provides a summary of the PAs’ respective Technical Assistance and Strategic Energy Planning programs.

Table 1: I-REN, SoCalREN, SCE, and SoCalGas Technical Assistance and Strategic Energy Planning Program Summary

Program Parameters	I-REN	SoCalREN	SCE Local Public Third-Party Program	SoCalGas
Target Audience(s)	<ul style="list-style-type: none"> Counties of Riverside and San Bernardino Cities, school districts, water districts, special districts, tribal communities Disadvantaged, low income, other vulnerable communities Community centers, libraries, senior centers, schools, fire and police buildings Educational institutions 	All eligible Public Agencies served by SCE and/or SCG including: Cities, counties, tribes, K-12 schools, local governments, hospitals and hospital districts, water districts, wastewater districts, sanitation districts, ports, airports, and other special districts.	The program design for SCE’s Local Public Sector Third-Party Program is not yet available. The Advice Letter (AL) for SCE’s Local Public Sector Third-Party Program is being submitted in Q1 2022, and is pending review and approval from the CPUC. Program design will be available upon approval of the AL.	Eligible Public Sector customers which include cities, counties, public agencies, special districts (public water districts, health districts, waste treatment/water districts, etc.), K-12 school districts, High Education (UC/CSU, Community Colleges) and federal entities (federal agencies, US military facilities and Indian tribes) DAC/HTR Communities, Low income communities
Resource or Non-Resource	Non-resource	Non-resource	Resource	Resource and non-resource
Eligible Measures	n/a	n/a	TBD	Deemed and custom measures
2022 Budget	\$3,102,902	\$12,240,078*	\$5,181,133*	\$8,278,856 *

* SoCalREN, SCE and SoCalGas 2022 budgets provided herein are estimates merely for reference only. The final budgets are subject to Commission approval of 2022-23 BBAL Advice Letter.

I-REN will offer person-to-person concierge technical support services to serve the needs of public sector customers in its territory, including but not limited to strategic energy planning

and procurement and project management assistance. I-REN will focus on underserved local governments including tribal communities with targeted non-resource efforts to drive participation to IOU programs and use information technology to help improve public sector customers’ and local governments’ access to energy efficiency opportunities. While the program will be open to all public building types, there will be a focus on community-serving buildings such as community centers, libraries, senior centers, schools, and fire and police buildings. I-REN will leverage its existing public sector partnerships and networks across the region to deliver personalized services through this program. Location of services in Riverside and San Bernardino counties, especially in underserved jurisdictions, and a more localized focus will differentiate I-REN’s program from other comparable offerings.

The following table compares the key program parameters of PAs’ public sector technical assistance and strategic energy planning programs.

Table 2: Technical Assistance and Strategic Energy Planning Program Comparison

Program Parameters	I-REN	SoCalREN	SCE	SoCalGas
Types of Public Agencies Served	<ul style="list-style-type: none"> Members of the I-REN COGs, counties, cities, school districts, water districts, special districts, and tribal communities Hard-to-reach, disadvantaged, low income, and other vulnerable communities Public sector facilities, community centers, libraries, 	All eligible Public Agencies including but not limited to: <ul style="list-style-type: none"> Cities Counties Water/wastewater Districts K-12 schools Special Districts Tribes 	<ul style="list-style-type: none"> Local Governments Federal Government Special Districts Tribal Governments (non-residential only) Public and Private Education limited to: K-12 schools, both public and private 	<ul style="list-style-type: none"> All eligible Public Agencies that include cities, counties, various public agencies, special districts, K-12 schools, CA State agencies and high-ed institutions (by SW Programs); federal agencies and Indian tribes DAC/HTR Communities, Low-income customers/communities (by SoCalGas’ Low Income Programs)

Program Parameters	I-REN	SoCalREN	SCE	SoCalGas
	senior centers, schools, and fire and police buildings <ul style="list-style-type: none"> • Educational institutions 		universities, colleges, and trade schools	
Resource/ Non-resource	Non-resource	Non-resource	Resource	Resource and non-Resource
Procurement Assistance	Support public agency staff in navigating procurement and approval process	Procurement and project delivery option analysis; Access and extensive support to both customized and turnkey procurement approaches for energy projects; Proposal and bid analysis; Development of contractor scope of work with performance specifications; Contractor cost estimate review.	TBD	
Technical Assistance	Strategic energy planning; benchmarking; technical support to assess project options;	Customized technical engineering support from project identification to completion, including investment grade audits to identify all energy saving opportunities, technical performance specifications and	TBD	Technical assistance for EE opportunities and EE project scoping and development; Benchmarking support; Engineering support

Program Parameters	I-REN	SoCalREN	SCE	SoCalGas
		provide construction management support.		
Financial Support	Provide information on I-REN financing options and other PA offerings	Financial Analysis for projects to compare different financing options; Support with financing and incentive applications and process; Assistance with non-ratepayer funded financing; Access to financial advisory services.	On-Bill Financing	Support for financing and incentive application through account representatives or 3P Implementers; OBF zero-interest financing; SW Financing offerings
Access to Energy Data	Benchmarking and energy modeling support	Access to on-demand energy data and customized reports to communicate data; Benchmarking support including AB 802 compliance; Detailed facility TOU load profiles and insights.	Energy Data Request Program (EDRP); Green Button Connect My Data; CEC Building Benchmarking (Energy Star Portfolio Manager) support; Energy Atlas/CATALENA	Agency usage-level data on request; Aggregated community data on request (EDRP); Energy Star PM support; Energy Atlas/CATALENA (under development); Automated electronic bill data delivery via secure file transfer protocol
Energy Project Expertise to Implement Projects	Support public agency decisionmakers and staff with concierge-style project management support	Provides support at each stage to each participating agency through an assigned Project Manager along with access to engineering and construction support.	TBD	Technical support for EE projects; 3P Resource Program delivery; 3P Direct Install; Program management support to coordinate technical assistance, leverage available 3P program resources and

Program Parameters	I-REN	SoCalREN	SCE	SoCalGas
				engineering services
Community Marketing/Outreach	<ul style="list-style-type: none"> • Outreach to local jurisdictions and agencies to educate them about the program offerings • Create regionally-focused resources on public sector opportunities • Collaborate with local governments, tribes, and special districts to design and deliver messaging to the community to promote local leadership in energy efficiency 	<p>Development and sharing of tools and resources to promote regional and local energy action.</p> <p>Customized support to engage community stakeholders and inspire regional and local energy action; Leverages Regional Partner channels to deliver customized marketing materials adapted to unique community needs.</p>	TBD	<p>Regional Energy Pathways to provide focused outreach and support for all Public Agencies</p> <p>Customized marketing support to engage communities and educate on other EE offerings that includes leveraging Core Program and 3P Program resources</p> <p>3P programs tailored to Public Sector</p> <p>Funneling SoCalGas Core and 3P program offerings to Public Agencies and the communities served under the jurisdiction</p>
Sharing of Best Practices for Sustainability Efforts	<ul style="list-style-type: none"> • Convene stakeholders for strategic energy planning • Create local case studies to showcase achievements in the region • Create, distribute and promote regionally-focused tools and resources through e-communicators, social media, 	<p>Sub-regional peer-to-peer workshops, Energy Manager Working Groups, and trainings on relevant topics; Access to shared online resources and learning communities; Regular communication and coordination among Regional Partners and Advisory Committee</p>	TBD	<p>Regular communication with customers and engagement in regional events, support and coordinate with 3P programs</p>

Program Parameters	I-REN	SoCalREN	SCE	SoCalGas
	web, and at in-person events.	members to share activities and best practices.		

3. Comparable SoCalREN Program – Public Agency Energy Efficiency Project Delivery Program (EE PDP)

The SoCalREN Public Agency Energy Efficiency Project Delivery Program (EE PDP) is a program that offers services to identify and complete public sector projects that are customized to meet the unique needs of each agency. The Program provides objective, third-party expertise from project start-to-finish to help agencies implement the best measures to maximize energy cost savings. The SoCalREN Public Agency EE PDP is a market support program that channels projects through utility core and third-party programs as well as SoCalREN resource programs (Metered Savings Program and Streamlined Savings Pathway). In addition, SoCalREN’s EE PDP assists in the development and sharing of tools and resources through a peer-to-peer network to inspire local energy action.

Services include:

- Energy portfolio analyses and benchmarking support that help identify potential opportunities
- Start-to-finish project management support
- Facility and equipment energy audits

- Exterior lighting, interior lighting, mechanical, and envelope retrofit technical expertise
- Water and wastewater pumping and process optimization retrofits and other measures
- Retro-commissioning support
- Project financing analysis
- Development of contractor scope of work elements with EE performance specifications
- Access to competitively bid specialty contractors
- Construction management support
- Project close-out support and training
- Access to EE tools, resources & peer-to-peer learning opportunities
- Customized support to celebrate project success
- Support in access to financing, including EE financing and grant application services
- Assistance with utility incentive and rebate processing
- Application support for various grant and financing programs including but not limited to: CEC Energy Conservation Assistance Act Loan, SoCalREN's Revolving Savings Fund, CEC CalSHAPE program etc.

4. Comparable SCE Program – Local Public Sector 3P Solicitation – SCE-13-TP-029

The program design for SCE’s Local Public Sector Third-Party Program currently under solicitation and is not yet available. However, SCE will be submitting an Advice Letter with program details in Q1 2022. This new third-party program will replace SCE’s legacy local public sector programs.

5. Comparable SoCalGas Program – Regional Energy Pathways – SCG3912

Regional Energy Pathways is a transition from the previous Local Government Partnership (LGP) model. The Regional Energy Pathways builds on the experience and successes of LGP to further the progress in Public Sector and expand a greater reach to all Public Sector customers. The Regional Pathways will deploy more flexible and efficient approaches to engage with all public sector customers in providing valuable programs and services to all public sector customers. Regional Pathways will have assigned Program Manager for each region to maintain and expand valuable relationships with public agencies. This program is committed to providing ongoing outreach and collaboration with public sector customers as trusted resources and reliable partner. Public Sector customers will continue to be served through various Third-Party Programs as well as SoCalGas’ Core Programs.

SCG3846 PUB – Small/Medium Public Sector 3P Program

SoCalGas Small/Medium Public Sector 3P Program is a Third-Party program. The 3P program provides a turnkey end-to-end solution for SoCalGas to serve small and medium Public Sector customers. The program provides direct install measures to small and medium Public Sector customers.

SCG3899 PUB – Large Public Sector 3P Program

SoCalGas Large Public Sector 3P Program is a Third Party program currently under solicitation process.

6. Coordination Protocol Between Programs

As a new PA, I-REN has not yet contracted with implementers. Within 60 days of implementer(s) being contracted for the relevant programs, the Joint PAs will reconvene to plan coordination activities. The Joint PAs will coordinate as new and launching programs are contracted and designed in order to minimize duplication of efforts. Technical assistance will be a key area of focus for coordination among the Joint PAs. Additionally, new market support and equity programs might also provide similar services, which must also be closely coordinated.

To address marketing confusion among implementers (both IOU and third-party) the Joint PAs will establish a protocol for program coordination to occur at the COG level. I-REN will invite implementers of Joint PA programs to present to COG audiences to inform and build awareness among members of EE programs. Historically, COGs have served as conveners to IOU programs. I-REN will seek opportunities to leverage existing implementer relationships and be a convener of services for COG members. Not only would this develop potential leads, but it would also bring the best solutions to the customer.

7. Coordination Between Statewide Program(s)

As a new PA, I-REN has not yet contracted with implementers. Within 60 days of implementer(s) being contracted for the relevant programs, the Joint PAs will reconvene to plan coordination activities. The Joint PAs will continue to participate in Energy Division-led Peer Coordination Groups (PCGs). The statewide PCGs enable collaborative statewide discussions regarding all programs across all PAs throughout the state, not just those in Southern California.

Coordination with statewide programs could include but not necessarily be limited to the following:

SCE_SW_IP_Colleges – SW Higher Education Program (UC, CSU, CCC)

The Statewide Higher Education Program, also known as the UC/CSU/CCC Program, is a resource program that will serve the statewide Public Higher Education Institutions such as University of California, California State University, and California Community Colleges energy efficiency needs. The three customer segments being served will be the University of California , California State Universities and California Community Colleges. The objective for this program is to have the third party offer innovative and cost-effective EE opportunities to the three customer segments listed above. This program is scheduled to launch Q3 2022.

SCE_SW_UL – Statewide Lighting Energy Efficiency Program

The California Statewide Lighting Program serves all eligible electric customers in the participating IOUs' service territories –SCE, SDG&E, and PG&E. The objective of the program is to promote the sale and installation of high efficiency lighting products through midstream (distributor) channels. The Implementation Contactor, TRC Solutions, will achieve the program's objectives through implementation of a cost-effective midstream program for the non-Residential, Commercial & Industrial market throughout the IOUs' territories.

SCE_SW_WP – Statewide Water/Wastewater Pumping Energy Efficiency Program

SCE, on behalf of itself, PG&E, SDG&E, and SCG, as the statewide lead will administer the Statewide Water/Wastewater Pumping Efficiency program through a third-party designed and delivered program. The program targets water extraction, distribution and treatment, waste

water treatment and oil and gas clear water pumping throughout each of the IOU's service territories and comply with the CPUC-established energy efficiency policies within this Solicitation's requirements, as listed in Article 3 of these Solicitation Instructions.

SCG_SW_IP_Colleges PUB-SW-Institutional Partnership: UC/CSU/CCC

The SW Institutional Partnership for UC/CSU/CCC is a SW Third Party program currently under solicitation process. The existing SW UC/CSU/CCC Partnership will continue until the SW Third Party Program launches in later part of 2022.

The University of California/ California State University/ Investor Owned Utility (UC/CSU/IOU) Energy Efficiency Partnership is a statewide program which includes California's four IOU's, PG&E, SCE, Southern California Gas Company (SCG), and SDG&E, as well as the continuation of LA Department of Water and Power (LADWP), in partnership with the UC and CSU. The program generates energy savings through the identification and implementation of energy efficiency projects and through training and education to support those projects. The Partnership consists of three main project types: retrofit, commissioning and new construction.

The California Community Colleges/Investor Owned Utility (CCC/IOU) Energy Efficiency Partnership is a unique, statewide program to achieve immediate and long-term energy savings and peak demand reduction within California's higher education system. The statewide incentive funding for the 2019 program year was utilized to maintain the Partnership program processes and framework established in previous program cycles for sustainable, comprehensive energy management at campuses served by California's four Investor Owned Utilities.

SCG_SW_IP_Gov PUB-SW-Institutional Partnership: DGS & DOC

The SW Institutional Partnership for DGS & DOC is a SW Third Party Program that targets CA State agencies. This new SW Third Party program is administered by PG&E, and is designed and implemented by AESC with support from partners serves state-owned buildings in PG&E, SCE, SoCalGas, and SDG&E service areas which include I-REN service area. The program runs through October 2026. The goal of the program is to help California State Agencies (excluding higher education) reach their Greenhouse Gas (GHG) emission reductions goals while driving towards Zero Net Energy through EE and IDSM project planning, technical support, and financial assistance.

SCG_SW_MCWH SW Midstream Water Heating

SoCalGas SW Midstream Water Heating Program is a SW Third Party program that helps business owners and building managers purchase high-efficiency commercial water heating products at reduced prices and contractors build lower-cost equipment into their bids. Distributors can receive incentives and program support for offering instant point-of-sale rebates to eligible commercial customers of SoCalGas®, Pacific Gas and Electric Company (PG&E®), Southern California Edison (SCE®) or San Diego Gas & Electric (SDG&E®). This program also serves public sector customers for the eligible water heating products.

SCG_SW_FS SW Point-of-Sale Food Service

SoCalGas SW Food Service Program is a SW Third Party program that provides instant rebates for qualifying energy efficient food service equipment through participating dealers. This program also serves public sector customers.

8. Compliance

The following table describes in further detail how I-REN’s Public Sector Technical Assistance and Strategic Energy Planning Program satisfies the REN criteria in D.12-11-0115.

Table 3: I-REN’s 2022 Public Sector Technical Assistance and Strategic Energy Planning Program Compliance with D.12-11-015

REN Criteria	I-REN Public Sector Technical Assistance and Strategic Energy Planning Program – IREN-PUBL-001
1. Activities IOU cannot or does not intend to undertake	<ul style="list-style-type: none"> • Building Upgrade Concierge with personalized end-to-end technical assistance, procurement and project management support, capacity-building, and ongoing commissioning support to ensure efficient operations and maintenance. • I-REN has strong existing relationships with, communication channels to, and support from local jurisdictions as an organization made up of local government agencies.
2. Pilot activities where there is no IOU program offering and where there is potential for scalability	n/a
3. Activities in hard-to-reach markets, whether or not there is an IOU program that may overlap	<ul style="list-style-type: none"> • The program is open to all public sector customers but will target underinvested jurisdictions serving hard-to-reach, DAC, underserved, and ESJ communities where I-REN can help address equity issues such as the unequal access to energy efficiency dollars, the need for additional support and commitment for small and underserved communities, ineffective programs for tribal communities, as well as overall lack of diversity. Many of these communities have been historically underinvested in and have greater needs for facility improvements, particularly community serving facilities such as libraries, community centers and the like. • By supporting energy efficiency projects in these types of facilities, I-REN can provide equitable and locally administered assistance to public sector agencies where benefits will flow directly to disadvantaged and vulnerable communities.

B. PUBLIC SECTOR—PUBLIC BUILDINGS NORMALIZED METERED ENERGY CONSUMPTION (NMEC) PROGRAM – IREN-PUBL-002

I-REN’s Public Sector—Public Buildings Normalized Metered Energy Consumption (NMEC) Program is a resource program (in year two of I-REN program administration) to provide incentives and financing for savings based on NMEC achieved over three to five years, with a special focus on HVAC improvements to community-serving buildings.

1. Summary of I-REN’s Public Buildings NMEC Program Objectives

- a) Allow local governments to leverage an innovative approach that goes beyond code to achieve deep energy savings.
- b) Help local governments afford and finance a range of energy efficiency upgrades.

2. Summary of Program Differentiation

The following table provides a summary of the PAs’ respective Public Buildings NMEC programs.

Table 4: I-REN, SoCalREN, SCE, and SoCalGas Public Buildings NMEC Programs Summary

Program Parameters	I-REN	SoCalREN	SCE Public Sector Performance-Based Retrofit High Opportunity Program [SCE-13-L0031]	SoCalGas High Opportunity Projects – Metered and Performance Based Retrofits
Target Audience(s)	<ul style="list-style-type: none"> • Members of the I-REN COGs, counties, cities, school districts, water districts, special districts, and tribal communities 	Public Agencies served by SCE and/or SoCalGas: Cities, counties, tribes, local government hospitals and hospital districts,	Public Sector	All eligible Public Sector customers

Program Parameters	I-REN	SoCalREN	SCE Public Sector Performance-Based Retrofit High Opportunity Program [SCE-13-L0031]	SoCalGas High Opportunity Projects – Metered and Performance Based Retrofits
	<ul style="list-style-type: none"> • Hard-to-reach, disadvantaged, low income, and other vulnerable communities • Community centers, libraries, senior centers, schools, and fire and police buildings • Educational institutions 	water districts, K-12 schools, wastewater districts, sanitation districts, ports, airports, and other special districts.		
Resource or Non-Resource	Resource	Resource	Resource	Resource
Eligible Measures	Any measure that reduces energy usage including but not limited to HVAC, controls, foodservice, appliances, water heating, lighting	CMPA Methodology – includes whole building retrofits and behavioral and operational savings.	CMPA Methodology – includes whole building retrofits and behavioral and operational savings	CMPA Methodology – includes whole building retrofit and behavioral and operational savings; NMEC protocol
Budget	\$3,185,292	\$XXX,XXX*	\$562,423*	TBD*

*SoCalREN, SCE and SoCalGas 2022 budgets provided herein are estimates merely for reference only. The final budgets are subject to Commission approval of 2022-23 BBAL Advice Letter.

The following table compares the key program parameters of PAs’ public sector NMEC programs.

Table 5: I-REN, SoCalREN, SCE, and SoCalGas Public Buildings NMEC Program Comparison

Program Parameters	I-REN	SoCalREN	SCE Public Sector HOPPs Program	SoCalGas
Eligible Facilities	<ul style="list-style-type: none"> • Buildings and non-facilities (e.g., exterior lighting) • Special focus on community centers, libraries, senior centers, schools, and fire and police buildings 	Eligible facility types per the most recent version of the CPUC NMEC Guidelines	Buildings	Public Sector buildings and non-building facilities or systems
Eligible Agencies	Counties, cities, school districts, water districts, special districts, and tribal communities	<ul style="list-style-type: none"> • Public Agencies served by SCE and/or SoCalGas: Cities, counties, tribes, local government hospitals and hospital districts, water districts, K-12 schools, wastewater districts, sanitation districts, ports, airports, and other special districts. • Focus on DAC, rural, and low-income communities. 	All Public Sector	All Public Sector customers
Eligible Measures	Any measure that reduces energy usage including but not limited to HVAC, controls, foodservice, appliances, water heating, lighting	Any measure that reduces energy usage	Any measure that reduces energy usage, must include at least one retrofit	Any measure that reduces energy usage to achieve 20% savings and a minimum of 7,000 Therms and suitable for NMEC feasibility
Technical Assistance	Project scope development, procurement assistance, project	Modeling and M&V Plan, post implementation training, performance	Modeling, M&V Plan, Project Management, Financial Analysis &	M&V Plan, facility audit, EE education related to retrofits, performance tracking

Program Parameters	I-REN	SoCalREN	SCE Public Sector HOPPs Program	SoCalGas
	management, operations and commissioning	tracking and savings persistence	Services	and savings persistence
Measurement	TBD	CMPA (IPMVP Option C)	CMPA (IPMVP Option C)	CMPA (IPMVP Option C) or other applicable options
Baseline	Existing conditions	Existing conditions.	Existing condition	Existing conditions
Performance Payment	Incentive payment based on energy savings achieved over 3-5 years	Incentives provided post-implementation measurement and verification of savings on scheduled intervals	Monetary Incentives provided on post-implementation measurement of energy savings based on meter data	Incentive provided on a post-implementation measurement of energy savings based on meter data
Resource or Non-Resource	Resource	Resource	Resource	Resource
Approval Process	TBD	Streamlined Process within CPUC NMEC Guidelines that will go through the CMPA	CPUC HOPPS Guidelines	CPUC HOPPS Guidelines
2022 Status	New/launching	In the market as of April 2019; incentives offered upon approval of the 2022 BBAL	Not accepting new projects	TBD

3. Comparable SoCalREN Program – Public Agency NMEC Program – SCR-PUBL-B3

Under the Public Agency NMEC Projects Program, SoCalREN employs a NMEC framework and targets projects that are identified by the SoCalREN EE PDP or SoCalREN DER DAC program are limited by support and incentives through existing EE resource programs. This Program provides an alternative to the existing utility and third-party programs, while pursuing

stranded potential in public agency facilities and buildings. This Program is a resource program, so EE savings from these projects contribute to SoCalREN program goals and cost-effectiveness calculations. The program targets DAC, rural, and low-income communities by offering increased incentives for these equity communities.

SoCalREN targets agencies who are enrolled in the EE PDP and DER DAC EE PDP and have facilities that have not recently participated in utility programs. Participating agencies also benefit from the SoCalREN Program's project management expertise and technical services. Similar to the partner IOU NMEC programs, engineers with experience in ASHRAE energy savings calculation standards and International Performance Measurement and Verification Protocols (IPMVP) will be prioritized in executing NMEC projects. The SoCalREN Public Agency NMEC Program provides technical assistance, application technical review, staff training, and facility savings reports to ensure persistence of savings while adhering to CPUC NMEC Guidelines that go through the CMPA process. The SoCalREN Public Agency NMEC Program differs from the IOUs NMEC programs by providing staff training, regular savings reports post installation, and a focus on equity through the provision of enhanced incentives for equity communities.

4. Comparable SCE Program – Public Sector Performance-Based Retrofit High Opportunity Program – SCE-13-L-003I

SCE's Public Sector Performance-Based Retrofit High Opportunity Program, an NMEC program, is ending this year. However, there will be a pipeline of projects in development and/or implementation throughout 2022.

5. Comparable SoCalGas Program – HOPPs Program – SCG3710

The program design for the new/launching SoCalGas HOPPs Program under SCG3710 Calculated Incentives is not yet available.

6. Coordination Protocol Between Programs

The Joint PAs will coordinate as new and launching programs are contracted and designed in order to operationalize coordination, with an understanding that new market support and equity programs might also provide similar services. As a new PA, I-REN has not yet contracted with implementers. Within 60 days of implementer(s) being contracted for the relevant programs, the Joint PAs will reconvene to plan coordination activities.

7. Coordination Between Statewide Program(s)

As a new PA, I-REN has not yet contracted with implementers. Within 60 days of implementer(s) being contracted for the relevant programs, the Joint PAs will reconvene to plan coordination activities. The Joint PAs will continue to participate in Energy Division-led Peer Coordination Groups (PCGs). The statewide PCGs enable collaborative statewide discussions regarding all programs across all PAs throughout the state, not just those in Southern California.

8. Compliance

The following table describes in further detail how I-REN’s Public Sector NMEC Program satisfies the REN criteria in D.12-11-0115.

Table 6: I-REN’s 2022 Public Sector NMEC Program Compliance with D.12-11-015

REN Criteria	I-REN Public Buildings NMEC Program – IREN-PUBL-002
1. Activities IOU cannot or does not intend to undertake	n/a

REN Criteria	I-REN Public Buildings NMEC Program – IREN-PUBL-002
2. Pilot activities where there is no IOU program offering and where there is potential for scalability	n/a
3. Activities in hard-to-reach markets, whether or not there is an IOU program that may overlap	<ul style="list-style-type: none"> • The program is open to all public sector customers but will target underinvested jurisdictions serving hard-to-reach, DAC, underserved, and ESJ communities where I-REN can help drive equity outcomes. • Program outreach will focus initially on public gathering spaces and community-serving facilities such as community and neighborhood centers, health and recreation centers, senior centers, teen centers, and libraries. • Upgrades and retrofits to HVAC and lighting equipment both interior and exterior will improve comfort and safety at facilities that benefit vulnerable populations such as children, elders, and low income, disadvantaged, and underserved communities.

C. WORKFORCE EDUCATION AND TRAINING – TRAINING AND EDUCATION PROGRAM – IREN-WET-001

For its Cross-cutting Sector Workforce Education & Training (WE&T) Training and Education Program, I-REN will assess the current training marketplace in the Inland Empire and work with local providers, including higher education providers, high schools, adult schools, and professional training companies to tailor content to be relevant to the region’s needs and ensure that disadvantaged communities are a focus. I-REN will collaborate with training providers to improve access to a broad spectrum of training opportunities in person, online, and in the field.

1. Summary of I-REN’s Training and Education Program Objectives

- a) Create a robust local network of training programs that increase capacity and knowledge related to energy efficiency in the building industry.

2. Summary of Program Differentiation

The following table provides a summary of the PAs’ respective workforce education & training programs.

Table 7: I-REN, SoCalREN, SCE, and SoCalGas WE&T Training and Education Program Summary

Program Parameters	I-REN	SoCalREN	SCE	SoCalGas
Target Audience(s)	<ul style="list-style-type: none"> Local providers, including higher education providers, high schools, adult schools, and professional training companies Disadvantaged communities (DACs) 	<ul style="list-style-type: none"> Architects, designers, engineers, contractors, building operators, technicians, craft/tradesmen, customers, youth, classified disadvantaged workers, and building owners SWMDVBE that can potentially support IOU resource program sectors and local public agencies sustainability projects. Homeless (i.e., at-risk transition youth) In-school youth, youth classified disadvantaged workers, and homeless (i.e., at-risk transition youth). Targets Disadvantaged communities 	Workers who are in or are pursuing occupations in the energy efficiency and other related professional fields that provide the technical capabilities that are needed to support the attainment of CAs and IOU Energy Saving and sustainability targets	Workers in, or pursuing careers and occupations in energy efficiency, gaining and providing professional and technical capabilities, specifically useful for achieving CA-IOU energy savings targets.

Program Parameters	I-REN	SoCalREN	SCE	SoCalGas
		(DACs) and Hard to Reach.		
Resource or Non-Resource	Non-resource	Non-resource	Non-resource	Non-resource
Eligible Measures	n/a	n/a	n/a	n/a
Budget	\$1,012,949	\$375,000*	\$8,696,114*	\$4,250,000*

* SoCalREN, SCE and SoCalGas 2022 budgets provided herein are estimates merely for reference only. The final budgets are subject to Commission approval of 2022-23 BBAL Advice Letter.

With location and a more localized focus being the main differentiator across PAs, I-REN will focus largely on entry-level offerings in San Bernardino and Riverside counties. I-REN will help to raise the value of energy efficiency training and career paths within high schools, community colleges, and universities. These focus areas differentiate I-REN from other PAs’ WE&T Training and Education offerings. SoCalREN’s WE&T Program offerings now emphasize a robust regional workforce education and training approach that supports underserved Disadvantaged Workers (DAW) -including at risk youth, Hard to Reach (HTR) and small, women, minority, and disabled veteran owned business enterprises (SWMDVBE). SoCalGas supports entry-level job seekers and workers but is moving to more career paths. SCE’s focus is geared towards incumbent skill building.

The following table compares the key program parameters of PAs’ WE&T training and education programs.

Table 8: WE&T Training and Education Program Comparison

Program Parameters	I-REN	SoCalREN	SCE	SoCalGas
Target Audience	<ul style="list-style-type: none"> Local providers, including higher education providers, 	<ul style="list-style-type: none"> Targets the most underserved and disadvantaged 	Workers who are in or are pursuing occupations in the	Workers in, or pursuing careers and occupations in

Program Parameters	I-REN	SoCalREN	SCE	SoCalGas
	<p>high schools, adult schools, and professional training companies</p> <ul style="list-style-type: none"> Disadvantaged communities (DACs) 	<p>workers (DAW) and Hard to Reach (HTR) Architects, designers, engineers, contractors, building operators, technicians, craft/tradesmen, customers, youth, classified disadvantaged workers, and building owners</p> <ul style="list-style-type: none"> SWMDVBE that can potentially support IOU resource program sectors and local public agencies sustainability projects. Homeless (i.e., at-risk transition youth) In-school youth, youth classified disadvantaged workers, and homeless (i.e., at-risk transition youth). Targets Disadvantaged communities (DACs) and Hard to Reach. 	<p>energy efficiency and other related professional fields that provide the technical capabilities that are needed to support the attainment of CAs and IOU Energy Saving and sustainability targets.</p>	<p>energy efficiency, gaining and providing professional and technical capabilities, specifically useful for achieving CA-IOU energy savings targets.</p>
<p>Location of Training</p>	<ul style="list-style-type: none"> In field/on-the-job Online 	<p>In field, on-job and online.</p>	<ul style="list-style-type: none"> Energy Education Centers (Irwindale/Tulare) Alternative training sites (On 	<p>In-person (Energy Resource Center, vendor sites) and Online</p>

Program Parameters	I-REN	SoCalREN	SCE	SoCalGas
			Location) <ul style="list-style-type: none"> • Virtual (Live Instructor Led) • On-Demand 	
Training Types	<ul style="list-style-type: none"> • In-person • Online 	<ul style="list-style-type: none"> • In-person • Online 	<ul style="list-style-type: none"> • In-person • Online 	In-person (Energy Resource Center, vendor sites) and Online
Statewide/Local	Local	<ul style="list-style-type: none"> • Local • Regional 	Local	Local
Partner Organizations	<ul style="list-style-type: none"> • Educational institutions • Trade associations • Industry and non-profit organizations • Certification organizations • Government agencies 	<ul style="list-style-type: none"> • Public Agencies • Nonprofit organizations • High schools • Community Colleges • 3rd party implementers • Workforce centers 	<ul style="list-style-type: none"> • Other IOUs • Industry associations • Post- secondary education • Business networks • Regional workforce services • Non-profit Organizations 	<ul style="list-style-type: none"> • Educational institutions • Trade associations • Industry and non-profit organizations • Certification organizations • Government agencies

3. Comparable SoCalREN Program – Workforce Education & Training Program – SCR-WET-D1

SoCalREN has historically utilized policies and instruments for local hiring and workforce partnerships while developing infrastructure for small and minority contractors to access clean energy investments. SoCalREN’s WE&T Program offerings emphasizes a robust regional workforce education and training approach that supports underserved Disadvantaged Workers (DAW), Hard to Reach (HTR)and small, women, minority, and disabled veteran owned business enterprises (SWMDVBE). The primary goal of this Program is to provide the ability to build capacity within the EE industry with a local regional approach. Similar to its other non-resource programs, the SoCalREN WE&T Program leverages public agencies to reach and

engage communities while simultaneously building its underserved workforce, thus providing long term workforce supply in the EE industry. The SoCalREN WE&T Program provides: 1) comprehensive regional workforce education, training, and resources for DAW/HTRs and SWMDVBE contractors of all skill levels; 2) entry-level workforce skills training for in-school youths 3) SWMDVBE contractors' local government public agency training and capacity building in regard to sustainability projects and RFPs; and 4; and 2) a green career pathway for classified at-risk and or homeless individuals, such as transition age at-risk foster youth.

4. Comparable SCE Program – Integrated Energy Education & Training Program – SCE-13-SW-010A

The SCE WE&T Integrated Energy Education & Training Program (IEET) offers resources and training programs that are aimed at shaping the current and future energy workforce through a series of occupational, employer, and technology-focused workshops and seminars, combined with workplace-based and hands-on technical training. This program aims to provide technical upskill and pathways certifications and credentials in energy efficiency-related industries that also support California's clean energy objectives.

In addition to the training courses offered, SCE maintains a Foodservice Technology Center where they conduct training, standards-based equipment testing, and evaluations that further enhance the commercialization of emerging energy efficient technologies and programs. These services are delivered with technical integrity and scientific rigor to ensure our partners stay competitive and maintain cost effectiveness.

The Energy Centers provide a host of other value-added customer programs and services such as the Tool Lending Library and conduct technical tours and consultations, all of which are available at no-cost to the customer.

5. Comparable SoCalGas Program – WE&T Integrated Energy Education Training (IEET) – SCG3729

The SoCalGas WE&T Integrated Energy Education Training (IEET) subprogram will offer both technical and foodservice workforce education, training and outreach events that can leverage I-REN local contacts to inform and equip workforce talent with skills to assist in meeting the State’s energy and climate goals.

The WE&T Program contributes to the investor-owned utilities’ (IOUs’) energy efficiency goals by empowering customers and market actors with the knowledge to make energy reduction decisions. WE&T’s primary target audience includes market actors who design, build, maintain, and operate buildings and building systems—engineers, technicians, building operators, designers, contractors, etc. Because these market actors have the potential to shape a building’s energy use, WE&T teaches them how to recognize energy savings and balanced energy solutions to address GHG-reduction, and then provides them skills, tools, and resources to act upon those opportunities. Additionally, WE&T supports Post-secondary institutions that are training future generations of the energy workforce by providing them energy efficiency, sustainability, and green career awareness classes, internships, materials and resources

6. Coordination Protocol Between Programs

I-REN is in communication with other PAs operating in the region to identify areas of potential coordination for WE&T activities. As a new PA, I-REN has not yet contracted with implementers. Within 60 days of implementer(s) being contracted for the relevant programs, the Joint PAs will reconvene to plan coordination activities.

I-REN will ensure its activities are differentiated and avoid duplication of effort, while maintaining cooperation with other PAs to improve access to relevant training opportunities

across the I-REN counties. An opportunity that I-REN will explore is to support the critical connection to workforce entry for entry-level youth, which may include outreach to employers and work to get them involved. There is opportunity to create pathways to move from high school to non-college routes. They will work collaboratively to feed those entry-level specialists who are prepared for a higher training level into IOU programs.

Time is a critical issue in the education and training of the EE workforce. More than ever, it is vital for employees within the EE industry to stay up to date with emerging technologies and trends. The Joint PAs will work together to establish relevant training curriculum, especially for community colleges.

7. Coordination Between Statewide Program(s)

As a new PA, I-REN has not yet contracted with implementers. Within 60 days of implementer(s) being contracted for the relevant programs, the Joint PAs will reconvene to plan coordination activities. With PG&E as the statewide administrator for the Career and Workforce Readiness (CWR) and Career Connections WE&T subprograms, the Joint PAs will collaborate to leverage those statewide programs. I-REN will stay abreast of developments pertaining to these statewide programs and coordinate with PG&E to the extent possible to engage with the implementation vendor to discuss a coordination strategy. The Joint PAs will take advantage of opportunities for greater coordination and communication with other PAs as needed with regard to statewide programs.

8. Compliance

The following table describes in further detail how I-REN's WE&T Training and Education Program satisfies the REN criteria in D.12-11-0115.

Table 9: I-REN’s 2022 WE&T Training & Education Program Compliance with D.12-11-015

REN Criteria	I-REN WE&T Program – IREN-WET-001
1. Activities IOU cannot or does not intend to undertake	<ul style="list-style-type: none"> • I-REN’s WE&T program activities will center on supporting and leveraging local resources who are ideally positioned to deliver locally-focused, relevant, accessible training opportunities. • Offering training at familiar, nearby locations makes it easier for job seekers and workers to attend. I-REN can use its connections and experience to help ensure training opportunities are accessible throughout the region. • The I-REN governing agencies have existing partnerships with local colleges and community colleges, successfully providing instructional energy efficiency classes and events at local campuses where they have typically achieved high participation rates.
2. Pilot activities where there is no IOU program offering and where there is potential for scalability	n/a
3. Activities in hard-to-reach markets, whether or not there is an IOU program that may overlap	I-REN’s WE&T program activities will drive market support and equity outcomes for HTR, underserved, DAC, and ESJ communities by partnering with and building capacity among local community-focused training providers to improve quality of and access to relevant training opportunities.

D. WORKFORCE EDUCATION AND TRAINING – WORKFORCE DEVELOPMENT PROGRAM – IREN-WET-001

I-REN will convene and collaborate with state, regional, and local stakeholders, including workforce investment boards (WIBs) and economic development departments to develop a unified mission around the region’s energy efficiency workforce, highlighting pathways for job seekers to enter the green jobs market and to increase access for disadvantaged communities. I-REN will facilitate identifying opportunities for employers and local workforce partners to network and connect.

With its governing agencies’ existing networks of contractors and training providers, I-REN is well positioned to help bridge the gap between the energy industry and the workforce. I-REN is building partnerships with local community colleges, local universities and local WIBs to establish a comprehensive network of WE&T offerings.

I-REN also brings close connections with local government planning and building departments across the region. I-REN’s proposed WE&T initiatives offer important opportunities for collaboration across other sectors through its work in the Public Sector and Codes & Standards (C&S) --both of which are important drivers of energy efficiency and advanced energy activity and employment in the region.

1. Summary of I-REN’s Workforce Development Program Objectives

- a) Increase the number of skilled energy efficiency workers in the region.

2. Summary of Program Differentiation

The following table provides a summary of the PAs’ respective workforce development programs.

Table 10: I-REN, SoCalREN, SCE, and SoCalGas WE&T Workforce Development Program Summary

Program Parameters	I-REN	SoCalREN	SCE	SoCalGas
Target Audience(s)	<ul style="list-style-type: none"> • State, regional, and local stakeholders, including workforce investment boards (WIBs) and economic development departments • Job seekers, 	<ul style="list-style-type: none"> • Targets the most underserved and disadvantaged workers (DAW) and Hard to Reach (HTR) Architects, designers, engineers, contractors, building 	Those workers who are in or pursuing occupations in the energy efficiency and other related fields that provide professional and technical capabilities needed to support the	Workers in, or pursuing careers and occupations in energy efficiency, gaining and providing professional and technical capabilities, specifically useful

Program Parameters	I-REN	SoCalREN	SCE	SoCalGas
	including students; individuals who are unemployed, or underemployed; job seekers looking to enter the energy efficiency and advanced energy industry; and job seekers currently working in the industry who seek to make lateral career moves or advance in their fields.	operators, technicians, craft/tradesmen, customers, youth, classified disadvantaged workers, and building owners <ul style="list-style-type: none"> • SWMDVBE that can potentially support IOU resource program sectors and local public agencies sustainability projects. • Homeless (i.e., at-risk transition youth) In-school youth, youth classified disadvantaged workers, and homeless (i.e., at-risk transition youth). • Targets Disadvantaged communities (DACs) and Hard to Reach. 	attainment of CAs and IOU Energy Savings and sustainability targets.	for achieving CA-IOU energy savings targets. Training will be conducted at Energy Center, alternative site locations and distribution channels in collaboration as appropriate, with non-IOU sources, feasible for reaching target audiences.
Resource or Non-Resource	Non-resource	Non-resource	Non-resource	Non-resource
Eligible Measures	n/a	n/a	n/a	n/a
Budget	\$1,240,346	\$375,000*	\$8,696,114 * ⁵	\$X,XXX,XXX*

*SoCalREN, SCE and SoCalGas 2022 budgets provided herein are estimates merely for reference only. The final budgets are subject to Commission approval of 2022-23 BBAL Advice Letter.

⁵ Note that the \$8,696,114 budget reflects the same budget for SCE’s WE&T - Integrated Energy Education & Training Program budget shown on Table 7 in Section C subsection 2 above. The two budgets are the same and should not be counted as separate.

One differentiating factor for I-REN’s program is that it will target job seekers, students, and workers and partner organizations, such as state, regional, and local stakeholders, including workforce investment boards (WIBs) and economic development departments in order to build partnerships. This partnership focus aligns well with RENs’ historical role as convener of stakeholders and partners due to their close ties with their local and regional communities.

Location is another differentiator.

I-REN will prioritize HTR, disadvantaged, underserved, and ESJ communities, and the organizations within those communities that support workforce development. I-REN will help to raise the value of energy efficiency career paths within high schools, community colleges, and universities. These focus areas differentiate I-REN from other PAs’ WE&T Workforce Development offerings. SoCalGas supports entry-level job seekers and workers but is moving to more career paths. SCE’s focus is geared towards incumbent skill building.

The following table compares the key program parameters of PAs’ WE&T workforce development programs.

Table 11: WE&T Workforce Development Program Comparison

Program Parameters	I-REN	SoCalREN	SCE	SoCalGas
Target Audience	Job seekers, including students; individuals who are unemployed, or underemployed; job seekers looking to enter the energy efficiency and advanced energy industry; and job seekers currently working in the industry who seek to make lateral career moves or advance in their fields.	Targets the most underserved and disadvantaged workers (DAW) and Hard to Reach (HTR) - SWMDVBE that can potentially support IOU resource program sectors and local public agencies	Job seekers, including K-12 students; individuals who are unemployed, or underemployed; those interested in entering the energy efficiency and/or advanced energy industry; and those currently working	K-12 Job seekers, including students; individuals who are unemployed, or underemployed; job seekers looking to enter the energy efficiency and advanced energy industry; and job seekers currently

Program Parameters	I-REN	SoCalREN	SCE	SoCalGas
		sustainability projects.	in the industry who are interested in making career changes or further advancing in their fields.	working in the industry who seek to make lateral career moves or advance in their fields.
Location of Training	n/a	<ul style="list-style-type: none"> Through local public agency training channels. In field and online. 	n/a	n/a
Training Types	n/a	In-Person/online	n/a	n/a
Statewide/Local	Local	Local	Statewide	Statewide
Partner Organization	State, regional, and local stakeholders, including workforce investment boards (WIBs) and economic development departments	<ul style="list-style-type: none"> Public Agencies Nonprofit organizations Unions 3rd party implementers Workforce centers 	SCE will coordinate with PG&E and the vendor to the extent possible to engage the REN supporting program coordination	SoCalGas will coordinate with PG&E to the extent possible to engage the I-REN with the implementation vendor to discuss a coordination strategy

3. Comparable SoCalREN Program – Workforce Education & Training Program – SCR-WET-D1

SoCalREN has historically utilized policies and instruments for local hiring and workforce partnerships while developing infrastructure for small and minority contractors to access clean energy investments. SoCalREN’s WE&T Program offerings emphasize a robust regional workforce education and training approach that supports underserved Disadvantaged Workers (DAW), Hard to Reach (HTR) and small, women, minority, and disabled veteran owned business enterprises (SWMDVBE). The primary goal of this Program is to provide the ability to build capacity within the EE industry with a local regional approach. Similar to its

other non-resource programs, the SoCalREN WE&T Program leverages public agencies to reach and engage communities while simultaneously building its underserved workforce, thus providing long term workforce supply in the EE industry.

The SoCalREN WE&T Program provides: 1) comprehensive regional workforce education, training, and resources for DAW/HTRs and SWMDVBE contractors of all skill levels; 2) entry-level workforce skills training for in-school youths 3) SWMDVBE contractors' local government public agency training and capacity building in regard to sustainability projects and RFPs; and 4) a green career pathway for classified at-risk and or homeless individuals, such as transition age at-risk foster youth.

4. Comparable SCE Program – N/A

SCE does not have a specific Workforce Development Program. Instead, SCE participates in the Statewide Career Workforce Readiness (CWR) Program, known as Energize Careers, which is administered by PG&E. Energize Careers aims to create a diverse and representational energy workforce through the economic empowerment of people who experience systemic barriers to employment by helping them to access living wage energy career opportunities. The Energize Careers Program provides holistic services to support disadvantaged workers¹ through technical training, job placement, and wrap-around service support. Energize Careers collaborates with pre-apprenticeship programs, apprenticeship programs, community-based training organizations, and community colleges to provide technical energy job training to underserved individuals. Energize Careers also collaborates with wrap-around service providers and industry partners to provide people with services and support to access career pathways into living wage energy efficiency jobs.

5. Comparable SoCalGas Program

N/A

6. Coordination Protocol Between Programs

I-REN is in communication with other PAs operating in the region to identify areas of potential coordination for WE&T activities. I-REN will ensure its activities are differentiated and avoid duplication of effort, while maintaining cooperation with other PAs to improve access to relevant training opportunities across the I-REN counties. As a new PA, I-REN has not yet contracted with implementers. Within 60 days of implementer(s) being contracted for the relevant programs, the Joint PAs will reconvene to plan coordination activities which could include but would not necessarily be limited to meetings and shared class lists.

There is a critical opportunity for Joint PAs to connect entry-level youth to good jobs in the EE field. The Joint PAs will collaborate to define employers and work to get them involved. There is opportunity for all PAs to create pathways to move from high school to non-college routes. They will work collaboratively to feed those entry-level specialists who are prepared for a higher training level into IOU programs.

Time is a critical issue in the education and training of the EE workforce. More than ever, it is vital for employees within the EE industry to stay up to date with emerging technologies and trends. The Joint PAs will work together to establish relevant training curriculum, especially for community colleges.

7. Coordination Between Statewide Program(s)

As a new PA, I-REN has not yet contracted with implementers. Within 60 days of implementer(s) being contracted for the relevant programs, the Joint PAs will reconvene to plan

coordination activities. With PG&E as the statewide administrator for the Career and Workforce Readiness (CWR) and Career Connections WE&T subprograms, the Joint PAs will collaborate to leverage those statewide programs. I-REN will stay abreast of developments pertaining to these statewide programs and coordinate with PG&E to the extent possible to engage the I-REN with the implementation vendor to discuss a coordination strategy. The Joint PAs will take advantage of opportunities for greater coordination and communication with other PAs as needed with regard to statewide programs.

8. Compliance

The following table describes in further detail how I-REN’s WE&T Workforce Development Program satisfies the REN criteria in D.12-11-0115.

Table 12: I-REN’s 2022 WE&T Workforce Development Program Compliance with D.12-11-015

REN Criteria	I-REN WE&T Program – IREN-WET-001
1. Activities IOU cannot or does not intend to undertake	<ul style="list-style-type: none"> • I-REN’s WE&T program activities will center on convening, engaging, and building capacity with regional workforce development partners in order to define and establish a green workforce. • This program relies on collaboration with established community partner organizations and employers, many of whom have existing connections and trusted relationships with the I-REN member agencies.
2. Pilot activities where there is no IOU program offering and where there is potential for scalability	n/a
3. Activities in hard-to-reach markets, whether or not there is an IOU program that may overlap	I-REN’s WE&T program activities will drive market support and equity outcomes for HTR, underserved, DAC, and ESJ communities by partnering with and building capacity among local community-focused workforce development partners.

E. CODES AND STANDARDS TRAINING & EDUCATION PROGRAM – IREN-CS-001

I-REN’s Codes and Standards (C&S) Training and Education Program is a non-resource program to establish and implement training and education for building department staff and the building industry to support, understand, and effectively implement energy efficiency codes and standards including where gaps exist in the Statewide IOU Compliance Improvement program and enforcement activities. The program will also include outreach to engage, educate and involve regional construction firms and building departments, and support compliance and enforcement within regional EE programs and customers.

1. Summary of I-REN’s C&S Training and Education Program Objectives

- a) Improve the understanding of energy efficiency codes and standards among local building departments and the building industry to increase implementation and compliance and enforcement.
- b) Make code compliance and enforcement a valuable element of the region’s energy efficiency goal attainment with engagement regionwide.

2. Summary of Program Differentiation

The following table provides a summary of the PAs’ respective C&S Training & Education programs.

Table 13: I-REN, SoCalREN, SCE, and SoCalGas C&S Training & Education Programs Summary

Program Parameters	I-REN	SoCalREN	SCE	SoCalGas
Target Audience(s)	<ul style="list-style-type: none"> • Local jurisdictions’ building department staff 	n/a	All stakeholders impacted by the energy code	n/a

Program Parameters	I-REN	SoCalREN	SCE	SoCalGas
	<ul style="list-style-type: none"> • Permit applicants • Contractors and building professionals • Areas not served by the IOUs (City of Riverside, Imperial Irrigation District service area, etc.) 			
Resource or Non-Resource	Non-resource	n/a	Non-resource	n/a
Eligible Measures	n/a	n/a	n/a	n/a
Budget	\$860,334	n/a	\$3,077,099*	n/a

*SCE 2022 budgets provided herein are estimates merely for reference only. The final budgets are subject to Commission approval of 2022-23 BBAL Advice Letter.

I-REN’s C&S Training & Education Program will be differentiated from comparable programs by the more localized geographic area in which trainings will be focused, in Riverside and San Bernardino counties, enabling contractors to more easily attend trainings. I-REN brings existing relationships with important training partners in the region, such as colleges, NGOs, CBOs, trade organizations, and regional entities. Another differentiating factor will be I-REN’s focus on serving HTR, DAC, underserved, tribal, and ESJ communities.

I-REN trainings will also be differentiated by topic, with trainings tailored to the region’s climate zones and the needs of the region’s local jurisdictions, building department staff, and building professionals. I-REN has an understanding of local councils, cities, and communities and their priorities and the ability to navigate the local political climate, which is important for supporting local government jurisdictions. I-REN’s familiarity with its communities will be important to inform and deliver regionally relevant training offerings that may not otherwise be

available. I-REN will also coordinate its C&S activities with its WE&T offerings to integrate code compliance and enforcement into technical trainings.

3. Comparable SoCalREN Program

N/A

4. Comparable SCE Program – Compliance Improvement Subprogram – SCE-13-SW-008C

The IOU Compliance Improvement subprogram⁶ (of which Energy Code Ace is a key component) targets actors within the building and appliance energy code supply chains to maintain comprehensive statewide compliance with energy codes and appliance standards, such as: manufacturers, distributors, retailers, architects, energy consultants, contractors, plans examiners, building inspectors, etc. Whereas the California Energy Commission is responsible for implementing state policy by establishing new Codes and Standards, others (architects, energy consultants, mechanical engineers, IOUs, builders, contractors, etc.) are responsible for interpreting the code and completing compliance forms while jurisdictions’ building departments are responsible for enforcing the code. Building codes and appliance standards can be difficult to understand and time consuming to implement, therefore some industry actors fail to comply with regulatory requirements fully.

Compliance improvement program needs are determined through a performance-based solution approach to identify training, tools, resources and outreach necessary to narrow the gap between actual and desired performance, and principals of adult learning theory are employed to improve knowledge swings during training and increase long-term retention. Multiple training

⁶ The Compliance Improvement subprogram is a statewide program offered by all IOUs

modalities are used to maximize student participation. With a few exceptions, a consistent curriculum, featured on EnergyCodeAce.com, is developed by the compliance improvement program and delivered statewide by a team of subject matter experts.

5. Comparable SoCalGas Program

N/A

6. Coordination Protocol Between Programs

I-REN is in communication with other PAs operating in the region to identify areas of potential coordination for C&S activities. The I-REN governing agencies also bring experience coordinating with other PAs through their LGP work. I-REN will ensure its activities are differentiated and avoid duplication of effort, while maintaining cooperation with other PAs.

As a new PA, I-REN has not yet contracted with implementers. Within 60 days of implementer(s) being contracted for the relevant programs, the Joint PAs will reconvene to plan coordination activities. Through the JCM process I-REN and other PAs have already identified potential opportunities to collaborate on the delivery of workshops and trainings where appropriate to provide greater accessibility and regionally relevant training content to local jurisdictions and building professionals.

7. Coordination Between Statewide Program(s)

As a new PA, I-REN has not yet contracted with implementers. Within 60 days of implementer(s) being contracted for the relevant programs, the Joint PAs will reconvene to plan coordination activities. The Joint PAs will coordinate to ensure that ratepayer funds deliver resources efficiently and effectively across the shared territories, including coordination with PG&E as administrator of the statewide Codes & Standards program. With that in mind, the Joint

PAs will approach coordination with the goal of offering transparency through regular communication, efficiency through a collaborative approach to any shared resources, and support for the success of programs across the service area. The Joint PAs will meet regularly to coordinate on the WE&T and C&S programs.

The Joint PAs will share their respective lists of available C&S trainings including those in development stages. Whenever feasible, PAs will leverage existing curriculum and training by communicating training needs via email or in regular coordination meetings. A clear chain of communication and identified contacts will be exchanged for each program and/or sub-program.

IOUs' Compliance Improvement team representative will provide a list of trainings to I-REN on a quarterly basis and will include the following information:

- Class name(s)
- Description(s)
- Instructor name(s)
- Course length time
- Mode of access and location (ex: in-person, training center/city, online)
- Class schedule (if one exists)
- Course agenda

Additionally, a standing agenda item at the quarterly meeting will be to discuss the topics of trainings in development, even if only at a high level. This will reduce the potential for duplication of efforts.

The Joint PAs will determine which existing offerings can be leveraged and coordinate to deliver these resources. I-REN will develop a calendar with potential dates, of when these offerings can be delivered to various audiences in the tri-county region. This calendar will be shared with the Joint PAs and scheduled based on the availability and resource requirements.

The Joint PAs will make each other aware of resources available as courses are scheduled for delivery and new job aides (Energy Code Ace “resources” or “tools”) are developed. A portion of the Statewide C&S Team’s training schedule is set at the beginning of the year while the rest remains flexible since most courses are offered upon request as a result of the team’s outreach efforts. All offerings are posted on the Energy Code Ace website training page as courses are scheduled.

8. Compliance

The following table describes in further detail how I-REN’s C&S Training and Education Program satisfies the REN criteria in D.12-11-0115.

Table 14: I-REN’s 2022 C&S Training and Education Program Compliance with D.12-11-015

REN Criteria	I-REN C&S Training and Education Program – IREN-CS-001
1. Activities IOU cannot or does not intend to undertake	<ul style="list-style-type: none"> • As an organization led by and dedicated to serving local governments, I-REN can provide flexible and adaptable solutions to support local jurisdictions. • I-REN brings an understanding of local councils, cities, and communities and their priorities and the ability to navigate the local political climate which is important for delivering support to local government jurisdictions. • I-REN’s C&S initiatives will offer locally focused training, education, and tools to support codes and standards implementation, enforcement, and compliance activities.
2. Pilot activities where there is no IOU program offering and where there is potential for scalability	n/a

REN Criteria	I-REN C&S Training and Education Program – IREN-CS-001
3. Activities in hard-to-reach markets, whether or not there is an IOU program that may overlap	The program is open to all local jurisdictions but will provide targeted outreach to underinvested jurisdictions serving hard-to-reach, DAC, underserved, tribal, and ESJ communities where I-REN can help drive market support and equity outcomes and cross-cutting workforce-related objectives.

F. CODES AND STANDARDS TECHNICAL SUPPORT PROGRAM – IREN-CS-001

I-REN’s Codes and Standards (C&S) Technical Support Program is a non-resource program to develop technical assistance tools and resources to assist building departments and the building industry with understanding, evaluating, and permitting the energy codes to support improved enforcement and compliance. I-REN will develop regionally appropriate model ordinances, vet and refine them with participating local governments, provide ongoing technical assistance for implementation, and deliver updates to reflect the triennial code cycle.

1. Summary of I-REN’s C&S Technical Support Program Objectives

- a) Deliver locally informed resources and tools that streamline code compliance and enforcement and increase permit closeout.

2. Summary of Program Differentiation

The following table provides a summary of the PAs’ respective C&S Technical Support program.

Table 15: I-REN, SoCalREN, SCE, and SoCalGas C&S Technical Support Program Summary

Program Parameters	I-REN	SoCalREN	SCE	SoCalGas
Target Audience(s)	<ul style="list-style-type: none"> • Local jurisdictions’ 	n/a	All stakeholders impacted by the	n/a

Program Parameters	I-REN	SoCalREN	SCE	SoCalGas
	building department staff <ul style="list-style-type: none"> • Permit applicants • Contractors and building professionals • Areas not served by the IOUs (City of Riverside, Imperial Irrigation District service area, etc.) 		energy code	
Resource or Non-Resource	Non-resource	n/a	Non-resource	n/a
Eligible Measures	n/a	n/a	n/a	n/a
Budget	\$585,773	n/a	\$3,077,099* ⁷	n/a

*SCE 2022 budgets provided herein are estimates merely for reference only. The final budgets are subject to Commission approval of 2022-23 BBAL Advice Letter.

I-REN’s C&S Technical Support Program will be differentiated from similar programs offered by other PAs by the geographic area in which technical support will be offered, to jurisdictions in the counties of Riverside and San Bernardino. Another differentiating factor will be I-REN’s focus on serving HTR, DAC, underserved, tribal, and ESJ communities. I-REN brings existing relationships with the cities in its territory from its work in local government as a convenor and facilitator for issues affecting local jurisdictions. I-REN’s existing network of relationships and understanding of local councils, cities, and communities and their priorities and

⁷ Note that the \$3,077,099 budget reflects the same budget for SCE’s Codes & Standards Compliance Improvement subprogram budget shown on **Error! Reference source not found.** in Section E subsection 2 above. The two budgets are the same and should not be counted as separate.

the ability to navigate the local political climate will be important for the on-the-ground support needed to reach building department staff.

I-REN's C&S Technical Support Program will provide one-stop-shop access for its local jurisdictions and building department staff without competing against or duplicating statewide or other regional resources. I-REN's familiarity with its communities will be important to inform and deliver regionally-relevant technical support, such as development and implementation of reach codes and model ordinances.

3. Comparable SoCalREN Program

N/A

4. Comparable SCE Program – Compliance Improvement Subprogram – SCE-13-SW-008C

In addition to the training activities enumerated in the previous section, the Compliance Improvement (CI) Subprogram also provides a comprehensive suite of online and interactive tools and resources to support market actors in streamlining their code compliance workflow.

The tools offered on the Energy Code Ace website are comprised of a suite of interactive applications to help users understand compliance processes, installation techniques, which forms are required, and energy efficiency regulations applicable to building projects and appliances in California.

Resources include an array of downloadable materials providing practical and concise guidance on how and when to comply with California's building and appliance energy efficiency standards. The resources that the (CI) subprogram has developed address the lack of time and

resources for industry professionals by providing web-based job aids that are downloadable for quick reference. Some of the key available tools and resources include:

- “Submit a Question” – Online portal providing market actors the opportunity to submit their compliance questions for subject matter expert review and response
- Q&Ace – Searchable database of FAQ’s, including common questions fielded by subject matter experts through the “Submit a Question” portal
- Checklists – Step-by-step guidance for plan checks and field inspections to help ensure compliance with the Energy Code
- Forms Ace – Helps market actors determine which forms are applicable to their project scope prior to submittal, to focus their efforts and avoid filling out unnecessary paperwork
- Virtual Compliance Assistant – “TurboTax” style interface that generates compliance forms for project teams by guiding them through a series of direct questions about their projects
- Reference Ace – An online hyperlinked version of the energy code which is easier to navigate than a PDF or hard copy code book
- Image Ace – Provides helpful diagrams and images to better illustrate efficiency concepts and code requirements
- Timeline Ace – Graphically shows when specific Energy Code requirements are going into effect

5. Comparable SoCalGas Program

N/A

6. Coordination Protocol Between Programs

I-REN is in communication with other PAs operating in the region to identify areas of potential coordination for C&S activities, and the I-REN governing agencies bring experience coordinating with other PAs through their LGP work. Coordination activities could include but would not be limited to calling on existing IOU resources for training as needed. I-REN will ensure its activities are differentiated and avoid duplication of effort, while maintaining cooperation with other PAs. As a new PA, I-REN has not yet contracted with implementers. Within 60 days of implementer(s) being contracted for the relevant programs, the Joint PAs will reconvene to plan coordination activities.

7. Coordination Between Statewide Program(s)

As a new PA, I-REN has not yet contracted with implementers. Within 60 days of implementer(s) being contracted for the relevant programs, the Joint PAs will reconvene to plan coordination activities. The Joint PAs will coordinate to ensure that ratepayer funds deliver resources efficiently and effectively across the shared territories, including coordination with PG&E as administrator of the statewide Codes & Standards program. With that in mind, the Joint PAs will approach coordination with the goal of offering transparency through regular communication, efficiency through a collaborative approach to any shared resources, and support for the success of programs across the service area. The Joint PAs will meet regularly to coordinate on the WE&T and C&S programs.

8. Compliance

The following table describes in further detail how I-REN’s C&S Technical Support Program satisfies the REN criteria in D.12-11-0115.

Table 16: I-REN’s 2022 C&S Technical Support Program Compliance with D.12-11-015

REN Criteria	I-REN C&S Technical Support Program – IREN-CS-001
1. Activities IOU cannot or does not intend to undertake	<ul style="list-style-type: none"> • As an organization led by and dedicated to serving local governments, I-REN can deliver locally informed resources and tools that streamline code compliance and enforcement and increase permit closeout, in coordination with other PAs to leverage existing resources and avoid duplication. • I-REN’s C&S interventions rely on relationships and communication. I-REN is uniquely positioned to serve the C&S sector because the I-REN governing agencies already have extensive connections throughout the region with local building and planning departments, including code officials and permitting staff at all levels, and many of the private construction and architectural firms who frequently apply for permits.
2. Pilot activities where there is no IOU program offering and where there is potential for scalability	<p>n/a</p>
3. Activities in hard-to-reach markets, whether or not there is an IOU program that may overlap	<p>The program is open to all local jurisdictions but will provide targeted outreach to underinvested jurisdictions serving hard-to-reach, DAC, underserved, and ESJ communities where I-REN can help drive market support and equity outcomes and cross-cutting workforce-related objectives.</p>

IV. I-REN PROGRAM COMPLIANCE

A. I-REN PROGRAM COMPLIANCE WITH D.12-11-015 AND D.19-12-021

The majority of the activities outlined in I-REN's Business Plan are non-resource programs, designed to support and enhance the activities of other PAs, with a targeted local government resource program not currently provided to its member audiences.

The CPUC in Decision 12-11-015, Decision 16-08-019, Decision 18-05-041, and refined in decision 19-12-021, directed the REN's activities to three areas:⁸⁹¹⁰¹¹

- Activities that utilities or CCA program administrators cannot or do not intend to undertake.
- Pilot activities where there is no current utility or CCA program offering, and where there is potential for scalability to a broader geographic reach, if successful.
- Activities serving hard-to-reach markets, whether or not there is another utility or CCA program that may overlap.

I-REN has focused on these three criteria areas and the need to provide value for ratepayers in the development of its program portfolio. The I-REN governing agencies worked for nearly 18 months coordinating, developing, and refining the presented sectors to ensure they do not overlap and instead fill clear gaps, address hard-to-reach communities, and assess opportunities to pilot new ideas that could be scaled beyond the I-REN region. I-REN has

⁸ D.12-11-015, p. 17.

⁹ D.16-08-019, pp. 11-12.

¹⁰ D.18-05-041, p. 95.

¹¹ D.19-12-021, p. 32.

reviewed the CPUC guidance and pertinent decisions and is confident that it is well suited and needed to ensure equitable and effective energy efficiency services and resources to the region.

B. I-REN UNDERTAKING ACTIVITIES THAT UTILITIES CANNOT OR DO NOT INTEND TO UNDERTAKE.

A critical differentiation between I-REN and the other PAs' programs is the relationships I-REN has with its constituents, partners, and local governments, which is enhanced by their proximity and historic record of service for those entities. I-REN's ability to tailor and serve San Bernardino County and Riverside County entities will only grow as their programs are implemented. Recognizing these relationships will be important in the coming year as the Joint PAs navigate and avoid any duplication of services and avoid customer confusion.

These relationships are especially important in serving the public sector. Local government agencies and districts that make up the I-REN public sector are challenged in trying to improve the energy efficiency of their equipment and facilities, given various barriers including but not limited to insufficient funding for capital improvements, a lack of awareness around energy efficiency and IOU programs, complicated and long cycles times for approval processes for budgets and spending, and limited time and staff resources.

I-REN has strong existing relationships with, communication channels to, and support from local jurisdictions as an organization made up of local government agencies. I-REN will build on its existing connections in the public sector to help these local government agencies and districts improve their facilities' energy performance, to contribute to energy conservation and greenhouse gas reduction goals and position local government agencies as energy efficiency leaders in their communities. Some of the greatest challenges to participation in the public sector in the I-REN service area may also be indicators of unrealized energy savings potential. I-REN

has designed its Public Sector strategies and tactics to help local government agencies, tribal leadership, and staff at school districts and special districts overcome these participation barriers to improve their facilities' energy performance and harvest "stranded" energy savings.

Insufficient staff time and resources is one of the major barriers to implementing energy efficiency retrofits in public sector buildings. This has been exacerbated over the past two years due to the COVID-19 pandemic, with local governments on the front lines addressing the public health crisis and enduring the associated economic downturn. Local jurisdictions have had to implement mandatory closures of facilities, as well as intensive planning and logistical efforts to prepare for safely reopening facilities to the public. I-REN's Building Upgrade Concierge will provide personalized end-to-end technical assistance, procurement and project management support, capacity-building, and ongoing commissioning support to ensure efficient operations and maintenance.

I-REN's WE&T program activities will center on supporting and leveraging local resources who are ideally positioned to deliver locally-focused, relevant, accessible training opportunities. Offering training at familiar, nearby locations makes it easier for job seekers and workers to attend. I-REN can use its connections and experience to help ensure training opportunities are accessible throughout the region. The I-REN governing agencies have existing partnerships with local colleges and community colleges, successfully providing instructional energy efficiency classes and events at local campuses where they have typically achieved high participation rates.

I-REN's WE&T Workforce Development program activities will center on convening, engaging, and building capacity with regional workforce development partners in order to define

and establish a green workforce. This program relies on collaboration with established community partner organizations and employers, many of whom have existing connections and trusted relationships with the I-REN member agencies.

As an organization led by and dedicated to serving local governments, I-REN can provide flexible and adaptable solutions to support local jurisdictions. I-REN brings an understanding of local councils, cities, and communities and their priorities and the ability to navigate the local political climate which is important for delivering support to local government jurisdictions. I-REN's C&S initiatives will offer locally focused training, education, and tools to support codes and standards implementation, enforcement, and compliance activities.

Additionally, I-REN can deliver locally informed resources and tools that streamline code compliance and enforcement and increase permit closeout. I-REN's C&S interventions rely on relationships and communication. I-REN is uniquely positioned to serve the C&S sector because the I-REN governing agencies already have extensive connections throughout the region with local building and planning departments, including code officials and permitting staff at all levels, and many of the private construction and architectural firms who frequently apply for permits.

C. I-REN UNDERTAKING PILOT ACTIVITIES WHERE THERE IS NO CURRENT UTILITY UNDERTAKING, AND WHERE THERE IS A POTENTIAL FOR SCALABILITY TO A BROADER GEOGRAPHIC REACH, IF SUCCESSFUL.

At this time, I-REN is not proposing a program using this threshold criteria for compliance with D.12-11-015. I-REN is instead proposing program that both fill in gaps to IOU services and that target HTR markets.

D. I-REN UNDERTAKING PILOT ACTIVITIES IN HARD-TO REACH MARKETS, WHETHER OR NOT THERE IS A CURRENT UTILITY PROGRAM THAT MAY OVERLAP.

I-REN's Public Sector Technical Assistance and Strategic Energy Planning Program will be open to all public sector customers but will target underinvested jurisdictions serving hard-to-reach, DAC, underserved, and ESJ communities where I-REN can help address equity issues such as the unequal access to energy efficiency dollars, the need for additional support and commitment for small and underserved communities, ineffective programs for tribal communities, as well as overall lack of diversity. Many of these communities have been historically underinvested in and have greater needs for facility improvements, particularly community serving facilities such as libraries, community centers and the like. By supporting energy efficiency projects in these types of facilities, I-REN can provide equitable and locally administered assistance to public sector agencies where benefits will flow directly to disadvantaged and vulnerable communities.

Program outreach will focus initially on public gathering spaces and community-serving facilities such as community and neighborhood centers, health and recreation centers, senior centers, teen centers, and libraries.

I-REN's Public Sector NMEC Program will provide energy upgrades and retrofits to improve comfort and safety at facilities that benefit HTR customers and vulnerable populations such as children, elders, and low income, disadvantaged, and underserved communities. Higher efficiency equipment, appliances, and controls such as cooling-dominated HVAC loads as well as improvements to operations and maintenance will lower energy bills for local governments, reducing overhead and freeing up funds for other projects. Completion of projects at these high-

visibility locations will support achieving local and statewide energy efficiency and greenhouse gas reduction goals while also positioning local governments as energy efficiency leaders within their communities.

I-REN's WE&T program activities will drive market support and equity outcomes for HTR, underserved, DAC, and ESJ communities by partnering with and building capacity among local community-focused workforce development partners and training providers to improve quality of and access to relevant training opportunities. There is a gap between the demand and supply of existing trades people to provide energy efficiency services in the I-REN service territory. For contractors looking to expand their skills, career advancement and access to high-road jobs, the pathways for obtaining additional certifications can be complicated, costly, and limited by timing or distance.

In a service territory as expansive as the Inland Empire, expanding the number of training sites and promoting multiple delivery mechanisms are crucial for improving access to workforce education. I-REN can help providers identify underserved areas with a significant population that could benefit from training, and I-REN will also coordinate with other PAs and stakeholders to co-sponsor events and collaborate to bring training opportunities to the region. Through co-sponsorship and I-REN's extensive network of connections with local governments, I-REN will help promote training events with marketing and outreach to increase awareness and encourage participation.

I-REN will also provide outreach to employers to support decision-making around onsite training in the workplace or hands-on field training for employees, and will coordinate with other

PAs and key collaborators in the region to leverage existing training opportunities where appropriate.

For areas of the region where in-person training is challenging for cost reasons or limited participation numbers, I-REN will work with local stakeholders and employers to assess the applicability of online training options for supplementing local training. I-REN can recommend regionally appropriate training to pursue and assist with messaging and outreach to guide participants to training opportunities, including trainings offered by other PAs and statewide programs.

I-REN's C&S Training and Education program is open to all local jurisdictions but will provide targeted outreach to underinvested jurisdictions serving hard-to-reach, DAC, underserved, tribal, and ESJ communities where I-REN can help drive market support and equity outcomes and cross-cutting workforce-related objectives. To avoid duplication of effort, I-REN is communicating and exchanging ideas with other PAs operating in the region. Though other programs and initiatives have targeted the C&S sector, many local building departments (and the building industry in general) in the I-REN region have been underserved and will benefit greatly from locally focused training opportunities. I-REN will differentiate its C&S training offerings and coordinate with other training providers where necessary to make the best use of its constituents' ratepayer dollars. Additionally, training in C&S is an important area for crossover activities related to economic development and Workforce Education & Training (WE&T).

The C&S sector faces unique barriers to increased energy efficiency. This is especially true in the I-REN service territory, given its size and distance from the Los Angeles MSA. I-REN's C&S program activities will be tailored to the specific needs of this region, especially

HTR communities, even though the sector has been targeted by other non-local programs. This approach is consistent with CPUC’s policy in D.12.11-2015 that Regional Energy Networks (RENs) should implement energy efficiency initiatives in hard-to-reach markets “whether or not there is a current utility program that may overlap.”¹² In designing their approach to the C&S sector, I-REN has selected strategies and tactics based on insights from the I-REN governing agencies, with consideration also given to previous attempts by other PAs to address the C&S sector in this hard-to-reach region. Those lessons learned informed I-REN’s planning process, as well as best practices from successful C&S programs elsewhere in the state. In this way, I-REN will offer locally-focused services that layer onto and complement existing C&S activities in the region in order to meet the unique needs of its jurisdictions and market actors.

¹² California Public Utilities Commission, Decision 12-11-015, Decision Approving 2013-2014 Energy Efficiency Programs and Budgets, November 8, 2012, Page 17

V. APPENDIX A: SUMMARY OF I-REN PROGRAM COMPLIANCE WITH D.12-11-015

Table 17: I-REN D. 12-11-015 Compliance, by Program

D.12-11-015 Threshold Criteria that apply for each program	Comparable IOU Program, if applicable	1. Activities that utilities cannot or do not intend to undertake.	2. Pilot activities where there is no current offering, and where there is potential for scalability to a broader geographic reach, if successful.	3. Pilot activities in hard to reach markets, whether or not there is a current utility program that may overlap.
Technical Assistance and Strategic Energy Planning Program	<ul style="list-style-type: none"> • SoCalREN Public Agency Energy Efficiency Project Delivery Program (EE PDP) • SCG Regional Energy Pathways • SCG3846 PUB-Small/Medium Public Sector 3P Program • SCG3899 PUB- Large Public Sector 3P Program • SCG_SW_IP_Colleges PUB-SW-Institutional Partnership: UC/CSU/CCC • SCG_SW_IP_Gov PUB-SW-Institutional Partnership: DGS & DOC • SCG_SW_MCWH SW Midstream Water Heating • SCG_SW_FS SW Point-of-Sale Food Service 	<ul style="list-style-type: none"> • Building Upgrade Concierge with personalized end-to-end technical assistance, procurement and project management support, capacity-building, and ongoing commissioning support to ensure efficient operations and maintenance. • I-REN has strong existing relationships with, communication channels to, and support from local jurisdictions as an organization made up of local government agencies. 	<p>n/a</p>	<ul style="list-style-type: none"> • The program is open to all public sector customers but will target underinvested jurisdictions serving hard-to-reach, DAC, underserved, and ESJ communities where I-REN can help address equity issues such as the unequal access to energy efficiency dollars, the need for additional support and commitment for small and underserved communities,

D.12-11-015 Threshold Criteria that apply for each program	Comparable IOU Program, if applicable	1. Activities that utilities cannot or do not intend to undertake.	2. Pilot activities where there is no current offering, and where there is potential for scalability to a broader geographic reach, if successful.	3. Pilot activities in hard to reach markets, whether or not there is a current utility program that may overlap.
				<p>ineffective programs for tribal communities, as well as overall lack of diversity. Many of these communities have been historically underinvested in and have greater needs for facility improvements, particularly community serving facilities such as libraries, community centers and the like. By supporting energy efficiency projects in these types of facilities, I-REN can provide equitable and locally administered assistance to</p>

D.12-11-015 Threshold Criteria that apply for each program	Comparable IOU Program, if applicable	1. Activities that utilities cannot or do not intend to undertake.	2. Pilot activities where there is no current offering, and where there is potential for scalability to a broader geographic reach, if successful.	3. Pilot activities in hard to reach markets, whether or not there is a current utility program that may overlap.
				public sector agencies where benefits will flow directly to disadvantaged and vulnerable communities.
Public Buildings NMEC Program	SoCalREN – Public Agency NMEC Program [SCR-PUBL-B3]	n/a	n/a	<ul style="list-style-type: none"> • The program is open to all public sector customers but will target underinvested jurisdictions serving hard-to-reach, DAC, underserved, and ESJ communities where I-REN can help drive equity outcomes. • Program outreach will focus initially on public gathering spaces and community-serving facilities such as community and

D.12-11-015 Threshold Criteria that apply for each program	Comparable IOU Program, if applicable	1. Activities that utilities cannot or do not intend to undertake.	2. Pilot activities where there is no current offering, and where there is potential for scalability to a broader geographic reach, if successful.	3. Pilot activities in hard to reach markets, whether or not there is a current utility program that may overlap.
				<p>neighborhood centers, health and recreation centers, senior centers, teen centers, and libraries.</p> <ul style="list-style-type: none"> • Upgrades and retrofits to HVAC and lighting equipment both interior and exterior will improve comfort and safety at facilities that benefit vulnerable populations such as children, elders, and low income, disadvantaged, and underserved communities. • Higher efficiency equipment, appliances and controls such as cooling-dominated

D.12-11-015 Threshold Criteria that apply for each program	Comparable IOU Program, if applicable	1. Activities that utilities cannot or do not intend to undertake.	2. Pilot activities where there is no current offering, and where there is potential for scalability to a broader geographic reach, if successful.	3. Pilot activities in hard to reach markets, whether or not there is a current utility program that may overlap.
				<p>HVAC loads as well as improvements to operations and maintenance will lower energy bills for local governments, reducing overhead and freeing up funds for other projects.</p> <ul style="list-style-type: none"> • Completion of projects at these high-visibility locations will support achieving local and statewide energy efficiency and greenhouse gas reduction goals while also positioning local governments as energy efficiency leaders within

D.12-11-015 Threshold Criteria that apply for each program	Comparable IOU Program, if applicable	1. Activities that utilities cannot or do not intend to undertake.	2. Pilot activities where there is no current offering, and where there is potential for scalability to a broader geographic reach, if successful.	3. Pilot activities in hard to reach markets, whether or not there is a current utility program that may overlap.
				their communities.
WE&T Training and Education Program	<ul style="list-style-type: none"> • SoCalREN – Workforce Education & Training Program [SCR-WET-D1] • SCE – Integrated Energy Education & Training Program [SCE-13-SW-010A] • SoCalGas – WE&T Integrated Energy Education Training (IEET) [SCG3729] 	<ul style="list-style-type: none"> • I-REN’s WE&T program activities will center on supporting and leveraging local resources who are ideally positioned to deliver locally-focused, relevant, accessible training opportunities. • Offering training at familiar, nearby locations makes it easier for job seekers and workers to attend. I-REN can use its connections and experience to help ensure training opportunities are accessible throughout the region. • The I-REN governing agencies have existing partnerships with local colleges and community colleges, successfully providing 	n/a	I-REN’s WE&T program activities will drive market support and equity outcomes for HTR, underserved, DAC, and ESJ communities by partnering with and building capacity among local community-focused training providers to improve quality of and access to relevant training opportunities.

D.12-11-015 Threshold Criteria that apply for each program	Comparable IOU Program, if applicable	1. Activities that utilities cannot or do not intend to undertake.	2. Pilot activities where there is no current offering, and where there is potential for scalability to a broader geographic reach, if successful.	3. Pilot activities in hard to reach markets, whether or not there is a current utility program that may overlap.
		instructional energy efficiency classes and events at local campuses where they have typically achieved high participation rates.		
WE&T Workforce Development Program	<ul style="list-style-type: none"> • SoCalREN – Workforce Education & Training Program [SCR-WET-D1] • SCE – Integrated Energy Education & Training Program [SCE-13-SW-010A] 	<ul style="list-style-type: none"> • I-REN’s WE&T program activities will center on convening, engaging, and building capacity with regional workforce development partners in order to define and establish a green workforce. • This program relies on collaboration with established community partner organizations and employers, many of whom have existing connections and trusted relationships with the I-REN member agencies. 	n/a	I-REN’s WE&T program activities will drive market support and equity outcomes for HTR, underserved, DAC, and ESJ communities by partnering with and building capacity among local community-focused workforce development partners.

D.12-11-015 Threshold Criteria that apply for each program	Comparable IOU Program, if applicable	1. Activities that utilities cannot or do not intend to undertake.	2. Pilot activities where there is no current offering, and where there is potential for scalability to a broader geographic reach, if successful.	3. Pilot activities in hard to reach markets, whether or not there is a current utility program that may overlap.
C&S Training and Education Program	SCE – Compliance Improvement Subprogram [SCE-13-SW-008C]	<ul style="list-style-type: none"> As an organization led by and dedicated to serving local governments, I-REN can provide flexible and adaptable solutions to support local jurisdictions. I-REN brings an understanding of local councils, cities, and communities and their priorities and the ability to navigate the local political climate which is important for delivering support to local government jurisdictions. I-REN’s C&S initiatives will offer locally focused training, education, and tools to support codes and standards implementation, enforcement, and compliance activities. 	n/a	The program is open to all local jurisdictions but will provide targeted outreach to underinvested jurisdictions serving hard-to-reach, DAC, underserved, tribal, and ESJ communities where I-REN can help drive market support and equity outcomes and cross-cutting workforce-related objectives.

D.12-11-015 Threshold Criteria that apply for each program	Comparable IOU Program, if applicable	1. Activities that utilities cannot or do not intend to undertake.	2. Pilot activities where there is no current offering, and where there is potential for scalability to a broader geographic reach, if successful.	3. Pilot activities in hard to reach markets, whether or not there is a current utility program that may overlap.
C&S Technical Support Program	SCE – Compliance Improvement Subprogram [SCE-13-SW-008C]	<ul style="list-style-type: none"> As an organization led by and dedicated to serving local governments, I-REN can deliver locally informed resources and tools that streamline code compliance and enforcement and increase permit closeout. I-REN’s C&S interventions rely on relationships and communication. I-REN is uniquely positioned to serve the C&S sector because the I-REN governing agencies already have extensive connections throughout the region with local building and planning departments, including code officials and permitting staff at all levels, and many of the 	n/a	The program is open to all local jurisdictions but will provide targeted outreach to underinvested jurisdictions serving hard-to-reach, DAC, underserved, and ESJ communities where I-REN can help drive market support and equity outcomes and cross-cutting workforce-related objectives.

D.12-11-015 Threshold Criteria that apply for each program	Comparable IOU Program, if applicable	1. Activities that utilities cannot or do not intend to undertake.	2. Pilot activities where there is no current offering, and where there is potential for scalability to a broader geographic reach, if successful.	3. Pilot activities in hard to reach markets, whether or not there is a current utility program that may overlap.
		private construction and architectural firms who frequently apply for permits.		

VI. APPENDIX B: I-REN SUMMARY OF PROGRAMS OFFERED FOR 2022

Table 18: I-REN Summary of Programs, 2022

Unique ID	Program Name	Sector	Annual Budget	Eligible Measures
IREN-PUBL-001	Technical Assistance and Strategic Energy Planning Program	Public	\$ 3,102,902	Not applicable; non-resource program
IREN-PUBL-002	Public Buildings NMEC Program	Public	\$ 3,185,292	Any energy saving measure
IREN-WET-001	WE&T Training and Education Program	Cross-cutting: Workforce Education & Training	\$ 1,012,949	Not applicable; non-resource program
IREN-WET-001	WE&T Workforce Development Program	Cross-cutting: Workforce Education & Training	\$ 1,240,346	Not applicable; non-resource program
IREN-CS-001	C&S Training and Education Program	Cross-cutting: Codes & Standards	\$ 860,334	Not applicable; non-resource program
IREN-CS-001	C&S Technical Support Program	Cross-cutting: Codes & Standards	\$ 585,773	Not applicable; non-resource program

VII. APPENDIX C: SOCALREN, SCE AND SOCALGAS SUMMARY OF COMPARABLE PROGRAMS

Table 19: SoCalREN Summary of Comparable 2022 Programs

Unique ID	Program Name	Sector	Annual Budget	Eligible Measures
SCR-PUBL-A1	Public Agency Energy Efficiency Project Delivery Program	Public	\$7,069,078	n/a
SCR-PUBL-B3	Public Agency NMEC Program	Public	\$1,100,000	Any measure that reduces energy usage
SCR-WET-D1	Workforce Education & Training Program	Workforce Education & Training	\$750,000	n/a

Table 20: SCE Summary of Comparable 2022 Programs

Unique ID	Program Name	Sector	Annual Budget	Eligible Measures
SCE-13-SW-010A	Integrated Energy Education & Training	Cross-Cutting	\$8,696,114	n/a
SCE-13-SW-008C	Compliance Improvement Subprogram	Cross-cutting	\$2,600,000	n/a
SCE-13-L-003I	Public Sector Performance-Based Retrofit High Opportunity Program	Public	\$526,423	Whole Building
SCE-13-TP-029	Local Public Sector 3P Solicitation	Public	\$5,181,133	n/a

Table 21: SoCalGas Summary of Comparable 2022 Programs

Unique ID	Program Name	Sector	Annual Budget	Eligible Measures
SCG3912	Regional Energy Pathways	Public	\$1,932,904	n/a
SCG3729	WE&T Integrated Energy Education Training (IEET)	Workforce Education & Training	\$4,250,000	n/a
SCG3886	PUB - Small & Medium Public Sector	Public Sector	\$2,101,168	Direct Install measures
SCG3899	PUB- Large Public Sector	Public Sector	\$1,750,000	TBD
SCG3739	PUB – Community Colleges Partnership	Public Sector	\$104,440	n/a
SCG3740	PUB – UC/CSU Partnership	Public Sector	\$137,088	n/a
SCG_SW_MC WH	SW Midstream Commercial Water Heating	Non-RES, Public Sector	\$3,684,335	All water heating measures
SCG_SW_FS	SW Food Service POS	Non-RES, Public Sector	\$3,845,582	Food Service Equipment

Appendix H. Metrics

A copy of SCE's Metrics is available on the Proposal Evaluation and Proposal Management Application (PEPMA) home page at:

<https://pepma-ca.com/Public/Default.aspx>

1. On the **Resources & Quick Links** section of the PEPMA home page, click the **View All** link on the lower right of the page.
2. The **View All** link takes you to a "Quick Links" list of key EE documents, including the IOUs' EE annual reports.
3. Scroll to locate the Excel file titled **SCE-Combined Sector Metrics and Targets 2021.xlsx**.

In D.18-05-041,²³⁰ the Commission directed Program Administrators to:

- *Report progress toward all metrics and indicators*²³¹ 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.²³²

In compliance with D.18-05-041, the metrics and indicators included in SCE's 2021 EE Annual Report utilize the definitions for disadvantaged communities (DAC) and hard-to-reach (HTR). As defined in Resolution G-3497,²³³ 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.

Applying this definition, the 2021 reported metric for HTR increased when compared to 2020 measures. HTR participant count measured by service accounts (SA) increased to

²³⁰ D.18-05-041 *Addressing EE Business Plans*. Link provided in *Appendix I*, below.

²³¹ *Ibid.*, OP 9.

²³² *Ibid.*, OP 11.

²³³ 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*. Link provided in *Appendix I*, below.

4,864 from 3,778 the prior year. However, the reported metric for first year annual net kWh for HTR declined to approximately 1.7 million kWh in 2021 from approximately 2.8 million in 2020. Similarly, the reported metric for first year annual net kWh for DAC is approximately 1.8 million kWh in 2021 compared to approximately 22 million kWh in 2020. These, and similar metrics in the S3: DAC Savings and S4: HTR Metric Type categories, have been declining year by year as the opportunities for highly cost-effective programs have been declining.

The new segmentation approach adopted in D.21-05-031²³⁴ established Market Support and Equity segments to complement traditional Resource Acquisition programs. Equity Programs in particular are intended to increase and enhance adoption of energy efficiency measures by HTR, DAC, and/or underserved customers. As new Equity Programs enter the market in the future under this new segmentation approach, SCE anticipates that the HTR and DAC metrics will begin to show a positive trend.

SCE's EE portfolio made significant progress on its environmental impact goals in 2021. The EE portfolio realized nearly 390,000 annual tons of CO₂ avoided. This equates to over 6.4 million lifecycle tons of CO₂ avoided, versus a goal of over 4.4 million lifecycle tons of CO₂ avoided.

²³⁴ D. 21-05-031, *Assessment of Energy Efficiency Potential & Goals and Modification of Portfolio Approval and Oversight Process*. Link provided in *Appendix I*, below.

Appendix I. Citations and Links

Documents and Websites Cited in the EE Annual Report for Program Year 2021

Document	Link Available at:
A.12-08-007, A.12-08-008, A.12-08-009, A12-08-010. <i>Administrative Law Judge's Ruling Consolidating Applications and Setting Preliminary Schedule.</i>	https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M031/K723/31723390.PDF
A.17-01-013. <i>Southern California Edison Company's Amended Energy Efficiency Rolling Portfolio Business Plan For 2018-2025.</i>	https://edisonintl.sharepoint.com/teams/Public/regpublic/Regulatory%20Documents/PD/CPUC/21339/A1701013%20et%20al-SCE%20Amended%20EE%20Business%20Plan%20Application.pdf
A.21-12-009. <i>Application of Southern California Edison Company (U 338-E) for Approval of Its Building Electrification Programs.</i>	https://docs.cpuc.ca.gov/SearchRes.aspx?DocFormat=ALL&DocID=432773552
A.22-03-007. <i>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.</i>	https://edisonintl.sharepoint.com/teams/Public/regpublic/RegulatoryDocuments/Forms/AllItems.aspx?id=%2Fteams%2FPublic%2Fregpublic%2FRegulatoryDocuments%2FPD%2FCPUC%2F21966%2FA2203007-SCE-Various-EE Business Plan_SCE-02%20Epdf&parent=%2Fteams%2FPublic%2Fregpublic%2FRegulatoryDocuments%2FPD%2FCPUC%2F21966
AB 32 <i>Air pollution: greenhouse gases: California Global Warming Solutions Act of 2006.</i>	https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=200520060AB32
AB 398 <i>California Global Warming Solutions Act of 2006: market-based compliance mechanisms: fire prevention fees: sales and use tax manufacturing exemption.</i>	http://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201720180AB398
AB 793 <i>Energy efficiency.</i>	https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160AB793
AB 802 <i>Energy efficiency.</i>	https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160AB802
AB 1103 <i>Energy: commercial buildings: consumption.</i>	https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=200720080AB1103
AB 1150. <i>Self-Generation Incentive Program</i>	https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201120120AB1150
Acceptance Test Technician Certification Program	https://www.energy.ca.gov/programs-and-topics/programs/acceptance-test-technician-certification-provider-program/acceptance

Document	Link Available at:
Active Efficiency in Action, Alliance to Save Energy Case Study, <i>"Strategic Energy Management at Bonduelle Fresh Americas - Active Efficiency Collaborative"</i>	https://activeefficiency.org/project/strategic-energy-management-at-bonduelle-fresh-americas/
Advanced Water Heating Initiative (AWHI)	https://www.advancedwaterheatinginitiative.org/
Advice Letter (AL) 3460-E-A. <i>Supplemental Filing to Advice 3460-E: Submission of High Opportunity Projects and Programs Proposal: Public Sector Performance-Based Retrofit Program</i>	https://edisonintl.sharepoint.com/:b:/r/teams/Public/TM2/Shared%20Documents/Public/Regulatory/Filings-Advice%20Letters/Approved/Electric/ELECTRIC_3460-E-A.pdf?csf=1&web=1&e=hdgwv8
Advice Letter (AL) 3859-E. <i>Southern California Edison Company's 2019 Energy Efficiency Program and Portfolio Annual Budget Advice Letter</i>	https://edisonintl.sharepoint.com/:b:/r/teams/Public/TM2/Shared%20Documents/Public/Regulatory/Filings-Advice%20Letters/Approved/Electric/ELECTRIC_3859-E.pdf?csf=1&web=1&e=jdds5H
Advice Letter (AL) 3859-E-A. <i>Supplement to AL 3859-E</i>	https://edisonintl.sharepoint.com/:b:/r/teams/Public/TM2/Shared%20Documents/Public/Regulatory/Filings-Advice%20Letters/Approved/Electric/ELECTRIC_3859-E-A.pdf?csf=1&web=1&e=negDI9
Advice Letter (AL) 3992-E. <i>Southern California Edison Company's Request for Approval of Market-Based Incentive Pilot.</i>	https://edisonintl.sharepoint.com/:b:/r/teams/Public/TM2/Shared%20Documents/Public/Regulatory/Filings-Advice%20Letters/Approved/Electric/ELECTRIC_3992-E.pdf?csf=1&web=1&e=gzhLGy
Advice Letter (AL) 4051-E. <i>Request for Approval to Increase Loan Caps for Southern California Edison Company's On Bill Financing Program.</i>	https://edisonintl.sharepoint.com/:b:/r/teams/Public/TM2/Shared%20Documents/Public/Regulatory/Filings-Advice%20Letters/Approved/Electric/ELECTRIC_4051-E.pdf?csf=1&web=1&e=1Ikdzi
Advice Letter (AL) 4068-E. <i>Southern California Edison Company's Energy Efficiency Program and Portfolio Annual Budget Advice Letter for Program Year 2020</i>	https://www.caeccc.org/_files/ugd/b49f75_cfb5d23c5d344d9b418d7f6eda07de2.pdf
Advice Letter (AL) 4145-E. <i>Southern California Edison Company's 2020 Energy Efficiency and Demand Response Integrated Demand Side Management Revenue Requirement in Accordance with Decision 18-05-041 and Advice 4068-E and 4068-E-A.</i>	https://edisonintl.sharepoint.com/:b:/r/teams/Public/TM2/Shared%20Documents/Public/Regulatory/Filings-Advice%20Letters/Approved/Electric/ELECTRIC_4145-E.pdf?csf=1&web=1&e=zB0aGT
AL 4350-E-A, <i>SCE's Supplemental Advice Letter for Approval of Residential, Commercial, and Industrial Energy Efficiency Third Party Contract for Comprehensive Multifamily Program.</i>	https://edisonintl.sharepoint.com/:b:/r/teams/Public/TM2/Shared%20Documents/Public/Regulatory/Filings-Advice%20Letters/Approved/Electric/ELECTRIC_4350-E-A.pdf?csf=1&web=1&e=djg0Zz
Advice Letter (AL) 4232-E. <i>SoCalREN, SCE, and SoCalGas' 2021 Joint Cooperation Memorandum Pursuant to Decision 18-05-041</i>	https://edisonintl.sharepoint.com/:b:/r/teams/Public/TM2/Shared%20Documents/Public/Regulatory/Filings-Advice%20Letters/Approved/Electric/ELECTRIC_4232-E.pdf?csf=1&web=1&e=iJeoUo

Document	Link Available at:
Advice Letter (AL) 4285-E-A. <i>Southern California Edison Company's Energy Efficiency Program and Portfolio Annual Budget Advice Letter for Program Year 2021</i>	https://edisonintl.sharepoint.com/:b:/r/teams/Public/TM2/Shared%20Documents/Public/Regulatory/Filings-Advice%20Letters/Pending/Electric/ELECTRIC_4285-E-A.pdf?csf=1&web=1&e=skW13i
Advice Letter (AL) 4350-E-A. <i>Southern California Edison Company's Supplemental Advice Letter for Approval of Residential, Commercial, and Industrial Energy Efficiency Third Party Contract for Comprehensive Multifamily Program</i>	https://edisonintl.sharepoint.com/:b:/r/teams/Public/TM2/Shared%20Documents/Public/Regulatory/Filings-Advice%20Letters/Approved/Electric/ELECTRIC_4350-E-A.pdf?csf=1&web=1&e=fuAagk
Advice Letter (AL) 4353-E. <i>Southern California Edison Company's Advice Letter for Approval of Residential, Commercial, and Industrial Energy Efficiency Third Party Contract for Residential Behavioral Program</i>	https://edisonintl.sharepoint.com/:b:/r/teams/Public/TM2/Shared%20Documents/Public/Regulatory/Filings-Advice%20Letters/Approved/Electric/ELECTRIC_4353-E.pdf?csf=1&web=1&e=M6nWgw
Advice Letter (AL) 4354-E. <i>Southern California Edison Company's Advice Letter for Approval of Residential, Commercial, and Industrial Energy Efficiency Third Party Contract for Commercial Behavioral Program</i>	https://edisonintl.sharepoint.com/:b:/r/teams/Public/TM2/Shared%20Documents/Public/Regulatory/Filings-Advice%20Letters/Approved/Electric/ELECTRIC_4354-E.pdf?csf=1&web=1&e=9VHK9c
Advice Letter (AL) 4355-E-B. <i>Southern California Edison Company's Supplemental Advice Letter for Approval of Residential, Commercial, and Industrial Energy Efficiency Third Party Contract for Marketplace Program</i>	https://edisonintl.sharepoint.com/:b:/r/teams/Public/TM2/Shared%20Documents/Public/Regulatory/Filings-Advice%20Letters/Approved/Electric/ELECTRIC_4355-E-B.pdf?csf=1&web=1&e=C1ngef
Advice Letter (AL) 4356-E. <i>Advice Letter for Approval of Statewide Lighting Energy Efficiency Third Party Contract for CA Statewide Lighting Program</i>	https://edisonintl.sharepoint.com/:b:/r/teams/Public/TM2/Shared%20Documents/Public/Regulatory/Filings-Advice%20Letters/Approved/Electric/ELECTRIC_4356-E.pdf?csf=1&web=1&e=rj2ztX
Advice Letter 4403-E, <i>Modification of Various Electric Tariffs Due to the Implementation of Southern California Edison Company's Customer Service Re-Platform.</i>	https://edisonintl.sharepoint.com/:b:/r/teams/Public/TM2/Shared%20Documents/Public/Regulatory/Filings-Advice%20Letters/Approved/Electric/ELECTRIC_4403-E.pdf?csf=1&web=1&e=3Urym6
Advice Letter (AL) 4519-E. <i>2022 Joint Cooperation Memorandum (JCM) of SoCalGas, SCE, and SoCalREN Pursuant to Decision (D.) 18-05-041.</i>	https://edisonintl.sharepoint.com/:b:/r/teams/Public/TM2/Shared%20Documents/Public/Regulatory/Filings-Advice%20Letters/Approved/Electric/ELECTRIC_4519-E.pdf?csf=1&web=1&e=tNkdKo
Advice Letter (AL) 4520-E. <i>2022 Joint Cooperation Memorandum (JCM) of SoCalGas, SCE, 3C-REN, and PG&E Pursuant to Decision (D.) 18-05-041.</i>	https://edisonintl.sharepoint.com/:b:/r/teams/Public/TM2/Shared%20Documents/Public/Regulatory/Filings-Advice%20Letters/Approved/Electric/ELECTRIC_4520-E.pdf?csf=1&web=1&e=wnbbHb
Advice Letter (AL) 4595-E. <i>Decision Extending California Hub For Energy Efficiency Financing Programs and Conditionally Approving Use Of Platform For Non-Ratepayer Funded Programs</i>	https://edisonintl.sharepoint.com/:b:/r/teams/Public/TM2/Shared%20Documents/Public/Regulatory/Filings-Advice%20Letters/Approved/Electric/ELECTRIC_4595-E.pdf?csf=1&web=1&e=Pb3g20

Document	Link Available at:
<p>Advice Letter (AL) 4606-E. <i>Southern California Edison Company, Pacific Gas and Electric Company, San Diego Gas & Electric Company, and Southern California Gas Company's Request for Approval of Incremental Investor-Owned Utility Ratepayer Funding for the California Hub for Energy Efficiency Financing (CHEEF) Programs through June 30, 2027.</i></p>	<p>https://edisonintl.sharepoint.com/:b:/r/teams/Public/TM2/Shared%20Documents/Public/Regulatory/Filings-Advice%20Letters/Approved/Electric/ELECTRIC_4606-E.pdf?csf=1&web=1&e=hYfhdH</p>
<p>Advice Letter (AL) 4607-E. <i>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</i></p>	<p>https://edisonintl.sharepoint.com/:b:/r/teams/Public/TM2/Shared%20Documents/Public/Regulatory/Filings-Advice%20Letters/Approved/Electric/ELECTRIC_4607-E.pdf?csf=1&web=1&e=8xsS6R</p>
<p>Advice Letter (AL) 4633-E, <i>Southern California Edison Company's Energy Efficiency Program and Portfolio Annual Budget Advice Letter for Program Years 2022 and 2023</i></p>	<p>https://edisonintl.sharepoint.com/:b:/r/teams/Public/TM2/Shared%20Documents/Public/Regulatory/Filings-Advice%20Letters/Approved/Electric/ELECTRIC_4633-E.pdf?csf=1&web=1&e=J145Z7</p>
<p>Advice Letter (AL) 4633-E-A, <i>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</i></p>	<p>https://edisonintl.sharepoint.com/:b:/r/teams/Public/TM2/Shared%20Documents/Public/Regulatory/Filings-Advice%20Letters/Approved/Electric/ELECTRIC_4633-E-A.pdf?csf=1&web=1&e=kxhFea</p>
<p>Advice Letter (AL) 4664-E, <i>SCE's Clean Energy Homes Pilot Implementation and Budget Advice Letter Pursuant to Decision 21-06-015</i></p>	<p>https://edisonintl.sharepoint.com/:b:/r/teams/Public/TM2/Shared%20Documents/Public/Regulatory/Filings-Advice%20Letters/Approved/Electric/ELECTRIC_4664-E.pdf?csf=1&web=1&e=njIvsB</p>
<p>AL 4724-E, <i>SCE's Advice Letter for Approval of Local Public Sector Energy Efficiency Third Party Contract with CLEAResult Consulting Inc.</i></p>	<p>https://edisonintl.sharepoint.com/:b:/r/teams/Public/TM2/Shared%20Documents/Public/Regulatory/Filings-Advice%20Letters/Pending/Electric/ELECTRIC_4724-E.pdf?csf=1&web=1&e=hPcMuC</p>
<p>AL 4740-E, <i>SCE's Advice Letter for Approval of Local Agricultural Sector Energy Efficiency Third Party Contract with ICF Resources, LLC.</i></p>	<p>https://edisonintl.sharepoint.com/:b:/r/teams/Public/TM2/Shared%20Documents/Public/Regulatory/Filings-Advice%20Letters/Pending/Electric/ELECTRIC_4740-E.pdf?csf=1&web=1&e=ixRMXP</p>
<p>Advice Letter DDB-1, <i>Submission of DDB's Five-Year Marketing, Education and Outreach (ME&O) Strategic Roadmap</i></p>	<p>https://www.cpuc.ca.gov/-/media/cpuc-website/files/uploadedfiles/cpuc_public_website/content/utilities_and_industries/energy/energy_programs/demand_side_management/ee_and_energy_savings_assist/submission-of-ddb-s-five-year-me-o-strategic-r.pdf</p>
<p>Advice Letter DDB-2, <i>Submission of DDB'S 2017-2018 Joint Consumer Action Plan</i></p>	<p>https://www.cpuc.ca.gov/-/media/cpuc-website/files/uploadedfiles/cpuc_public_website/content/utilities_and_industries/energy/energy_programs/demand_side_management/ee_and_energy_savings_assist/submission-of-ddb-s-2017-2018-joint-consumer-a.pdf</p>

Document	Link Available at:
Advice Letter DDB-8, <i>DDB's 2021 Year Five JCAP</i>	https://media.gractions.com/9205/2021/EUC/3.30.21_Joint_Consumer_Action_Plan_Year_5_Final.pdf
Air Conditioning Heating & Refrigeration Institute (AHRI)	https://www.ahrinet.org/App_Content/ahri/files/STANDARDS/AHRI/AHRI_Standard_920_I-P_2020_add1.pdf
<i>Alliance for Water Efficiency Peer to Peer</i> Workshop	https://calwep.org/event/peer-to-peer-2021/
ASHRAE Standard 90.1. <i>Energy Standard for Buildings Except Low-Rise Residential Buildings.</i>	https://www.ashrae.org/technical-resources/standards-and-guidelines/read-only-versions-of-ashrae-standards
ASHRAE Standard 180. <i>Standard Practice for Inspection and Maintenance of Commercial Building HVAC Systems.</i>	https://www.ashrae.org/File%20Library/Technical%20Resources/Bookstore/previews_2016639_pre.pdf
ASHRAE Standard 189.1. <i>Standard for the Design of High-Performance Green Buildings.</i>	https://www.techstreet.com/ashrae/standards/ashrae-189-1-2020?product_id=2202993
Bonduelle Fresh Americas, <i>Corporate Social Responsibility Report for Fiscal Year 2020</i>	https://bonduelleamericas.com/us/wp-content/uploads/sites/5/2021/06/48361_CSR_brochure_R3.pdf
<i>CAEECC-Hosted Market Transformation Working Group – Phase II Report and Recommendations to the California Public Utilities Commission</i>	https://www.caeccc.org/_files/ugd/849f65_fbc2ed9084ba4c5fb1c309651e52229c.pdf
CalGREEN Codes for Electric Vehicle (EV) Parking Space and Infrastructure Requirements	https://codes.iccsafe.org/content/CGBC2019P3
California 2019 Appliance Efficiency Regulations, effective 1/1/2020 (California Code of Regulations, Title 20, Public Utilities and Energy, Chapter 4, Energy Conservation, Article 4, Appliance Efficiency Regulations).	https://www.energy.ca.gov/rules-and-regulations/appliance-efficiency-regulations-title-20 (CEC website) https://govt.westlaw.com/calregs/Browse/Home/California/CaliforniaCodeofRegulations?guid=I8F8F3BC0D44E11DEA95CA4428EC25FA0&originationContext=documenttoc&transitionType=Default&contextData=(sc.Default)
California 2019 Building Energy Efficiency Standards, effective 1/1/2020 (California Code of Regulations, Title 24)	https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2019-building-energy-efficiency
California Association of Building Energy Consultants (CABEC)	https://cabec.org/about/ https://cabec.org/cea/steps-to-cea-certification/
California Building Energy Modeling (CalBEM) Consortium website	https://calbem.ibpsa.us/ https://calbem.ibpsa.us/resources/case-study-books/ https://calbem.ibpsa.us/working-groups/
<i>California Climate and Energy Collaborative (CCEC) Forum</i> Webinar	https://eecoordinator.info/past-forum-resources/
California Energy Commission (CEC) website	https://www.energy.ca.gov/

Document	Link Available at:
California Energy Commission (CEC) Building Decarbonization Assessment website	https://www.energy.ca.gov/data-reports/reports/building-decarbonization-assessment
California Energy Commission (CEC) <i>Compliance Manual</i>	https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2019-building-energy-efficiency#accordion-1192
California Energy Commission (CEC) GFO Awards: GFO-20-309 - Advancing and Commercializing Energy Efficiency in California's Industrial, Agricultural, and Water Sector (2021 ACEE Program)	https://www.energy.ca.gov/solicitations/2020-12/gfo-20-309-advancing-and-commercializing-energy-efficiency-californias
California Energy Commission Resolution Mech-ATT Implementation Resolution No. 21-0414-08	https://efiling.energy.ca.gov/getdocument.aspx?tn=237515
California Energy Data and Reporting System	https://cedars.sound-data.com/?msclkid=45be311fccf611ec9f177cc2d33b84d0
California Energy Efficiency Strategic Plan (CEESP)	https://www.cpuc.ca.gov/-/media/cpuc-website/files/legacyfiles/c/5303-caenergyefficiencystrategicplan-jan2011.pdf
California Green Building Standards Code (CalGreen)	https://www.dgs.ca.gov/BSC/CALGreen
<i>California Industrial SEM Design Guide</i>	https://semhub.com/resources/california-industrial-sem-design-guide
<i>California Industrial SEM Measurement & Verification (M&V) Guide</i>	https://semhub.com/assets/resources/CA_Industrial_SEM_MV_Guide.pdf
California Lighting Technology Center (CLTC)	https://cltc.ucdavis.edu/ https://www.youtube.com/channel/UCn7ANoMkJSSGnX4c6Fu2Hhw
California Public Resources Code 25402.10 (Chapter 5, Energy Resources Conservation)	https://codes.findlaw.com/ca/public-resources-code/prc-sect-25402-10.html
CalTech RocketFund Program	http://www.flow.caltech.edu/rocket-fund
CBECC: California Building Energy Code Compliance (for Nonresidential and Multifamily buildings) Software	https://bees.noresco.com/
<i>Collaborative Building Decarbonization Coalition (BDC) and Reach Codes Program Webinar</i>	https://localenergycodes.com/download/866/file_path/fieldList/Tacking%20Residential%20Retrofits%20presentation.pdf
Compliance Improvement Subprogram LinkedIn Account	https://www.linkedin.com/company/energycodeace/
Compliance Improvement Subprogram Twitter Account	https://mobile.twitter.com/energycodeace
D.06-06-063. <i>Interim Opinion: 2006 Update of Avoided Costs and Related Issues Pertaining to Energy Efficiency Resources.</i>	https://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/57756.PDF

Document	Link Available at:
D.07-09-043. <i>Interim Opinion on Phase 1 Issues: Shareholder Risk/Reward Incentive Mechanism for Energy Efficiency Programs.</i>	https://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/73172.PDF
D.09-09-047. <i>Decision Approving 2010 to 2012 Energy Efficiency Portfolios and Budgets.</i>	https://docs.cpuc.ca.gov/PublishedDocs/PUBLISHED/GRAPHICS/107829.PDF
D.11-07-030. <i>Third Decision Addressing Petition for Modification of Decision 09-09-047.</i>	https://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/139858.PDF
D.12-05-015. <i>Decision Providing Guidance on 2013-2014 Energy Efficiency Portfolios and 2012 Marketing, Education, and Outreach.</i>	https://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/166830.PDF
D.13-09-044. <i>Decision Implementing 2013-2014 Energy Efficiency Financing Pilot Programs.</i>	https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M077/K182/77182202.pdf
Decision (D.) 15-10-028, <i>Decision Re Energy Efficiency Goals for 2016 and Beyond and Energy Efficiency Rolling Portfolio Mechanics</i>	https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M155/K511/155511942.pdf
D.16-03-029. <i>Decision on Phase 3 Issues: Post-2016 Statewide Marketing, Education, and Outreach Activities, dated March 17, 2016</i>	https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M159/K638/159638474.PDF
D.16-08-019. <i>Decision Providing Guidance for Initial Energy Efficiency Rolling Portfolio Business Plan Filings</i>	https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M166/K232/166232537.PDF
D.16-09-020. <i>Decision Approving Implementer for the 2017-2019 Statewide Marketing, Education, and Outreach Program and Providing Guidance for 2017 Activities</i>	https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M167/K254/167254012.PDF
D.16-12-047. <i>Decision Updating the Water Energy Nexus Cost Calculator, Proposing Further Inquiry, and Next Steps.</i>	https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M171/K495/171495551.PDF
D.18-01-004. <i>Decision Addressing Third Party Solicitation Process for Energy Efficiency Programs</i>	https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M205/K560/205560586.PDF
D.18-05-041. <i>Decision Addressing Energy Efficiency Business Plans.</i>	https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M215/K706/215706139.PDF
D.19-01-005. <i>Decision Authorizing Renewal of the Contract with the Current Implementer of the Energy Upgrade California Program, to Extend Through the End of 2021.</i>	https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M260/K336/260336279.PDF
D.19-03-001. <i>Decision Granting Petition for Modification of Decision 09-09-047 Concerning On-Bill Financing.</i>	https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M275/K318/275318613.PDF
D.19-08-034, <i>Decision Adopting Energy Efficiency Goals for 2020–2030.</i>	https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M311/K540/311540642.PDF

Document	Link Available at:
D.19-12-021. <i>Decision Regarding Frameworks for Energy Efficiency Regional Energy Networks and Market Transformation.</i>	https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M321/K507/321507615.PDF
D.21-05-031. <i>Assessment of Energy Efficiency Potential & Goals and Modification of Portfolio Approval and Oversight Process.</i>	https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M385/K864/385864616.PDF
D.21-06-015, <i>Decision on Large Investor-Owned Utilities' and Marin Clean Energy's CARE, ESA, and FERA Program Applications For Program Years 2021-2026.</i>	https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M387/K107/387107687.PDF
D.21-08-006, <i>Decision Extending California Hub for Energy Efficiency Financing Programs and Conditionally Approving Use of Platform for Non-Ratepayer Funded Programs.</i>	https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M398/K319/398319629.PDF
D.21-08-036, <i>Decision on Test Year 2021 General Rate Case for Southern California Edison Company</i>	https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M401/K299/401299406.PDF
Database of Energy-Efficient Resources (DEER)	http://www.deeresources.com/
Emerging Technologies Coordinating Council (ETCC)	https://www.etcc-ca.com/about-etcc
Emerging Technologies Summit 2020	https://www.etcc-ca.com/summits/2020/program
Emerging Technologies Summit 2021	https://events.nextgov.com/emerging-tech-summit/
<i>Energized by Edison</i> Newsletter, "Energy Saved is Money Earned for High-Usage Customers"	https://energized.edison.com/stories/energy-saved-is-money-earned-for-high-usage-customers
EnergyCodeAce.com (ECA) YouTube channel —	https://www.youtube.com/channel/UCQW7cjrRM1sr9Pjw-7FF9CQ
Enhanced Energy Advisor Tool website	www.sce.com/energysurvey
ESCO Institute website	https://www.escogroup.org/esco/default.aspx
Executive Order B-18-12, <i>State of California Green Buildings</i>	https://www.green.ca.gov/buildings/resources/executiveorder/
Executive Order B-29-15, <i>State of Emergency Due to Severe Drought Conditions</i>	https://www.ca.gov/archive/gov39/wp-content/uploads/2017/09/4.1.15_Executive_Order.pdf
Executive Order B-55-18, <i>To Achieve Carbon Neutrality</i>	https://www.ca.gov/archive/gov39/wp-content/uploads/2018/09/9.10.18-Executive-Order.pdf
<i>Green Building Action Plan for Implementation of B-18-12</i>	https://dot.ca.gov/-/media/dot-media/programs/design/documents/grn-build-actn-pln-b-18-12-a11y.pdf

Document	Link Available at:
Joint Supplemental Advice Letter: <i>Supplemental Advice Letter - San Diego Gas and Electric Company, Southern California Gas Company, Southern California Edison Company and Pacific Gas and Electric Company's Shared Funding Mechanism Proposal Pursuant to Decision 18-05-041.</i> SDG&E Advice Letter (AL) 3268-E-A/2701-G-A SoCalGas Advice Letter (AL) 5346-G-A SCE Advice Letter (AL) 3861-E-A; and PG&E Advice Letter (AL) 5373-E-A/4009-G-A.	https://edisonintl.sharepoint.com/:b:/r/teams/Public/TM2/Shared%20Documents/Public/Regulatory/Filings-Advice%20Letters/Approved/Electric/ELECTRIC_3861-E-A.pdf?csf=1&web=1&e=U8neLd
Local Government Sustainable Energy Coalition (LGSEC) webinar: <i>Chula Vista's Building Ordinances - Bringing Energy Savings to Existing Buildings</i>	https://www.youtube.com/watch?v=J_qPuDCueUU https://localenergycodes.com/download/866/file_path/fieldList/Tacking%20Residential%20Retrofits%20presentation.pdf
Modernized Appliance Efficiency Database System (MAEDbS)	https://www.energy.ca.gov/programs-and-topics/programs/appliance-efficiency-program-outreach-and-education/modernized
New Buildings Institute (NBI) GridOptimal Buildings Initiative	https://newbuildings.org/resource/gridoptimal/
Non-DEER Path-B Chillers Workpaper	https://www.caetrm.com/measure/SWHC052/01/
Ojai City Council Electrification Ordinance	https://vcreporter.com/wp-content/uploads/2020/11/Attach.-A-Ojai-Reach-Code-Ordinance.pdf
Online Buyer's Guide	www.sce.com/residential/home-energy-guide
PG&E ID U 39, Advice Letter (AL) 3770-G / 4939-E. <i>SW ME&O 2017-2019 Contract and Budget.</i>	https://www.pge.com/tariffs/tm2/pdf/GAS_3770-G.pdf
<i>Reach Codes News Brief</i>	https://localenergycodes.com/content/newsletters
Residential Direct Install Program website	www.sce.com/rdi
Resolution E-4820. <i>Request for Approval of PG&E, SDG&E, SCE and SoCalGas' Assembly Bill 793 (AB 793) Advice Letters (ALs).</i>	https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M183/K573/183573610.PDF
Resolution E-5022. <i>Modifies and approves AL 3992-E which proposes a pilot program utilizing a modified energy efficiency custom projects application process for industrial and large commercial customers.</i>	https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M321/K645/321645741.PDF
Resolution E-5082. <i>Approval of the Database for Energy-Efficiency Resources Updates for Program Year 2022 and Revised Version for Program Years 2021 and 2020</i>	https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M346/K161/346161639.PDF
Resolution G-3497. <i>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.</i>	https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M143/K668/143668957.PDF

Document	Link Available at:
Rulemaking (R.) 13-11-005, <i>Order to Show Cause Directing Southern California Edison Company to Address Upstream Lighting Program Issues for Program Years 2017 Through 2019.</i>	https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M479/K338/479338180.PDF
Rulemaking (R.) 14-10-003. <i>Order Instituting Rulemaking to Create a Consistent Regulatory Framework for the Guidance, Planning and Evaluation of Integrated Distributed Energy Resources</i>	https://apps.cpuc.ca.gov/apex/f?p=401:56:0::NO:RP,57,RIR:P5_PROCEEDING_SELECT:R1410003
Rulemaking (R.) 20-08-022, <i>Order Instituting Rulemaking to Investigate and Design Clean Energy Financing Options for Electricity and Natural Gas Customers.</i>	https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M346/K361/346361154.PDF
Santa Barbara Electrification Reach Code	https://records.santabarbaraca.gov/OnBaseAgendaOnline/Documents/ViewDocument/Attachment%20%20-%20ORDINANCE.pdf?meetingId=708&documentType=Agenda&itemId=21551&publishId=14466&isSection=false
SB 32 California Global Warming Solutions Act of 2006: emissions limit.	https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201520160SB32
SB 350 Clean Energy and Pollution Reduction Act of 2015.	http://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201520160SB350
SB 1477 Low-emissions buildings and sources of heat energy.	https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201720180SB1477
SCE's Pathway 2045 Whitepaper	https://download.newsroom.edison.com/create_memory_file/?f_id=5dc0be0b2cfac24b300fe4ca&content_verified=True
<i>Single-Family Battery Storage Cost-Effectiveness Analysis</i>	https://www.localenergycodes.com/content/webinar-battery-storage-for-single-family-homes-cost-effectiveness-analysis/
South Bay Cities Council of Governments (SBCCOG)	http://www.southbaycities.org/
South Coast Air Quality Management District 2022 <i>Air Quality Management Plan</i>	http://www.aqmd.gov/home/air-quality/clean-air-plans/air-quality-mgt-plan
Statewide Energy Efficiency Collaborative (SEEC)	https://californiaseec.org/about-seec/
Synergy Smart Energy Program website	https://www.synergycompanies.com/utility-program/sce-smart-energy-program
Title 24 Stakeholders	https://title24stakeholders.com/
U.S. Dept. of Energy ENERGY STAR™ website, "With Strategic Energy Management, Continuous Savings Are the Name of the Game (SCE, Enabler of Growth)"	https://www.energystar.gov/sites/default/files/asset/document/Pillar%20Story%20_Southern%20California%20Edison_Enabler%20of%20Growth.pdf