

**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) 2020 ANNUAL REPORT
FOR ENERGY EFFICIENCY PROGRAMS**

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Dated: **May 15, 2020**

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Southern California Edison Company (SCE) hereby submits its 2019 Energy Efficiency Annual Report (Annual Report) for its energy efficiency programs and results for Program Year 2019, 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, a listing of all third party contracts in place, along with the information listed 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. 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 2020 Annual Report and its appendices and related documents available for viewing and downloading for the parties on the CPUC’s Energy Efficiency Statistics Application (EESTATS) website.

Respectfully submitted,

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May 15, 2020

Attachment A

SCE's 2020 Energy Efficiency Annual Report



2020

SCE Energy Efficiency

Programs

Annual Report

- **Summary Report: 2019 Programs Overview & Strategies**
- **Technical Appendix**

May 15, 2020

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Executive Summary

Introduction

Southern California Edison Company (SCE) continues to build upon its leadership role in the energy efficiency (EE) industry through delivery of a diverse, innovative, and cost-effective EE portfolio designed to meet the needs of our customers, contribute to the reliability of the grid, and meet California's clean energy goals. In this introductory section, we will highlight SCE's key areas and programs which supported the achievement of our annual EE goals for Program Year (PY) 2019.

In 2019, SCE's EE programs collectively achieved 1.17 billion kilowatt-hours (kWh) of annualized energy savings and 238 megawatts (MW) of peak demand reduction, equivalent to powering more than 175,000 standard California residential homes annually. While this is less than the 1.35 billion kWh and 286 MW achieved in the prior annual operating period, SCE's total 2019 EE portfolio was cost-effective with a Total Resource Cost (TRC) of 1.14 (without Codes & Standards), an improvement from a TRC of 1.10 in the prior year, and a TRC of 1.70 (with Codes & Standards) compared to 1.79 in 2018. Including Codes & Standards, SCE achieved 115% and 110% of its 2019 savings and demand reduction goals, respectively.

SCE's EE portfolio also made significant progress toward its environmental impact targets in 2019. The EE portfolio realized nearly 550,000 annual tons of CO₂ avoided compared to the 2019 EE portfolio target of approximately 61,000 annual tons of CO₂ avoided. This amount of CO₂ avoided in the year equates to approximately the annual CO₂ output of 118,000 cars. This equates to over 5 million lifecycle tons of CO₂ avoided versus a target of over 488,000 lifecycle tons of CO₂ avoided.

In 2018, the California Public Utilities Commission ("CPUC" or "Commission") issued several decisions which provided a pathway for third parties to propose, design, implement, and deliver EE programs, under contract, to a utility program administrator. In 2019, supporting these decisions, SCE launched its third-party Request for Abstract (RFA) solicitation for its statewide lighting program as well as continued its Residential, Commercial, and Industrial (RCI) solicitation that was initiated with an RFA in November, 2018. SCE expects to launch several more RFA and Request for Proposal (RFP) solicitations in 2020 to meet or exceed the statewide and third-party requirements pursuant to CPUC Decisions (D.) 18-05-041, D.18-01-004, D.16-08-019, and D.15-10-028.

In addition to the third-party requirements, in D.15-10-028 and D.18-05-041 the Commission directed EE Program Administrators (PAs) to meet several requirements as

part of the Annual Budget Advice Letter (ABAL) process. Some of these requirements state that a PA's ABAL must include:

- The PA's forecast of portfolio cost-effectiveness, with a forecasted TRC that meets or exceeds 1.25, except during program years 2019-2022, when the forecasted TRC must meet or exceed 1.0;
- Tables with forecast budgets and savings by sector and program and/or intervention;
- Forecasted energy savings that meet or exceed Commission-established savings goals for each PA; and
- A forecasted budget that does not exceed the PA's annual budget in the approved business plans, or (if applicable) the revised annual budget in the current ABAL.

On September 4, 2018, SCE submitted Advice Letter (AL) 3859-E, its 2019 EE ABAL, pursuant to the Commission's Decisions. SCE proposed a number of programs to be closed and others to be opened in 2019. On April 2, 2019, Energy Division Staff approved SCE's 2019 ABAL, including closing the following EE resource and non-resource programs in 2019 to improve our portfolio's cost-effectiveness:

Program	Program ID
ARRA-Originated Financing - EmPower	SCE-13-SW-007B
Commercial Utility Building Efficiency	SCE-13-TP-014
Cool Planet Program	SCE-13-TP-002
Cool Schools Program	SCE-13-TP-013
Energy Leader Partnership Program	SCE-12-L-002 Rollup
Energy Upgrade California	SCE-13-SW-001D
IDEEA 365	SCE-13-TP-020
Integrated Demand Side Management Program	SCE-13-SW-006.
Lighting Innovation Program	SCE-13-SW-005B
Lighting Market Transformation Program	SCE-13-SW-005A
Sustainable Communities Pilot Program	SCE-13-TP-019, and
WE&T – Community Language Efficiency Outreach	Non-resource outreach activity
WE&T – Mobile Energy Unit	Non-resource outreach activity
WE&T Planning	SCE-13-SW-010C

SCE has been 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 2015.¹ SCE has participated in all CAEECC meetings (and associated sub-committee meetings) and presented its 2020 budget to CAEECC in advance of our ABAL filing. The feedback obtained from stakeholders helped shape our 2020 ABAL filing submitted on September 3, 2019.

Looking forward, the EE landscape continues to experience rapid change and meaningful challenges in several sectors that warrant leadership discussion on how to transform the EE portfolio to meet modern needs. During 2019, SCE's EE portfolio was successful in navigating the impacts of reduced avoided-cost benefits from decreased natural gas prices and a reduction in value during peak midday times of spring and fall days due to overgeneration by renewable resources. This higher reliance on renewable resources has had the positive effect of making the grid become cleaner. These changes reflect grid conditions which displace significant value from increasing forecasts of greenhouse gas (GHG) prices. In nonresidential programs, current approaches to traditional EE have seen declines in customer participation rates, while the residential portfolio will experience further challenges due to code changes, such as for lighting.

Modernizing the EE portfolio will require partnering with the Energy Division and other policy makers to enable the transition of EE programs to third parties and to support innovative and cost-effective programs that unlock customer value and result in a simplified EE experience for customers. SCE believes that a modernized EE portfolio will be well-positioned to support the State in meeting its GHG goals, just as the legacy EE portfolio has done in the past.

Below are some highlights of the accomplishments of SCE's active EE portfolio during 2019. For further detail, please see the program descriptions in each chapter of this report.

Residential EE Programs

California's Energy Efficiency Strategic Plan (CEESP or "Strategic Plan") goals include encouraging home buyers, homeowners, and renovators to implement a whole-house approach to energy consumption that will guide their purchases and use of existing and new homes, household equipment (such as HVAC systems), and appliances, lighting, and "plug load" amenities.

¹ Per D.15-10-028.

In 2019, SCE continued to work with other California PAs, water purveyors, and various governmental, educational, and housing organizations to advance these important objectives. Some highlights in 2019 include:

- The Home Energy Advisor (HEA) Program sent customized quarterly Home Energy Reports to more than 2.5 million residential customers.
- The Plug Load & Appliance (PLA) Program transitioned the rebates for Variable-Speed Pool Pumps (VSPPs) from a downstream approach to a retailer-and-distributor midstream Point of Sale (POS) model and enrolled more than 100 retail stores to provide rebates.
- SCE improved its online Marketplace by adding new segments for automobiles (the "Cars Marketplace") and solar power (the "Solar Marketplace") which benefit customers researching available rebates and incentives offered by SCE.

Nonresidential EE Programs

SCE's Business Core (nonresidential and statewide) programs include the Commercial, Industrial, and Agricultural EE Programs and their subprograms, such as Savings By Design (SBD), Commercial Midstream Point-of-Purchase (MPOP), Nonresidential Heating, Ventilation and Air Conditioning (HVAC), and Industrial Strategic Energy Management (SEM). These programs provided facility audits and advisory services, incentives for deemed and calculated ("customized") measures, technical support such as design assistance, point-of-sale rebates, new construction and retrocommissioning support, direct installation, and energy management offerings to wide ranges of customers, such as commercial office buildings, hospitals, retailers, oil refineries, water treatment plants, growers, dairies, and many more.

- In the nonresidential Energy Advisor programs, SCE completed implementing two Automated Benchmarking System (ABS) enhancements, fulfilled customer data requests for approximately 4,300 active buildings, and conducted pump tests for customers in all sectors.
- The Deemed and Customized programs in the commercial, industrial, and agricultural sectors:
 - Developed and created 74 new EE measures
 - Completed integrating the programs' project review processes, and
 - Conducted an annual EE program training event for Trade Professionals, who act on behalf of customers submitting EE program applications.

- The SBD Program contributed to our EE goals by focusing on the development of non-residential buildings and driving the new construction industry towards Zero Net Energy (ZNE) targets in 2019.
- All three Nonresidential HVAC subprograms — Upstream HVAC Equipment Incentive, HVAC Commercial Quality Installation (QI), and HVAC Commercial Quality Maintenance (QM) — continued in 2019.
 - Upstream HVAC developed a study to determine support for the broadening of available air-cooled and water-cooled chiller measures.
 - HVAC QI continued to coordinate with the Workforce Education & Training (WE&T) Program to provide classroom and hands-on training to HVAC students and technicians.
 - HVAC QM discontinued incentives for measures with a TRC of 1.0 or lower, and aligned with industry standard practice² by allowing customers to enroll in a one-year maintenance agreement instead of a three-year requirement.
- The SEM Program engaged eight (8) large industrial customers in 2019, enrolling them in a two-year effort to drive persistent energy savings across their entire facilities.

Lighting EE Programs

The Statewide Lighting Program was designed to facilitate market adoption and transformation for advanced lighting products. The maturity and effective penetration of EE lighting programs have been key drivers of energy savings in the past, but SCE closed the Lighting Innovation and Lighting Market Transformation subprograms in 2019. During 2019, the Primary Lighting Program continued focusing on hard-to-reach (HTR) consumers and Disadvantaged Communities (DAC) in SCE's service territory, and at the end of the year SCE closed Primary Lighting due to the state's adoption of higher standards for screw-in light bulbs, making most lighting measures ineligible for EE incentives.

² Section 4, ASHRAE Standard 180.

Cross-Cutting EE Programs

Financing Programs

The two subprograms of the Statewide Finance Program — On-Bill Financing (OBF) and New Finance Offerings — provide an effective strategy to enable EE for both residential and business customers by giving them additional options for qualifying EE projects, such as zero-interest financing. Both are designed to stimulate and enable higher levels of customer participation in EE programs. In 2019, OBF funded over 100 loans covering more than 400 service accounts, representing over \$9 million in funded loans, and began offering financing to participants in four additional EE programs

In 2019, SCE filed a Tier II Advice Letter³ to increase the loan caps for OBF in order to provide more funding to customers for the installation of their EE projects. Loan caps increased from \$100,000 to \$250,000 for business customers and from \$250,000 to \$1,000,000 for the Government & Institutional and Multifamily segments. SCE also added the MPOP Program, the Commercial HVAC Quality Maintenance (CQM) Program, the Public Sector Performance Based Retrofit Program (PBRP), and the SEM Program to the list of EE programs eligible for OBF financing.

SCE worked with CAEATFA⁴ and the other IOUs in 2019 to deploy a comprehensive marketing strategy for the New Finance Offerings. The first pilot, the Residential EE Loan (REEL) Assistance Program, made 92 loans totaling over \$1.4 million during the year.

Codes and Standards Program

The Codes and Standards Program saves energy on behalf of ratepayers by influencing regulatory bodies such as the California Energy Commission (CEC) and the U.S. Department of Energy (DOE) to strengthen EE regulations. Program advocacy and compliance improvement activities extend to virtually all buildings and appliances sold in California in order to support the state's ambitious climate and energy goals.

After the State of California adopted the 2019 Title 24 code, which includes a requirement for all new homes to have renewable energy systems, the program was a conduit for preparing the building industry for the implementation of the new code on January 1, 2020.

³ Advice Letter (AL) 4051-E, approved on October 4, 2019.

⁴ California Alternative Energy and Advanced Transportation Financing Authority.

Emerging Technologies Program (ETP)

The statewide Emerging Technologies Program (ETP) supports the California IOUs' EE programs in their achievement of aggressive objectives through three subprograms: Technology Assessment, Technology Development, and Technology Introduction.

In 2019, the three ETP subprograms:

- Coordinated with many different industry stakeholders, such as the Emerging Technologies Coordinating Council (ETCC), the Electric Power Research Institute (EPRI), and the Electric Program Investment Charge (EPIC) Program, and
- Conducted projects in support of new measure development, including:
 - Variable Speed – Fixed Displacement Hydraulic Pump Unit with Smart Controllers
 - Central Plant Technology Optimization
 - Conditioned Crawl Spaces
 - Software Controlled Motors
 - Conventional Walk-in Cooler and Freezer Defrost Controls
 - Add-on Adiabatic Pre-Cooling for Refrigeration, and
 - RTU Optimization Packages.

Workforce Education and Training (WE&T)

The Statewide Workforce Education and Training (WE&T) Program includes two subprograms, WE&T Integrated Energy Education and Training (IEET) and WE&T Connections. In 2019, the WE&T Program continued to implement enhancements which aligned with program evaluation and study recommendations, and to collaborate with professional and trade organizations, government agencies, and other education and training providers.

- WE&T's work with the National Comfort Institute (NCI) focused on hands-on and certification training. A total of 507 participants were certified, and 2,316 Continuing Education Units (CEUs) were earned by NCI participants.
- Through both the Institute of Heating and Air Conditioning Industries (IHACI) and the North American Technician Excellence (NATE) preparation curricula, the program trained close to 3,500 contractors and technicians in 2019. One hundred seventy-three (173) NATE Core and Specialty exams were delivered with a pass rate of 97%.

- The Foodservice Technology Center (FTC) reopened in January 2019, which resulted in an overwhelming response in activity and surpassed numbers achieved in previous years combined: almost 1,200 customers engaged with the FTC during the year.

Statewide Marketing, Education & Outreach (ME&O)

In 2019, SCE's Marketing, Education & Outreach (ME&O) Program team participated in a statewide Small Business brainstorming workshop with the program implementer to identify actions small businesses can take to save energy and to broaden the small business audience. We also provided highlights of our Energy Savings Assistance (ESA) Program's local marketing efforts, to inform planning for an ESA-focused statewide campaign expected to be launched in 2020.

Integrated Demand Side Management (IDSM) Activities

SCE's IDSM activities in 2019 were centered on the limited integration of EE and Demand Response (DR) efforts outlined by the Commission in D.18-05-041, while ramping down historical activities reflected in the eight directives of D.09-09-047. To support EE and DR integration, the IDSM team worked with the EE solicitation team to communicate the purposes of the approved funding for EE and DR integration activities and how to apply them to EE and DR activities to provide value to customers. SCE anticipates that the successful bidders in SCE's third-party solicitations will support the integration of EE and DR in their proposed programs or support other IDSM activities, depending upon the design of the program.

SCE continues to emphasize its policy vision for IDSM throughout the EE portfolio by taking an integrated approach to its online Enhanced Energy Advisor Tool (EEAT) for residential and small business audits, while scaling back marketing collateral and campaigns, including outreach events. SCE looks forward to the full transition of IDSM activities toward a focus on EE and DR integration as outlined in D.18-05-041. Finally, SCE has maintained communication with Commission staff to manage reporting requirements for activities undertaken both before and after the issuance of D.18-05-041.

Local Programs (Partnerships)

SCE's Partnership Programs provide support to local governments and public institutions in SCE's service territory to identify and address EE opportunities in municipal facilities, take actions supporting the CEESP, maintain a focus on long-

term sustainability, and increase community awareness of and participation in demand-side management (DSM) opportunities.

A key goal of SCE's Local Government Partnerships (LGPs) is helping cities and counties to lead by example by addressing EE first in their own municipal facilities. In 2019, 137 cities and 10 counties, including Los Angeles, Riverside, and San Bernardino, participated in the LGPs, including one (1) new partner. Twenty-four (24) partners also moved up a tier in SCE's Energy Leader Partnership (ELP) model through their participation in EE retrofits and enrollment in DR programs.

The partnerships also include Institutional and Government partners: the California Community Colleges (CCC), the State of California Government, the California University Systems (University of California (UC) and California State University (CSU)), and the California Department of Corrections and Rehabilitation (CDCR). A number of projects were successfully implemented for all these partners in 2019. The CDCR implemented several projects despite its limited budget for EE projects by using OBF Program financing, while the CCC's project cost underruns realized almost \$6 million in project cost savings and left unspent funds expected to be carried over to the 2020 budget.

SCE also continued to partner with two Regional Energy Networks (RENs), Southern California REN (SoCalREN) based in Los Angeles County, and Tri-County REN (3C-REN) in the counties of San Luis Obispo, Santa Barbara, and Ventura.

As directed in D.18-05-041, Ordering Paragraph (OP) 32, the IOUs, led by SCE, continued working to develop and implement the California Analysis Tool for Locational Energy Assessment (CATALENA). During 2019, the CATALENA project team presented a project update webinar, held individual stakeholder meetings, and conducted a stakeholder survey on prioritizing tool features.

Finally, the Public Sector Performance Based Retrofit Program (PBRP),⁵ designed to leverage smart meter investments while bringing the benefits of normalized metered energy consumption (NMEC) to public sector buildings, rolled out an OBF offering for PBRP projects. In late 2019, the program completed its first project, UC Santa Barbara's Physical Science and Chemistry Building, which saved over 1 million kilowatt hours (kWh) and was the first NMEC site-level project in California.

⁵ Approved in AL 3460-E-A.

Third-Party Programs

Third-party programs deliver electric savings and demand reduction through consultants (implementers) in a wide variety of customer segments defined by North American Industry Classification System (NAICS) codes within SCE's service territory. Integral to the programs are site assessments and reports that identify EE savings opportunities and provide recommendations to program participants, together with technical assistance and incentives and rebates to support the installation of the recommended equipment.

In 2019, these programs continued to improve the quality of projects being submitted for review. In preparation for further solicitations to third parties and the transition to programs that third parties design and deliver, SCE began to close a number of existing third-party programs that were forecasted not to be cost-effective, but continued to accept applications for third-party programs with a forecasted TRC at or above 0.85.

Water-Energy Nexus Activities

SCE's 2019 strategies for the Water-Energy Nexus included holding face-to-face meetings, conducting interactions with water associations, managing pilot programs, and conducting outreach and educational activities to promote and recommend EE solutions.

Several projects were implemented in 2019 through joint collaboration with customers, water districts, and agriculture growers. One project's results demonstrated measured benefits — water savings of 15%-40% and energy savings of 6%-8% — through optimizing water reuse, lowering sewer discharge, producing better heat transfer in chillers, and reducing water pumping and treatment.

Another Water-Energy Nexus savings project used agricultural customers' Advanced Metering Infrastructure (AMI) meter data in conjunction with a software application that identifies pumping and irrigation efficiency opportunities while providing customers with real-time reporting via computer and mobile applications. The project demonstrated that agriculture AMI data through analytical software can provide useful tools and alerts about pumping operations which growers can use to improve water and energy efficiency.

In 2019, SCE also continued to expand its activities under the Memorandum of Understanding (developed in 2018) with the Metropolitan Water District (MWD) to co-deliver programs that provide mutual advantages for our joint customers.

1. Residential Energy Efficiency Programs

California's Energy Efficiency Strategic Plan (CEESP or "Strategic Plan") goals — which include encouraging cost-effective Zero Net Energy (ZNE) new construction activities, achievement of deep energy reduction results by retrofitting single-family homes and multifamily buildings, and reversing the growth of plug load by 2020 — require integrated and targeted program interventions. In 2019, SCE continued to work with other California program administrators, water purveyors, and various governmental, educational, and housing organizations to advance these important objectives. Some highlights in 2019 include:

- Enrolling more than 2.5 million customers in the Home Energy Advisor program, which helped to achieve a significant amount of the portfolio savings, and
- Continuing to increase involvement with local government partnerships.

Further details of each individual program are provided below.

SCE's residential portfolio employs various strategies and tactics to overcome market barriers and to deliver programs and services aligned to support the Strategic Plan by encouraging adoption of economically-viable EE technologies, practices, and services to address the needs of three different markets: (1) homeowners and renters, (2) multifamily property owners, and (3) new construction builders. The primary objectives of these residential programs are to:

- Facilitate, sustain, and transform the long-term delivery and adoption of EE products and services by residential customers and builders
- Cultivate, promote, and sustain lasting EE behaviors by residential customers through a collaborative statewide education and outreach mechanism, and
- Meet consumers' EE adoption preferences through a range of offerings including single-measure incentives, behavior intervention strategies, and more comprehensive approaches.

The Statewide Residential Programs include a set of downstream, midstream, and upstream delivery channels that build on customer education and marketing efforts in order to:

- Leverage important relationships with market actors and industry participants, and
- Transform the residential consumer markets.

Direct energy savings and demand reductions are achieved through seven (7) programs that make up the comprehensive residential program approach:

- Home Energy Advisor Program
- Plug Load and Appliances Program
- Multifamily Energy Efficiency Rebate Program
- Energy Upgrade California[®] Home Upgrade Program
- Residential HVAC Program
- Residential New Construction Program, and
- Residential Direct Install Program.

Home Energy Advisor (HEA) Program

Program Description

The Home Energy Advisor (HEA) Program focuses on implementing behavior intervention strategies through efforts that help customers understand and manage their energy use. HEA employs an interactive online tool designed to engage customers and encourage them to reduce energy, water, and gas consumption by providing energy-related actions and recommendations. HEA also implements Home Energy Reports, utilizing a Randomized Control Trial (RCT) to validate savings, reaching more than 2.5 million customers in 2019.

Strategies Implemented in 2019

Home Energy Reports (HERs):

In 2019, SCE continued mailing Home Energy Reports Waves 2-7, and also launched a new Wave 8, adding more than 800,000 new customers to the existing HER Waves. As a result, more than 2.5 million customers received customized quarterly Home Energy Reports. The savings results supported the EE portfolio and customers by helping them reduce more than 120 GWh and 30 MW. Each HER wave was designed using a Randomized Control Trial (RCT) methodology.

HERs employed several social norming and behavior strategies to help recipients reduce their energy consumption. HERs also marketed other SCE initiatives and provided behavior or energy saving tips, including:

- SCE Clean Fuel Rewards Electric Vehicle Rebate
- SCE My Account
- Enhanced Energy Advisor Tool (EEAT)
- Time of Use (TOU) Rates and Rate Plans, and
- Rebates.

Home Energy Advisor EE Online Audit Tool (aka Enhanced Energy Advisor Tool (EEAT): ⁶

The EEAT website (www.sce.com/energysurvey) offers customers an interactive online survey of their home's energy usage based on structure, heating and cooling, and appliances, and provides customized EE tips and actions the customer may take. Customers can now directly link to the EEAT survey tool with one click after they log into their SCE.com account (the "My Account" page) to research a bill or other information.

SCE improved customer EEAT web experience in 2019 by adding multiple new tips to support customers in further reducing their energy needs. A few examples of the new tips include:

- Tip #6: Consider Your Green House Gas (GHG) Impacts
- Tip #76: Consider Switching to a Time-Of-Use Rate Plan
- Tip #162: Replace Your Gas Guzzler with an Electric Vehicle
- Multiple tips that reference when best to use the SCE Marketplace, refer customers to Solar Power options, and suggest ways to electrify and improve customer homes, and
- Multiple references to websites that help customers conduct their own research on rebates and electric vehicles.

Online Buyer's Guide:

The Online Buyer's Guide remained available⁷ for customers who were researching any of the following topics: Building Materials, Heating and Cooling, Lighting, Kitchens, Laundry, and/or Plug Loads. Helpful tools and tips were available to guide customers in selecting the most energy-efficient products.

HEA Program CPUC-Approved Pilots

10-10-10+ Multifamily Behavior Pilot (aka Communities for Conservation):

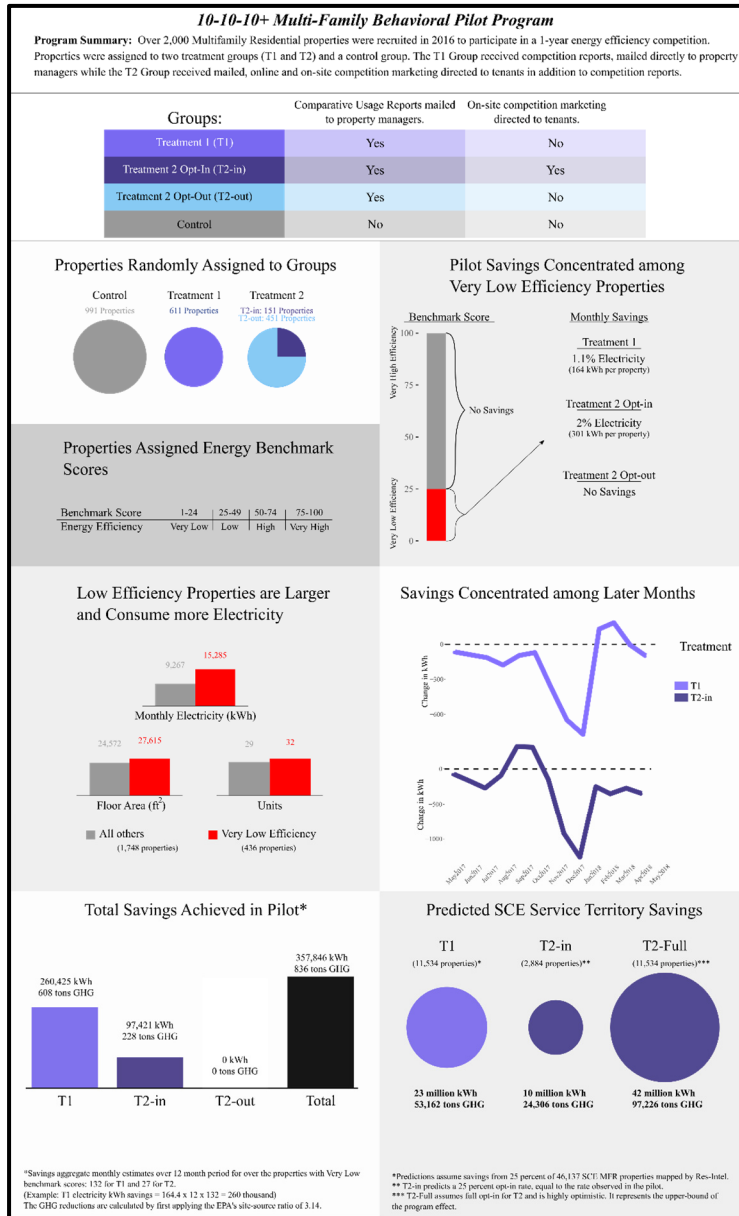
This pilot concluded in April 2018 and the results were calculated in 2019. The pilot was mildly successful in helping over 1,200 multifamily complexes reduce electricity consumption by more than 260,000 kWh; however, savings for gas and

⁶ Also called Universal Audit Tool (UAT) or Energy Survey.

⁷ The Online Buyer's Guide is *available* at <https://www.sce.com/residential/home-energy-guide>.

water were limited or statistically insignificant.⁸ As a result of the findings from this pilot, SCE has determined that it will not be transitioned into a program. The illustration below provides a summary of the pilot results.

Illustration: 10-10-10+ Multifamily Behavior Pilot Summary



⁸ Multi Family Behavioral Pilot Program analysis available at http://www.calmac.org/publications/Communities_for_Conservation_Pilot_10-10-10_Final_Report.pdf

Plug Load and Appliances (PLA) Program

Program Description

The Plug Load and Appliances (PLA) Program develops and builds upon existing Point-of-Sale (POS) retailer relationships. The program offers rebates and incentives to customers for purchasing and installing high-efficiency products, such as those with an ENERGY STAR[®] certification or those that meet specifications above existing California Code requirements. SCE continues to transform the PLA Program to focus on cost-effective delivery methods, which includes the integration of Midstream and POS delivery models. The Program also acts as an informational platform that can help teach customers about EE and make well-informed decisions when researching efficient Energy Management Technologies (EMTs) or products for their home.

Strategies Implemented in 2019

Core Function Activities:

In 2019, the PLA Program transitioned the rebates for Variable-Speed Pool Pumps (VSPPs) from a downstream approach ("Mail In Application") to a retailer-and-distributor midstream Point of Sale (POS) model. During the first half of the year SCE signed agreements with multiple pool retailers who could offer Instant POS discounts to SCE customers at the time of purchase. More than 100 retail stores offered the Instant POS discount for VSPPs during the first half of the year.

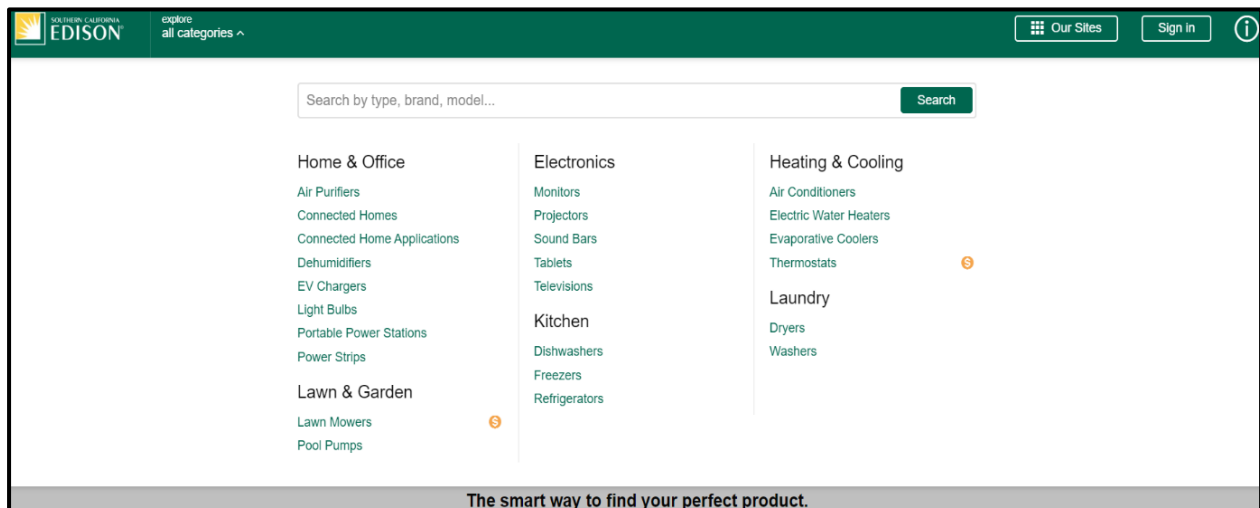
It was brought to SCE's attention that we could reach a broader audience of pool installers, contractors, and other professionals if the program could also be opened to pool pump distributors. After evaluating the options, the PLA program chose to allow distributors in SCE territory to offer POS discounts for VSPPs. More than 120 distributor locations offered Instant POS rebates for VSPPs between June 1 and December 31, 2019.

SCE also continued offering a \$50 rebate for Energy Star[®]-Certified Smart Thermostats. Instant POS Rebates were directly available to customers, or, alternatively, customers could go online via the SCE Marketplace to request rebates for previous purchases by submitting an application and uploading their proof of purchase. Rebates were processed in less than two weeks and paid to customers through bill credits.

Outreach to Customers:

The PLA program also funds the implementation of the SCE Marketplace, mandated under CPUC Resolution E-4820 to help consumers become aware of EMT offerings available to them, including measures relevant to Assembly Bill (AB) 793. In 2019, the SCE Marketplace included energy related information, scoring, pricing, rebates, and reviews (when available) for the products and technologies below:

Illustration: SCE Marketplace Search Page



- The SCE Marketplace was further enhanced by the addition of several beneficial features, some of which are funded outside of SCE's energy efficiency programs, including:
 - Providing customers with two options for obtaining Smart Thermostat rebates:
 - Instant POS Rebates for Smart Thermostats (the "Checkout®" option), and
 - An online Smart Thermostat Rebate application form where customers could apply for the rebate after purchasing and installing their products (the "FastTrack®" option).
 - Providing an online rebate application form for the \$75 bill credit for enrolling a Smart Thermostat in the DR Smart Energy Program (SEP).
 - Adding the SCE Cars Marketplace,⁹ built in partnership with the Transportation Electrification team, to support customers who are

⁹ SCE Cars Marketplace, available at www.Marketplace.cars.sce.com.

shopping for a new vehicle. The SCE Cars Marketplace allows customers to compare gas-powered automobiles to electric or hybrid vehicles by modeling the cost of ownership after rebates, incentives, and fuel consumption are applied.


Illustration: SCE Cars Marketplace Comparison Page

How much can you save with your next car?

Easily compare your favorite car models based on fuel efficiency, available incentives and total cost of ownership.

2019 Lexus
IS 300


55



vs

2019 Tesla
Model 3 Standard Range Plus

97



CLEARCOST

CLEARCOST

\$49,097

CLEARCOST

\$39,247

CLEARCOST BREAKDOWN

MSRP	\$38,560	MSRP	\$38,990
Fuel Cost (5yrs)	+ \$10,537	Electricity Cost (5yrs)	+ \$3,757
		Clean Fuel Reward Program	- \$1,000
		\$2,500 Drive Clean Vehicle Rebate	- \$2,500

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We combine purchase price, fuel costs and any incentives to give you clear view of total costs over time. We call this CLEARCOST.

Enervee Score[®] for Cars
Quickly and easily see how your choice compares on fuel costs and emissions to other models. The closer to 100, the lower the fuel costs, the fewer the emissions and the better the choice. Learn more.

- The addition of the SCE Solar Marketplace,¹⁰ created in partnership with the Solar Team to support customers shopping for Rooftop Solar products.
 - The website provides an Integrated Solar page designed to help customers through the research and buying process, from getting an initial solar savings estimate, requesting a detailed quote from local contractors, and ultimately comparing bids and scheduling an installation.
 - Each customer who requests a quote is connected by phone with an Energy Advisor, a solar expert from Pick My Solar, SCE's Solar Marketplace vendor. This Energy Advisor is assigned as the customer's project manager and is available throughout the solar purchasing process to help understand all the complexities of system design, technologies, and financing.

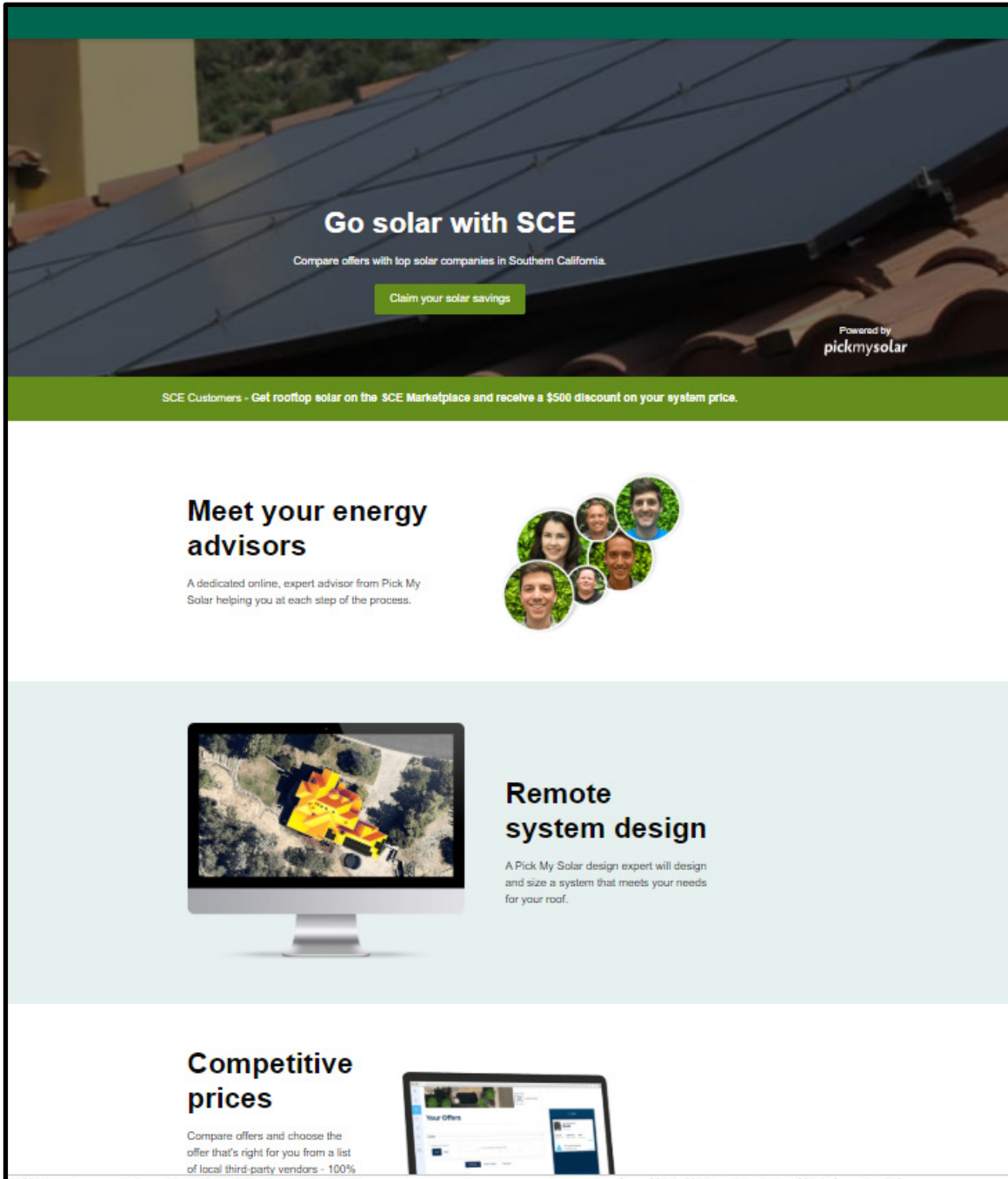
The Energy Advisor is an advocate for getting the customer the best deal with no preferential arrangements made with specific contractors, financing companies, or solar component suppliers.

See the illustrations following.

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¹⁰ SCE Solar Marketplace available at <https://marketplace.sce.com/solar>.

Illustration: SCE Solar Marketplace Welcome Page



Go solar with SCE

Compare offers with top solar companies in Southern California.


[Claim your solar savings](#)

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SCE Customers - Get rooftop solar on the SCE Marketplace and receive a \$500 discount on your system price.


Meet your energy advisors

A dedicated online, expert advisor from Pick My Solar helping you at each step of the process.



Remote system design

A Pick My Solar design expert will design and size a system that meets your needs for your roof.



Competitive prices

Compare offers and choose the offer that's right for you from a list of local third-party vendors - 100%




Illustration: SCE Solar Marketplace Search Page

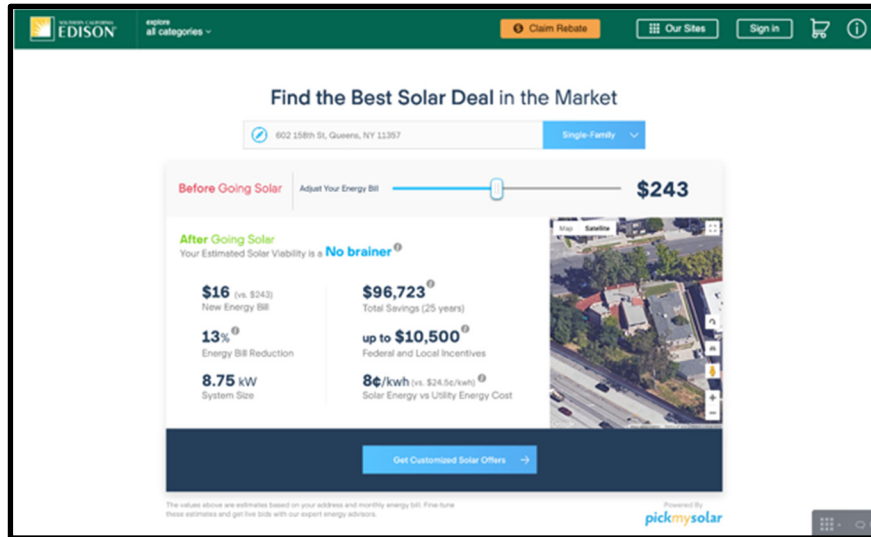
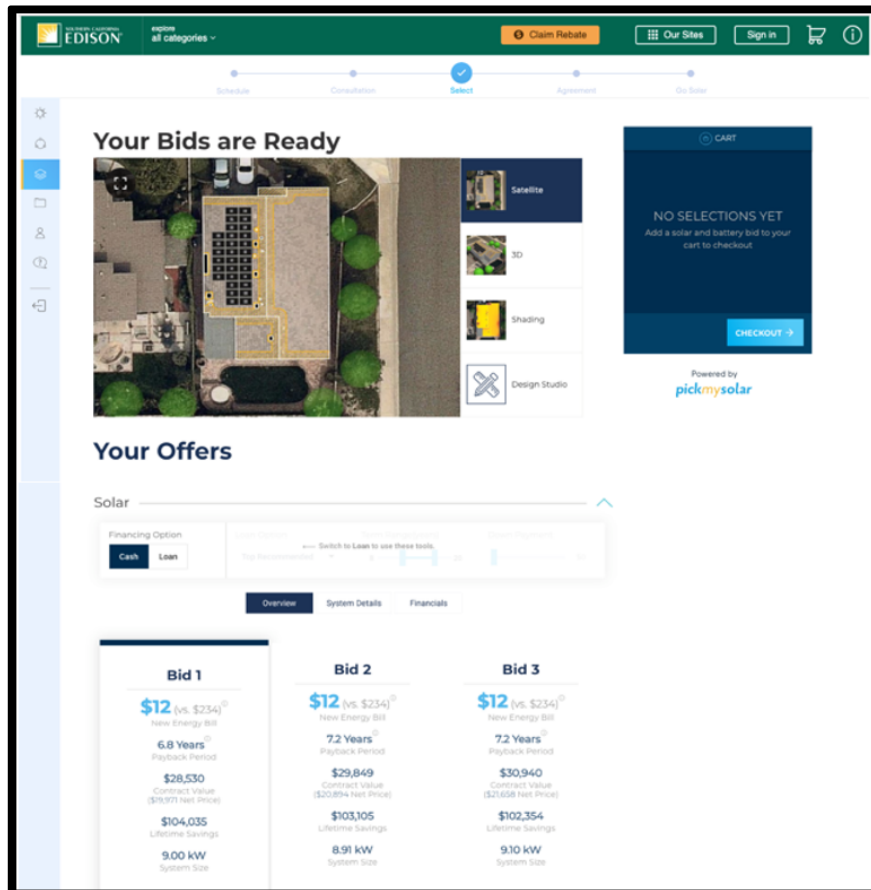


Illustration: SCE Solar Marketplace Results Page



Multifamily Energy Efficiency Rebate (MFEER) Program

Program Description

The Multifamily Energy Efficiency Rebate (MFEER) Program offers deemed rebates for EE products (such as lighting, smart thermostats, etc.) to motivate multifamily property owners and managers to install these products and help them lower their electricity consumption.

SCE has worked very closely with customers and contractors to guide them through the rebate process. MFEER rebates were paid to participants such as apartments, 501C3 housing facilities, single-room-occupancy facilities, senior living facilities, dormitories, common areas in homeowner association (HOA) communities, and many more.

Strategies Implemented in 2019

Core Program Activities:

- The MFEER program added rebates for electric heat pump water heaters to provide early support of building decarbonization.

Outreach to Customers:

- SCE attended several engagements with apartment associations, affordable housing owners and/or managers, and Boards of Realtors to present information on our MFEER rebates.
- SCE leveraged relationships with several trade organizations, including Apartment Association of Orange County (AAOC), California Association of Community Managers (CACM), and California Apartment Association (CAA), to support the multifamily market segment and extend our reach to property owners and managers.
- To drive program participation, SCE also actively participated in numerous outreach events including tradeshow, workshops, and networking events where we promoted the MFEER program.

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Energy Upgrade California[®] Home Upgrade Program

Program Description

The Energy Upgrade California[®] (EUC) Home Upgrade Program provided residential customers with incentives for comprehensive home upgrades to single-family and multi-unit (two-to-four) residences. The program guided customers and contractors to install energy-efficient retrofits using a one-stop, whole-house approach to EE improvements that viewed a building as a set of interdependent systems that must be considered holistically, thus achieving deeper and more comprehensive energy savings in keeping with the EE loading order.

Strategies Implemented in 2019

SCE received Commission approval to close its EUC Home Upgrade Program due to the program not being cost-effective.¹¹ In July 2019, SCE stopped accepting new applications, but the Program remained open until November 2019, when existing applications and reservations were completed and paid.

Residential Heating, Ventilation, and Air Conditioning (HVAC) Program

The Residential Heating, Ventilation, and Air Conditioning (HVAC) Program has the primary objective of promoting high quality levels in California's HVAC market for technology, equipment, installation, and maintenance. An additional objective is to increase customer awareness of the value of HVAC installation and maintenance practices that will improve energy efficiency and peak load reduction.

Program Description

The Residential HVAC Program has two subprograms:

- The Residential HVAC Quality Installation (RQI) subprogram addresses installation practices to ensure that equipment is installed and commissioned per industry standards.
- The Residential HVAC Quality Maintenance (RQM) subprogram addresses maintenance practices to ensure that:
 - Heating and cooling equipment is serviced per industry standards, and

¹¹ On April 2, 2019, the CPUC issued its disposition of SCE Advice Letter 3859-E and 3859-E-A (SCE's 2019 ABAL) which approved several program closures, including SCE's EUC Home Upgrade Program.

- The maintenance effort supports the long-term strategic goal of transforming the HVAC maintenance trade from commodity-based to quality-based.

Strategies Implemented in 2019

In 2019, SCE's Residential HVAC Program supported the CPUC Statewide Lead PA model decision by assisting the lead Program Administrator, San Diego Gas & Electric (SDG&E), in planning a Statewide Downstream Residential HVAC Quality Installation/Quality Maintenance Pilot.

Residential New Construction (RNC) Program

The Residential New Construction (RNC) Program is a continuing statewide program that includes the California Advanced Homes Program. The RNC Program is designed to guide builders to produce the most efficient homes in the most cost-effective manner, and to examine methodologies for supporting the Strategic Plan target of Zero Net Energy (ZNE) by 2020.

California Advanced Homes Program (CAHP)

Program Description

CAHP 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 building and related industries to exceed California's Title 24 EE standards, and to prepare builders for future changes to these standards.

Strategies Implemented in 2019

CAHP continued to collaborate with Southern California Gas Company (SoCalGas or The Gas Company) to bring awareness of the program to and increase uptake from the builder market. In 2019, SCE continued participating in various conferences such as the California Association of Building Energy Consultants (CABEC) Conference, Building Industry Show, Net Zero Conference, and Pacific Coast Builders Conference. The objectives were to increase awareness of the program and share details of the types of incentives available for measures installed in newly constructed homes.

SCE continued to work with builders such as Linc Housing, an organization that creates communities for thousands of families and seniors living throughout

California. As development continues in California, the CAHP Program is well-positioned to continue helping builders understand the necessities of building energy-efficient homes that exceed California's Title 24 EE Standards.

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 customers who are not eligible for income assistance programs. The program enhances the EE knowledge and program participation of the targeted residential market segment, in order 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 water-energy nexus program delivery.

Strategies Implemented in 2019

In 2019, SCE implemented the following strategies for the Res DI Program:

- Continued the promotion and installation of the Smart Thermostat measure, which has been the most popular and most requested measure in the program. Res DI leveraged the measure's popularity to get a "foot in the door" with customers, enabling the program to promote additional measures and services. For many customers, this measure provided a first-time experience in using energy management technology. Upon completion of the installation, customers were provided with an overview of the thermostat and how to use it, as well as contact information for additional questions they might have.
- The water-energy nexus partnership established between SCE, Irvine Ranch Water District (IRWD), and SoCalGas, known as the Get Smart Program, provided customers of both IRWD and the utilities with Rachio 3 Smart Sprinkler Controllers and Nest thermostats, targeting customers using criteria such as size of the customer's yard, age of the home, and water usage history.

- Funding for the Get Smart Program was shared between IRWD and the utilities: IRWD provided funding for the sprinkler controllers and the utilities provided funding for the thermostats. By January 2019, IRWD's funding for this partnership was depleted, and as a result, registration for the program closed.
- However, IRWD submitted an abstract to the Behavior Energy and Climate Conference (BECC) to highlight the successful water-energy collaborative efforts demonstrated through the Get Smart Program. The abstract was selected as a 15-minute presentation for BECC which took place November 17-20, 2019, in Sacramento. The IRWD Program Team and Res DI Program Team collaborated on developing a presentation for BECC, then presented together at the conference.

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2. Commercial Energy Efficiency Programs

The Statewide Commercial Energy Efficiency (EE) Program offers strategic energy planning support, 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 (which includes the Savings By Design (SBD) Program)
- Market-Based Incentives (MBI) Pilot Project
- Commercial Deemed Energy Efficiency Program
- Midstream Point of Purchase (MPOP) Program
- Commercial Direct Install Program, and
- Nonresidential HVAC Program.

Commercial Energy Advisor Program

Program Description

The Commercial Energy Advisor Program includes four components:

1. Benchmarking, which aligns with Assembly Bill (AB) 802, California Energy Commission (CEC) Benchmarking Regulations, and Public Resource Code §25402.10 which requires utilities to maintain records of the energy consumption data of all nonresidential buildings.
2. Pump Efficiency Service (PES), 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 targeted education, training, technical support, and renovation and/or replacement incentives.
3. The Onsite Audit Services Information System (OASIS), which is 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 the Customer Relationship Management (CRM) System.

4. The Energy Efficiency Audit Tool (EEAT) for small-to-medium business customers (SMB) and commercial customers. However, SCE decided to discontinue this fourth component in 2019, due to low participation.

Strategies Implemented in 2019

In 2019, SCE implemented the following strategies for the Commercial Energy Advisor program:

Benchmarking:

In support of AB 802, SCE developed an Automated Benchmarking System (ABS) in 2017 to support customer benchmarking data requests. ABS is an energy benchmarking and public disclosure program for nonresidential and multifamily buildings. The program requires building owners to input energy consumption and other building data into the Environmental Protection Agency's ENERGY STAR[™] Portfolio Manager system, which generates an energy efficiency rating for the building. Based on the CEC Benchmarking Regulations finalized on March 7, 2018, SCE completed implementing two ABS system enhancements initiated in 2018:

- Enhancement #1: Customers now only need to agree to the program's terms and conditions, which include the attestation language. This enhancement also eliminated the requirement for requesters to submit an ownership attestation document.
- Enhancement #2: Revised the requirement to provide historical aggregated usage data, which now goes back two years (the previous requirement was for 14 months).

Other 2019 Benchmarking activities included:

- SCE fulfilled customer data requests for approximately 4,300 active buildings via SCE's ABS system.
- In addition, SCE continued support for approximately 3,700 legacy users of usage data. (A legacy user is one who initiated a benchmarking request under AB 1103, which was replaced by AB 802 in 2017.)

Pump Tests:

2019 Pump Test activities included:

- Continued fee-based pump testing (implemented in May 2018), based on previous CPUC comments and guidance.
- Supported the continued availability of the pump overhaul measure for SCE's commercial customers after CPUC staff approval,¹² based upon changes to the effective useful life (EUL) of the measure and overall cost-effectiveness.
- Performed approximately 2,700 pump tests for commercial customers.

Commercial Calculated Energy Efficiency Program

Program Description

The Commercial Calculated Energy Efficiency Program (aka the Customized Retrofit Offering Program) offers incentives for customized retrofit and BRO (Behavioral, Retrocommissioning and Operational¹³) EE projects. It also provides comprehensive technical and design assistance through the Savings By Design Program (see **Page 30**, below). 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). New offerings provide a framework to encourage emerging technologies and deeper, more comprehensive retrofits.

Strategies Implemented in 2019

In 2019, SCE implemented additional strategies to continue to improve the quality of applications and projects for the Commercial Calculated Energy Efficiency Program, through communications, training, and program policy updates, including:

Administrative Changes and Successes:

- Acting as the Statewide lead on project quality, SCE created a Project Feasibility Study and Influence Job Aids, which were adopted as Statewide documents by the other IOUs.¹⁴ Beginning January 1, 2020, SCE was the first IOU to begin implementing the processes in these Statewide documents .

¹² Per CPUC Resolution E-4818.

¹³ Formerly known as Retrocommissioning (RCx).

¹⁴ The Job Aids were completed and approved by the CPUC in the fourth quarter (Q4) of 2019.

- In alignment with the Normalized Meter Energy Consumption (NMEC) Rulebook, SCE began developing a process for accepting whole-building Commercial Customized NMEC applications to utilize revenue-metered data to qualify customers and verify post-installation load reduction before paying incentives. Implementation will begin in 2020.
- Maintained a mandatory project application pre-screening QA process to examine all Calculated (Customized and BRO) project applications for complete and accurate documentation, engineering audits (including calculations), and influence requirements. Typical issues include:
 - Poorly defined baselines
 - Poorly defined project scopes
 - Non-DEER¹⁵ hours
 - Incorrect measure types
 - Insufficient or missing program influence information, and
 - Inaccurate calculation methodologies.

Core Function Activities:

- Developed and created 74 new EE measures across the Commercial, Industrial, and Agricultural segments.
- Implemented a coordinated and combined effort across divisions to identify marketable high-potential EE measures, and to market these measures through select tactical campaigns.

Education & Training Activities:

- Conducted an annual EE program training event for Trade Professionals (Trade Pros, contractors and/or other energy service providers, who act on behalf of customers to submit EE program applications). This helps to ensure that Trade Pros are knowledgeable about the program's technical and policy requirements, in order to improve the quality of the project applications they submit and to enhance customers' experience with SCE's Calculated EE programs.

¹⁵ Database for Energy Efficient Resources.

Market-Based Incentives (MBI) Pilot Project

Program Description

SCE filed an Advice Letter¹⁶ 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 (Resolution E-5022). This Pilot Program will be an online reverse auction for financial incentives where pre-qualified customers will submit bids to receive incentives for EE process measures.

The MBI Pilot was developed by SCE to re-engage Large (≥ 1 MW) Industrial and Commercial customers that have unique EE opportunities while remaining good stewards of ratepayer funds. It will also:

- Streamline eligibility rules for targeted Customized EE customers
- Test a new and innovative incentive mechanism, and
- Utilize financial influence as the driver for participation.

Savings By Design Program

Program Description

Savings By Design (SBD) serves the nonresidential new construction market segment.¹⁷ The program promotes integrated design by providing owner incentives, design team incentives, and design assistance to participants who design and build nonresidential new construction buildings that perform at least 10% better than Title 24 requirements.

In addition to delivering a high-quality, efficient program offering, SBD has focused on strengthening the statewide shared leadership approach. This has played a major role in the program's ability to offer coordinated incentives and services to customers throughout the state.

SBD has also partnered for many years with the Sacramento Municipal Utility District (SMUD) and the Los Angeles Department of Water and Power (LADWP), through the Southern California Gas Company's management of the third-party implementer. Both utilities adhere to the program's policies and are active participants in enhancing the effectiveness of the program's offerings.

¹⁶ SCE AL 3992-E.

¹⁷ As filed, the Savings By Design Program is part of the Commercial Calculated Energy Efficiency Program. Per Energy Division request, however, SCE reports Savings By Design as a separate subprogram.

Strategies Implemented in 2019

2019 was a unique year for the statewide SBD Program. The statewide SBD Program team supported the development of the statewide nonresidential new construction solicitation process, even as it continued:

- To identify and implement changes in policies, procedures, and tools to improve the efficacy and cost-effectiveness of the program, including streamlining project review processes
- To focus on aligning the new construction industry towards Zero Net Energy targets, and
- To improve program offerings.

Activities in 2019 included:

Program Enhancements:

- Completed integrating the program's project review process with the Commercial Calculated Program's review process. The transition reduces review time, enhances the quality of project documentation, and uses engineering resources more efficiently.
- Fully developed and implemented the Indoor Horticulture Lighting Process (IHLP) measure. Since the indoor horticulture industry is on the rise in SCE's service territory, the IHLP measure influences indoor growers to use less energy-intensive technologies in growing a variety of agricultural products.
- In support of the IHLP measure, SBD has also taken a significant role in fulfilling an agreement with CPUC Staff to routinely refresh a low-rigor study designed to determine if light-emitting diodes (LEDs) have reached the level of use for indoor agriculture as to be considered industry standard practice (ISP).
- In response to the devastating wildfires in California, SBD made a higher incentive cap available to customers' new construction projects that were impacted by the wildfires.

Statewide Third-Party Solicitation Support:

- SCE's SBD Program continues its support of the CPUC Statewide Lead Program Administrator (PA) model¹⁸ by assisting PG&E, the lead PA, to

¹⁸ D.18-05-041 established the Lead PAs for the statewide third party-implemented EE programs.

develop a Statewide New Construction Request for Proposal (RFP) and an RFP scorecard document.

Commercial Deemed Energy Efficiency Program

Program Description

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

The top measures installed in 2019 were combination ovens, adding doors to open display cases, auto-closers on main cooler doors, and anti-sweat heater (ASH) controls.

Strategies Implemented in 2019

In 2019, SCE implemented the following strategies for the Commercial Deemed Energy Efficiency Program:

- In August, introduced LED ambient fixtures to the Deemed program to provide customers with a downstream lighting offering. Ambient lighting fixtures include new luminaires and retrofit kits as well as direct linear ambient lighting. The products are offered for certain building types to ensure the measures are cost-effective (that is, with higher TRC). These measures were also made available with On-Bill Financing.
- Updated SCE's Solutions Directory — a customer-facing document that describes SCE's deemed EE measures — each quarter to ensure program offerings are current and meet deemed workpaper requirements.
- Implemented Workforce Requirements on July 1 for relevant HVAC and lighting measures to ensure customers are in compliance with CPUC D.18-10-008, which requires customers to employ qualified contractors for installations of HVAC and lighting technologies.
- Utilized 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 ensures that all required changes and updates are made to systems and that all parties, internal and external, receive updates about the program changes in a timely manner. Implementation of the PPCC resulted in improved communications to all parties and helped ensure that all system and program rules were followed when a program change occurred.

Midstream Point of Purchase (MPOP)

Program Description

In 2019, SCE continued to offer the Midstream Point of Purchase (MPOP) Program as a key deemed offering. The MPOP Program offered point-of-purchase (POP) incentives on qualified light-emitting diode (LED) lighting and food service technologies to nonresidential customers through a distributor delivery channel. SCE reimburses the participating distributor a pre-authorized incentive amount for each qualifying product sold to an eligible business customer. The distributor collects the customer information at the point of purchase and provides product data to SCE through an online tool for invoice processing. SCE validates the customer and product data and issues payment to the distributor.

The top measures by savings installed in the 2019 MPOP Program were LED T8 Type A tubes, LED 2 x 4 luminaires/retrofit kits, and LED outdoor pole-mounted fixtures.

Strategies Implemented in 2019

In 2019, SCE implemented the following strategies for the MPOP Program:

- Managed key changes to lighting measures offered in the MPOP Program due to a lighting workpaper disposition. Certain lighting workpapers were required to be updated throughout the year, which resulted in changes to the way the Program offered certain measures. Some measures were removed from the Program, and some measures were shifted to a downstream model. In August 2019:
 - LED exterior lighting measures and incentives expired, and SCE communicated the expiration date to Program distributors and customers.
 - SCE shifted LED ambient fixtures to the downstream Deemed EE Program to improve MPOP Program cost-effectiveness.

- New workpapers for LED high/low bay fixtures were rolled out to comply with the lighting disposition requirements, and SCE communicated the measure change to all stakeholders to minimize market disruption.
- SCE improved MPOP Program sales data files and tracking systems to enhance the data submission process and to automate key reporting functions by:
 - Standardizing the MPOP sales data template for distributors
 - Adding validations to the Online Application Tool to substantiate product data, and
 - Adding account information to the program database so customer account information is stored and reportable.
- Continued to offer On-Bill Financing (OBF) for MPOP lighting measures to customers.

Commercial Direct Install Program

SCE received Commission approval to close its Commercial Direct Install (DI) Program; therefore, the Program did not accept new projects after December 31, 2019.¹⁹

Program Description

The Commercial DI Program delivers no-cost and low-cost EE hardware retrofits through installation contractors to reduce peak demand and energy consumption for small- and medium-sized commercial customers (those with monthly demand of up to 199 kW, also including national chain franchises). The program targets these businesses in a staged delivery approach that provides its services in specific geographic areas at different times, allowing for a more concentrated and directed program.

Strategies Implemented in 2019

- Offered LED screw-in lamps, and continued to offer LED T8 lamps, to eligible customers throughout SCE's service territory.

¹⁹ CPUC Deposition Letter dated December 20, 2019, ref. ABAL 4068-E and 4068-E-A.

- Continued implementing a marketing plan that emphasized a collaborative outreach effort to stimulate greater participation.
- Continued to serve customers using a district approach, which allowed broad coverage by audit and construction teams in a larger area, thus increasing program efficiency.
- Continued to collaborate with SCE's Energy Leader Partnership Program to leverage the Commercial DI Program for projects funded by the partnerships in municipally-owned facilities.

Nonresidential HVAC Program

The Nonresidential HVAC Program includes three subprograms:

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

Upstream HVAC Equipment Incentive Program

Program Description

The Upstream HVAC Equipment Incentive Program offers incentives to distributors who sell qualifying high-efficiency HVAC equipment, in order to increase the regional stocking and promotion of such equipment. Upstream HVAC includes an Early Retirement subprogram that offers incentives to contractors to work with customers and influence them to replace old, inefficient operating equipment with new, high-efficiency equipment; however, this subprogram is currently suspended due to lack of cost-effective measures.

Strategies Implemented in 2019

In 2019, SCE implemented the following strategies for the Upstream HVAC Equipment Incentive program:

- Continued to actively promote the program to build on distributor and manufacturer participation.
- Developed a study titled "Non-DEER Chiller Performance Data Gathering and Evaluation Including the Workpaper Development Plan," to support the broadening of available air-cooled and water-cooled chiller measures based on Title 24 Path B. The current 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 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.
- Implemented workforce standards as required in D.18-10-008.
- Supported the CPUC Statewide Lead PA model decision²⁰ by assisting the lead Program Administrator, San Diego Gas & Electric (SDG&E), with the solicitation for a Statewide HVAC Upstream Program.
- The Early Retirement subprogram will remain suspended at this time.

HVAC Commercial Quality Installation (QI) Program

Program Description

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

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

Strategies Implemented in 2019

In 2019, SCE's HVAC Commercial QI program continued to coordinate with the Workforce Education & Training (WE&T) Program to provide classroom and hands-on training to HVAC students and technicians.

²⁰ D.18-05-041.

HVAC Commercial Quality Maintenance (QM) Program

Program Description

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

Strategies Implemented in 2019

The program's focus in 2019 was to continue to bolster performance by:

- Reviewing barriers described by participating contractors, customers, and the CPUC, and
- Evaluating opportunities to improve the cost-effectiveness of the program.

Specific strategies implemented in 2019 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:

- Aligned 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 in Section 4 of ASHRAE Standard 180.
- Streamlined contractor online application and data collection processes, thus expediting incentive payments and reducing participation barriers.
- Reduced inspection, incentive processing, and account management implementation vendor costs by using lower-cost SCE resources.

Collaboration With Internal Partners:

- Continued to emphasize skilled and trained workforce program requirements by coordinating with the WE&T Program to continuously improve the efficacy and cost-effectiveness of ASHRAE/ACCA/ANSI Standard 180 and economizer diagnostics trainings for technicians.

- Continued a feedback loop between the program inspection team and WE&T trainers to identify skill gaps and inform trainings for areas of increased focus.

Collaboration With External Partners:

- Continued communicating program design changes to enrolled contractors and provided guidance for contractors' approaches to promoting the changes.
- Implemented workforce standards as required in D.18-10-008.
- Conducted an OBF Program kickoff training for contractors so that they can promote the program to their customers when enrolling them in the QM Program.

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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 EE, while also advancing distributed generation and DR opportunities. The four programs that provide the core EE products and services offered to industrial customers include:²¹

- 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 comprises three components:

1. Pump Efficiency Service (PES), which 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.
2. 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 our Customer Relationship Management (CRM) System.
3. Energy Efficiency Audit Tool (EEAT) for industrial customers. However, in 2019, SCE decided to discontinue the EEAT due to low participation and to improve program cost-effectiveness.

²¹ The Industrial Continuous Energy Improvement (CEI) Program was closed as of December 31, 2017.

Strategies Implemented in 2019

In 2019, SCE implemented the following strategies for the Industrial Energy Advisor Program:

- Continued fee-based pump testing (implemented in May 2018), based on previous CPUC comments and guidance.
- Supported the continued availability of the pump overhaul measure for SCE's industrial customers after CPUC staff approval,²² based upon changes to the useful life (EUL) of the measure and overall cost-effectiveness.
- Performed approximately 140 pump tests for industrial customers.

Industrial Calculated Energy Efficiency Program

Program Description

The Industrial Calculated Energy Efficiency Program offers incentives for customized retrofit and BRO (Behavioral, Retrocommissioning and Operational EE) projects, and provides comprehensive technical and design assistance. 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 2019

In 2019, SCE implemented additional strategies to continue to improve the quality of applications and projects for the Industrial Calculated Energy Efficiency program, through continuous improvement, training, and education. This work was undertaken in coordination with the Commercial and Agricultural Calculated Energy Efficiency Programs, since these quality issues impact all three programs similarly.

For the specific strategies, please see the Commercial Calculated Energy Efficiency Program in **Chapter 2**, above.

²² Per CPUC Resolution E-4818.

Market-Based Incentives (MBI) Pilot Project

Program Description

On April 19, 2019, SCE submitted Advice Letter (AL) 3992-E to request Commission approval of a Market-Based Incentives (MBI) Pilot Program. The CPUC issued Resolution E-5022 approving AL 3992-E on December 5, 2019.

For a detailed program description, please see under Commercial Energy Efficiency Programs in **Chapter 2**, above.

Industrial Deemed Energy Efficiency Program

Program Description

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

Strategies Implemented in 2019

In 2019, all strategies for the Industrial Deemed Energy Efficiency Program were undertaken in coordination with the Commercial and Agricultural Deemed Energy Efficiency Programs.

The top measures installed in 2019 were LED lighting and auto-closers on freezer and cooler doors.

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

Strategic Energy Management (SEM) Program

Program Description

The SEM Program engages large industrial customers during a two-year period 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*, includes a full spectrum of services:

- Customer workshops
- Annual on-site "Energy Treasure Hunts" to identify energy-saving opportunities
- On-site and remote support for program activities and plans for future improvements
- Support for designing and implementing an Energy Management Information System, and
- Assessment of progress on each participant's management approach.

Energy savings opportunities in the SEM Program include low-cost Operational and Maintenance (O&M) and BRO measures, as well as capital projects. The program measures savings at the meter level, using a normalized regression model. Customers receive incentives for BRO measures, for capital projects, and for achieving key milestones.

Strategies Implemented in 2019

The program requires ongoing commitment and active participation from customers, who are expected to strive to change both individual and corporate behavior as well as simply pay for EE improvements. During 2019, the program team successfully completed activities with its first cohort (Cohort 1) consisting of eight large industrial customers in the Inland Empire region of California, who had begun participation when the program began in mid-2018.

Core Function Activities:

The participating customers in Cohort 1 generated more than 500 energy savings projects since the beginning of the program, more than 60 projects per site. Sixty-five of these projects were completed in calendar year 2019.²³ During the year, these customers:

- Participated enthusiastically in four group workshops and ongoing individual site activities to drive energy savings
- Submitted Project Feasibility Study (PFS) documents for capital projects and planned (or began to plan) implementation

²³ According to the program rules in the *SEM Design Guide*, savings are calculated at the end of each Program Year (July 31, not December 31).

- Completed three of five program milestones to receive milestone incentives
- Used the program's online tool to prioritize and complete their "Top 5" projects
- Used the program's online tool to assess program performance and identify energy waste, and
- Generated substantial savings through a series of BRO measures, such as:
 - Raising the supply temperature on process chillers
 - Reducing the discharge pressure setpoint for ammonia compressors
 - Rebuilding arc furnaces efficiently
 - Re-generating and/or thawing liquefier carbon traps more frequently, and
 - Conducting a compressed air leak program.

The implementer created energy regression models for electricity and natural gas for each participating customer, which were then reviewed by utility staff and a third-party reviewer. The final electricity models for the 65 completed projects were accepted by the CPUC-approved M&V evaluator and used to claim more than 8 million kWh in O&M meter savings for Cohort 1, Year 1.

The program also facilitated improved relationships between the customers and their SCE account representatives.

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4. Agriculture Energy Efficiency Programs

The statewide Agriculture Energy Efficiency Program, designed to provide DSM solutions to help agricultural customers save money and energy, offers strategic energy planning support, technical support (for example, facility audits and calculation and design assistance), and financial support through rebates and incentives. Targeted segments in the agriculture sector include growers of crops, fruits, vegetables, and nuts, greenhouses, post-harvest processors (ginners, nut hullers, and associated refrigerated warehouses), dairies, water and irrigation districts and/or agencies, and food processors.

The statewide Agriculture Energy Efficiency Program includes the following subprograms:

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

Agriculture Energy Advisor Program

Program Description

The Agriculture Energy Advisor Program provides Pump Efficiency Service (PES) for agricultural customers. Pump tests are designed to help customers make informed decisions about improving inefficient pumping systems. The PES Program also provides targeted education, training, technical support, and renovation and/or replacement incentives.

Strategies Implemented in 2019

In 2019 SCE implemented the following strategies for the Agriculture Energy Advisor Program:

- Performed approximately 1,300 pump tests for agricultural customers.
- Continued fee-based pump testing (originally implemented in May 2018), based on previous CPUC comments and guidance.
- Supported the continued availability of the pump overhaul measure for SCE's agricultural customers after CPUC staff approval,²⁴ based upon

²⁴ Per CPUC Resolution E-4818.

changes to the effective useful life (EUL) of the measure and overall cost-effectiveness.

Agriculture Calculated Energy Efficiency Program

Program Description

The Agriculture Calculated Energy Efficiency Program offers incentives for customized retrofit and BRO (Behavioral, Retrocommissioning and Operational) EE projects for agricultural customers. The Program also provides comprehensive technical and design assistance. Incentives are 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. New offerings provide a framework to encourage emerging technologies and deeper, more comprehensive retrofits.

Strategies Implemented in 2019

In 2019, SCE implemented additional strategies that continue to improve the quality of applications and projects for the Agriculture Calculated Energy Efficiency Program, through continuous improvement, training, and education. This work was undertaken in coordination with the Commercial and Industrial Calculated Energy Efficiency Programs, since these quality issues impact all three programs similarly.

The Agriculture Calculated Energy Efficiency Program also completed a cost-effectiveness tool (CET) analysis to determine the most cost-effective horsepower ranges for pump overhauls. This allowed the program to sunset five non-targeted Pump Overhaul BRO measures and replace them with 20 separate targeted measures, broken down by horsepower and by the four different customer types: industrial, commercial, wastewater, and agricultural. By breaking this offering down into targeted horsepower ranges, more accurate reporting and higher cost-effectiveness may be achieved.

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

Agriculture Deemed Energy Efficiency Program

Program Description

The Agriculture Deemed Energy Efficiency Program (advertised to customers as "Energy Efficiency Express Solutions") offers eligible agricultural customers

incentives that encourage common, standardized EE equipment retrofits. Deemed retrofit measures have fixed incentive amounts per measure unit and are intended for projects that have well-defined energy and demand savings. Projects are typically identified through utility EE audits, customer communications with local SCE representatives, SCE contractors, and/or partnerships with equipment vendors and Trade Professionals (formerly known as Customers' Authorized Agents).

Strategies Implemented in 2019

In 2019, 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 2019 were 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.

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5. Lighting Programs

Statewide Lighting Program

The Statewide Lighting Program includes three subprograms:

- Primary Lighting Program
- Lighting Innovation Program,²⁵ and
- Lighting Market Transformation Program.²⁶

The Statewide Lighting Program facilitates market adoption and transformation for advanced lighting products through a number of activities, including:

- Assessment of pre-commercialized lighting technologies
- Pilot programs for advanced lighting technologies in the early stages of commercialization, and
- Incentives for lighting measures that have reached a suitable level of commercialization.

The following are descriptions of the lighting programs and their strategies employed in 2019.

Primary Lighting Program

Program Description

The Primary Lighting Program:

- Offers upstream rebates to reduce the cost of EE lighting products
- Strives to influence the future purchasing and installation behaviors of residential customers, and
- Offers an array of light-emitting diode (LED) screw-in product types and models which meet California and federal code requirements.

Strategies Implemented in 2019

During 2019, the Program continued to serve consumers in SCE's territory, including Hard-to-Reach (HTR) and Disadvantaged Communities. The Program

²⁵ Per AL 3859-E, filed Sept. 4, 2018 and approved April 2, 2019, SCE closed this program in 2019.

²⁶ Per AL 3859-E, filed Sept. 4, 2018 and approved April 2, 2019, SCE closed this program in 2019.

optimized savings and cost-effectiveness by adjusting the measure mix, quantities, and incentive amounts to adhere to Work Paper values.

Beginning January 1, 2020, the State of California adopted higher standards for screw-in light bulbs, and SCE and the other IOUs discontinued offering incentives for lighting products. Consequently, SCE requested CPUC approval to close its Primary Lighting Program in its 2020 EE ABAL. On December 20, 2019, the Energy Division issued a non-standard disposition on SCE's 2020 EE ABAL, approving SCE's proposed budget reductions. As a result of these budget reductions, SCE closed its Primary Lighting Program at the end of 2019.

Lighting Innovation Program

Program Description

The Lighting Innovation (LI) Program was designed to evaluate products and/or program approaches that were new to the market and that had the potential of eventually entering the Primary Lighting Program or the Commercial, Industrial, and Agriculture EE Programs. The LI Program performed and administered trials, pilots, small-scale projects, and studies to collect data on sales, installations, marketing, influence on future program designs, and other business aspects of the lighting industry to assist in program design and Work Paper development.

With the approval of SCE's 2019 EE ABAL (AL 3859-E), SCE closed its LI Program.

Strategies Implemented in 2019

The LI Program conducted no activities in 2019.²⁷ However, in the second quarter (Q2) of 2019, Cadmus Group, an EM&V consultant, completed and published the *Sustainable Office Lighting Control Pilot Program Evaluation Report*.²⁸ The Report included survey data received in 2018 from a number of contractors, facility managers, and lighting control manufacturers which provided a better understanding of challenges and barriers found when installing these systems, as well as other valuable insights, helping the IOUs understand the complexities of

²⁷ In 2018, SCE discontinued a pilot program, Sustainable Office Lighting Trial Program, also referred to as the Advanced Lighting & Controls System (ALCS) Pilot Program. However, while the pilot was closed at the end of 2018, M&V evaluations and results were produced in 2019.

²⁸ All costs of the Report were paid to Cadmus from the 2018 budget, *available at* <http://www.calmac.org/startDownload.asp?Name=Sustainable%5FOffice%5FLighting%5FPilot%5FEvaluation%5F%2D%5FVOLUME%5FI%5F%2D%5FRevisedCLEAN%2Epdf&Size=955KB>.

these lighting systems and how to improve the design of programs that will benefit both the IOUs and their customers.

Lighting Market Transformation (LMT) Program

Program Description

The Lighting Market Transformation (LMT) Program was designed to implement a statewide program strategy that coordinated IOU efforts to promote efficient lighting technologies and best practices in California and adapted utility lighting programs to the ever-changing energy and lighting markets in support of the Strategic Plan.

The LMT Program was particularly instrumental in developing Lighting Innovation Program concepts, trials, and demonstrations. However, thanks to the influx of LED technology to the market and LMT's success in helping to ensure the efficient progression of lighting solutions into customer EE programs, Energy Division Staff approved the closure of the LMT Program in SCE's 2019 EE ABAL;²⁹ no budget for the Program was requested or allocated in 2019. It may be revived in the future when more research in the lighting market is needed.

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²⁹ SCE's 2019 EE ABAL (AL 3859-E) was approved on April 2, 2019.

6. Finance Programs

The Statewide Finance Program is designed to provide customers additional options for financing EE projects. It includes two subprograms:

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

These programs are offered in conjunction with other SCE EE programs to stimulate and enable higher levels of customer participation.

On-Bill Financing (OBF) Program

Program Description

SCE's OBF Program offers zero-interest financing for the installation of qualifying energy-efficient measures. Loans are available to qualifying nonresidential customers, including commercial, industrial, government, and institutional customers, and customers repay their loan as a line item on their electric bill. This program supports the Strategic Plan's commercial sector goals and strategies.

OBF is offered in conjunction with other SCE programs, including:

- Calculated Energy Efficiency (EE) Program
- Deemed (Express Solutions) EE Program
- Midstream Point-of-Purchase (MPOP) Program
- Multifamily EE Rebate (MFEER) 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 2019, OBF funded over 100 loans covering more than 400 Service Accounts, representing over \$9 million in funded loans and over \$8 million in loan repayments.³⁰

³⁰ Figures represent projects installed in 2019, which may have been initiated or committed in previous program years.

Strategies Implemented in 2019

In 2019, SCE implemented the following strategies in order to reduce program constraints and expand the potential for OBF financing to better meet customers' needs:

Administrative Successes:

- To meet the needs of our customers, OBF was modified to provide more funding support for the installation of EE projects by increasing the loan caps across all market segments. Specifically, SCE filed Advice Letter SCE AL 4051-E, which:
 - Requested loan caps to increase from \$100,000 to \$250,000 for business customers, and from \$250,000 to \$1,000,000 for government & institutional segment customers.
 - Imposed a cap on incentives for loans that exceed \$250,000 as a way to promote the use of financing instead of rebates and/or incentives. Eliminating rebates and incentives to OBF customers for loans over \$250,000 enables the installation of more comprehensive EE retrofits and supports SCE's cost-effectiveness goals.
 - Allowed a \$4,000,000 loan cap for all market segments by exception on a case-by-case basis.

These increases in loan caps will enable customers and third-party EE implementers to exercise greater flexibility in designing and implementing EE projects, meet the needs of larger customers, and increase energy savings. The CPUC approved AL 4051-E on October 4, 2019.

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

In order to address the safeguard and control requirement of D.19-03-001, Ordering Paragraph (OP) 2, SCE has taken the following measures to reduce free ridership:

- Added 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
- Changing the Touchpoint Questionnaire to ask if the project would have been completed in the same capacity if not for the availability of OBF funding, and

- Adding a second question to the Touchpoint Questionnaire to ensure that all financed equipment is operational at the time of application.

SCE implemented several other internal safeguards to assure that customers are aware of the \$250,000 cap for OBF loans and incentives, such as:

- A customer acknowledgement of the \$250,000 incentive cap on the OBF application
- Reinstating the loan reservation cap so that SCE does not accidentally pay incentives for loans over \$250,000
- Modifying the OBF reservation letter to include language regarding the \$250,000 cap, and
- Changing the 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:

- **Default Rates:** The OBF loan default amount in 2019 was less than \$3,500, while the total overall OBF Program default rate remains 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 plans to report on the program results of replacing incentives with loans in the annual report for Program Year 2020, since SCE's approval to offer loans over \$250,000 without rebates and/or incentives did not occur until late in 2019.
- **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 within the Impact Evaluation. SCE's estimated program-level NTG ratio (for SCE programs in general) is 0.64. Additionally, SCE added several safeguards and controls to avoid free ridership (outlined above).

Process Improvements:

To improve the customer experience, SCE has:

- Simplified the OBF application and updated all customer-facing marketing materials.
- Added the MPOP Program, the Commercial HVAC CQM Program, the PBRP Program, and the SEM Program to the list of EE programs eligible for OBF financing, with the same loan limits as those for customers of other statewide programs. All OBF collateral materials, including website information, a fact sheet, and the application form, were modified accordingly to further enable customer participation in EE programs.
- Fully launched a Site-Specific Savings option for Commercial, Industrial, and Agriculture Deemed (Express Solutions) and MPOP customers. This option allows customers to submit their site-specific energy savings estimates for the calculation of the OBF loan only.
- Eliminated the pre-inspection requirement for OBF projects. This change reduced administrative cost, improved customer service by decreasing the number of customer touchpoints, and expedited the overall loan process.
- Eliminated requirements for notarizing OBF loan agreements and implemented the use of electronic signature software for the agreements instead. This change expedited the loan signing process and made the internal loan funding process more efficient, as well as aligning SCE with the rest of the Statewide Finance Team.

New Finance Offerings

Program Description

In accordance with D.13-09-044,³¹ the IOUs, along with the California Alternative Energy and Advanced Transportation Financing Authority (CAEATFA, a subdivision of the California Treasurer's Office serving as the pilots' Program Administrator), have developed and are continuing to improve statewide financing pilot programs that:

- Offer scalable and leveraged financing products
- Test market incentives for attracting private capital through investment of ratepayer funds, and

³¹ , D.13-09-044, Decision Implementing 2013-2014 Energy Efficiency Financing Pilot Programs.

- 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 pilot programs:

- Single Family Loan Program with Credit Enhancements, commercially known as the Residential Energy Efficiency Loan (REEL) Assistance Program
- Small Business OBR Loan/Lease with Credit Enhancements Program (known as the Small Business Finance or SBF Program), and
- Master-Metered Multifamily OBR Program, commercially known as the Affordable Multifamily Finance (AMF) 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 they can extend or improve credit terms for EE projects.

Strategies Implemented in 2019

In 2019, SCE worked with CAEATFA and other IOUs to implement the following strategies for the New Finance Offerings:

General Marketing Strategies:

The SCE program team deployed a comprehensive marketing strategy for the New Finance Programs in 2019. Specific marketing strategies included website landing pages, banner ads, translation services, printing, direct mail, e-mail "blasts," social media, and ongoing partnerships with targeted DSM Programs.

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 it from SCE's public website, SCE.com.

SCE also attended all the quarterly Statewide Marketing meetings for the New Finance Pilots with CAEATFA and the other IOUs to discuss the general marketing strategy for the three pilots, as well as the summer campaigns for promoting the REEL Program. In addition, CAEATFA and the statewide team also held weekly program, policy, and IT coordination meetings.

REEL Assistance Program-Specific Strategies:

- SCE made 92 REEL loans in 2019 totaling over \$1.4 million, conducted outreach, and attended community events to market the program and to maintain awareness of the changing landscape of EE financing.
- SCE provided feedback for a REEL impact evaluation study conducted by Opinion Dynamics to determine if the pilot should continue after 2020. In April 2020, the Commission adopted Resolution E-5072, which approved the transition of the REEL pilot to a full-scale program and provided guidance on how the program will operate moving forward, including funding and administration.
- SCE's marketing team also worked with CSE, CAEATFA, and the IOU Statewide team to design marketing materials promoting REEL, including flyers and printed ads as well as social media, email, and direct mailing campaigns.

Small Business OBR Loan/Lease Pilot-Specific Strategies:

The Small Business OBR Loan/Lease Pilot (SBF) went live in 2019 without the on-bill repayment functionality. No SCE customers have applied for the program yet. SCE continues to work with CAEATFA to promote the Pilot and support its statewide goals.

Marketing and Communications:

SCE's marketing team worked closely with CAEATFA and the statewide team in the design and implementation of a marketing campaign promoting SBF that included Facebook, Twitter, and Instagram ads, as well as a few billboards in our service territory. In October 2019, SCE deployed an e-mail campaign targeted to approximately 55,000 customers (small business owners) in SCE's service territory. The campaign objectives were:

- Educate small business owners about relevant financing options for energy efficient retrofits
- Encourage adoption and participation in EE programs, and
- Create awareness of and drive small business owners to the Go Green Financing Small Business landing page (gogreenfinancing.com) for more information.

SCE promoted the SBF Pilot during the annual Trade Pro Kickoff Meeting, among SCE Account Managers, and at third-party business conventions, as a way to increase program awareness and promote customer participation.

In general, SCE's marketing campaigns have been successful and cost-effective, and they have increased traffic to the gogreenfinancing.com website. All Finance Pilot marketing campaigns are done in coordination with the CAEATFA and IOU Statewide team.

Administrative Successes:

The Customer Service Replatform (CSRP) initiative is a company-wide project to replace SCE's current billing system, the Customer Service System (CSS), with an SAP billing system. During 2019, the program team worked with the CSRP team on a weekly basis to develop functional specifications, business requirements, and training documentation for the Finance Pilots.

The OBR infrastructure is currently being designed and was originally expected to go live in 2020. Due to the CSRP project, the launch of the OBR functionality has been postponed to 2021 when SCE's new SAP processing system and software is expected to be launched. In preparation for this, milestones and deadlines were documented in 2019 for the OBR Statewide Team and CAEATFA.

Master-Metered Multifamily OBR Program Strategies:

This program, also called the Affordable Multifamily Finance (AMF) Pilot, closely trails the development of the Small Business Finance (SBF) Pilot. SCE program staff worked with CAEATFA for its launch in 2019. Even though the program became available to customers in 2019, there have not yet been any loans in any of the IOUs' service territories. SCE supported CAEATFA's request to extend the AMF Pilot through the end of 2020.

SCE's CSRP team continues the development of the OBR functionality for the AMF Pilot. Just as with the SBF Pilot, the OBR functionality for AMF is scheduled to go live in 2021.

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7. Codes and Standards Program

Program Description

The Statewide Codes and Standards (C&S) Program saves energy on behalf of ratepayers by influencing regulatory bodies such as the California Energy Commission (CEC or Energy Commission) and the U.S. Department of Energy (DOE) to strengthen EE regulations. The Program conducts efforts to increase compliance with existing C&S regulations, to ensure that the State realizes the energy savings from new codes and standards, and to support local governments that include reach codes as a climate strategy. The Program also works with statewide IOUs and external stakeholders to optimize building decarbonization planning and coordination activities in preparation for future codes.

Program advocacy and compliance improvement activities extend to virtually all buildings and appliances sold in California, in order to support the State's ambitious climate and energy goals. After the State adopted the 2019 Title 24 code that includes the requirement for all new homes to have renewable energy systems, the Program took actions to prepare the building industry for implementation of the new code on January 1, 2020. The Program continues to move California towards nonresidential new construction with decarbonized, grid-harmonized buildings,³² consistent with three other major objectives:

- Carbon reduction targets in 2020 equivalent to 1990 emissions levels,³³ and by 2030, 40 percent below 1990 levels,^{34, 35}
- A cumulative doubling of statewide EE savings in electricity and natural gas final end-uses by January 1, 2030³⁶ to reduce existing building energy usage by 50 percent, and
- Near-zero-emission building technologies to significantly reduce the emissions of greenhouse gases (GHG) from buildings.³⁷

32 Buildings that are designed to operate in harmony with the electric grid.

33 AB 32, available at http://www.leginfo.ca.gov/pub/05-06/bill/asm/ab_0001-0050/ab_32_bill_20060927_chaptered.pdf.

34 AB 398, available at http://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201720180AB398.

35 SB 32, available at https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201520160SB32.

36 SB 350, available at http://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201520160SB350.

37 SB 1477, available at https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201720180SB1477.

Key Initiatives

Key initiatives of the C&S Program in 2019 included:

- Advocacy for new or updated sections of California's Building Energy Efficiency Standards and related ASHRAE and ICC³⁸ activities
- Advocacy for new Title 20 and DOE appliance standards, and related ENERGY STAR[®] activities
- Training, tools, and resources to support compliance with existing and upcoming codes and standards
- Development of new cost-effectiveness studies to support local government reach codes
- Long-term planning and coordination activities to optimize work across California's utilities, and
- Coordination of activities aimed at preparing specific industries and technologies for future code cycles.

In addition, support began for the CEC's initiative to "move to a more GHG-based metric that promotes electrification."

Appliance Standards Advocacy Subprogram

Program Description

The Appliance Standards Advocacy (ASA) subprogram targets both state and federal standards and test methods, including improvements to Title 20 Appliance Efficiency Regulations by the CEC, and improvements to federal appliance regulations and specifications by the DOE, Environmental Protection Agency (EPA) Energy Star[®] Program, ASHRAE, and the Federal Trade Commission (FTC).

Advocacy activities include developing Title 20 code enhancement proposals, participating in the CEC public rulemaking process and ASHRAE committees, collecting data to support IOU positions, submitting comment letters in federal standards proceedings, and participating in direct negotiations with industry. Additionally, the subprogram monitors state and federal legislation and intervenes as appropriate.

³⁸ ASHRAE: American Society of Heating, Refrigerating & Air-Conditioning Engineers. ICC: International Code Council.

2019 Strategies and Successes

In 2019, the ASA subprogram:

- Has been actively engaged in several energy standard rulemaking proceedings at the state level by providing technical support on commercial and industrial air compressors, spray sprinkler bodies, general service lamps (including general service fluorescent lamps), hearth products, fans and blowers, irrigation controllers, tub spout diverters, and lower power modes. As a result, the CEC adopted standards for commercial and industrial air compressors in January 2019, spray sprinkler bodies in August 2019, and general service lamps in November 2019.
- Jointly funded the construction of a heat pump water heater (HPWH) laboratory, in response to California's decarbonization goals, where test results will be used to create or improve HPWH test and energy standards.
- Advocated for changes to federal appliance standards through multiple efforts (including voluntary standard developments), including working with Northwest Energy Efficiency Alliance (NEEA) to update test procedures for the heat pump water heater by adding a 95 degrees Fahrenheit (°F) performance test requirement, so that its test procedure would be more applicable to California's climate zone. This effort included promoting lower global warming-potential refrigerants and flexible load concepts, driven by SB 49.
- Supported Energy Star[®] in updating its Specification 1.1 for electric vehicle supply equipment, advocating fast DC chargers as well as flexible load concepts, and updating Smart Home Energy Management Services.
- Researched and responded to about two dozen federal rulemakings by the DOE, including participation in stakeholder meetings, and as a result submitted 29 advocacy letters in 2019.

Building Codes Advocacy Subprogram

Program Description

The Building Codes Advocacy (BCA) subprogram primarily supports the CEC's efforts to update California's Building Energy Efficiency Standards (Title 24, Part 6) to include new requirements or to upgrade existing requirements for various technologies. Title 24, Part 6 is generally updated on a triennial cycle. Advocacy

activities include the development of Codes and Standards Enhancement (CASE) proposals, research to provide data needed to advance EE codes and standards, and participation in public rulemaking processes. In addition to supporting Part 6, the subprogram also supports the CEC in making recommendations to the Building Standards Commission for updates to Title 24, Part 11, California Green Buildings Standards Code (CALGreen). The energy measures in CALGreen provide foundational elements for local energy ordinances or reach codes.

To comply with the Commission's Statewide program and outsourcing goals, the BCA subprogram prepared for the transition to a Statewide Codes and Standards Advocacy program, led by PG&E, which launched in early 2020. Activities completed to support this effort included the introduction of a statewide balancing account, budget sharing negotiations, administrative costs agreements, and the continued implementation of contracts that were awarded as part of the public third-party bid process that occurred in 2019.

Strategies Implemented in 2019

On Wednesday, May 9, 2018, the Energy Commission adopted the 2019 update to California's Energy Code, which applies to all new construction, additions, and permit-triggering alteration projects permitted on or after January 1, 2020. Expected savings from the measures that were supported by the 2019 Title 24 CASE reports submitted to the Energy Commission are approximately 603 GWh/year, 3.2 million therms, and 30 million gallons of water for each year's construction following the effective date. The 2019 final CASE reports and Results Reports, which compare what was proposed to what was adopted, are available online.

SCE is part of the statewide IOU team that supports the development of building EE standards. In 2019, the Sacramento Municipal Utility Department (SMUD) and Los Angeles Department of Water and Power (LADWP) committed to provide financial and staff support for the 2022 Energy Code rulemaking cycle, and are listed as part of the statewide team on public documents.

In 2019, the Statewide Utility Codes and Standards Program supported the CEC's 2022 rulemaking by narrowing the potential pursuits list to 79 building code measure proposals which will be included in 24 CASE reports:

- The focus for the 2022 cycle is on multifamily and nonresidential buildings
- Single-family CASE reports will explore compliance options that will prepare for added stringency in the 2025 cycle, and

- Final CASE reports will be submitted to the CEC for review in the third quarter of 2020.

A list of measures is available at Title24Stakeholders.com, the public website which was redesigned for this rulemaking cycle to increase and encourage stakeholder participation in the code development process. A partial-year snapshot of site usage indicates that from July 30 to November 11, 2019, 9,175 unique visitors made 67,048 visits to the site.

In 2019, the Statewide CASE team hosted 12 online events in ten weeks to engage with stakeholders that may be impacted by the proposed code changes. Twenty-six e-mail campaigns led to an opening rate of 30% and a click-through rate of 17%, which is much higher than average. These outreach efforts led to 997 total attendees for all 12 meetings, a marked improvement from past cycles. Outreach to encourage industry input will continue through 2020 and include a second round of online events.

Compliance Improvement Subprogram

Program Description

The Compliance Improvement (CI) subprogram supports increased compliance with the adopted Building Energy Efficiency Standards and Appliance Standards. Compliance improvement activities complement advocacy work by maximizing verified, persistent savings from C&S activities. 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.

2019 Strategies and Successes

Throughout 2019, the CI subprogram continued to employ a systematic approach to enacting behavior change 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 action.

The work accomplished in each area reflects specifically what key market actors told the CI subprogram they want and need in order to improve compliance, and was completed in close collaboration with the CEC.

Education & Training Highlights:

In 2019, the local training team delivered more than 68 classes and workshops, across eight modalities including in-person trainings, webinars workshops, self-study, etc. The team reached more than 1,100 students and achieved a 98% satisfaction rate with an average 18% knowledge swings. Also, new courses were launched:

- An introductory and advanced course in support of the California Building Energy Code Compliance (CBECC)-Residential (CBECC-Res) energy modeling compliance software, and
- New local courses to support the 2019 Standards All-Electric Compliance pathway:
 - A course designed to teach the building industry sales and marketing teams the facts and benefits of energy-efficient homes built to the 2016 energy code and beyond
 - A course designed to guide customers on how to design Zero Net Energy Homes
 - A course on All-Electric Clean Energy Homes
 - A course designed to guide customers on how to design Zero Net Energy and Zero Net Carbon nonresidential buildings, and
 - A course designed to teach contractors, engineers, builders, and building departments the benefits and energy code impact of heat pumps for space conditioning.
- The curriculum development team worked with subject matter experts to update the repository of 2016 trainings to reflect 2019 energy code updates, including:
 - Producing a comprehensive document outlining all the changes to the residential and nonresidential standards, and
 - Implementing two workshops, "Title 24: Where We're Headed with the 2019 Energy Standard" and "Energy Pro 8 Intro and Advanced," that were well attended when offered to prepare customers for the January 1, 2020 code rollout.

- The team also conducted pilot versions of the revamped Plans Examiner and Building Inspector Workshop, Nonresidential Architectural Standards for Architects Workshop, and other modified trainings with industry peers, and updated the materials per participants' feedback.

Tools and Resources Highlights:

- The tools team finalized the automation of the Title 24 compliance process by launching a suite of nonresidential 2016 and 2019 dynamic forms. The CEC has successfully uploaded the dynamic forms to their website and they have been much used since becoming available.
- The resource team worked with subject matter experts and the CEC to edit the vast library of existing 2016 resources in preparation for implementation of the 2019 code cycle, including:
 - Fact Sheets
 - Trigger Sheets
 - Quick Reference Sheets
 - Navigator and Installation Ace
 - Application Guides, and
 - Note Blocks.

Collaboration with Partners:

- In addition to continually sending targeted messages, placing advertisements and articles, and maintaining the Energy Code Ace (ECA) website, which currently has more than 7,000 registered users, the outreach team established strong industry partnerships with groups such as:
 - The statewide and local chapters of the American Institute of Architects (AIA) California,
 - Institute of Heating and Air Conditioning Industries (IHACI),
 - International Code Council (ICC),
 - California Association of Building Officials (CALBO), and
 - Building Industry Association local chapters.
- The outreach team also facilitated ECA subprogram participation in more than twenty (20) Title 24 and Title 20 local (Southern California) industry events.
- The CI subprogram also continued transitioning the administration of the Certified Energy Analyst (CEA) exam to the California Association of

Building Energy Consultants (CABEC) while supporting exam proctoring and revisions as needed, as well as continuing to assess the differences in the quality of the compliance documents submitted for permits by CEAs and energy consultants who are not certified. The instruction team continues to host the course developed to help prepare consultants for the CEA Exam by increasing their familiarity with the code requirements and energy modeling that the exam evaluates.

Measure-Specific Work:

The CI subprogram also continued to support Title 20 compliance in 2019 by targeting key measures,³⁹ conducting needs assessments and developing work plans for portable air conditioners, spray sprinkler bodies, lighting, residential pool pumps, computers, and small battery charger systems (SBCS). Our key measure-specific work has revealed program-wide compliance challenges indicating that:

- Retailers are not engaged in the compliance process,
- The CEC's appliance database could be a more effective tool for compliance verification,
- Large buyers are not tuned into compliance and energy savings, and
- Title 20 regulations are not written with compliance in mind.

The CI subprogram has begun addressing these barriers through measure-specific fact sheets, contractor training, YouTube videos, and conversations with major retailers.

Reach Codes Subprogram

Program Description

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

- Conducting research and analysis to establish performance levels and cost-effectiveness relative to Title 24 requirements by climate zone,
- Drafting model ordinance templates to encourage regional consistency,

³⁹ Key measures are those defined as having high savings paired with low compliance, and those that are newly regulated.

- Helping to complete and expedite the application process required for approval by the Energy Commission, and
- Supporting implementation of the ordinances when they take effect.

2019 Strategies and Successes

Many local jurisdictions have established goals in their Climate Action Plans to reduce buildings' energy use and GHG emissions through adopting and implementing local energy ordinances. Given changing policy and funding priorities at the federal level, cities and counties are experiencing an increased sense of urgency for local action to meet statewide goals, which has led to a greater interest in reach codes as a path to achieve the goals.

Since the statewide goals make GHG reduction the highest priority, local governments are changing their focus from reducing energy use in general to specifically reducing the energy use that is tied to GHG emissions. This shift has resulted in an increased level of interest in all-electric designs, at both the local and state levels. One of the state-level changes, adoption of the 2019 Standards which created an all-electric baseline, allows all-electric designs to comply with and exceed the code more readily.

In response to these changes, RC subprogram work in 2019 included analysis and report development, technical support for local jurisdictions, reach code resource accessibility improvements, and other activities.

Reach Code Adoptions:

In 2019, several reach codes were adopted by local jurisdictions and approved by the Energy Commission, based on IOU cost-effectiveness studies. Approved local ordinances may be found on the CEC website:⁴⁰

- City of Carlsbad, August 14, 2019
- Marin County, December 11, 2019
- Menlo Park, December 11, 2019
- San Jose, December 11, 2019
- City of San Mateo, December 11, 2019
- Santa Monica, December 11, 2019, and
- West Hollywood, December 11, 2019.

⁴⁰ 2019 Building Energy Efficiency website *available at* <https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2019-building-energy-efficiency>.

Studies and Support Highlights:

The subprogram completed the following cost-effectiveness studies:

- *2019 Residential New Construction Cost-Effectiveness Study*
- *2019 Nonresidential New Construction Cost-Effectiveness Study*
- *2019 Residential Retrofit Cost-Effectiveness Study*, and
- *2019 Passive House Equivalency* (low-rise residential only).

In addition to developing new cost-effectiveness reports, the RC subprogram supported reach code adoption by creating the following supplemental support documents:

- *Electric-Readiness Supplement Appendix*
- *Electric Equivalency References*
- Staff report templates, and
- Charts showing the impact of GHG ordinances.

Outreach to Customers:

The RC subprogram continued updating and adding content to the LocalEnergyCodes.com website, which contains all subprogram studies, as well as model ordinance and resolution language that jurisdiction staff may use to facilitate drafting an ordinance. Beginning from a common core helps to support consistency across jurisdictions.

- During 2019, the website had more than 750 total registered users and has registered more than 53,000 unique sessions, which is an increase of approximately 300% over 2018.
- The table below shows the five most popular studies available on the website and the numbers of times each was downloaded in 2019:

Table: Top Five Study Downloads from LocalEnergyCodes.com in 2019

File Name	2019 Downloads
2019 Residential New Construction Cost-Effectiveness Study	1,194
2019 Nonresidential New Construction Cost-Effectiveness Study	731
2019 Reach Code Opportunities Matrix	553
2019 Reach Code Options and Opportunities	479
2019 Reach Codes Process and Timeline	375

In addition to maintaining stakeholder engagement through the website, the RC team also broadened its outreach and communication through monthly e-mail newsletters highlighting current Reach Code trends. A total of approximately 900 newsletters were sent over a three-month period. Fifty percent (50%) of the emails were opened with a click-through rate of 17%, which is significantly higher than the average industry click-through rate of 2.5%.⁴¹

Collaboration With Partners:

The RC subprogram staff attended the Statewide Energy Efficiency Collaborative (SEEC) Forum, and coordinated and hosted a reach codes session titled "Transforming Energy Efficiency: Bridging Opportunity and Community Need," partnering with the California Energy Commission (CEC), Bay Area Regional Energy Network (BayREN), and the Building Decarbonization Coalition.

Education & Training Highlights:

Following the adoption of the 2019 Standards, local interest in reach codes accelerated rapidly, primarily fueled by the desire to decarbonize the building sector. In response, the RC subprogram planned and hosted four regional Reach Codes Best Practices workshops throughout California (in San Francisco, San Diego, Ontario, and Irvine). More than 200 persons from 66 organizations attended, including 40 city or county staff members, and presentations from the workshops were downloaded 873 times by the end of the year.

Planning and Coordination Subprogram

Program Description

The C&S Planning & Coordination (P&C) subprogram facilitates an integrated, dynamic approach to C&S by coordinating and aligning strategic planning across impacted IOU and non-IOU programs and initiatives. Since 2013, the CPUC has emphasized the need to implement a "process that dynamically integrates early planning activities with the Codes and Standards program."⁴²

Accordingly, the Planning element of this subprogram focuses on:

- Long-term planning and scenario analyses,
- Modeling of impacts from potential C&S program activities relative to California policy goals and incentive programs,

⁴¹ Email marketing benchmarks by industry *available at* <https://mailchimp.com/resources/email-marketing-benchmarks/>.

⁴² D.12-05-015, p. 246.

- Developing CPUC-required Business Plans and Implementation Plans, and
- Responding to data requests on planning activities from the CPUC and/or other regulatory agencies and intervenors.

The Coordination element of the P&C subprogram harmonizes internal and external activities with the growing number of state policy goals and industry drivers through three main strategic coordination objectives:

Public Programs Coordination.

1. The subprogram convenes forums with IOU internal & external public program stakeholders to achieve cohesive and consistent offerings in support of statewide energy-efficient building decarbonization.

Some examples of internal harmonization activities include coordination of:

- Emerging technologies and emerging markets programs,
- New construction programs,
- Program incentives,
- Educational trainings,
- Distributed generation and demand response programs,
- Metrics and technical calculation methodologies, and
- Internal departments such as policy, regulatory, and corporate affairs.

Since C&S impacts the entire state and almost all building types, occupancy categories, and related technologies, the subprogram also coordinates with external parties such as:

- The CPUC, the CEC, and the California Air Resources Board (CARB)
- Other California IOUs and municipal utilities, and utilities in other states
- National advocates such as Appliance Standards Awareness Project (ASAP), Natural Resources Defense Council (NRDC), Northwest Energy Efficiency Alliance (NEEA), Sierra Club, American Council for and Energy-Efficient Economy (ACEEE), Earthjustice, National Consumer Law Center, Consumer Federation of America, etc.
- Representatives of various manufacturing companies and industry groups, such as Association of Home Appliance Manufacturers

(AHAM), Consumer Technology Association (CTA), National Electrical Manufacturers Association (NEMA), Air Conditioning, Heating and Refrigeration Institute (AHRI), American Gas Association (AGA), etc., and

- Water utilities, local governments, and other parts of the compliance improvement supply chain, such as building inspectors, Title 24 consultants, the Contractor State Licensing Board (CSLB), etc.
2. **Grid Harmonization.** The subprogram convenes forums with Transmission and Distribution (T&D) professionals and C&S stakeholders to facilitate the transition to a clean, flexible, and resilient "plug and play" grid. As building codes have begun to incorporate distributed generation and battery storage, coordination has expanded to strategy integration, distributed generation programs, and others involved in grid management.
 3. **Building Energy Modeling.** The subprogram convenes forums with building energy modeling professionals and C&S stakeholders to facilitate the streamlined development and advancement of predictive energy modeling processes and tools that are critical to achieving energy-efficient building decarbonization.

In addition, the subprogram:

- Updates the incremental measure costs for C&S CASE proposal measures, and
- Maintains a C&S savings database consistent with evaluation protocols.

2019 Strategies and Successes

With the current absence of a formal energy-efficient building decarbonization subprogram, the C&S P&C subprogram has taken a lead role in coordinating the various EE and non-EE efforts necessary to support customers and the building industry effectively in meeting the state's GHG reduction goals.

- In an effort to coordinate between the EE incentive programs and C&S, a study was performed to determine how data contained in a CASE study could be leveraged to develop a Work Paper, enabling the capture of savings from measures not currently offered in the EE programs before the measures are adopted into code.

- The study also looked forward to the proposed 2022 CASE measures and identified gaps in the CASE study data collection process needed to create a successful Work Paper. This could reduce the effort and cost of developing a Work Paper and increase consistency in data collection.

On November 11-12, 2019, the subprogram held the fourth Software Symposium⁴³ on the subject of building energy modeling (BEM) in California, to facilitate a collaborative environment with industry leaders for long-term planning and coordination. The symposium was aimed at supporting California's long-term climate action goals by:

- Educating industry on the use of BEM tools,
- Accelerating the introduction of new simulation capabilities, and
- Developing a statewide framework that streamlines energy models to inform energy design, code compliance, and decisions to apply for incentive programs.

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⁴³ The Software Symposium has been renamed California Building Energy Modeling or "CalBEM."

8. Emerging Technologies Program

The statewide 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 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 several tactics to achieve the objectives of these subprograms. Some of the key tactics are described below, but each tactic may achieve the subprogram objectives, and this list is not comprehensive.

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 measures 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 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 Work Paper for each measure, estimating energy and demand savings over the life of the measure.

Strategies Implemented in 2019

In 2019, 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 for TA.
- Produced reports describing TA results, conclusions, and recommendations.
- Engaged the various EE programs and other program stakeholders.
- Transferred TA results to EE program stakeholders, with technology study results successfully transferring to deemed rebated measures and customized incentive measures.
- Coordinated intake ideas and assessments and shared technology information through the ET Summit 2019 and coordinated webinars with the Emerging Technologies Coordinating Council (ETCC)⁴⁴ on various topics for the commercial building, industrial, agricultural, and residential sectors.
- Organized an in-person meeting of the ETCC Advisory Council to gain insight from national experts on key topics of interest to ETP.

Technology Development Support Subprogram

Subprogram Description

The Technology Development Support (TDS) subprogram provides assistance to 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 2019

In 2019, 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

⁴⁴ More information on ETCC is available at <https://www.etcc-ca.com/about-etcc>.

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

- Collaborated with innovators from universities and other research institutions.
- Supported early-stage companies through SW ETP membership in the California Institute of Technology (Caltech) RocketFund program.⁴⁵
- Collaborated with the ETCC and the other IOUs on various program-related activities.
- Continued ongoing business relationships with investors interested in funding cost-effective EE technologies.
- Coordinated a webinar with the California Energy Commission (CEC) Electric Program Investment Charge (EPIC) building technologies team.

Technology Introduction Support Subprogram

Subprogram Description

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

- Scaled Field Placement (SFP) projects place measures at a number of customer sites as a key step toward gaining market traction and feedback. Typically, these measures have already undergone an assessment or similar evaluation 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, whether 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,

⁴⁵ Caltech's Rocket fund program *available at* <http://www.flow.caltech.edu/rocket-fund>.

customer acceptance of new measures, and market readiness and potential for new measures.

Strategies Implemented in 2019

In 2019, 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.
- With the other IOUs, continued implementing a Prop 39⁴⁶ ZNE pilot program that started in 2015, working closely with the CPUC, the CEC, the California Community Colleges (CCCs), and other stakeholders. The TIS subprogram is the lead on the field demonstrations portion of two pilot projects, one at a community college site and one at a kindergarten through 12th grade (K-12) school district site.
- Scanned and screened a wide variety of sources for measures, coordinating closely with 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.
- Performed primary or secondary research, as necessary, to gain market insights on technologies.
- Coordinated with statewide ETCC stakeholders.

Other Notable ET Program Activities in 2019

- In collaboration with ETCC leadership and partners, the Statewide ETP program successfully conducted the ET Summit 2019, which attracted over 150 attendees.⁴⁷

⁴⁶ California Proposition 39, the California "Clean Energy Jobs Act" of 2012, funds eligible energy efficiency efforts in schools.

⁴⁷ More information on the 2019 Emerging Technologies Summit is available at <https://www.etcc-ca.com/event/>.

- Kicked off the electric Technology Priority Maps (TPMs) statewide updates, which will include broad stakeholder input and be concluded in Q3 2020.
- Enhanced the ETCC Website to facilitate project activity searches.
- Continued development of Scope of Work subject matter for Requests for Abstracts (RFAs) in collaboration with the SW ETP Program Administrator from SoCalGas, non-lead funding IOUs, and the SCE and SoCalGas Independent Evaluators (IEs) and Procurement Review Group (PRG). The new RFA launch schedule calls for release in Q3 2020.

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9. Workforce Education & Training Program

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

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

In 2019, 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.

Following is an overview of the 2019 program highlights, by subprogram.

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

Subprogram Description

Offerings in the IEET subprogram are organized and delivered around market sectors, including cross-cutting sectors, to facilitate demand-side management (DSM) workforce knowledge and skills. Energy Education Centers (EECs or "Energy Centers") in Irwindale and Tulare represent the largest component of this subprogram. The subprogram delivers educational workshops and seminars, tool loans, equipment demonstrations, consultations, and community outreach events. These activities allow incumbents and potential energy efficiency (EE) workforce candidates to explore EE opportunities, acquire awareness of DSM technologies and resource management techniques, and enhance the skills needed to act on those opportunities.

In 2019, the Irwindale and Tulare Energy Centers continued to align activities with the goals identified in the California Energy Efficiency Strategic Plan (CEESP).

The Energy Centers continued to evaluate and implement programs and projects, where applicable and appropriate, to better align them with industry and market characterization evaluations, recommendations from the 2014 Don Vial Center-produced "Guidance Plan" document,⁴⁸ and Statewide initiatives. This effort included significant internal collaboration with SCE's DSM Programs, and engagement with external EE program and service educators as well as with key stakeholders in many trades who encourage participation in SCE's resource programs

WE&T IEET Strategies Implemented in 2019

In 2019, WE&T IEET continued to build upon previous efforts by:

- Enhancing existing cross-cutting industry stakeholder teams to address specific EE and DSM workforce intervention opportunities
- Evaluating applicable career pathways to help upgrade the knowledge, skills, and abilities of incumbent and potential workers in relevant trades, and
- Exploring new ways to engage stakeholders through strategic partnerships.

Collaboration Among Partners:

Some highlighted efforts included continued collaboration with:

- Relevant industry stakeholders and training organizations to expand the access and reach of IOU WE&T offerings, including:
 - The California Community College System
 - The Heating, Ventilating and Air Conditioning (HVAC) Collaborative
 - Local and regional labor unions, and
 - Contractors' associations.
- Continued to offer the statewide training for the High Performance Building Operations Professionals (HPBOP) program. HPBOP's target audience is professional building technicians who manage buildings in the public and private sectors. It provides them information, tools, and skills

⁴⁸ Full name of the Guidance Plan document is *Workforce Issues and Energy Efficiency Programs, A Plan for California's Utilities*, available at <http://laborcenter.berkeley.edu/pdf/2014/WET-Plan14.pdf>.

to improve building performance and reduce energy consumption. The training topics include:

- Information Technology
 - Energy Literacy
 - Building Systems
 - Whole Systems Analytics
 - Systems Manuals
 - Building Automation Control Systems (BAS)
 - Energy Conservation
 - Commissioning (Cx), and
 - Continuous Quality Improvement.
- The Statewide IOU WE&T program team hosted the 2019 WE&T Stakeholder Engagement Forum. The Forum provided a forward-looking discussion with a panel of WE&T stakeholders on the topic "The HVAC Workforce."

Energy Education Centers Strategies Implemented in 2019

Irwindale and Tulare Energy Centers:

- Continued to provide core skills training and job-site mentoring for contractors and technicians who participate in SCE's HVAC Optimization programs, through an industry partnership with HVACRedu (Air Conditioning Technician Training) and the National Comfort Institute (NCI). Efforts with NCI focused on hands-on and certification training on:
 - Commercial and Residential Air Balancing and System Performance through comprehensive test-in / test-out procedures
 - Advanced digital economizers (Economizer Optimization Training)
 - Residential renovation and retrofit (Duct System Optimization)
 - Combustion Performance and Carbon Monoxide (CO) Safety training
 - Refrigerant-Side Performance
 - Airflow Testing and Diagnostics
 - National Balancing Council (NBC), and
 - Performance-Based Selling of Energy Efficiency Systems.

The NCI Training certified a total of 507 participants, and 2,316 Continuing Education Units (CEUs) were earned by NCI participants.

- 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 the Institute of Heating and Air Conditioning Industries (IHACI). This professional training teaches contractors to install and service HVAC systems that meet all installation requirements to operate with EE at the highest possible capacity. Seventy-two (72) evening seminars were delivered.
- Trained close to 3,500 contractors and technicians in 2019, through both IHACI (QI, QM, and QS) and North American Technician Excellence (NATE) preparation curricula. Most participants in these offerings have one to five years of industry experience, and the majority demonstrated increase in knowledge as measured by pre- and post-training tests.
- Continued to promote and expand HVAC Commercial QM training through multiple training vendors, using enhanced hands-on training units designed to allow fully-functional rooftop package units to be operated, tested, and evaluated in a safe, controlled, and comfortable environment.
- Continued partnership with HVACRedu (an online, on-demand organization for training HVAC and refrigeration contractors and technicians in installation and maintenance), 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:
 - NATE Core and Specialty exams: 173 exams were delivered with a pass rate of 97%.
 - Three-hour online modules: 6,595 modules were completed, 77% of which were in the Beginner/Intermediate category, and 23% of which were in the Advanced category.
- Continued the California Advanced Lighting Controls Training Program (CALCTP), resulting in 45 certifications for workshops in the following areas:
 - 22 Systems Certifications, and
 - 23 Acceptance Technician Certifications.

- Continued partnership with the Codes & Standards Program, delivering over 60 workshops and seminars on the following topics to over 1,100 customers throughout SCE's service territory:
 - Title 24 Part 11 CALGreen Codes
 - Title 24 Part 6 Building Energy Codes
 - Title 24 Lighting (Residential and Nonresidential Standards)
 - Energy Code Software (EnergyPro, CBECC-Com, and CBECC-Res), and
 - Zero Net Energy (ZNE) All Electric Homes and Buildings.

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.
- SCE collaborated with the statewide IOU WE&T teams to deliver the Mobile Integrated Building Energy Science Training (MI-BEST) Program in 2019 by offering one week-long session at the Irwindale Energy Center. The MI-BEST curriculum focuses on developing the skill sets that are essential to Home Energy Rating System (HERS) raters, energy auditors, Building Performance Institute (BPI) contractors, mechanical engineers, architects, builders, and HVAC professionals.

Foodservice Technology Center Activities:

The Foodservice Technology Center (FTC) continued collaborations with the statewide IOU WE&T programs in 2019 to educate professionals at all levels of the commercial food service industry.

- Having completed a major remodeling project in 2018, the re-opening of the FTC in January 2019 resulted in an overwhelming response in activity, surpassing numbers achieved in previous years combined. Almost 1,200 customers engaged with the FTC in 2019, as shown in the following table:

Table: Foodservice Technology Center 2019 Customer Activities

Activity Types & Numbers	Number of Attendees
47 Equipment Demonstrations	174
6 Seminars	147
6 Consultations	11
8 Tours	205
35 Trainings	649
Total	1186

- The FTC launched the Tabletop Induction Range Lending Program in Q2 2019. The pilot program is based on the "Lending Library" foundation and is structured as an introduction to induction cooking for both residential and commercial customers. A total of 27 units were loaned in 2019.
- The FTC continues to train culinary students and their teachers in high school, community college, and university programs. 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.⁴⁹
- In 2019, SCE's Tool Lending Library loaned nearly 236 unique energy measurement and building performance evaluation tools, through over a hundred individual transactions, to homeowners, business owners, and contractors throughout SCE's service territory.

Table: 2019 Energy Education Centers Performance

Goal	Target	Results
Collaborations	4	6
Number of participants	14,216	15,947
Number of Participants – Residential	5,359	4,307
Number of Participants – Commercial	8,857	11,640

⁴⁹ For more information, see "Students Get a Slice of Education with their Pizzas," available at <https://energized.edison.com/stories>.

Goal	Target	Results
Percentage of Target Audience Reached	10%	11%
Percentage of Disadvantaged Participants	43%	61%

WE&T Career Connections Subprogram

Subprogram Description

The WE&T Career 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 at all grade levels from K-12 to post-secondary, as well as through community outreach. WE&T Career 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 Career 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 Career Connections subprogram contains three (3) elements:⁵⁰

1. K-8 Subprogram (kindergarten through 8th grade).
2. 9-12 Subprogram (secondary grades, i.e., high school).
3. Post-Secondary Subprogram.

Strategies Implemented in 2019

In 2019, SCE implemented the following strategies for the WE&T Career Connections Subprogram:

- Continued program implementation through the cultivation of existing relationships with teachers and partners on sustainable, project-based learning opportunities.
- Developed new relationships with teachers, schools, and partners to provide training and learning opportunities for new teachers and students for the upcoming school year.

⁵⁰ Another element, the Community Language Efficiency Outreach (CLEO) Program, ceased implementation at the end of 2018.

- Promoted program offerings at numerous events, workshops, and conferences serving existing participants as well as reaching new participants within targeted areas, particularly those working with disadvantaged community populations. Some of these events include:
 - California Science Education Conference
 - STEA²M Extreme Fair
 - Orange County Department of Education Next Generation Science Standards Rollout 6
 - Science and Technology Education Partnership (STEP) Conference, and
 - California Higher Education Sustainability Conference (CHESC).

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).

Over 8,500 students were reached throughout SCE's service territory. Of the 70 schools that participated in the K-8 Subprogram, 62 were Title 1 schools. Some of the K-8 Subprogram's highlights include:

- In April 2019, the K-8 Subprogram participated in Imaginology, an annual science expo hosted by the Orange County Fair and Events Center. The event spanned over three days and was free and open to the public. At Imaginology:
 - Children and their families explored hands-on exhibits and activities, discovered careers in Science, Technology, Engineering, and Math (STEM)-related fields, and connected with local organizations.
 - As an exhibitor, the K-8 Subprogram facilitated community engagement and outreach through a station at the event where attendees interacted with a light bulb hand crank generator to compare the energy efficiency of LED, CFL, and incandescent bulbs,

and spun a trivia wheel to answer questions about energy conservation and green careers.

- The activities reached over 1,500 attendees at the event and recruited several schools from the Orange County area to the Program.
- In October 2019, the K-8 Subprogram participated and led lessons at the Science and Technology Education Partnership (STEP) Conference at Bourns Technology Center in Riverside. The conference provided students with opportunities to interact with science educators, scientists, and engineers. K-8 Subprogram staff participated by hosting:
 - Various discussion opportunities with students, focusing on long and short-term career planning goals, and
 - A table where over 1,000 students and educators interacted with a solar circuit where they created their own solar circuits, which taught them about the benefits of renewable solar energy and the opportunities for careers in STEM.

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 8,000 students were reached throughout SCE's service territory. Of the 39 schools that participated in the 9-12 Subprogram, 30 were Title 1 schools.

Some of the 9-12 Subprogram's highlights include:

- The Subprogram partnered with the US Green Building Council-Inland Empire (USGBC-IE), a branch of the Los Angeles chapter, and the Rialto Unified School District to spearhead education on air quality in Rialto. USGBC-IE provided curriculum and resources on air quality in the Inland Empire and facilitated a teacher training, while Subprogram staff:
 - Led air quality lessons
 - Facilitated discussions focused on environmental justice and air pollution from energy production, and
 - Conducted hands-on demonstrations in which students created industrial smog in jars.

These lessons reached over 1,000 high school students. With support from Subprogram staff, these high school students subsequently led air quality lessons with almost 2,000 middle school students in Rialto.

- The Subprogram launched the fall 2019 Energy Conservation Competition, in which schools competed in a three-week challenge to reduce energy usage and campaigned across campuses to encourage students and staff to save energy. Fifty-five high schools across California participated in the competition, resulting in over 115,000 kWh saved.

Post-Secondary Subprogram Highlights

The Post-Secondary Subprogram supported a network of California colleges and universities in developing students' knowledge, skills, and experience to prepare for a career in energy. Support was provided through the development of project-based courses, certificates, and degrees in one or more energy career pathways, as well as paid on-campus student internships.

The IOUs discontinued funding of the Post-Secondary subprogram under WE&T Career Connections at the end of the spring academic calendar (July 2019), and the campuses enrolled at that time transitioned to implementation of self-sustaining deliverables. All further post-secondary efforts will be supported by IEET.

Some of the Post-Secondary Subprogram's 2019 highlights include:

- At the annual California Higher Education Sustainability Conference (CHESC), which highlighted research, curriculum development, operational programs, and community partnerships in sustainability among higher education institutions statewide, the Subprogram received the CHESC "Partnerships, Communications, and Planning" Best Practice Award.⁵¹ This was in recognition of the Subprogram's successful model and catalyst of "Campus as a Living Lab" as a vehicle for preparing the next generation of sustainability professionals through applied learning and creative campus and community partnerships.
- In collaboration with Claremont McKenna College and Harvey Mudd College, the Subprogram supported four students in completing their internships. The interns worked on projects such as:
 - An emissions inventory for Harvey Mudd College

⁵¹ CHESC Best Practice Awards acknowledge the achievements that California campuses have made through innovative and effective EE projects and sustainable operations.

- Data collection and analysis for the City of Claremont's tree planning efforts
- An Electric Vehicle Readiness Plan for the City of Rancho Cucamonga, and
- Forest reforestation efforts in Africa with Eden Reforestation.

The interns participated in an Internship Spotlight and Appreciation Party at the Hixon Center for Sustainable Environmental Design at the end of April.

- At University of California Irvine (UCI), four interns completed their internships. The interns:
 - Worked with the Student Housing Sustainability Program to help with the research, development, deployment, and evaluation of EE programming for residents in both undergraduate and graduate family housing
 - Conducted research on the development of a roadmap for the deployment of renewable hydrogen generation plants in the State of California, and
 - Assisted SunPower with project development analyses to support the development and deployment of solar and battery storage projects for SunPower's commercial customers.

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10a. Statewide Marketing, Education & Outreach Program

Program Description

The Marketing, Education & Outreach (ME&O) Program was implemented statewide for several years by a third-party implementer, Center for Sustainable Energy (CSE). As required in D.16-03-029 (dated March 17, 2016), the CPUC authorized issuance of a Request for Proposal (RFP) to select a new statewide administrator for the ME&O Program for a three-year term beginning in 2017, with an option to extend the contract for an additional two (2) years based on performance.

On September 19, 2016, the CPUC issued D.16-09-020 which approved the selection of a new statewide implementer, DDB San Francisco ("DDB"), for the 2017-2019 SW ME&O Program, and set the annual budget allocations for each IOU. Subsequently, the statewide Program Administrator, PG&E, notified⁵² the CPUC that a contract with DDB San Francisco as the new statewide ME&O implementer had been signed. The contract term was October 1, 2016 through September 30, 2019.

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

- The Strategic Roadmap guides the statewide customer engagement campaign, including the Energy Upgrade California[®] brand, in its marketing efforts, and
- The Action Plan states what the customer engagement campaign plans to accomplish.

On June 20, 2017, the Commission issued an amended scoping memo and ruling that expanded the scope of the ME&O proceeding⁵³ to allow the Commission flexibility to monitor the EUC Program.

On January 10, 2019, the CPUC issued D.19-01-005 which authorized the renewal of PG&E's contract with DDB through the end of 2021. Additionally, the decision maintained the current annual budget levels for the program and

⁵² AL 3770-G/4939-E.

⁵³ A.12-08-007.

authorized three additional months of funding for October, November, and December 2021.

On March 30, 2019, DDB filed the 2019-2020 JCAP that described what the customer engagement campaign would accomplish in Year 3. DDB's third annual JCAP will remain in effect until March 30, 2020.

Strategies Implemented in 2019

DDB's 2019-2020 JCAP outlined how DDB would execute toward the objectives of increasing customers' awareness of and intent to act, as previously detailed in the Strategic Roadmap. It included a review of lessons learned in Years 1 and 2 (2017 and 2018) and provided recommendations on how the customer engagement initiative could optimize and build upon that learning in Year 3 (2019). It also established the following "high-level priority" topics to be incorporated into customer engagement messaging:

- Energy Management Behaviors
- Energy Savings Assistance (ESA) Program
- Customer Experience
- Low-Cost Home Improvements (such as lighting, HVAC maintenance, and Energy Management Technologies such as smart thermostats), and
- Home Investments (such as energy-efficient appliances, HVAC upgrades and/or replacements, and building envelope improvements such as insulation, window replacement, etc.)

The IOUs participated in a Small Business Brainstorming Workshop with DDB to identify programs and actions small businesses can take to save energy. Collectively, the team agreed on broadening the audience for small business beyond what was defined in the JCAP and prioritizing an Energy Efficiency Audit as the desired action for small businesses to take.

Additionally, the IOUs shared with DDB highlights of their respective ESA Programs' local marketing efforts, in order to help inform DDB's planning for an ESA-focused statewide campaign expected to be launched in Q2 2020. The IOUs identified the measures that are key drivers for ESA program enrollment, priority regions and audiences where the IOUs' respective marketing efforts are focused, and communication tactics and marketing channels that are most successful at achieving results.

10b. Integrated Demand Side Management (IDSM) Program

Statewide Summary Program Description

The California Energy Efficiency Strategic Plan ("Strategic Plan") recognizes the integration of demand-side management (DSM) options, including energy efficiency, demand response, and distributed generation, as fundamental to achieving California's strategic energy goals. To support this initiative, the IOUs identified integrated demand-side management (IDSM) as an important strategic DSM policy priority, and proposed a series of activities, pilots, and other programs in response to the Strategic Plan's DSM Coordination and Integration Strategy.

An IOU and Energy Division Statewide IDSM Task Force was formed in 2010 and has continued coordinating statewide activities that promote the strategies identified in the Strategic Plan and the eight integration directives in D.09-09-047, as follows:

1. "Development of a proposed method to measure cost-effectiveness for integrated projects and programs including quantification and attribution methods that includes GHG and water reductions benefits and the potential long-term economic and electric/gas hedging benefits."
2. "Development of proposed measurement and evaluation protocols for IDSM programs and projects."
3. "Review IDSM enabling emerging technologies for potential inclusion in integrated programs."
4. "Development of cross-utility standardized integrated audit tools using PG&E's developed audits as a starting point."
5. "Track integration pilot programs to estimate energy savings, develop best practices and lessons learned and develop standard integration best practices that can be applied to all IOU programs based on pilot program evaluations and the results of additional integration promoting activities (i.e., EM&V and cost-benefit results)."
6. "Develop regular reports on IDSM progress and recommendations to the CPUC."

7. "Organize and oversee internal utility IDSM strategies by establishing internal Integration Teams with staff from EE, DR, DG, marketing, and delivery channels."
8. "Provide feedback and recommendations for the utilities' integrated marketing campaigns including how the working group will ensure that demand response marketing programs approved as Category 9 programs are coordinated with EE integrated marketing efforts."

Statewide Strategies Implemented in 2019

Directives 1 and 2: Cost-Effectiveness and EM&V

Efforts on integrating cost-effectiveness and EM&V methodologies are being addressed in the Integrated Distributed Energy Resources (IDER) proceeding.⁵⁴

Directive 3: Integrated Emerging Technologies

The Statewide IDSM team tracked multiple integrated emerging technologies that have some combination of EE, DR, and/or renewable self-generation capabilities. The team reviewed various programs, projects, IDSM Pilots, and activities to identify integration efforts and opportunities, and to develop best practices. Several IDSM pilots and projects continued in 2019, including several Zero Net Energy (ZNE) projects as well as projects testing DSM and DR with batteries, dynamic air balancing for commercial HVAC systems, interactive mobile device apps for EE, DR, and TOU energy management, and "smart home" voice assistance for EE and DR.

Directive 4: Integrated Audits

The Statewide IDSM Task Force continued to coordinate the delivery of a consistent online integrated audit tool that works with each IOU interface and educates residential and small-to-medium business customers on managing their energy usage and costs. The tool provided customers with customized audit recommendations that were based on customer profiles, operating characteristics, market sector potential, and cost-effectiveness. The team also enhanced existing integrated tools to include solar-related functionality, and continued to offer on-site integrated audits to small, medium, and large customers.

Directive 5: Integrated Pilots, Programs, and Activities

The Task Force regularly reviews and tracks the results of various programs, IDSM Pilots, and other activities, identifies and promotes integration opportunities,

⁵⁴ R.14-10-003.

and tracks projects where integrated efforts are underway to identify and develop best practices. Notable integrated pilots, programs, and activities include:

- Demand Response and Energy Efficiency – Reduce Your Use (RYU) Thermostat Technology Deployment (TD)
- Commercial Technology Deployment (TD)
- Behavioral Programs
- Integrated California Solar Initiative, and
- Integrated Workforce Education & Training Program Activities.

Directive 6: Regular Reports

The Statewide IDSM Task Force held regular coordination phone calls to continue ensuring alignment across the state and to discuss lessons learned. The Task Force also reviewed integration activities and tracked results through statewide meetings and formal reports to the CPUC. The reports can be found at the CPUC's EE Stats website. As noted below, the Statewide IDSM Task Force will discontinue submitting quarterly reports and will proceed by providing updates in the EE Annual Report.

Directive 7: Internal Teams

In compliance with this directive, the IOUs have developed internal integration teams that meet monthly or on an as-needed basis with IOU staff from the EE, DR, DG/CSI, and ESA Programs.

Directive 8: Integrated Marketing

Delivery of IDSM marketing in 2019 continued to be more than just promotion of multiple programs through specific tactics like production of collateral or maintenance of websites. It was (and is) a key component in the planning phases of integrated Marketing, Education & Outreach (ME&O) to help provide the right solutions to the right customer at the right time. The Statewide IDSM Task Force tracked, reported, and shared best practices related to local integrated marketing campaigns for residential and business customers.

Notable marketing campaigns are as follows:

- CARE Acquisition Campaign
- CARE High Usage Campaign
- Home Energy Checkup
- SMB Peak Day Pricing Welcome Kit DM and EM

- LC&I Demand Response Industry Engagement
- A digital, social media, and direct mail campaign to promote the smart thermostat rebate during the Black Friday and Christmas holiday promotional period, and
- Participation in residential and business events to promote IDSM offerings, including energy efficiency, solar thermal, and advanced metering.

Note: About the Remainder of This Report

On December 11, 2019, SCE received approval from CPUC Energy Division Staff to discontinue the requirement to submit an IDSM quarterly report. SCE will work with the Commission and the other IOUs to develop a revised reporting template to better reflect EE and DR integration activities. Until a new reporting format is developed, the following section of this report mirrors previous reporting structures and is therefore reporting all four IOUs' IDSM Q4 2019 activities only.⁵⁵

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⁵⁵ All Joint IOU Quarterly Overview Reports and Tracking workbooks, including the IDSM Excel Tracking File which provides in-depth details, are uploaded and available for viewing on the Commission's California Energy Efficiency Statistics website *available at* <http://eestats.cpuc.ca.gov/>.

Directives 1 and 2: Cost-Effectiveness and EM&V

See under "Statewide Strategies Implemented in 2019," above.

Directive 3: Integrated Emerging Technologies

Both the IOUs and the Task Force track emerging technologies that have some combination of EE, DR, and/or renewable self-generation capabilities.

SCE

SCE has five Zero Net Energy (ZNE) projects that were ongoing during 2019 and are now close to completion. These projects range across the commercial and residential sectors, including both retrofit and new construction approaches to integrating EE, DR, and renewable self-generation capabilities. SCE hopes to gain positive insights from the final analysis of each project to be completed in 2020.

SDG&E

SDG&E has four ongoing pilot projects in various stages of completion that are testing DSM and DR with batteries, dynamic air balancing for commercial HVAC systems, interactive mobile device apps for EE, DR, and TOU energy management, and "smart home" voice assistance for EE and DR. There are no immediate successes to report in 2019, but SDG&E hopes to provide positive insights in 2020.

PG&E

PG&E had several Zero Net Energy (ZNE) projects that were ongoing during 2019 in various stages of completion. These projects included EE, DR, and DG integration approaches for both retrofit and new construction applications in the college and university segment. There are no immediate successes to report in 2019, but upon final analysis and completion PG&E hopes to gain positive insights to report in 2020.

Directive 4: Integrated Audits

The IOUs created online integrated audit tools for residential and small-to-medium business customers with customized audit recommendations based on customer profiles, operating characteristics, market sector potential, and cost-effectiveness. The IOUs also enhanced existing integrated tools to include solar-related functionality, and continue to offer on-site integrated audits to small, medium, and large customers.

The tables below show the numbers of audits completed.

PG&E Audits in 2019 by Quarter				
	Q1	Q2	Q3	Q4
Res	52,763	39,069	52,561	35,206
Com	661	596	681	736
Ind	N/A	N/A	N/A	N/A
Ag	N/A	N/A	N/A	N/A

SCE Audits in 2019 by Quarter				
	Q1	Q2	Q3	Q4
Res	1,247	899	1,155	42
Com	N/A	N/A	N/A	N/A
Ind	N/A	N/A	N/A	N/A
Ag	N/A	N/A	N/A	N/A

SDG&E Audits in 2019 by Quarter				
	Q1	Q2	Q3	Q4
Res	2,393	657	145	N/A
Com	416	723	645	N/A
Ind	6	6	8	N/A
Ag	1	0	0	N/A

*SoCalGas Audits in 2019 by Quarter				
	Q1	Q2	Q3	Q4
Res	1,418	510	453	N/A
Com	212	579	691	N/A
Ind	34	86	251	N/A
Ag	6	35	60	N/A

***Note:** SoCalGas's Statewide IDSM Program ended on December 31, 2018.
Program updates will no longer be available.

Directive 5: Integrated Pilots, Programs, and Activities

The Task Force regularly reviews and tracks the results of various programs, IDSM Pilots, and other activities, identifies and promotes integration opportunities, and tracks projects where integrated efforts are underway to identify and develop best practices.

PG&E

Proposed Gas DR Residential Pilot (11/2021 – 3/2022):

In 2019, PG&E began developing a proposal for a residential pilot composed of two elements:

- The first element is a pilot redesign of PG&E's current Home Energy Reports with a greater focus on natural gas savings during the winter months.
- The second element is a winter (i.e., cold) storm-event-driven e-mail "blast" to be sent to a sub-segment of the customers who will be receiving gas-focused winter Home Energy Reports.

Based on prior experience with electric-focused Home Energy Reports, combined with an electric-focused behavioral demand response pilot, PG&E estimates that recipients will reduce overall winter gas demand by 1% to 2%, with an additional 1%-2% reduction during winter cold storm events for those who receive the e-mail blast. PG&E intends to include 100,000 gas-only customers in the initial pilot of the Home Energy Report redesign and to send the email blast to 25,000 customers who receive the redesigned Home Energy Reports.

SCE

Sustainable Communities:

SCE's Sustainable Communities Program is supporting Mary's Mercy Center, a Community-Based Organization, in their effort to design and construct an all-electric ZNE men's shelter in a disadvantaged community of San Bernardino. The facility will be approximately 28,000 square feet and will provide transitional housing for homeless and at-risk individuals. Since 1987, Mary's Mercy Center has provided this population with hot meals, clothing, medical services, and shelter. SCE will be helping Mary's Mercy Center couple their already deep philanthropic history with an effort that provides a model for addressing California's climate action goals.

Third Party Demand Response (DR) Programs:

SCE supports third-party DR programs through a special residential page on its public website, SCE.com.

SDG&E

Demand Response and Energy Efficiency – Reduce Your Use (RYU) Thermostat Technology Deployment (TD):

Because of market conditions and changing savings for smart thermostats, new implementation strategies were put to work in 2019:

- All Energy Star[®]-listed smart thermostat products were eligible for a rebate beginning mid-year.
- The Plug Load and Appliance (PLA) Program also partnered with the Demand Response (DR) program to offer a joint rebate of \$125 on qualifying smart thermostat products.
- A new online portal was created for customers to easily enroll in the DR Program as they were being qualified for the traditional PLA rebate.
- Additionally, the Program focused its resources on marketing heat pump water heaters and, for a limited time at the end of the year, increased their rebate to \$500. This increase in the rebate amount led to five times the typically realized sales activity in a single month.

Commercial Technology Deployment (TD):

The Commercial Technology Deployment (TD) Bring Your Own Thermostat (BYOT) offer was launched in July 2019. SDG&E offered a \$50 incentive per thermostat for commercial customers willing to purchase, install, and sign up their thermostats for a qualifying DR program. SDG&E received 30 qualified applications for the incentive through the end of Q4; however, only nine customers submitted the required paperwork to complete the enrollment process.

Behavioral Programs:

The Home Energy Advisor (HEA) Program successfully reached its designated customer base in deploying the Home Energy Report expansion, adding roughly 150,000 additional residential customers, for a total of approximately 650,000 auto-enrollments. Program results included electricity and natural gas savings, as well as serving as an entry point to additional services, including an online audit. More than 2,300 completed audits were submitted by customers in 2019. This is in addition to the number of audits in the HEA program, completed by customers who log into their My Account.

Energy Showcase:

With over 300 guests including business customers and local officials, SDG&E celebrated eight "Excellence in Energy Leadership" winners at the annual Energy Showcase event held at the San Diego Convention Center. These customers were recognized for implementing comprehensive energy solutions for their businesses, helping them be more cost- and energy-efficient.

Energy Marketplace:

SDG&E's Energy Marketplace has surpassed two million site visits since its inception in January 2016. In 2019, Marketplace Sweepstakes were conducted to build awareness of energy-saving products, and consumers were awarded smart thermostats, LED bulbs, and smart power strips.

SoCalGas

SoCalGas's Statewide IDSM Program ended on December 31, 2018.

Integrated Internal Training Efforts

PG&E

PG&E continues to engage Customer Service Representatives on integrated approaches to customer program offerings. These engagements promote communications between all divisions and departments. The IDSM team shares best practices and lessons learned with those in attendance.

SCE

SCE conducted three IDSM webinars in Q3 2019 on July 26, August 30, and September 27, and two webinars in Q4 2019 on October 25 and December 5. These webinars covered a range of topics including safety, review of activities, EE goals, and program and/or policy changes.

SDG&E

IDSM staff continued to work with program teams to develop integrated energy efficiency and demand response program offerings for residential and nonresidential customers. In addition, customer-specific segment training was conducted to inform the development of comprehensive customer solutions.

SoCalGas

SoCalGas's Statewide IDSM Program ended on December 31, 2018.

Integrated WE&T Program Activities

The Statewide Workforce Education and Training (WE&T) Program represents a portfolio of education, training, and workforce development planning and implementation activities, funded by or coordinated with the IOUs. The table below shows what was reported by each of the training centers for 2019.

Table: IOU Training Center Activities

	PG&E	SCE	SDG&E	SoCalGas
Building Systems Definition Classes	56	3	7	N/A
Technology Definition Classes	22	30	6	N/A
Total IDSM classes held:	78	33	13	N/A

*For information on SCE's Workforce Education and Training (WE&T) Program activities in 2019, see **Chapter 9**, above.*

Integrated Program Activities

PG&E

In Q4 2019, the Middle Income Direct Install (MIDI) Program treated 2,399 customer homes — the largest number of customers in any program year to date — and saved our customers over 1 GWh and 8.4k Therms. These customers received:

- Educational materials based on an analysis of their real home energy use profiles, and
- Tips on how to continue to reduce their energy usage and save money on their monthly utility bills.

In addition, continuing an effort begun in 2018, MIDI also offered smart thermostats to all treated customers with no required customer copayment.

PG&E's EE and Energy Savings Assistance (ESA) teams have partnered to offer multifamily property owners a dedicated resource to help them navigate and find the best EE program for their needs. This resource is called Multifamily Owner Services or the Single Point of Contact (SPOC). The SPOC understands all program requirements and helps building owners access offerings, as follows:

- In 2019, SPOC provided 163 program referrals, as shown in the following table:

Table: SPOC Referrals to EE and IQP Programs

Program	Number of Referrals
Bay Area Multifamily Building Enhancements (BAMBE)	56
Energy Savings Assistance (ESA) Program (CAM option)	43
Energy Savings Assistance (ESA) Program (In Unit option)	15
Electric Vehicle Program	4
Multifamily Upgrade Program (MUP)	36
On-Bill Financing (OBF) Program	9
Total	163

We are also working on implementing referrals to the following programs:

- Middle Income Direct Install (MIDI) Program
- On-Bill Repayment (OBR) Program
- Demand Response (DR) Programs
- Distributed Generation (DG) Programs
- California Department of Community Services and Development Low-Income Weatherization (CSD LIWP) Program, and
- Solar on Multifamily Affordable Homes (SOMAH) Program.

Lastly, the ESA Program is working in collaboration with water utilities and other stakeholders to implement a strategic leveraging plan that will integrate existing water conservation program offerings with ESA Program offerings. Supplemental Advice Letter 3990-G-A/5329-E-A⁵⁶ was approved in January 2019, allowing PG&E to continue to expand this effort through 2020. PG&E met its goal of having a total of 10 water agencies under contract by the end of 2019, and is expanding the water coordination program to include up to 14 water agency partnerships in 2020.

SCE

SCE continues to provide integrated programs to inform and educate customers that align with goals, programs, and policy changes.

⁵⁶ Submitted in September 2018 pursuant to D.16-11-022 and D.17-12-009.

SDG&E

The Energy Savings Assistance (ESA) program continued to work closely with the Middle Income Direct Install (MIDI) contractor. In Q3 2019, MIDI referrals for customers who did not fall within the income qualifications of the ESA Program, and which previously had to be placed on hold due to system migration efforts, were re-incorporated into day-to-day business activities. Consequently, the referrals that were passed along in Q3 to SDG&E's MIDI contractor covered the period January 1, 2019, to September 30th, 2019, thus addressing the gap in referrals. As a result, SDG&E's MIDI contractor received 2,556 referrals for customers who did not qualify for ESA but were likely eligible to participate in MIDI.

SoCalGas

SoCalGas's Statewide IDSM Program ended on December 31, 2018.

Integrated Projects

PG&E Integrated Project: Trade Pro Alliance

In Q4 2019, the Trade Pro Alliance (TPA) continued to review top-tier Trade Pro business models to learn where On-Bill Financing (OBF) loans can be applied in the future. Transitioning Trade Pros to use OBF Normalized Metered Energy Consumption (NMEC) is a challenge due to limited visibility in our finance application management database, and we are working with the OBF team to rectify this. The TPA team is also engaging with trade organizations to educate them on how the Trade Pro program is structured.

SCE Integrated Project: One-Stop Shop for Water and Energy Efficiency Program

The Irvine Ranch Water District (IRWD) collaborated with SoCalGas and SCE to leverage active financial incentive programs in designing a water-energy nexus direct install program⁵⁷ available to customers in the IRWD service area. A strategic marketing approach was employed to identify customers with the highest savings potential for all three utilities: water, natural gas, and electricity. In addition to screening customers for previous participation in water and energy efficiency programs, we considered the age of customer homes in regard to potential water savings. This direct install program was provided to participants at no cost.

Eligible energy- and water-efficient devices offered through the program included the following:

⁵⁷ Marketed to customers as the "One-Stop Shop for Water and Energy Efficiency Program."

- Faucet aerators
- Showerheads
- High-efficiency toilets
- Weather-based irrigation controllers (WBICs)
- Pool pumps
- Power strips
- HVAC tune-up, and
- Lighting fixtures.

Qualified customers were eligible to receive high-efficiency energy and indoor water efficiency devices, as well as technical assistance by the outdoor landscape contractor, during the same visit, making this program a true "one-stop shop." IRWD funded water efficiency devices while SCE funded energy efficiency devices.

SDG&E Integrated Project: Energy Solutions Partner Night

On Friday August 9th, SDG&E hosted an Energy Solutions Partner Night at the San Diego Embarcadero Marina. Over 250 partners and guests were in attendance to enjoy an informational fair and BBQ. Partners were able to browse through various SDG&E booths that offered energy-related tips and information on SDG&E energy efficiency and customer assistance programs, the Marketplace website, and various other programs and services

SoCalGas Integrated Project

SoCalGas's Statewide IDSM Program ended on December 31, 2018.

SW Integrated California Solar Initiative

The Statewide Integrated California Solar Initiative (CSI) Program is offered to residential and commercial customers. It also includes:

- Multifamily Affordable Solar Homes (MASH) Program
- Single-Family Solar Homes (SASH) Program
- Self-Generation Incentive Program (SGIP), and
- CSI Thermal - Solar Water Heating (SWH) Program.

PG&E

- Multifamily Affordable Solar Homes (MASH) Program: Eleven low-income multifamily complex projects were completed in Q4 2019.
- Single-Family Solar Homes (SASH) Program (administered by Grid Alternatives): 199 SASH projects were completed in PG&E Territory in Q4 2019.

- CSI Thermal - Solar Water Heating (SWH) Program: A total of 282 projects were completed in Q4 2019:

Table: CSI Thermal SWH Program Projects

Project Type	Number of Projects
Low Income Multifamily Residential	12
Single-Family Residential	9
Low Income Single-Family Residential	192
Single-Family Residential - Disadvantaged Community	59
Commercial / Multifamily Residential	5
Multifamily Residential - Disadvantaged Community	4
Commercial Pool	1
Total	282

SCE

- In Q4 2019, the Self-Generation Incentive Program (SGIP) paid approximately \$3.3 million in upfront incentives on eighteen projects that saved approximately 5.7 MW.
- In Q4 2019, the Multifamily Affordable Solar Housing (MASH) Program paid approximately \$690,000 in incentives for nine low-income multifamily complex projects.
- In Q4 2019, the Single-Family Solar Homes (SASH) Program (administered by Grid Alternatives) paid approximately \$1.20 million in incentives for 115 projects.
- The CSI Program had no activity in Q4 of 2019.

Note: Detailed information on incentives and energy savings for these programs is available on the California Distributed Generation Statistics Data Portal, DG Stats.⁵⁸

⁵⁸ DG Stats is the official public reporting website for California distributed generation programs. Some information is also available on the California Solar Statistics Data Portal, available at (<https://www.californiasolarstatistics.ca.gov/>), which is being transitioned to DG Stats.

SDG&E

The Center for Sustainable Energy (CSE) provides Solar and DG services for customers in the San Diego Gas & Electric service territory.

SoCalGas

SoCalGas's Statewide IDSM Program ended on December 31, 2018.

Continuous Energy Improvement (CEI)

The IOUs co-designed the Statewide Strategic Energy Management (SEM) Program to replace the Continuous Energy Improvement (CEI) Program, which has been closed and is no longer being administered by any of the IOUs.

*For more information on SCE's SEM Program, see **Chapter 3, Industrial Programs**, above.*

Directive 6: Regular Reports

The Task Force reviews integration activities and tracks results through statewide meetings and formal reports to the CPUC. The reports can be found at the CPUC's EE Stats website. The SW IDSM Task Force will discontinue submitting quarterly reports and will proceed by providing updates to the EE Annual Report.

Directive 7: Internal Teams

In compliance with this directive, the IOUs have developed internal integration teams that meet monthly or on an as-needed basis with IOU staff from the EE, DR, DG/CSI, and ESA Programs.

Directive 8: Integrated Marketing

The Task Force tracks, reports, and shares best practices related to local integrated marketing campaigns for residential and business customers.

PG&E – Residential Marketing:

- **CARE Acquisition Campaign:** Executed multi-channel, multi-touch acquisition campaigns via e-mail and direct mail, targeting CARE-eligible customers, in order to deliver new marketing enrollments in support of CARE Program penetration goals. This continued throughout the quarter with FERA digital creative and CARE digital banner advertising.
- **CARE High Usage Campaign Post-Enrollment Verification:** Mailed information every month to approximately 5,000 CARE participants identified as high energy users (400% above baseline) with

detailed instructions on how to fulfill new CPUC requirements so they could continue receiving the CARE discount. This effort, started in 2014, continues on a monthly basis with the goals of reducing operating costs, removing ineligible customers from the program, and providing subsidies only to truly qualified customers.

- **CARE Welcome Kit:** Delivered the CARE Welcome Kit via e-mail or direct mail twice a month to approximately 20,000 new CARE customers. The Kit notes their discount expiration date, provides important information to help them understand and be aware of important requirements for continuing their discount, and also includes an ESA Program application and return envelope. This effort, started in 2015, is ongoing, with the goal of supporting customer retention by driving awareness and educating customers about participating in the CARE Program and its benefits to them.
- **FERA Recertification Reminder Campaign:** Launched in July, 2019. This campaign e-mails a reminder every month to approximately 800 to 1,000 FERA customers, based on the number of days (30, 60, 90, and/or 120 days) before their discount expiration date. The goal is to encourage re-enrollment in order to retain FERA Program customers.
- **CARE Recertification Reminder Campaign:** Mailed a reminder every month to approximately 30,000 to 40,000 CARE customers, based on the number of days (30, 60, 90, and/or 120 days) before their discount expiration date. This effort started in 2014 and will continue every month. The goal is to encourage re-enrollment in order to retain CARE Program customers.
- **Energy Savings Assistance (ESA) Program Lead Generation:** This is a direct-mail lead generation campaign mailed to 100,000 CARE-enrolled customers living in ESA Program-eligible homes. The package includes a pre-populated mail-in response form.
- **ESA Program Bill Insert:** Deployed bill inserts to CARE-enrolled customers.
- **SmartAC Movers Campaign:** Executed a multi-channel, multi-touch campaign, including e-mail and direct mail tactics, targeting approximately 2,000 prospective SmartAC customers.

- **Clean Fuel Rebate, EV Savings Calculator:** This campaign:
 - Promoted (via e-mail) the clean fuel rebate to EV-rate customers that have not yet completed an application
 - Promoted the EV savings calculator tool via digital newsletters, "Drive Electric Week" events, e-mail, and digital advertisements, and
 - Promoted EV rates via national "Drive Electric Week" events.
- **Digital Newsletter:** Sent a monthly "themed" newsletter to approximately 2.9 million residential customers which highlights programs and includes other relevant topics to establish a "trusted energy advisor" relationship.
- **Home Energy Checkup:** Sent communications to the 2019 target audience encouraging them to complete the Home Energy Checkup (HEC). Where possible, the Rates team uses the HEC as a tool to help customers learn about their usage and save on their energy bill.

Placed several HEC customer engagement reminders online per ongoing initiatives to encourage customers to finish completing the HEC if they started the audit but did not finish it, and/or to remind customers to come back and retake the audit.
- **Retail and Event Rebate Tear Pads:** Used tear pads (notepads) that highlight EE rebates, My Energy, and the Home Energy Check-up tool on PGE.com to build awareness of energy efficiency products and rebates and also to serve as takeaways and/or reminders for customers who are shopping for appliances. These tear pads can be found at key retail locations and are also distributed at events throughout the year.
- **NEM Bill Communications:** Sent Welcome Kits and bill information to first-year solar customers to help them understand and keep their bills low.
- **Content Marketing:** Published articles on various energy innovations and saving options, including energy actions that residents can take, such as using the EV Savings Calculator and/or the Solar Calculator, and/or completing Home Energy Checkups.
- **Solar Choice Acquisition:** Sent e-mails encouraging enrollment in the Solar Choice Program.

- **Solar Choice Retention:** Sent communications to residential customers via printed Welcome Kits and a newsletter for existing enrollees.
- **EV Rates:** Sent a notification to customers informing them in advance of the November 2019 transition from the EV-A rate to the Home Charging EV2-A rate.
- **Community-Based Organization (CBO) Outreach:** Educated low-income, diverse communities about PG&E's rate changes initiative, providing programs, tools, and tips to reduce energy and save money.
- **Welcome Communications:** Delivered communications via e-mail or direct mail to residential customers, which included links to EE tips, Home Energy Checkup, and Bill Forecast Alert.
- **Community-Based Marketing Campaign:** Continued to leverage the CBO Pilot Program to drive awareness of and educate customers who follow selected CBOs on social media about PG&E's rate options, bill management tools, and ways to save energy and money.
- **Winter Seasonal Campaign:** Sent communications to residential customers via e-mail, search results, and ad placements to promote energy and money savings solutions. The communications promoted programs including Home Energy Checkup, Bill Forecast Alert, Rate Options, CARE, and ESA. We also provided energy savings and safety tips on the PG&E "Winter Tips" website page.⁵⁹
- **SmartRate Welcome New Season:** Launched the SmartRate Welcome New Season E-mail Campaign, which targeted newly enrolled SmartRate customers. The communication provided information on the SmartRate plan, including notice of the new season, SmartDays, Bill Protection, and ways to shift energy use.

PG&E – Business Marketing

- **Small & Medium Business (SMB) Welcome Series:** On a year-round, ongoing basis, the SMB Welcome Series campaign executes a series of communications over the first 24 months of new start, transfer, and add services. These touches (e-mail, direct mail, and automated voice messages) help to educate SMB customers about and engage them with

⁵⁹ Winter tips website *available at* https://www.pge.com/en_US/residential/save-energy-money/resources/winter-tips/winter-tips.page.

PG&E's many products and services. The target audience is roughly 5,000 SMB customers that start, transfer, or add new service every month. As these customers start service, we start them on their Welcome Series journey.

- **Solar Choice Acquisition and Retention:** Sends communications to the commercial audience encouraging enrollment via e-mail and a digital newsletter. Printed Welcome Kits are mailed to existing enrollees.
- **SMB Content Marketing through the new Business Resource Center:**⁶⁰ Content Marketing includes the creation of online articles, eBooks, and a website. We leverage Google search engine marketing (SEM) and search engine optimization best practices to elevate content to our customers who are seeking advice and insights on various PG&E-oriented topics. Energy efficiency is the lead in this campaign, which also includes DR, DG, and Rates.
- **Large Commercial & Industrial (LC&I), Mid-Market Solutions (MMA), & Small & Medium Business (SMB) Automated Demand Response:** On a year-round basis, we co-market the Targeted Managed Energy Pilot with third parties. This features savings from energy efficiency integrated with demand response, making it easy for businesses to manage buildings' electricity use more efficiently, and yielding savings on their energy bills every month. We provide support for Business Energy Solutions (BES) account managers of targeted customers through e-mail, the TradePro Alliance, downloadable resources, and online information.
- **SMB and Agriculture Energy Advisor for Business eNewsletter:** On a year-round basis, we send e-mails monthly to all small and medium commercial customers for whom we have an e-mail address (approximately 79,000 customers). New signups are received weekly through our EnergyAdvisor web page.⁶¹ This features PG&E's latest news and tools for businesses, including topics such as time-of-use, online accounts, energy assessments, seasonal savings tips, rebates, case studies, emergency preparedness, solar offerings, and much more.
- **LC&I Demand Response Website and Electronic Collateral Updates:** On a year-round basis, we update the latest PG&E incentives

⁶⁰ The Business Resource Center, available at www.pge.com/energyblog.

⁶¹ Energy Advisor website available at www.PGE.com/EnergyAdvisor.

and strategies for Demand Response across verticals, integrated with EE where possible, including downloadable resources for DR customers such as fact sheets, case studies, event-day tools, California grid conditions, bidding into the CAISO market, participating in the Demand Response Auction Mechanism, landing pages, etc.

- **LC&I, MMA, & SMB Demand Response BES Support and Training:** On a year-round basis, we provide support for BES teams across verticals through e-mail, in-person meetings, and online, including marketing materials, marketing strategies for customer engagement, program requirements, and information on incentives, rebates, integration with EE, and on-bill repayment.
- **LC&I, SMB, & Agriculture Targeted Industry Campaigns:** On a year-round basis, we continue multi-touch, multi-channel outreach to small, medium, and large customers across all industries and segments, using digital, e-mail, website, and sales collateral and integrating with BES, third parties, direct install, and trade professionals. Content primarily promotes targeted energy efficiency opportunities but extends to solutions for demand response and distributed generation.

SCE – Residential Marketing

SCE continued to support IDSM marketing, education, and outreach activities for residential customers. Marketing efforts included a Residential Welcome Kit, a Smart Energy Program/Smart Thermostat Rebate/Home Energy Advisor Campaign, a Community-Based Organizations (CBO) Rates Brochure, social media (Facebook and Twitter), bill communications, and others. Some of the notable goals of these projects are as follows.

- The Residential Welcome Kit provided an overview of SCE's programs and services, including rebates, incentives, low-income programs, energy management tools, and outage management.
- SCE's Smart Energy Program/Smart Thermostat Rebate/Home Energy Advisor Campaign utilized both traditional and mass media as well as a dedicated landing page to drive program participation.
- Informational brochures about rate changes, rate options, and energy savings tips were distributed by various community-based organizations and through social media (Facebook and Twitter). Topics include a mix of integrated EE, DR, and low-income messaging, along with outage alerts and rate updates.

SCE – Business Marketing

Southern California Edison continued its business-to-business marketing that included IDSM customer testimonials featuring numerous energy efficiency measures and demand response programs.

- **New Customer Welcome Kit:** SCE conducted a marketing campaign to educate customers about EE, DR, Energy Management tools and classes, and outage management.
- **Business Industry Summer TOU and Critical Peak Pricing (CPP) Reminder Campaign:** Executed a multi-touch, multi-channel outreach campaign to small, medium, and large customers across all industries and segments. Digital banner ads and social media (Facebook and Twitter) ads sent customers to the Business Energy Tips web page. Content primarily featured business customers who have installed energy efficiency projects, along with demand-side management tips for managing energy use during summer TOU on-peak hours and CPP events.

SDG&E

Residential Marketing

- SDG&E launched several marketing campaigns throughout the year to promote integrated energy efficiency and demand response solutions. A specific example:
 - SDG&E offered a \$125 combined energy efficiency and demand response instant rebate (\$75 from EE, \$50 from DR) on Ecobee Smart Thermostats for residential customers. Customers receiving the \$125 rebate had to agree to join SDG&E's AC Saver program through demand response, thus allowing SDG&E to adjust their thermostats remotely during critical peak energy periods.
 - This offer ran August through December with heavier promotion in November around Black Friday. Promotion for the offer was through e-mail, paid search, and paid social ads. SDG&E sent out over 1 million e-mails during the campaign.
 - The e-mail campaign generated an approximately 35% open rate and 23,000 clicks. Paid Search and Paid Social ads provided approximately 365,000 impressions with 7,400 clicks. The entire campaign delivered more than 350 total enrollments to the program.

SDG&E

Residential Outreach

- Several of the most effective ways to promote residential IDSM measures in 2019 continued to be centered around community sustainability and local events, health and wellness fairs at employer work sites, and library and Cool Zone sites. These local events allowed the Outreach team to interact with hundreds of residential customers in one location and to answer any questions customers had.
- Outreach Advisors also provided customized presentations to partners and their members where attendees could ask questions and receive guidance on MyAccount, energy related programs and services, and SDG&E Marketplace. Additionally, the ongoing initiatives around safety, emergency preparedness, and wildfire preparedness, including SDG&E's Wildfire Safety Fairs, also provided unique opportunities to promote energy-related solutions to our residential customers.

SoCalGas

SoCalGas's Statewide IDSM Program ended on December 31, 2018.

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11. Local Programs

Energy Atlas

Description of Projects

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 which 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) will be a new tool intended to include the functionality of Energy Atlas, but which is a separate and distinct project. SCE will be soliciting for the development and implementation of the CATALENA tool on a statewide basis.

Recent Developments

Southern California Edison (SCE) was assigned as the lead to administer a contract with the University of California Los Angeles (UCLA) Center for Sustainability for the maintenance and operational cost for the Energy Atlas Tool. Due to the length of time needed to negotiate the terms and conditions for the contract purchase order, SCE made two payments to UCLA (for November and December of 2019) through SCE's standard non-purchase order payment process. Since then, SCE has successfully executed the contract and will use the standard purchase order process for payments to UCLA on a monthly basis from January through December of 2020, when the contract terminates. This will allow the Energy Atlas tool to continue to operate while the new CATALENA tool (see **Page 112**, below) is under construction. The cost of both the Energy Atlas and the CATALENA projects will be funded by the Investor Owned Utilities (IOUs) based on an agreed-upon cost-sharing percentage approved in SCE Advice Letters 3859-E and 3859-E-A.

In D.18-05-041, the Commission directed the IOU Program Administrators⁶² (PAs) to select a lead to oversee the statewide deployment of a tool akin to the Energy Atlas (that is, the tool now referred to as "CATALENA"), and competitively solicit a third party to:

⁶² SCE, Pacific Gas & Electric (PG&E) Company, San Diego Gas & Electric (SDG&E) Company, and Southern California Gas (SoCalGas) Company.

- 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 will be the lead overseeing the statewide deployment of the new CATALENA tool. D.18-05-041 also directs 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 programs.

California Analysis Tool for Locational Energy Assessment (CATALENA) Project

Project Description

As directed in CPUC Decision D.18-05-041, OP 32, the IOUs, led by SCE, continued developing the scope of work for the development and implementation of the California Analysis Tool for Locational Energy Assessment (CATALENA).

The CATALENA website and database system is envisioned as giving 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 2019

To ensure that CATALENA meets the needs of the intended audience, the CATALENA Working Group engaged in the following activities:

- Held a project update webinar on October 29, 2019

- Held individual stakeholder meetings in November, 2019, and
- Conducted a stakeholder survey on prioritizing tool features from November 1, 2019 to January 15, 2020.

In 2020, in conjunction with the IOU/REN (Regional Energy Network) Working Group, SCE plans to launch a Request for Proposals (RFP) to identify a project developer that will design, implement, and maintain the CATALENA website and database.

Local Government City and County Partnerships

A key goal of SCE's Local Government Partnerships (LGPs) is helping cities and counties to lead by example by addressing EE first in their own municipal facilities. In addition, the partnerships strive to expand the energy management policies and capacities of local governments in order to maintain a focus on long-term sustainability.

In 2019, 137 cities and 10 counties, including Los Angeles, Riverside, and San Bernardino, participated in SCE's Local Government Partnerships. Twenty-four (24) partners also moved up a tier in SCE's ELP model through demonstrated EE achievements and commitment to the partnerships, including participation in EE retrofits and enrollment in demand response (DR). These advancements include twelve (12) partners advancing to Platinum Level, ten (10) to Gold Level, and four (4) to Silver Level.

Per Memo from Edward Randolph, Director, CPUC Energy Division, on December 6, 2018, SCE may claim associated energy savings from grandfathered street light customer projects towards its overall energy efficiency goal and may flag these projects as excluded from portfolio cost-effectiveness determinations through December 31, 2020. SCE shall honor its contract with 62 local government agencies that have agreed to purchase streetlights and acquire assets from SCE.⁶³ SCE is granted until December 31, 2020 to complete the projects to claim energy efficiency savings. SCE shall file a Tier III Advice Letter and seek Commission approval to claim savings for projects not completed by December 31, 2020.⁶⁴

Additionally, SCE continued working to further Strategic Plan goals by helping local governments develop a long-term EE vision and identifying specific EE projects for implementation. Overall, partner cities have developed energy action plans, which

⁶³ SCE provided a spreadsheet titled "Street Light – SCE – 10-15-18.xlsx" identifying 61 local government agencies that entered the queue before September 2015 and that remain in the process of purchasing and upgrading their street-lighting.

⁶⁴ AL 4163-E dated February 11, 2020.

establish a baseline of energy usage, set energy savings goals, and determined near-term measures to accomplish the goal. Partner cities continue to use Strategic Plan funds to install utility energy management systems, develop benchmarking plans, complete greenhouse gas (GHG) inventories, and leverage a revolving EE fund to further promote energy efficiency.

Energy Leader Partnership Program

Program Description

The intent of the Energy Leader Partner (ELP) Program was to support new local governments in SCE's service territory by:

- Identifying and implementing EE opportunities in municipal facilities, and
- Increasing community awareness of, and participation in, demand-side-management programs.

Per Advice Letter 3859-E, filed Sept. 4, 2018, SCE closed this program and ceased to add new Partnerships, focusing instead on improving cost-effectiveness in this segment. SCE will provide similar support to local governments through its existing Local Government Partnership (LGP) programs.

Strategies Implemented in 2019

The ELP Program had no activity in 2019.

Partnership Strategic Support Subprogram

Program Description

The four IOUs — SCE, PG&E, SoCalGas, and SDG&E — contracted 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). SEEC provides 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, coordinates this work.

Strategies Implemented in 2019

In 2019, SCE implemented the following strategies for the Partnership Strategic Support Subprogram:

- The annual SEEC Forum had over 330 participants, from cities, counties, and regional agencies across California.
- Eleven (11) new participants joined the Beacon Program, totaling 153 cities and counties. The Beacon Program recognized several cities and counties with awards, including 20 Energy Savings Spotlight Awards and 12 full Beacon Awards.
- Overall usage of the SEEC ClearPath tool remains very strong, with more than 340 ClearPath active users, and more than 650 ClearPath GHG Inventories have been completed. Additionally, ICLEI conducted a six-session Zero Net Energy Cohort training on how to drive toward Zero Net Energy, with over 25 participants (including 12 in Disadvantaged Communities).
- The Best Practices Coordinator's EE Coordinator Weekly Newsletter listserv (electronic mailing list) shared weekly update stories, resources, and/or events with over 2,400 subscribers. The Best Practices Coordinator also led coordination of SEEC and supported SEEC partners with strategic planning for 2020 and support of the SEEC Forum.

City of Long Beach Energy Leader Partnership

Program Description

The City of Long Beach Partnership Program is a local government partnership between SCE and the City of Long Beach. The partnership works 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 focus on addressing energy usage in municipal facilities and in the community. Analysis of municipal facilities is 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 places 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 are best suited to provide resources to residents about relevant residential and business programs.

The primary objectives of the city of Long Beach Partnership include:

- Providing specialized EE offerings to participating local governments and residential and business communities
- Leveraging their communication infrastructure to inform local communities about the wide variety of EE and DR offerings available to them and to encourage participation as much as possible
- Identifying opportunities for municipal building retrofits, new construction, commissioning, and retrocommissioning, as well as directing partnership participants to existing EE programs, and
- Accessing valuable EE expertise through technical assistance to help identify ECMs, define project scopes, estimate project costs, and determine eligible incentives and rebates.

Strategies Implemented in 2019

In 2019, the City of Long Beach Energy Leader Partnership:

- Hosted regular monthly update meetings with the city to discuss potential EE projects, and
- Continued coordination with departments such as Public Works, the Port of Long Beach, the Water District, the Parks & Recreation Department, and the Airport.

Departmental participation in SCE's incentive programs, such as Nonresidential Direct Install, contributed to the success of the Partnership in 2019:

- The city actively participated in a major street light replacement project that installed efficient LED technology to replace existing lamps, and
- Several projects at the Long Beach Convention Center were completed.

City of Redlands Energy Leader Partnership

Effective as of February 3, 2017, Advice Letter 3543-E approved moving certain single-city partnerships into regional partnerships, including the City of Redlands, which joined the San Bernardino Regional Energy Leader Partnership (see **Page 134**, below).

City of Santa Ana Energy Leader Partnership

Program Description

Effective as of February 3, 2017, Advice Letter 3543-E approved that certain single city partnerships be moved into regional partnerships, including the City of Santa Ana which joined the Orange County Cities Energy Leader Partnership (see **Page 121**, below).

Gateway Cities Energy Leader Partnership

Program Description

The Gateway Cities Energy Partnership Program (GCELP) is a local government partnership including the Cities of South Gate, Norwalk, Downey, Lakewood, and Lynwood (the "Cities" or "Partners"), along with Southern California Edison (SCE) and Southern California Gas (SoCalGas). The Partnership works to raise EE awareness, promotes long-term energy reduction goals within municipal building stock, and coordinates with the partner cities to cross-promote utility residential and business EE programs in the communities. In addition, the Partnership completes targeted retrofit and retrocommissioning projects in municipal facilities.

The Partnership provides EE education, technical assistance, and retrocommissioning (RCx) services, design consultation, energy analysis of new construction and renovation project plans, identification of demand reduction projects, and energy conservation measure (ECM) alternatives. In addition, the Partnership participates in community events that are best suited to provide resources to residents about relevant DSM programs, and offers training and education for municipal staff.

Strategies Implemented in 2019

Administrative Successes:

The Gateway Cities Partnership completed the following administrative activities:

- Continuing development of the program infrastructure, and
- Holding regular monthly update meetings with partners and program administrators throughout 2019 (except for the months of November and December, due to the holidays).

Community Outreach:

The Partnership also participated in two significant and well-attended outreach events in 2019:

- Partner cities Lakewood and Norwalk each hosted their own Community Connect events, offering distinct opportunities for community residents to engage with utility partners:
 - Norwalk's Community Connect event was held in December 2019, with about 4,000 residents and visitors in attendance.
 - Lakewood's Community Connect Event was held in August 2019. Services such as on-site evaluation of and enrollment in participating residential EE programs, such as the Energy Savings Assistance (ESA) Program, the California Alternate Rates for Energy (CARE) and Family Electric Rate Assistance (FERA) Programs, and the SCE Energy Assistance Fund (EAF), were available to community residents in attendance.

Community Energy Leader Partnership

Effective on February 3, 2017, Advice Letter 3543-E approved SCE's request to discontinue the Community Energy Leadership Partnership (CEP) in July of 2017, and to move the City of Santa Monica and the City of Santa Clarita to the West Side Energy Leader Partnership (see **Page 131**, below).

Eastern Sierra Energy Leader Partnership

Program Description

The Eastern Sierra Energy Leader Partnership ("Partnership") is a partnership between SCE and jurisdictions in the Eastern Sierra region, including the Town of Mammoth Lakes, the City of Bishop, and Inyo and Mono Counties. The partnership identifies opportunities for improving EE in Eastern Sierra jurisdictions, offers customized incentives for municipal projects, and conducts EE training and outreach events to drive participation in core EE programs.

Strategies Implemented in 2019

In 2019, SCE implemented the following strategies for the Eastern Sierra Energy Leader Partnership:

Administrative Successes:

- The Partnership continued hosting monthly calls and individual meetings and calls as necessary with local government staff, IOU program managers, and IOU account managers to help identify opportunities for IDSM projects and outreach.
- The Partnership performed marketing and outreach coordination.
- The Partnership presented updates to all jurisdictions' councils or boards of supervisors.

Collaboration With External Organizations:

- Pam Bold, Executive Director of the High Sierra Energy Foundation and Eastern Sierra Energy Initiative, met with local organizations, including the Mammoth Lakes Chamber of Commerce, Bishop Chamber of Commerce, the Mammoth Lakes Contractors Association, and Inyo Associates, to further promote EE opportunities in the region.
- Pam Bold is also the co-chair of the Partnerships Rural and Hard-To-Reach (RHTR) Working Group. The Partnership participated in monthly RHTR calls with Ms. Bold and attended three in-person meetings to share best practices and inform policy to ensure rural ratepayers receive effective EE programs and services. As part of the RHTR working group, the Partnership participated in the development of a presentation for the Statewide Energy Efficiency Forum in Sacramento.
- The Partnership participated in SCE's Central California (CenCal) Meeting Planning Team and attended the 2019 CenCal Meeting in San Luis Obispo.

Outreach to Partners and Customers:

- The Partnership participated in seven web-based workshops and webinars. These workshops were designed to educate participants on EE and/or climate-related topics and were open to all local governments.
- The Partnership entered an outreach float in the Town of Mammoth Lakes' community Independence Day parade and set up an information booth at the Banff Film Festival World Tour in Bishop.

Desert Cities Energy Leader Partnership

Program Description

The Desert Cities Energy Partnership (DCEP) Program is a local government partnership that includes 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 (IID), and Southern California Edison (SCE). The program is designed to assist local governments to effectively lead their communities to increase energy efficiency (EE), reduce greenhouse gas (GHG) emissions, increase renewable energy usage, protect air quality, and ensure that their communities are more livable and sustainable.

This Partnership focuses on installing measurable and persistent EE and conservation devices for the benefit of the partners, their residents and businesses, the State of California, and California IOU ratepayers. Partnership activities focus specifically on implementing EE measures in municipal facilities. The Partnership establishes energy savings goals through partner-identified projects that are partly funded by incentives and provides technical assistance and supports city and community EE efforts through marketing and outreach.

Strategies Implemented in 2019

DCEP team members were able to attend events throughout the year to promote the work of the Partnership and the programs offered, and to increase awareness about energy efficiency:

- The team met monthly to discuss program goals, milestones, and marketing, training, and EE projects. This meeting was rotated to different locations to encourage participation from its partners because they are significantly spread out over a wide area.
- The Partnership also held semi-annual working group meetings with the partners to discuss their ongoing projects.
- The annual Energy Summit was held at the Agua Caliente Casino and was well attended.

Because of unforeseen factors such as recession and cutbacks, many of our city champions are either no longer employed by their city or organization, or have had their duties shifted to other responsibilities, making DCEP less of a priority. Participation in meetings heavily suffered in 2018 because of this, and the problem continued in 2019.

Kern County Energy Leader Partnership

Program Description

The Kern County Energy Leader Partnership (aka Kern Energy Watch Partnership) brings together three utilities — PG&E, SCE, and SoCalGas — with eleven local governments to improve EE throughout Kern County. The Partnership now coordinates 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 participate with the Partnership in joint project, outreach, and training efforts.

Strategies Implemented in 2019

In 2019, SCE implemented the following strategies for the Kern County Energy Leader Partnership:

- Continued to explore and develop new ways to reach out and educate rural hard-to-reach (RHTR) communities on energy efficiency.
- Participated in the 2019 Statewide Energy Efficiency Collaborative (SEEC) forum in Long Beach, California.
- Met monthly to discuss program goals, milestones, and marketing, training, and EE projects.

Orange County Cities Energy Leader Partnership

Program Description

The Orange County Cities Energy Leader Partnership includes the Cities of Irvine, Costa Mesa, Fountain Valley, Huntington Beach, Newport Beach, Santa Ana, and Westminster, as well as SCE and SoCalGas. In addition to identifying and implementing EE retrofits for municipal facilities, the partnership also funds community marketing, education, and outreach efforts to create awareness and connect residents and businesses with information and opportunities to take energy actions, and includes Strategic Plan activities, such as climate action planning, code compliance, and reach codes.

Strategies Implemented in 2019

In 2019, the Orange County Cities Energy Leader Partnership completed several EE projects, with energy savings totaling approximately 3.6 million kWh and demand reduction of approximately 108 kW. The Partnership also:

- Continued to hold monthly team meetings with city Team Leaders, facility-related city staff, and IOU account representatives, for the purpose of further cementing working relationships among partner cities and the IOUs. These relationships were essential in promoting and reinforcing all program goals in 2019 and maintaining a focus on EE and sustainability.
- Continued to promote IDSM audits and DR enrollment programs to partner cities during team meetings to elevate their current tier level (if applicable).
- Sent regular communications to local energy champions for partner education, training opportunities, and encouragement to attend the annual Statewide Energy Efficiency Collaborative (SEEC) forum.
- Conducted multiple Community Outreach events to promote EE through partnership information booths and brochures.

In addition, the City of Santa Ana achieved Energy Leader Platinum status.

San Gabriel Valley Energy Leader Partnership

Program Description

The San Gabriel Valley Energy Leader Partnership is a partnership between SCE and the San Gabriel Valley Council of Governments. The Partnership identifies opportunities for improving EE in the 29 cities of the San Gabriel Valley, offers customized incentives for municipal projects, conducts EE training and outreach events to drive participation in SCE's core programs, and provides support for long-term Strategic Plan goals such as climate action planning, code compliance, reach codes, and other Strategic Plan initiatives.

Strategies Implemented in 2019

In 2019, SCE implemented the following strategies for the San Gabriel Valley Energy Leader Partnership, which:

- Held regular monthly meetings to discuss program administration, marketing, and implementation efforts.

- Continued to promote IDSM audits and DR enrollment programs to partner cities during team meetings to elevate their current tier level (if applicable).
- Continued promotion of the EASY Program (Energy Assessment Screening for Your Home), a free energy assessment for homeowners in the cities.
- Conducted multiple Community Outreach events to promote EE, which included partnership information booths, distribution of flyers, and outreach to local businesses; also participated in a lamp exchange event.
- Hosted its annual regional kick-off event, focusing on the utilities' EE incentive application process.
- Hosted six One-on-One City Energy Wise Partnership Update meetings with city staff members responsible for managing municipal and community-wide energy programs.

San Joaquin Valley Energy Leader Partnership

Program Description

The San Joaquin Valley Energy Leader Partnership, aka the Valley Innovative Energy Watch (VIEW) Partnership, is a Local Government Partnership between Pacific Gas and Electric Company (PG&E), Southern California Edison (SCE), Southern California Gas Company (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 is implemented by the San Joaquin Valley Clean Energy Organization (SJVCEO).

The VIEW Partnership identifies opportunities for improved energy efficiency (EE) in municipal infrastructure, offers customized incentives for municipal projects, conducts EE trainings, hosts and participates in outreach events to drive participation in core utility programs, and supports the California Energy Efficiency Strategic Plan (CEESP). The Partnership supports peer best-practice sharing through:

- The Peer to Peer Working Group (P2P)

- The Rural Hard to Reach (RHTR) Local Government Partnerships' Working Group
- The San Joaquin Valley Energy Watch Collaborative (SJVEWC), and
- The California Energy Efficiency Coordinating Committee (CAEECC) — both as a general member, and as a member of the Public Sector and Cross Cutting subcommittees.

Strategies Implemented in 2019

The implementer, SJVCEO, continued participation in the CAEECC as a general member and Public Sector subcommittee co-chair (as the non-Program Administrator (PA) representative), and SCE implemented the following strategies for the Partnership:

- Held four quarterly VIEW Partnership meetings.
- Held one "Lunch & Learn" session with VIEW Partner cities.
- Performed continued maintenance on the Energy Star[®] Portfolio Manager accounts of customers in the partner cities.
- Participated in six Peer to Peer Working Group bimonthly member calls and/or in person meetings.
- Hosted four SJVEWC meetings and calls.
- Participated in twelve RHTR monthly member calls and three quarterly in-person meetings.
- Participated in CPUC Energy Division Statewide Advisory Group (StAG) calls.
- Hosted 12 monthly Fund It Fast Chats on various EE project funding mechanisms for local governments.

South Bay Energy Leader Partnership

Program Description

The South Bay Energy Leader Partnership Program⁶⁵ provides integrated technical and financial assistance to help the South Bay Cities effectively lead their communities to increase energy efficiency, reduce greenhouse gas emissions,

⁶⁵ Also known as the South Bay Cities Council of Governments (SBCCOG) Energy Efficiency Partnership Program, *available at* <http://www.southbaycities.org/>.

increase renewable energy usage, protect air quality, and ensure that their communities are more livable and sustainable. The Partnership provides 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.

Strategies Implemented in 2019

In 2019, SCE implemented the following strategies for the South Bay Energy Leader Partnership:

- Conducted monthly meetings with all the partners and weekly conference calls which focused on EE projects.
- Continued to have the South Bay Energy Savings Center (SBESC) promote community EE and/or DR for the South Bay region.
- Conducted educational activities throughout the 15 partner cities, including workshops and community events.
- Held an Annual Holiday Light Exchange serving several hundred households with ENERGY STAR[®]-rated holiday LED strands in exchange for old incandescent strands.
- Continued to promote the benefits of participating in Beacon Award activities.

South Santa Barbara County Energy Leader Partnership

Program Description

The South Santa Barbara County Energy Efficiency Partnership (SCEEP) includes SCE, Santa Barbara County, and the Cities of Santa Barbara, Goleta, and Carpinteria. The program generates energy savings by identifying municipal EE projects and provides education, training, and marketing and outreach. Cities complete retrofits of their own facilities and conduct community sweeps and outreach to their residential and business communities to increase participation in core programs. The Partnership:

- Funnels customers to existing SCE core EE programs, and acts as a portal for other demand-side management offerings, including the Income Qualified Energy Savings Assistance (ESA) and CARE Programs, demand response programs, and the Self-Generation and California Solar Initiative Programs

- Provides energy information to all market segments
- Identifies projects for municipal retrofits, and
- Includes Strategic Plan activities, such as climate action planning, code compliance, reach codes development, and other Strategic Plan initiatives.

Strategies Implemented in 2019

In 2019, SCE implemented the following strategies for the South Santa Barbara County Energy Efficiency Partnership:

- Promoted On-Bill Financing for municipal partners and their local communities to increase participation in SCE's core EE programs.
- Participated in several community exhibits and outreach events, including:
 - The Santa Barbara Earth Day Festival April 26-28, with approximately 32,000 attendees
 - The Central Coast Sustainability Summit at UCSB in November
 - The Local Government Commission Statewide Energy Efficiency Collaborative (SEEC) meeting in June, and
 - A SCEEP Awards Luncheon, held in April, to honor SCEEP partners for their contributions toward increasing energy efficiency in Santa Barbara County's southern region.
- Continued to partner with the countywide Green Business Program,⁶⁶ a voluntary certification program that SCEEP supports. More than 84 businesses have been certified through the program. Using modeling tools from the statewide Green Business Network, the Partnership compiled data from current certified businesses and calculated total on-bill energy savings of 1.15 million kWh per year.

In addition, the City of Santa Barbara concluded its Zero Net Energy Roadmap for municipal facilities with strategic planning funds. The project also included benchmarking of City facilities.

⁶⁶ To be certified as a Green Business, the business must demonstrate that it takes action to conserve resources and prevent pollution in both its facility or facilities (that is, fixtures and maintenance) and its operations (purchasing and other practices).

Ventura County Energy Leader Partnership

Program Description

The Ventura County Energy Leader Partnerships, also known as the Ventura County Regional Energy Alliance (VCREA), in partnership with SoCalGas and SCE, builds on progress towards implementing a targeted program of energy savings for public agencies⁶⁷ throughout the Ventura County region. VCREA supports 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, to engage in the Energy Leader Model program, and applies the strengths of the VCREA and its utility partners to help public agencies lead their communities to greater participation in EE programs.

Strategies Implemented in 2019

In 2019, SCE implemented the following strategies for the Ventura County Energy Leader Partnership:

Retrofit Projects:

- Completed three public agency projects that leveraged utility incentives, with energy savings totaling more than 400,000 kWh net and demand reduction of approximately 110 kWh net.

Administrative Successes:

- Continued to meet monthly to discuss Energy Leader program goals, marketing milestones, training, and EE projects.

Customer Outreach:

- Offered over 40 community events and presentations, and four trainings on the topics of benchmarking, HVAC, solar energy, and Title 24.

Collaboration With Partners:

- Collaborated on public and partners education and marketing outreach efforts with multifamily and income-qualified utility EE programs and with:
 - Community Action of Ventura County
 - Ventura County Public Health
 - The Energy Coalition (TEC)

⁶⁷ That is, city or county governments and any other public sector organizations.

- The Community Environmental Council
- The Local Government Commission, and
- The South Santa Barbara County Energy Leader Partnership.
- Continued working with Climate on the Move, a regional inventory of greenhouse gas emissions, and supporting the CiviSpark fellowship program.
- Co-hosted a partnership meeting with the South Santa Barbara County EE Partnership (SCEEP).
- Collaborated on joint marketing efforts to promote Energy Efficiency and Transportation Electrification programs with:
 - Central Coast Climate Collaborative (4C)
 - Municipal Management Association of SoCal
 - Local Chambers of Commerce
 - Electric Drive 805 Coalition
 - County Public Health
 - The Energy Coalition
 - Community Environmental Council
 - South County Energy Efficiency Partnership, and
 - Local Government Commission.

Strategic Planning – Benchmarking:

- Concluded the benchmarking report of the Cities that participated in the Strategic Planning work begun in previous years.

Strategic Planning – Energy Action Plans (EAPs):

- Completed greenhouse gas inventories for the Cities of Ventura, Moorpark, and Thousand Oaks, receiving approval on the methodology from ICLEI
- Developed a methodology report and inventory workbook template to share with other Ventura County jurisdictions
- Completed Round 1 and 2 community engagement, and
- Completed EAPs for Ventura and Thousand Oaks.

Strategic Planning – Revolving EE Loan Funds:

- Researched jurisdictions that have implemented revolving EE loan funds
- Developed an EE Loan Fund policy and program incorporated in the

- County of Ventura General Fund update, and
- Completed Round 1 community engagement and developed a Round 2 engagement plan.

Western Riverside Energy Leader Partnership

Program Description

The Western Riverside Energy Leader Partnership (WRELP) delivers energy savings by implementing EE measures in municipal facilities. The partnership offers marketing, education, and outreach to local governments and their communities, coordinates with core utility EE and DR programs, and provides strategic planning assistance to 14 participating cities.

Strategies Implemented in 2019

Community Outreach / Presentations:

WRELP continued to see success in its community outreach approach where staff assisted both residents and businesses on energy efficiency support. The Partnership:

- Participated in ten community themed events that supported the marketing outreach of utility electricity and gas programs, and distributed income-based program information, tote bags, and pens
- Coordinated with five of the Partnership member agencies to provide and conduct the annual Holiday LED Light Exchange Program in November and December
- Assisted several of the partnership Cities with their participation in the SCE and SoCalGas Direct Install programs
- Continued to promote SCE's DR programs and encourage partner cities to participate, and
- Promoted the Energy Savings Assistance (ESA) Program and the Middle-Income Direct Install (MIDI) Program in the region.

Retrofit Projects (Streetlights):

A positive success that the Partnership achieved in 2019 was the retrofit of several agencies' streetlights to LED. As part of this support, WRELP staff also helped its members complete and submit applications for program incentives.

Collaboration With Partners:

The Partnership also:

- Completed two quarterly meetings which provided the member agencies with energy efficiency support and updates on both SCE & SoCalGas operations, and
- Conducted one-on-one meetings with member cities to help them move up the tier levels of the Energy Leader model.

High Desert Regional (HDR) Partnership

Program Description

The High Desert Regional (HDR) Partnership (formerly the Adelanto Energy Leader Partnership) is 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 is implemented by the San Joaquin Valley Clean Energy Organization (SJVCEO).

The HDR Partnership identifies opportunities for improved EE in municipal infrastructure, offers customized incentives for municipal projects, conducts EE trainings, hosts and participates in outreach events to drive participation in core utility programs, and supports the California Energy Efficiency Strategic Plan. The Partnership supports peer best practice sharing through the Peer to Peer Working Group (P2P), the Rural Hard to Reach Local Government Partnerships' Working Group (RHTR Working Group), and, through its implementer, the California Energy Efficiency Coordinating Council (CAEECC), both as a general member and on the Public Sector and Cross Cutting subcommittees.

Strategies Implemented in 2019

- Held six bi-monthly HDR Partnership meetings and the annual HDR Partnership awards luncheon
- Participated in six Peer to Peer Working Group monthly member calls and in-person meetings
- Co-chaired 12 RHTR Working Group monthly member calls and participated in three quarterly in-person meetings
- Participated in five CAEECC membership and working group meetings

- Participated in CPUC Energy Division Statewide Advisory Group (StAG) calls, and
- Hosted seven Fund It Fast Chats on various EE project funding mechanisms for local governments

The Partnership implementer continued participating in the CAEECC as a general member and Public Sector subcommittee cochair (as the non-PA representative).

West Side Energy Leader Partnership

Program Description

The West Side Energy Leader Partnership (WSELP) is 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 focus on:

- Implementing EE in municipal facilities
- Promoting EE in the community
- Establishing energy savings goals for EE retrofits of city-owned facilities
- Identifying, scoping, and implementing EE projects, and
- Funding community education, marketing, and outreach efforts to create awareness and connect residents and businesses with information and opportunities to take energy actions.

Strategies Implemented in 2019

In 2019, SCE implemented the following strategies for the West Side Energy Leader Partnership:

Core Function Activities:

- Concluded the Strategic Plan energy benchmarking project for all six Partner cities, and
- Completed several EE projects with energy savings totaling approximately 1.76 million kWh and demand reduction totaling approximately 150 kW.

Collaboration With Partners:

- Continued to hold bi-monthly Efficiency Now! Team meetings with city Energy Champions and facility-related city staff, IOU Account Representatives, and TEC staff for the purpose of further cementing

working relationships that were essential in successfully reaching all program goals in 2019 and maintaining a focus on EE and sustainability, and

- Continued to promote IDSM audits and DR programs to the cities during team meetings.

Community Outreach:

- Sent Partnership e-mail blasts to local energy champions for partner education, training opportunities, and encouragement to attend the annual Statewide Energy Efficiency Collaborative (SEEC) forum
- Promoted SCE Partnership resources and programs at educational Lunch & Learn meetings
- Regularly produced "City Accomplishments" documents, customized for each partner city, to showcase their achievements, and distributed them to city managers, council members, and city decision-makers, and
- Supported the cities of Malibu, Beverly Hills, and West Hollywood in moving up the ELP tier levels.

North Orange County Cities Energy Leader Partnership

Program Description

The North Orange County Cities Energy Leader Partnership is 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 focus on implementing EE in municipal facilities and promoting EE in the community. The Partnership:

- Establishes energy savings goals for EE retrofit of city-owned facilities
- Identifies, scopes and implements EE projects
- Funds community education, marketing, and outreach efforts to create awareness and connect residents and businesses with information and opportunities to take energy actions, and
- Includes Strategic Plan activities, such as climate action planning, benchmarking policies, and greenhouse gas inventories.

Strategies Implemented in 2019

In 2019, SCE implemented the following strategies for the North Orange County Cities Energy Leader Partnership:

Core Function Activities:

- Completed energy efficiency projects with energy savings totaling more than 2 million kWh and demand reductions of approximately 20 kW
- Concluded the implementation of a Strategic Planning energy benchmarking project for all the Partner cities, and
- Pursued an audit at the City of Orange Police Department and Corporation Yard to identify energy-saving measures.

Collaboration With Partners:

- Continued to hold monthly Efficiency Now! Team meetings with city team leaders and facility-related city staff, IOU Account Representatives, and TEC staff for the purpose of further cementing working relationships, and
- Continued to promote IDSM audits and DR programs to partner cities during team meetings.

Community Outreach:

- Sent several Partnership e-blasts to local energy champions for partner education, training opportunities, and encouragement to attend the annual Statewide Energy Efficiency Collaborative (SEEC) forum
- Conducted multiple Community Outreach events
- Produced annual "city accomplishments" documents, customized for each partner city, to showcase their achievements, and distributed them to city managers, council members, and city decision-makers
- Coordinated and conducted a city council meeting presentation to recognize ELP tier elevation for the Cities of Fullerton and Yorba Linda, and
- Coordinated and presented an LGP-focused plenary session at the SEEC Forum in Long Beach to share best practices.

San Bernardino Regional Energy Partnership

Program Description

The San Bernardino Regional Energy Partnership (SBREP) is a joint energy efficiency (EE) partnership between the San Bernardino Council of Governments (SBCOG), SCE, and SoCalGas. The Partnership extends 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 include:

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

Strategies Implemented in 2019

Core Function Activities:

- Continued to identify potential projects by providing technical assistance for energy audits, and
- Coordinated with SCE's Direct Install Program to promote T-LED measures.

Collaboration With Partners:

- Coordinated with the participating cities on a monthly basis via conference call, and on a quarterly basis via in-person meetings. These meetings provide a venue for discussing EE goals and opportunities, project milestones, and training opportunities, in addition to providing a roundtable forum to discuss best practices and lessons learned.
- On an as-needed basis, facilitated one-on-one meetings with member cities to focus on their individual needs.

- Worked with all partner cities to complete the requirements of the Energy Leader Partnership Model in order to help them move up the tiers.
Community Outreach:
 - Provided EE educational outreach support at community events
 - Hosted a Holiday LED Light Exchange and EE starter kit events in the participating SBREP cities, and
 - Continued to promote SCE's DR programs and encourage partner cities to participate.

Local Government Strategic Planning Program

Program Description

The Local Government Strategic Planning Program was designed to provide increased funding and support for city, county, and regional governments to pilot activities that directly support the Local Government Strategic Plan goals and strategies. The pilots resulted from a solicitation process whereby local governments proposed activities, above and beyond normal partnership work, that directly aligned with the California Energy Efficiency Strategic Plan.

Strategies Implemented in 2019

In 2019, SCE worked in collaboration with all Partners to complete all open Local Government Strategic Planning Program activities. The Program has been closed to further activity, with the exception of final invoices to be submitted by March 31, 2020.

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Local Government Partnerships – County Partnerships

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

County of Los Angeles Energy Efficiency Partnership

Program Description

The County of Los Angeles ("LA County") Partnership supports 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). EE projects focus on County-owned municipal buildings, and include lighting, HVAC, retrocommissioning, and Savings By Design (SBD) new construction projects at each of the 38 County departments served by the Energy Management division of the County Internal Services Department. Additional efforts with the County Office of Sustainability include:

- Support and coordination for the Energy Upgrade California[®] (EUC) Program, and
- Strategic Plan solicitation activities that expand the County's Enterprise Energy Management Information System (EEMIS). This allows LA County to receive and analyze participating city data in order to help the cities manage energy usage better and to support identification of EE opportunities.

Strategies Implemented in 2019

Administrative Successes:

- The Partnership collaborated with the LA County Internal Services Department (ISD) to capitalize on EE opportunities by working with representatives from the 38 LA County Departments for which ISD provides energy management services, and
- The Partnership also worked with ISD, Public Works, Parks and Recreation, and the Metropolitan Department of Transportation on strategies to develop energy savings opportunities and strategic implementation forecasts.

Retrofits:

- The Partnership completed audit and eQuest models for eight retrocommissioning projects, and
- The Partnership was active in implementing a project at the LA County Pitchess Complex that is estimated to generate over 6 million kWh in energy savings.

Strategic Planning Support:

- The Partnership worked with the County to continue efforts started in 2011 for the Strategic Plan 5.6 Solicitation, by continuing to work on expansion of the EEMIS System to over 50 local governments.

Education and Outreach:

- The Partnership made presentations to representatives from LA County departments to encourage them to participate more in partnership activities and to identify EE projects with deeper savings opportunities.

County of Riverside Energy Efficiency Partnership

Program Description

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

The Partnership improves EE in Riverside County municipal facilities by leveraging utility resources, customized to the County's unique needs. The Partnership also supports Riverside County in meeting, first, the CO₂ reduction requirements of AB 32 and second, CPUC energy savings goals and objectives. However, due to budget constraints, the County has not participated in an EE program with the IOUs since 2015.

Strategies Implemented in 2019

In 2019, the County of Riverside Energy Efficiency Partnership continued hosting monthly meetings that include County staff and utility Account Managers and Program Managers to help identify opportunities for IDSM projects, marketing, outreach, and other related activities.

County of San Bernardino Energy Efficiency Partnership

Program Description

The County of San Bernardino Partnership Program is a local government partnership between the County of San Bernardino, SCE, and the Southern California Gas Company (SoCalGas). The program is designed to assist the County in identifying energy efficiency (EE) opportunities. The County can then increase energy efficiency in more facilities, reduce greenhouse gas emissions, increase renewable energy usage, protect air quality, and ensure that their communities are more livable and sustainable.

The Partnership focuses 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 ratepayers. Partnership activities focus specifically on implementing EE measures in municipal facilities. The Partnership establishes energy savings goals through county-identified projects, funded by incentives and technical assistance.

Strategies Implemented in 2019

In 2019, the Partnership team:

- Met on a monthly basis to identify EE opportunities within the County, with participation from multiple County departments, and
- Continued to help the County identify projects that have paybacks of less than three years.

Regional Energy Network Partnerships

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 2016-2017. Subsequently, on June 6, 2018, the Commission approved SoCalREN's 2018-2025 Energy Efficiency Rolling Portfolio

Business Plan.⁶⁸ In December 2019, the Commission approved a Decision removing the pilot status of SoCalREN and authorized the continuation of SoCalREN through the end of the business plan period.⁶⁹ A joint agreement between SCE, SoCalGas, and SoCalREN, with SoCalGas as the lead administrator, defines the SoCalREN Partnership, through which the IOUs provide fiscal oversight for the programs but do not directly manage them.

In 2019, SCE worked cooperatively and collaboratively with SoCalGas and SoCalREN to coordinate complementary services — technical assistance audits, project development, incentive applications, On-Bill Financing (OBF), and financial impact analysis — and create a positive, successful experience for customers and ratepayers.

Strategies Implemented in 2019

In 2019, SCE implemented the following strategies for the SoCalREN Partnership:

Collaboration Among Partners:

- SCE, SoCalGas, and SoCalREN worked together, as required by D.18-05-041,⁷⁰ to develop a Joint Cooperation Memo (JCM) which details SoCalREN's 2020 programs, SoCalGas and SCE's comparable 2020 programs, and the coordination among the Program Administrators (PAs) in overlapping service territories. The JCM was approved on July 17, 2019.
- Partnership committees continued meeting, 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 core program activities to minimize customer and ratepayer confusion, and

⁶⁸ D. 18-05-041, Decision Addressing Energy Efficiency Business Plans.

⁶⁹ D. 19-12-021, Decision Regarding Frameworks for Energy Efficiency Regional Energy Networks and Market Transformation,.

⁷⁰ D. 18-05-041, Decision Addressing Energy Efficiency Business Plans

- Additional working meetings were conducted as needed to coordinate and support implementation of SoCalREN Residential, Finance, and Public Agency Programs.

Administrative Successes:

The SoCalREN Fiscal Oversight and Partnership also:

- On a monthly basis, reviewed and processed for payment all program implementer invoices forwarded through SoCalREN for work performed in 2019, and participated in working meetings with LA County's financial team to resolve invoice issues within 15 days of receipt of any monthly invoice package
- Maintained a database that confirms customer account validation, past participation, and stores project data for reporting purposes
- Revised the SoCalREN Public Agency Coordination Plan to streamline coordination of SCE and SoCalGas's individual core program activities and third-party offerings, in order to minimize customer and ratepayer confusion when working with SoCalREN
- Amended and restated the contract between SCE, SoCalGas, and SoCalREN to extend the funding period through 2025, 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, issued June 6, 2018.⁷¹ In that Decision, the Commission approved 3C-REN's 2018-2025 Energy Efficiency Rolling Portfolio Business Plan. In December 2019, the Commission approved D.19-12-021 removing the pilot status of 3C-REN and authorized the continuation of 3C-REN through the end of the business plan period.⁷² A joint agreement between Pacific Gas and Electric, SCE, SoCalGas,

⁷¹ D. 18-05-041.

⁷² D. 19-12-021, Regarding Frameworks for Energy Efficiency Regional Energy Networks and Market Transformation.

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 2019, SCE worked cooperatively and collaboratively with PG&E, SoCalGas, and 3C-REN to coordinate complementary services and create a positive, successful experience for customers and ratepayers.

Strategies Implemented in 2019

In 2019, SCE implemented the following strategies for the 3C-REN Partnership:

Collaboration Among Partners:

- PG&E, SCE, SoCalGas, and SoCalREN worked together, as required by D.18-05-041, to develop a Joint Cooperation Memo (JCM)⁷³ which details 3C-REN's 2020 programs, PG&E, SoCalGas, and SCE's comparable 2019 programs, and the coordination among the Program Administrators (PAs) in overlapping service territories. The JCM was approved on July 17, 2019.
- Partnership committees continued meeting, which facilitated discussion and resolution of issues:
 - The IOU-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 Tri-County Regional Energy Networks Residential, Codes and Standards, and Workforce, Education and Training Programs.
- Completed the contract between PG&E, SCE, SoCalGas, and 3C-REN to fund 3C-REN through 2025, and
- Coordinated WE&T training activities and provided 3C-REN with lists of classes available in the Tri-County area.

Administrative Successes:

The 3C-REN Fiscal Oversight and Partnership also:

⁷³ AL 4018-E.

- On a monthly basis, reviewed and processed for payment all program implementer invoices forwarded through 3C-REN for work performed in 2019, and
- Developed a process to validate customers and ensure no double-dipping of 3C-REN Residential Direct Install Program savings.

Institutional and Government Core Energy Efficiency Partnerships

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 (UC and 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 Partners' staff to develop a pool of retrofit, new construction, and retrocommissioning projects for implementation.

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 2019

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 and successfully implement hundreds of Prop 39 projects across the State.⁷⁴ These projects were implemented using the final year of funding provided by the state legislature. Typical project types implemented were LED lighting, Heating, Ventilation, Air Conditioning (HVAC) and HVAC controls, and Retrocommissioning (RCx).
- All the Prop 39 projects were completed and closed out in 2019. Due to cost underruns in 21 districts, roughly \$6 million in project cost savings was realized with some unspent funds left. Because of this, the CCC Chancellor's Office will be issuing a Proposition 39 extension to move these project savings to new projects in 2020.

⁷⁴ Over \$184 million in Proposition 39 funding was allocated to districts over the five-year life of the fund.

- 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 CA 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.
- 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.
- 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.

California Dept. of Corrections and Rehabilitation (CDCR) EE Partnership

Program Description

The CDCR EE Partnership is 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 work 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 maximize energy savings opportunities in a cost-effective manner.

Complementing this are education and outreach efforts for prison facilities operations and maintenance staff to adopt best EE and DR practices and support CDCR's pursuit of all types of financing to fund a robust pipeline of projects with deep energy savings.

Strategies Implemented in 2019

Administrative Successes:

- Regular management team meetings (every 4 weeks) and executive team meetings (quarterly) were key to identifying and managing projects, and to proactively addressing any challenges the program may face
- The program continued the effort to ensure new construction projects, gas-saving projects, and water conservation projects were clearly tracked and proactively managed, and
- Through the CDCR Partnership, energy audits were originally performed in 2006 for the institutions within the IOU territories. In 2019, CDCR and the IOUs created a master schedule and prioritization of EE audits to use as a planning tool for future EE projects, and expect this effort to continue to create a robust pipeline.

Retrofit Projects:

- In 2019, 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 is minimal, EE projects can be identified through the CDCR Partnership and implemented through the IOU core and On-Bill Financing (OBF) Programs. On-Bill Financing has been and remains the primary source of funding. This trend will likely continue as several IOUs have increased their OBF limits⁷⁵ to \$4M 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.
- The IOUs and the Program Administration Manager (PAM) supported development of the new projects. To support further project development, the IOUs performed energy audits of a subset of CDCR's facilities, which

⁷⁵ Per Tier II AL 4051-E, approved on October 4, 2019. See also **Chapter 6, Finance Programs**, above.

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 are identified early in the development cycle, so each project capitalizes on the unique and evolving mix of opportunities.

State of California Energy Efficiency Partnership

Program Description

The State of California Energy Efficiency Partnership is 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 is 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 that will achieve both immediate EE savings and long-term sustainability. The California Department of Finance Energy\$Mart Program provides financing for EE projects.

Strategies Implemented in 2019

Administrative Successes:

- The Partnership continued to attend the meetings of the State of California's Sustainable Building Working Group (SBWG) of agency sustainability managers, and to assist the SBWG with its task of planning and implementing all aspects of the Governor's Executive Order B-18-12 and the Green Building Action Plan.
- 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.
- All the IOUs and DGS closed out a working group to address Savings by Design (SBD) participation barriers for DGS buildings. Working group efforts led to the development of a flowchart to improve understanding of the DGS procurement process. The group also:

- Finalized DGS contract language
 - Reviewed established incentive structures, and
 - Defined alternative payment solutions that will better align with DGS systems.
- The Partnership continues to track an SBD project currently in progress to use as a test case for implementing solutions developed by the working group.

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 has provided extensive outreach and technical support to agencies including:
 - California Highway Patrol (CHP)
 - Department of Motor Vehicles (DMV)
 - Department of Parks and Recreation (DPR)
 - The Judicial Council of California (JCC), and
 - The Department of Food and Agriculture (DFA).

Education and Outreach:

- The IOUs continued attending the Sustainable Building Working Group meetings, a State of California working group of agency sustainability managers with the task of planning and implementing all aspects of Governor's Executive Order B-18-12. The IOUs attend in a supporting role to ensure that agency needs regarding energy data for benchmarking are met, and continue to use this platform for agency outreach.
- In response to the Public Safety Power Shutoffs, 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 and continues to create a robust pipeline of future projects.

University of California / California State Universities (UC / CSU) EE 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 recent addition of 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 approximately 65 MW in demand reduction and delivers approximately 470 million kWh/year and 25 million therms/year in energy savings statewide.

Strategies Implemented in 2019

Administrative Successes:

- With the assistance of and input from the University of California, the IOUs continued implementation and development of various program offerings and High Opportunity Project or Programs (HOPPs), including a Whole Building program consistent with SB 350, AB 802, and AB 1150, to demonstrate measured savings against existing conditions, pay for performance, and a comprehensive whole-building approach to building efficiency, and
- The Program Administration Manager (PAM) implemented a new, more cost-effective and efficient project tracking database for the Partnership to replace the existing database. An effort was also undertaken to clean up the Partnership's existing legacy data and conform it around measure types and sub-measure types to allow for more effective use of the Partnership dashboard and historical dataset.

Retrofit Projects:

A significant volume of energy efficiency projects was delivered in 2019 and continues underway for future years:

- The Partners completed 52 Retrofit, MBCx, and New Construction projects at 16 different UC and CSU campuses (including the UC Med Centers).

- In addition to Normalized Metered Energy Consumption (NMEC, aka "meter-based") projects, UC and CSU focused on:
 - Addressing barriers to energy efficiency
 - Continuing a second phase of UC's Million Lamps Challenge, and
 - Continuing work on a California Energy Commission (CEC) Grant to develop a Master Enabling Agreement for energy efficiency at UC and CSU campuses.
- SCE's Clean Energy Optimization Pilot (CEOP) began at several campuses on July 1, 2019. CEOP and the Partnership are mutually exclusive, so Partnership activities at CEOP campuses are winding down.

Education and Outreach:

In 2019, the Partnership experienced a significant budget cut which resulted in the discontinuation of the Partnership Training and Education Program.

Public Sector Performance Based Retrofit Program

Program Description

The Public Sector Performance Based Retrofit Program (PBRP)⁷⁶ 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 by measuring, tracking, and incentivizing savings delivered at the meter. SCE targets buildings in the public sector that are most challenged in addressing meaningful energy savings because of being susceptible to delayed improvements and postponement of repairs to equipment.

The PBRP Program complements the additional goals of the targeted entities by allowing participants to track savings and ensure the performance of their long-term energy efficiency investments, and supports their economic goals and climate action plans. The shift to NMEC has the potential to yield greater and more permanent savings, making energy efficiency a resource. By aligning with climate and cost-reduction goals, the Program can be a valued strategy for helping Public Sector entities meet their sustainability goals. SCE has developed this Program to

⁷⁶ Approved in AL 3460-E-A.

eliminate barriers, improve transparency, ensure persistence, and increase overall energy savings in the public sector.

Strategies Implemented in 2019

In 2019, SCE implemented the following strategies:

- Working collaboratively with the Southern California Regional Energy Network (SoCalREN), we were able to identify over 60 projects and review them for their potential to participate in the program at the NMEC site level
- To address the barriers identified in the Business Plan and meet the needs of local government customers, SCE rolled out an On-Bill Financing (OBF) offering for PBRP projects, and
- In late 2019, the program completed its first project with UC Santa Barbara's Physical Science and Chemistry Building, which saved over 1 million kWh. This High Opportunity (HOPPs) project was the first NMEC site-level project in the State of California, and based on its success, SCE will continue offering this program to its customers in 2020.

We also continued collaborating with the Southern California Regional Energy Network (SoCalREN) to:

- Provide up-front project screening for Public Sector customers, and
- Jointly develop marketing material for public sector customers that presents the benefits of meter-based programs.

SoCalREN also provided audit support for participants who met initial program eligibility requirements.

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12. Third Party Programs

Third Party programs deliver electric savings and demand reduction through consultants (**implementers**) in a wide variety of customer segments defined by North American Industry Classification System (NAICS) codes within SCE's service territory. Integral to the programs are site assessments and reports to identify energy efficiency (EE) savings opportunities and provide recommendations to program participants, together with technical assistance and incentives and rebates to support the installation of the recommended equipment.

Consultants oversee all program activities from marketing and recruitment through installation and verification of EE and/or demand response (DR) measures and incentive payment documentation. As part of the verification process, consultants also perform post-installation on-site inspections to confirm proper measure installation and refine energy savings calculations.

The incentive rates, incentive limits, and statewide program requirements are similar to those of Pacific Gas & Electric (PG&E) and San Diego Gas & Electric (SDG&E) within their service territories. Program packaging and individual offerings may vary slightly between the utilities.

Closed Third Party-Implemented Programs

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

- Cool Planet Program
- Healthcare Energy Efficiency Program
- Data Center Energy Efficiency Program
- Lodging Energy Efficiency Program
- Cool Schools Program
- Commercial Utility Building Efficiency (CUBE) Program
- Food & Kindred Products Program
- Oil Production Program
- Midsize Industry Customer EE (MICE) Program, and
- IDEEA 365 Program.

In addition, the following programs were closed to new applications effective December 31, 2019:

- Schools Energy Efficiency Program
- Comprehensive Chemical Products Program, and
- Enhanced Retrocommissioning Program.

Comprehensive Manufactured Homes Program

Program Description

The Comprehensive Manufactured Homes (CMHP) Program is a direct install program designed to provide comprehensive EE services to mobile home customers, in collaboration with local communities seeking to maximize service to their residents. The program, implemented in coordination with the Southern California Gas Company (SoCalGas), installs energy-efficient products at no charge in mobile home dwellings 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 2019

In 2019, SCE implemented the following strategies for the CMHP program:

- Continued the promotion and installation of the Smart Thermostat measure, which has been the most popular and most requested measure in the program. CMHP leveraged the measure's popularity to get a "foot in the door" with customers, enabling the program to promote additional measures and services. For many customers, this measure provided a first-time experience in using energy management technology. Upon completion of the installation, customers were provided with an overview of the thermostat and how to use it, as well as contact information for any additional questions they might have.
- Collaborated with SCE's Meter Conversion pilot to provide CMHP services to customers who were impacted by construction work required for meter conversion.
- Continued outreach to mobile home parks that have not previously participated in the program. The implementer conducted this outreach through in-person presentations for mobile home park managers and their staffs.

- 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.

Cool Planet Program

The Cool Planet Program was closed effective December 31, 2018, per Advice Letter 3859-E, filed September 4, 2018.

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 described in SCE's 2013-2014 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 DR solutions for these facilities' energy management needs. HITEEP provides complete audit and project identification services, in addition to incentives and fixed-unit-price measures (with or without a customer copayment) to qualified customers.

Strategies Implemented in 2019

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.

Data Center Energy Efficiency Program

Program Description

The Data Center Energy Efficiency Program (DCEEP) addresses the complex issues of this industry's hesitancy in adopting EE behaviors, initiating facility upgrades, and achieving significant, cost-effective energy savings. DCEEP is a comprehensive retrofit program targeting small, medium, and large data centers as well as other information technology (IT)-related facilities. The Program provides an integrated approach by delivering EE upgrades to IT equipment and optimizing cooling-related systems. A third-party consultant, Willdan Energy Solutions, provides audit and consulting services.

Strategies Implemented in 2019

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.

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 territory. 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 2019

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.

Cool Schools Program

Program Description

The Cool Schools Program is designed to overcome cost constraints and trade-offs that would otherwise impede or halt EE upgrades at public schools. In

general, public schools considering EE measures face the dilemma of choosing between consuming a higher proportion of capital budgets on energy-efficient but more expensive equipment, and using more energy to power less efficient, but also less expensive, equipment. Cool Schools targets schools that present the greatest potential for energy savings resulting from the purchase and installation of highly efficient cooling equipment. A key value of the program is the penetration of a difficult, hard-to-reach market sector to encourage the installation of EE measures.

Strategies Implemented in 2019

The Cool Planet Program was closed effective December 31, 2018, per Advice Letter 3859-E, filed September 4, 2018.

Commercial Utility Building Efficiency Program

The Commercial Utility Building Efficiency (CUBE) Program was closed effective December 31, 2018, per Advice Letter 3859-E, filed September 4, 2018.

Schools Energy Efficiency Program

Program Description

The Schools Energy Efficiency Program (SEEP) was closed as of December 31, 2019. The Program brought EE retrofits to public school districts, private schools, and universities, delivering subsidized implementation of no-cost or low-cost-sharing lighting retrofit measures, and offering EE education to school staff and student leadership.

Strategies Implemented in 2019

In 2019, the SEEP Program:

- Performed sixty-six (66) energy audits to identify all EE and DR opportunities
- Continued outreach to schools and universities through SCE account representatives
- Continued to build relationships with school districts and university staffs to create interest in program participation
- Consulted with potential customers on ways to maximize their participation in the program while receiving the full benefit of funding provided by Proposition 39⁷⁷

⁷⁷ The California Clean Energy Jobs Act of 2012, which funds eligible energy efficiency efforts in schools.

- Leveraged the use of referrals to reach and educate customers not previously contacted
- Contacted customers that had been audited in previous program cycles to identify unrealized opportunities and to advise them of new funds becoming available
- Provided information to schools interested in the Title 24 Exemption offered by the Division of the State Architect (DSA), and
- Introduced newer lighting technology measures, using a cost-share incentive delivery strategy to leverage Prop 39 funds and positively impact the savings-to-investment ratio (SIR) of the schools participating in Prop 39.

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 2019

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.

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 2019

Administrative Changes:

- On November 19, 2019, the program, formerly implemented by Lockheed Martin Corporation, was acquired by TRC Solutions, Inc.
- Pursuant to the disposition of SCE's 2019 Annual Budget Advice Letter,⁷⁸ the program was opened to enrollment of new applications through December 31, 2020.

Core Function Activities:

- Started to leverage TRC Solutions' EE engineering resources and industry subject matter expertise to further develop projects
- Continued to use the Project Influence Job Aid to improve the quality of influence evidence for all submitted projects
- Continued to use the early screening process for project development to increase the likelihood that large EE projects will produce viable savings opportunities, and
- Continued to use the Effective Useful Life (EUL) Simple Payback Tool to screen out projects and/or measures with payback periods that would exceed their useful life.

Customer Outreach:

- Continued outreach through SCE account executives to help customers identify eligible EE measures and provide support services through site assessments and on-site performance measurement
- Continued to provide SCE account executives with guidance on program policy that may affect their assigned customers to help them engage customers in the program
- Continued to engage industry subject matter experts to review opportunities for EE projects, assist in achieving deep project energy savings, and facilitate ongoing education and training relating to variable

⁷⁸ Advice Letter 3859-E and 3859-E-A, approved April 2, 2019.

speed drives, pumping soft starts, process cooling, and retrocommissioning (RCx), and

- Continued to engage with many local vendors and contract with new consultants to assist with project implementation in the Central Valley and adjoining areas in SCE's service territory.

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.

Per Advice Letter 3859-E, SCE accepted new applications for the Program through December 31, 2019.

Strategies Implemented in 2019

Administrative Changes:

- Received a business plan from the Implementer to improve program cost-effectiveness.

Customer Outreach:

- Continued outreach through presentations to trade groups, industry functions, and conferences serving local manufacturers
- Continued outreach through SCE account executives to help customers identify eligible EE measures and to provide support services through site assessments and on-site performance measurement, and
- Expanded collaborative efforts with existing customers to leverage experience with successful EE project implementation.

Core Function Activities:

- Working from Strategic Energy Management (SEM) strategies previously created for customers, developed additional, innovative new EE projects for those customers to match their wants and needs as they arose

- Worked with customers to accelerate the project development process and meet a December 31, 2019 deadline for new Project Feasibility Studies (PFS), in order to provide as much support as possible for customers to implement projects in 2019 and 2020
- Continued the use of the Project Influence Job Aid to improve the quality of influence evidence for all submitted projects
- Implemented an early screening process for project development to increase the likelihood that large EE projects using newer technology will produce viable savings opportunities, and
- Implemented an Effective Useful Life (EUL) Simple Payback Tool to screen out projects and measures with payback periods that would exceed their useful life.

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
- 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, and
- 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.

Per Advice Letter 3859-E, SCE accepted new applications for the Program through December 31, 2019.

Strategies Implemented in 2019

Administrative Changes:

- The Implementer submitted a Total Resource Cost (TRC) improvement plan that detailed the following:
 - Project installation and submission schedules
 - Savings and cost management improvements, and
 - Opportunities to "stretch" TRC by identifying project opportunities that could be completed in 2019, rather than in 2020 as expected, thus increasing program savings.

Customer Outreach:

- Continued outreach through SCE's Business Customer Division (BCD) team to help customers identify eligible EE measures and to provide support services through site assessments and on-site performance measurement
- Coordinated efforts of EE project stakeholders including industrial end-users, vendors, trade associations, and utility personnel to overcome market barriers and maximize savings, and
- Acted as a trusted advisor and resource for industrial end-use customers to ensure excellent customer service, continued engagement, ongoing program participation, and implementation success.

Core Function Activities:

- Applied a comprehensive approach that optimizes energy savings and peak demand reduction, while helping customers identify opportunities for demand response, reduced air pollutant and greenhouse gas emissions, efficient water use, and distributed renewable generation
- Continued the use of the Project Influence Job Aid to improve the quality of evidence of influence for all submitted projects
- Continued the early screening process for project development between SCE and the implementer, and
- Continued an Effective Useful Life (EUL) Simple Payback Tool to screen out projects and/or measures with payback periods that would exceed their useful life.

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.
- Performs financial analyses to help customers understand and justify project expenditures, understand available incentives, complete the necessary paperwork, and refine energy savings calculations.

Per Advice Letter 3859-E, SCE accepted new applications for the Program through December 31, 2019.

Strategies Implemented in 2019

Administrative Changes:

- The Implementer submitted a Total Resource Cost (TRC) improvement plan that detailed the following:
 - Project installation and submission schedules
 - Savings and cost management improvements, and
 - Opportunities to "stretch" TRC by identifying project opportunities that could be completed in 2019, rather than in 2020 as expected, thus increasing program savings.

Customer Outreach:

- Continued outreach through SCE's Business Customer Division (BCD) team to help customers identify eligible EE measures and to provide support services through site assessments and on-site performance measurement
- Coordinated efforts of EE project stakeholders including industrial end-users, vendors, trade associations, and utility personnel to overcome market barriers and maximize savings, and

- Acted as a trusted advisor and resource for industrial end-use customers to ensure excellent customer service, continued engagement, ongoing program participation, and implementation success.

Core Function Activities:

- Applied a comprehensive approach that optimizes energy savings and peak demand reduction, while helping customers identify opportunities for demand response, reduced air pollutant and greenhouse gas emissions, efficient water use, and distributed renewable generation
- Continued the use of the Project Influence Job Aid to improve the quality of evidence of influence for all submitted projects
- Continued an early screening process for project development between SCE and the implementer, and
- Continued an Effective Useful Life (EUL) Simple Payback Tool to screen out projects and/or measures with payback periods that would exceed their useful life.

Oil Production Program

Program Description

The Oil Production Program targets 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 consists of independent oil producers and their production wells. 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 2019

Because the Total Resource Cost (TRC) for the program was below SCE's minimum threshold, the program was closed to new applications as of 12/31/2018. In Advice Letter 3859-E, SCE requested CPUC approval to close the program when existing commitments were fulfilled.

The Implementer continued to work on committed projects to completion.

IDEAA 365 Program ⁷⁹

Program Description

The intent of the statewide IDEEA 365 Program was to find, fund, and foster the best energy efficiency (EE) or integrated demand side management (IDSM) delivery approaches available in the marketplace.

Strategies Implemented in 2019

Because SCE has begun conducting open solicitations for innovative and cost-effective third party-proposed, designed, and implemented programs, as directed in D.18-01-004, this program was no longer needed and was closed effective December 31, 2018, per Advice Letter 3859-E, filed September 4, 2018.

Mid-Sized Industrial Customer EE (MICE) Program

Program Description

The Mid-Sized Industrial Customer Energy Efficiency (MICE) Program provides 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 closes the gap by providing customers with detailed, in-depth energy assessments which identify EE opportunities, accurately estimate potential savings and costs, and provide a path to implementation. The program has successfully enrolled and completed numerous projects, and it transitioned into SCE's core third party offering in 2018.

Strategies Implemented in 2019

Because the Total Resource Cost (TRC) for the program was below SCE's minimum threshold, the program was closed to new applications as of 12/31/2018. In Advice Letter 3859-E, SCE requested CPUC approval to close the program when existing commitments were fulfilled.

⁷⁹ IDEEA = Innovative Design for Energy Efficiency Activities.

Enhanced Retro-Commissioning Program

Program Description

The primary objective of the Enhanced Retro-Commissioning Program is to provide comprehensive 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 2019

Administrative Changes:

- The Enhanced Retro-Commissioning Program has been identified for closure and will not be accepting new projects after December 31, 2019.

Core Function Activities:

- Continued working with the implementer to focus on project development and completion
- Continued the use of the Project Influence Job Aid to improve the quality of evidence for influence upon all submitted projects
- Implemented an early screening project development process between SCE and the implementer to increase the likelihood that large EE projects utilizing newer technology will produce viable savings opportunities, and
- Implemented an Effective Useful Life (EUL) Simple Payback Tool to screen out projects and/or measures with payback periods that would exceed their useful life.

Customer Outreach:

- Engaged industry professionals, contractors, and other local industry trade groups to identify new potential customers.

Water Infrastructure System Efficiency (WISE™) Program

Program Description

The Water Infrastructure System Efficiency Program (WISE™ or "the 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 territory, targeting customers that include water agencies, special districts, and local government (LG) agencies that oversee water and wastewater treatment and pumping facilities and systems.

Strategies Implemented in 2019

The Program team:

Administrative Successes:

- Participated in bi-weekly progress meetings with SCE's Program Managers and Business Customer Division (BCD) Account Representatives
- On a monthly basis, reviewed and approved invoices and reported on activities, and
- Maintained the Subcontractor Management and Reporting Tool (SMART).

Core Function Activities:

- Performed preliminary program services and completed energy assessments for 15 customers
- Presented 20 Project Feasibility Studies (PFS) to 14 customers
- Submitted 42 projects for Project Approval
- Facilitated PFS Reviews for 51 Projects
- Submitted Proof of Equipment Orders for 5 Projects
- Received Installation Reports (IR) that the vendor submitted for 15 Projects, 13 of which are now under review, and
- Reviewed and approved the IRs and paid incentives for 2 Projects.

We are currently continuing to follow up with customers to finalize additional project submissions and installations.

Customer Outreach:

Implemented a marketing campaign, as a result of which a total of 39 Agencies and Cities have enrolled in the WISE™ Program.

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Appendix A: List of Acronyms and Abbreviations

Acronym or Abbreviation	Explanation
4C	Central Coast Climate Collaborative
9-12	A WE&T program for high schools
AAOC	Apartment Association of Orange County
AB	Assembly Bill
ABS	Automated Benchmarking System
ACBO	Association of Chief Business Officials, California Community Colleges
ACEEE	American Council for an Energy-Efficient Economy
AGA	American Gas Association
AHAM	Association of Home Appliance Manufacturers
AHRI	Air Conditioning, Heating and Refrigeration Institute
aka	also known as
ALCS	Advanced Lighting Control System(s)
AMI	Automated (or Advanced) Metering Infrastructure
ASA	Appliance Standards Advocacy
ASAP	Appliance Standards Awareness Project
ASHRAE	American Society of Heating, Refrigerating, & Air-Conditioning Engineers
BAMBE	Bay Area Multifamily Building Enhancements [Program]
BAS	Building Automation Control Systems
BayREN	Bay Area Regional Energy Network
BCA	Building Codes Advocacy
BCD	(1) Business Customer Division; (2) Business Customer Development
BES	(1) Building Energy Simulation; (2) Business Energy Solutions
BPI	Building Performance Institute
BRO	Behavioral, Retrocommissioning and Operational
BYOT	Bring Your Own Thermostat
C&S	Codes and Standards
CAA	California Apartment Association
CABEC	California Association of Building Energy Consultants
CACM	California Association of Community Managers
CAEATFA	California Alternative Energy and Advanced Transportation Financing Authority

Acronym or Abbreviation	Explanation
CAEECC	California Energy Efficiency Coordinating Committee
CAHP	California Advanced Home Program
CALBO	California Association of Building Officials
CALCTP	California Advanced Lighting Controls Training Program
CALGreen	California Green Building Standards Code
CalPlug	California Plug-Load Center
Caltech	California Institute of Technology
CAM	Common Area Measures
CARE	California Alternate Rates for Energy Program
CASE	Codes & Standards Enhancement Study
CATALENA	California Analysis Tool for Locational Energy Assessment
CBECC	California Building Energy Code Compliance
CCC	California Community Colleges [System]
CDCR	California Department of Corrections & Rehabilitation
CEA	Certified Energy Analyst
CEC	(1) California Energy Commission; (2) Community Environmental Council
CEESP	California Energy Efficiency Strategic Plan [<i>preferred acronym</i>]
CEI	Continuous Energy Improvement [Program]
CEP	Community Energy Partnership
CET	Cost-Effectiveness Tool
CFL	Compact Fluorescent Lamp
CLEO	Community Language Efficiency Outreach [Program]
CLTC	California Lighting Technology Center
CMHP	Comprehensive Manufactured Homes Program
CO₂	Carbon dioxide
CPUC	California Public Utilities Commission
CQM	Commercial Quality Maintenance
CSD	See DCSD
CSE	Center for Sustainable Energy
CSI	California Solar Initiative
CSLB	Contractor State Licensing Board
CSRP	Customer Service Replatform Project
CSS	Customer Service System
CSU	California State University [System]
CTA	Consumer Technology Association

Acronym or Abbreviation	Explanation
CUBE	Commercial Utility Building Efficiency [Program]
Cx	Commissioning (see also RCx , below)
D&S	Demonstration and Showcase
DCEEP	Data Center Energy Efficiency Program
DCSD	California Department of Community Services and Development
DDB	DDB (Doyle Dane Bernbach) San Francisco
DEER	Database for Energy Efficient Resources
DER	Distributed Energy Resource
DG	Distributed Generation
DGS	[California] Department of General Services
DG Stats	California Distributed Generation Statistics Data Portal
DI	(a) Direct Install [Program] (b) Direct implementation
DOE	U.S. Department of Energy
DR	Demand Response
DS	See D&S , above
DSA	[California] Division of the State Architect (part of DGS ; see above)
DSM	Demand-Side Management
DWP	See LADWP , below
EASY	Energy Assessment Screening for Your Home [Program]
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
EEMIS	[L.A. County] Enterprise Energy Management Information System
EE Stats	California Energy Efficiency Statistics Data Portal
e.g.	<i>Exempli gratia</i> : for example; such as
ELP	Energy Leader Partnership
EM&V	Evaluation, Measurement & Verification
EMT	(1) Emerging Markets & Technologies; (2) Energy Management Technologies
EPA	U.S. Environmental Protection Agency
EPIC	Electric Program Investment Charge
EPRI	Electric Power Research Institute

Acronym or Abbreviation	Explanation
ESA	Energy Savings Assistance [Program]
ESCO	Energy Services Company
ESIS	Energy, Sustainability and Infrastructure Section (see CDCR , above)
ESPI	Efficiency Savings and Performance Incentive
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
FPCM	Facility Planning, Construction and Management [Division] (see CDCR , above)
FTC	(1) Federal Trade Commission; (2) Foodservice Technology Center
GHG	Greenhouse Gas
GWh	Gigawatt-hours
HDR	High Desert Regional [Partnership]
HEA	Home Energy Advisor [Program]
HEC	Home Energy Checkup
HEEP	Healthcare Energy Efficiency Program
HEER	Home Energy Efficiency Rebate [Program]
HEES	Home Energy Efficiency Survey
HERS	(1) Home Energy Rating System; (2) Home Energy Reports
HITEEP	Healthcare Innovative Technology EE Program
HOPPs	High Opportunity Projects or Programs
HPBOP	High Performance Building Operations Professionals [Program]
HPWH	Heat Pump Water Heater
HTR	Hard-to-Reach
HVAC	Heating, Ventilation and Air Conditioning
ICC	International Code Council
ICLEI	International Council for Local Environmental Initiatives
IDEEA	Innovative Design for Energy Efficiency Activities
IDER	Integrated Distributed Energy Resources
IDSMS	integrated demand-side management
i.e.	<i>Id est</i> : that is; that is to say; namely; in other words
IGPP	Institutional and Government Energy Efficiency Partnership Program
IHACI	Institute of Heating and Air Conditioning Industries
IHLP	Indoor Horticulture Lighting Process

Acronym or Abbreviation	Explanation
ILG	Institute for Local Governments
IOU	Investor-Owned Utility
IRWD	Irvine Ranch Water District
ISD	Internal Services Department
ISP	Industry Standard Practice
IT	Information Technology
JCC	Judicial Council of California
K-8, K-12	Kindergarten through 8th / 12th grade schools
KEDC	Kern Economic Development Corporation
kW	Kilowatts
kWh	Kilowatt-hours
LADWP	Los Angeles Department of Water & Power
LC&I	Large Commercial & Industrial
LED	Light-emitting diode
LEEP	Lodging EE Program
LG	Local Government
LGC	Local Government Commission
LGP	Local Government Partnership
LIWP	Low-Income Weatherization Program
LMT	Lighting Market Transformation [Program]
MBCx	Monitoring-Based Commissioning
ME&O	Marketing, Education and Outreach
MFEER	Multifamily EE Rebate [Program]
MI-BEST	Mobile Integrated Building Energy Science Training Program
MICE	Mid-Sized Industrial Customer Energy Efficiency [Program]
MIDI	Middle-Income Direct Install [Program]
MMA	Mid-Market [Solutions] Team
MPOP	Midstream Point-of-Purchase [Program]
MUP	Multifamily Upgrade Program
MW	Megawatts
MWD	Metropolitan Water District
NAICS	North American Industry Classification System
NATE	North American Technician Excellence
NBC	National Balancing Council
NCI	National Comfort Institute

Acronym or Abbreviation	Explanation
NEEA	Northwest Energy Efficiency Alliance
NEM	Net Energy Metering
NEMA	National Electrical Manufacturers Association
NMEC	Net (or Normalized) Metered Energy Consumption
NO_x	Nitrogen oxide
NRDC	Natural Resources Defense Council
O&M	Operations & Maintenance (or Operational & Maintenance)
OBF	On-Bill Financing
OBR	On-Bill Repayment
OSHPD	[California] Office of Statewide Health Planning and Development
P2P	Peer to Peer
PA	Program Administrator
PAM	Program Administration Manager
PBRP	Performance-Based Retrofit Program
PES	Pump Efficiency Services
PFS	Project Feasibility Study
PG&E	Pacific Gas & Electric Company
PLA	Plug Load and Appliances [Program]
PM₁₀	Particulate matter 10 micrometers or less in diameter
POP	Point of Purchase
POS	Point of Sale
Prop 39	California Proposition 39, the California Clean Energy Jobs Act
PUC	(1) See CPUC , above; (2) Public Utilities Code
PV	PhotoVoltaic
QA	Quality Assurance
QC	Quality Control
QI	Quality Installation
QM	Quality Maintenance
RCT	Randomized Control Trial
RC_x	Retrocommissioning
REEL	Residential Energy Efficiency Loan [Program]
REN	Regional Energy Network
RFP	Request for Proposal
RHTR	Rural Hard-to-Reach
RNC	Residential New Construction

Acronym or Abbreviation	Explanation
RYU	Reduce Your Use
SB	Senate Bill
SBCOG	San Bernardino Council of Governments
SBCS	Small Battery Charger Systems
SBD	Savings By Design [Program]
SBESC	South Bay Energy Savings Center
SBREP	San Bernardino Regional Energy Partnership
SBWG	Sustainable Building Working Group
SCE	Southern California Edison Company
SCEEP	South Santa Barbara County Energy Efficiency [Leader] Partnership
SCG	Southern California Gas Company (aka SoCalGas or The Gas Company)
SDG&E	San Diego Gas & Electric Company
SEEC	Statewide Energy Efficiency Collaborative
SEEP	Schools Energy Efficiency Program
SEM	(1) Strategic Energy Management; (2) Search Engine Marketing
SFP	Scaled Field Placement
SIR	Savings-to-Investment Ratio
SJVCEO	San Joaquin Valley Clean Energy Organization
SJVEWC	San Joaquin Valley Energy Watch Collaborative
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association
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
SOMAH	Solar on Multifamily Affordable Homes
SPOC	Single Point Of Contact
StAG	Statewide Advisory Group
Strategic Plan	See CEESP, above
SW or S/W	Statewide
SWH	Solar Water Heating (Program)
T20, T24	Title 20, Title 24
T&D	Transmission and Distribution
TA	Technology Assessment
TDS	Technology Development Support

Acronym or Abbreviation	Explanation
TEC	The Energy Coalition
TIS	Technology Introduction Support
TOU	Time-of-Use
TPA	Trade Professional Alliance
TPMs	Technology Priority Maps
Trade Pro	Trade Professional (formerly Customer's Authorized Agent)
TRC	Total Resource Cost
UAT	Universal Audit Tool
UC	University of California
UCSB	University of California at Santa Barbara
USGBC	U.S. Green Building Council
VCREA	Ventura County Regional Energy Alliance
VFD	Variable Frequency Drive
VIEW	Valley Innovative Energy Watch
VSPP	Variable-Speed Pool Pump
WCEC	Western Cooling Efficiency Center
WE&T	Workforce Education & Training
WEN	Water-Energy Nexus
WISE	Water Infrastructure Systems Efficiency Program
WRELP	Western Riverside Energy Leader Partnership
ZNE	Zero Net Energy

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Appendix B: Technical Appendices

Section 1: Energy Savings

Table 1. Electricity and Natural Gas Savings and Demand Reduction (Net)⁸⁰

Table 1. Electricity and Natural Gas Savings and Demand Reduction (Net)			
Annual Results	2019 Installed Savings	CPUC 2019 Adopted Goals (D.17-09-025)	% of Goals (2019)
2019 Energy Savings (GWh) – Annual	1,174	1,014	116%
2019 Energy Savings (GWh) – Lifecycle	13,895	N/A	N/A
2019 Natural Gas Savings (MMth) – Annual			
2019 Natural Gas Savings (MMth) – Lifecycle			
2019 Peak Demand savings (MW)	238	216	110%

In 2019, the following five programs and program strategies accounted for approximately **82 percent** of SCE’s portfolio energy savings results (excluding Codes & Standards and ESA programs).⁸¹

In 2019, Codes & Standards program savings accounted for approximately **63 percent** of SCE’s portfolio energy savings results.

Top Five EE Programs by Percentage of Savings (excluding C&S, ESA)	1st Year Net kWh	1st Year Net kW
Primary Lighting Program (39%)	144,786,023	21,746
Energy Advisor Program (35%)	129,023,299	29,050
Grandfathered Street Lights (3%)	12,925,274	-
Midstream Point of Purchase (3%)	11,176,725	2,953
Strategic Energy Management (2%)	8,299,419	-
Total:	306,210,740	53,749

⁸⁰ 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. Values in table include market effects (ME) of 5% as consistent with CEDARS.

⁸¹ 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: Emission Reductions

Table 2. Environmental Impacts (Net)⁸²

Table 2 Environmental Impacts (Net)						
Annual Results	Annual tons of CO2 avoided	Lifecycle tons of CO2 avoided	Annual tons of NOx avoided	Lifecycle tons of NOx avoided	Annual tons of PM10 avoided	Lifecycle tons of PM10 avoided
2019 Portfolio Targets	60,914	488,042	34	328	18	174
2019 SCE Energy Efficiency Portfolio	539,696	4,919,259	75	893	40	469

[1] Environmental impacts do not include any results associated with Energy Savings Assistance or SoCalREN.

[2] SCE's budget approved on CEDARS on August 3, 2018 in response to D.18-05-041 authorized budget.

SCE, embracing the fact that EE is the utility sector's first and most cost-effective response to global climate change, is firmly committed to making major contributions to California's climate change goals. To further SCE's commitment, its programs are designed to maximize energy savings results, and therefore are maximized to reduce greenhouse gas (GHG) emissions as well. SCE's most successful programs and program strategies are described in detail in *Section 1*, 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 2019 portfolio of EE programs. These results are shown in *Table 2*, 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.

⁸² The data shown in this Annual Report is based on SCE's ex ante savings, adjusted for actual installations, consistent with the ex ante values and processes adopted by the CPUC in D.11-07-030.

Section 3: Expenditures

Table 3. 2018 Expenditures, Including Expenditures From Past Cycle Commitments, Paid in 2019⁸³

Table 3 is available at <http://eestats.cpuc.ca.gov/Views/Documents.aspx>.

Click the **Report Categories: Annual** link on the upper left of the page. Under **Report Options**, click **Utility** and select **SCE**. When the page repopulates, click **SCE.AnnualExcel.2019.xlsx**

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

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

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⁸³ 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 4: Cost-Effectiveness

Table 4. Cost-Effectiveness (Net)⁸⁴

Table 4									
Cost Effectiveness (Net)									
Annual Results	Total Cost to Billpayers (TRC)	Total Savings to Billpayers (TRC/PAC)	Net Benefits to Billpayers (TRC)	TRC Ratio	Total PAC Cost	PAC Ratio	PAC Cost per kW Saved (\$/kW) ¹	PAC Cost per kWh Saved (\$/kWh)	PAC Cost per therm Saved (\$/therm)
2019 SCE ^{2,3}	\$ 504,325,121	\$ 858,548,015	\$ 354,222,893	1.70	\$ 159,845,665	5.37	N/A	0.004	N/A
	Check	Check	Check	Check	Check				
<p>[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.</p> <p>[2] Does not include costs and benefits associated with the Energy Savings Assistance Program, Emerging Technologies or Grandfathered Street Lights per December 6, 2018 memo from E. Randolph.</p> <p>[3] Includes Codes & Standards Program savings and expenditures, as well as expenditures for Statewide ME&O, ESPI, and Pension & Benefits.</p>									

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

- 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.

- 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).

⁸⁴ Ibid.

- The Total Resource Net Benefit is a measure of the total resource benefits from a measure or program, as derived by multiplying the energy savings by the appropriate avoided costs and reduced by the net-to-gross ratio.

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

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

1. The cost-effectiveness tables provided in this report reflect a summary of the cost-effectiveness calculations developed for SCE's 2019 programs. These tables provide energy savings and program costs associated with activity in 2019.
2. 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.2.4.7, 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.2.4.7, SCE has developed Work Papers that were approved in the process outlined in D.11-07-030.

Units (Number and Definition)

Unit counts of each measure are displayed in the program tracking databases during 2019. 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 2019 programs. The measure-level savings information used to calculate the 2019 program results is based upon estimates contained in READI v2.4.7. If READI v2.4.7 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 defined summer on-peak period for the particular measure, as defined in D.06-06-063. 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.2.4.7, 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.2.4.7, 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.2.4.7 for *ex ante* incremental measure cost values, as required by the Commission. If READI v.2.4.7 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 2019. The incentive cost totals are based on per-unit incentive costs paid to the customer, multiplied by the total number of units.

Program Administrative Costs

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

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

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

Labor costs reflected in this report are actual costs incurred in 2019 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.

Section 5: Bill Payer Impacts

Table 5: Ratepayer Impacts⁸⁵

2019	Electric Average Rate (Res and Non-Res) \$/kwh ¹	Gas Average Rate (Core and Non-Core) \$/therm	Average First Year Bill Savings (\$)	Average Lifecycle Bill Savings (\$)
SCE	\$0.165	\$0.000	\$ 69,970,233	\$ 587,223,577

[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] 2019 first year and lifecycle net kWh savings excluded Codes & Standards and Energy Savings Assistance.

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

In 2019, SCE was authorized to collect approximately \$250 million⁸⁶ in rates to implement approved EE programs. Customer bills included the authorized collection on January 1, 2019, 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 2019.

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. The overall impact of SCE's programs is that customer bills will decrease relative to the level of billing without the EE programs.
2. The following methodology was utilized for the calculation of bill impacts resulting from the 2019 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.

⁸⁵ Ibid.

⁸⁶ AL-3859-E.

- 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 6: Savings by End-Use

Table 6: Annual Savings By End-Use⁸⁷

<i>Annual Savings By End Use</i>						
Use Category	GWH	% of Total	MW	% of Total	MMTh	% of Total
Appliance or Plug Load	0.2	0%	0.1	0%		
Building Envelope	-	0%	-	0%		
Codes & Standards	736.3	63%	161.9	68%		
Compressed Air	0.2	0%	0.0	0%		
Commercial Refrigeration	6.9	1%	1.0	0%		
Food Service	1.0	0%	0.2	0%		
HVAC	21.5	2%	7.0	3%		
Irrigation	1.1	0%	0.5	0%		
Lighting	190.3	16%	27.7	12%		
Process Distribution	6.9	1%	0.8	0%		
Process Heat	-	0%	-	0%		
Process Refrigeration	-	0%	-	0%		
Recreation	2.7	0%	0.0	0%		
Service	129.0	11%	29.1	12%		
Service and Domestic Hot Water	0.4	0%	0.0	0%		
Whole Building	71.1	6%	9.4	4%		
Grand Total	1,167.8	100%	237.6	100%		

[1] Table does not account for savings from SoCalREN, 3C REN or LCE 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 2019 results, by end use, of SCE's portfolio of EE programs.

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⁸⁷ The data shown in this Annual Report is based on SCE's *ex ante* savings, adjusted for actual installations, consistent with the ex ante values and processes adopted by the CPUC in D.11-07-030.

Section 7: Commitments

Table 7: Commitments⁸⁸

Table 7				
<i>Commitments</i>				
Commitments Made in 2010-2012 with Expected Implementation after December 2012				
2010-2012¹	Committed Funds¹	Expected Net Energy Savings		
	\$	GWH	MW	MMth
- Resource	\$ -	-	-	
- Non-Resource				
- Codes & Standards	\$ -	-	-	
- EM&V (SCE & CPUC)	\$ -			
- OBF/ARRA/NFO Loan	\$ -			
SCE Total	\$ -	-	-	
Commitments Made in 2013-2015 with Expected Implementation after December 2015, excludes REN				
2013-2015²	Committed Funds²	Expected Net Energy Savings		
	\$	GWH	MW	MMth
- Resource	\$ 6,100,042	6.64	0.97	
- Non-Resource	\$ 5,676,727			
- Codes & Standards				
- EM&V (SCE & CPUC)				
- OBF/ARRA/NFO Loan	\$ 11,805,876			
SCE Total	\$ 23,582,645	6.64	0.97	
Commitments Made in 2016 with Expected Implementation after December 2016, excludes REN				
2016³	Committed Funds³	Expected Net Energy Savings		
	\$	GWH	MW	MMth
- Resource	\$ 3,409,630	15.80	3.38	
- Non-Resource	\$ 304,128			
- Codes & Standards				
- EM&V (SCE & CPUC)	\$ 12,554,829			
- OBF/ARRA/NFO Loan	\$ 1,184,632			
SCE Total	\$ 17,453,220	15.80	3.38	

Table continues on the next page

⁸⁸ Ibid.

Commitments Made in 2017 with Expected Implementation after December 2017, excludes REN				
2017 ³	Committed Funds ³ \$	Expected Net Energy Savings		
		GWH	MW	MMth
- Resource	\$ 5,507,691	9.52	1.75	
- Non-Resource	\$ 3,845,404			
- Codes & Standards				
- EM&V (SCE & CPUC)	\$ 12,242,468			
- OBF/ARRA/NFO Loan	\$ 683,314			
SCE Total	\$ 22,278,877	9.52	1.75	
Commitments Made in 2018 with Expected Implementation after December 2018, excludes LCE, 3CREN and ScaREN				
2018 ³	Committed Funds ³ \$	Expected Net Energy Savings		
		GWH	MW	MMth
- Resource	\$ 3,469,694	9.54	0.85	
- Non-Resource	\$ 2,869,543			
- Codes & Standards				
- EM&V (SCE & CPUC)	\$ 9,043,235			
- OBF/ARRA/NFO Loan	\$ 6,904,303			
SCE Total	\$ 22,286,775	9.54	0.85	
Commitments Made in 2019 with Expected Implementation after December 2019, excludes LCE, 3CREN and ScaREN				
2019 ³	Committed Funds ³ \$	Expected Net Energy Savings		
		GWH	MW	MMth
- Resource	\$ 9,205,899	25.70	2.41	
- Non-Resource	\$ 2,453,963			
- Codes & Standards	\$ 557,838			
- EM&V (SCE & CPUC)	\$ 9,043,496			
- OBF/ARRA/NFO Loan	\$ 2,732,853			
SCE Total	\$ 23,994,050	25.70	2.41	
<p>[1] Committed funds are associated with the 2010-2012 program cycle. These funds are reserved or encumbered for future work permitted per Ordering Paragraph 13 and Conclusion of Law 12 of D.12-11-015.</p> <p>[2] Committed funds are associated with the 2013-2015 program cycle. These funds are reserved or encumbered for future work permitted per the EESTATS CPUC Guidance Document and EE decision (D.15-10-025).</p> <p>[3] Committed funds are associated with the 2016, 2017 & 2018 program years, respectively. These funds are reserved or encumbered for future work permitted per the EESTATS CPUC Guidance Document and EE decision (D.15-10-025).</p>				

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List of Resource Programs with Commitments

The following resource programs had commitments⁸⁹ which represent incentive amounts that are allocated to be paid when a measure is installed during the 2019 program year.

Program ID	Program Name
SCE-13-SW-001D	Energy Upgrade California
SCE-13-SW-001F	Residential New Construction Program
SCE-13-SW-001G	Residential Direct Install
SCE-13-SW-002B	Commercial Calculated Program
SCE-13-SW-002C	Commercial Deemed Incentives Program
SCE-13-SW-002D	Commercial Direct Install Program
SCE-13-SW-002F	Nonresidential HVAC Program
SCE-13-SW-002G	Savings By Design
SCE-13-SW-002H	Midstream Point of Purchase
SCE-13-SW-003B	Industrial Calculated Energy Efficiency Program
SCE-13-SW-004B	Agriculture Calculated Energy Efficiency Program
SCE-13-SW-004C	Agriculture Deemed Energy Efficiency Program
SCE-13-SW-008A	Building Codes and Compliance Advocacy
SCE-13-SW-009A	Technology Development Support
SCE-13-L-002B	City of Long Beach Energy Leader Partnership
SCE-13-L-002F	Gateway Cities Energy Leader Partnership
SCE-13-L-002H	Eastern Sierra Energy Leader Partnership
SCE-13-L-002L	Orange County Cities Energy Leader Partnership
SCE-13-L-002M	San Gabriel Valley Energy Leader Partnership
SCE-13-L-002N	San Joaquin Valley Energy Leader Partnership
SCE-13-L-002O	South Bay Energy Leader Partnership
SCE-13-L-002P	South Santa Barbara County Energy Leader Partnership
SCE-13-L-002Q	Ventura County Energy Leader Partnership
SCE-13-L-002S	High Desert Regional Energy Leader Partnership (formerly City of Adelanto Energy Leader Partnership)
SCE-13-L-002T	West Side Energy Leader Partnership
SCE-13-L-002V	North Orange County Cities Energy Leader Partnership
SCE-13-L-002W	San Bernardino Regional Energy Partnership
SCE-13-L-003A	California Community Colleges Energy Efficiency Partnership
SCE-13-L-003B	California Dept. of Corrections and Rehabilitation EE Partnership
SCE-13-L-003C	County of Los Angeles Energy Efficiency Partnership
SCE-13-L-003F	State of California Energy Efficiency Partnership
SCE-13-L-003G	UC/CSU Energy Efficiency Partnership
SCE-13-TP-001	Comprehensive Manufactured Homes
SCE-13-TP-003	Healthcare EE Program
SCE-13-TP-004	Data Center Energy Efficiency
SCE-13-TP-005	Lodging EE Program
SCE-13-TP-006	Food & Kindred Products
SCE-13-TP-007	Primary and Fabricated Metals
SCE-13-TP-008	Nonmetallic Minerals and Products
SCE-13-TP-009	Comprehensive Chemical Products
SCE-13-TP-010	Comprehensive Petroleum Refining
SCE-13-TP-011	Oil Production
SCE-13-TP-013	Cool Schools
SCE-13-TP-018	School Energy Efficiency Program
SCE-13-TP-020	IDEEA365 Program
SCE-13-TP-021	Enhanced Retrocommissioning
SCE-13-TP-022	Water Infrastructure Systems EE Program (WISE)
SCE-13-TP-023	Midsize Industrial Customer Program (MICE)

⁸⁹ List only includes commitments for EE resource programs and are commitments related to specific projects. It does not include commitments for the Codes & Standards and Emerging Technologies Programs, or for EM&V.

In 2019, these programs secured commitments of \$37.7M, 68.8 gigawatt-hours of energy savings, and 9.9 megawatts in demand reduction.

Explanation of How Commitments Are Calculated⁹⁰

In 2019, SCE actively enrolled customers into EE programs, which encourage customers to implement energy-efficient choices. When a customer has firmly committed to the program, an incentive payment is reserved on his or her behalf, to be paid when the customer implements the energy-efficient measure. It is only when that firm commitment is received (in the form of a contract, reservation, etc.) that it is counted as a program commitment and is reported to the Commission. The tables above summarize the energy savings and demand reductions committed to be installed by SCE customers.

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⁹⁰ Committed funds represent incentive amounts only.

Section 8: Shareholder Performance Incentives

Table 8: Shareholder Incentives (ESPI)

Table 8							
<i>Shareholder Incentives (ESPI)</i>							
Program Year	2013 ^{1,5}	2014 ^{2,3,5}	2015 ^{3,4,6}	2016 ^{4,7,10}	2017 ^{8,11}	2018 ^{9,11}	2019 ¹²
Forecast*	\$ -	\$ -	\$ 27,575,796	\$ 27,575,796	\$ 22,500,000	\$ 17,600,000	\$ 14,200,000
Actual**	\$ 19,288,229	\$ 20,989,733	\$ 16,700,769	\$ 15,223,095	\$ 16,991,955	\$ 14,979,346	Pending

* forecasted ESPI payments for PY X as submitted in the forecasted budget AL for PY X (this number has to be forecasted ESPI payments for the same PY the IOUs are requesting budgets for)

** actual ESPI payments authorized for PY X in PY X+1 and PY X+2 Resolutions

[1] Resolution E-4700 authorized \$10,777,652 for PY2013 on December 18, 2014.

[2] Resolution G-3510 authorized \$10,452,799 for PY2013 and \$12,093,196 for PY2014 on December 3, 2015.

[3] Resolution E-4807 authorized \$10,838,759 for PY2014 and \$6,416,556 for PY2015 on December 15, 2016.

[4] Resolution E-4897 authorized \$10,284,213 for PY2015 and \$10,594,348 for PY2016 on December 14, 2017. E-4897 also included a downward adjustment to 2013-2014 for \$3,884,445.

[5] No ESPI earnings were forecasted in SCE AL 2836-E-D.

[6] ESPI earnings were forecasted in SCE's AL 3149-E-B and included in TRC calculations.

[7] Based on D.15-10-028, OP#5, SCE's 2016 budget was a carryover of its 2015 and used the same ESPI assumptions.

[8] ESPI earnings were forecasted in SCE's AL 3465-E-B and included in TRC calculations.

[9] ESPI earnings were authorized in Res. E-5062.

[10] PY+2 for 2016 from Final 2018 ESPI Performance Statement Report, published by CPUC on October 26, 2018.

[11] estimated Part II of PY 2018 ESPI amount

[12] estimated Part I of PY 2019 ESPI amount

This table reflects a 2019 forecast amount for the Efficiency Savings and Performance Incentive (ESPI) which is still an estimate of the amount that will be awarded to SCE in 2020. Each ESPI resolution addresses multiple operating years (two years at a time and in arrears), and thus the annual program award figures were calculated by combining a partial actual award amount ("first part") with an amount which will be claimed for the "second part" of the 2019 program year. Since Resolution E-5062 awarded \$5,479,346 to SCE for 2018 (first part), the remaining balance of \$9,500,000 (second part) is an amount which will be claimed and expected to be received in 2020. The total award for the 2018 program year will be \$14,979,346 for the year.

SCE expects its future ESPI awards to decrease, but the reduced amount is unknown at the time of this filing. Thus, SCE used the ESPI amount in Draft Resolution E-5062 in its TRC calculations. Any decrease to SCE's ESPI award will only increase SCE's TRC value.

Appendix C:

Southern California Edison Programs for 2019

Appendix C contains the list of programs included in SCE's 2019 EE Portfolio, and the date the programs were added or removed, where applicable.

Table: Programs Included in SCE's 2019 EE Portfolio

CPUC ID	Program Name	Date Added	Date Removed
SCE-13-SW-001	California Statewide Program for Residential Energy Efficiency	1/1/2013	N/A
SCE-13-SW-001A	Energy Advisor Program	1/1/2013	N/A
SCE-13-SW-001B	Plug Load and Appliances Program	1/1/2013	N/A
SCE-13-SW-001C	Multifamily Energy Efficiency Rebate Program	1/1/2013	N/A
SCE-13-SW-001D	Energy Upgrade California	1/1/2013	8/31/2018
SCE-13-SW-001E	Residential HVAC Program	1/1/2013	N/A
SCE-13-SW-001F	Residential New Construction Program	1/1/2013	N/A
SCE-13-SW-001G	Residential Direct Install Program	1/1/2017	N/A
SCE-13-SW-002	Statewide Commercial Energy Efficiency Program	1/1/2013	N/A
SCE-13-SW-002A	Commercial Energy Advisor Program	1/1/2013	N/A
SCE-13-SW-002B	Commercial Calculated Program	1/1/2013	N/A
SCE-13-SW-002C	Commercial Deemed Incentives Program	1/1/2013	N/A
SCE-13-SW-002D	Commercial Direct Install Program	1/1/2013	N/A
SCE-13-SW-002E	Commercial Continuous Energy Improvement Program	1/1/2013	12/31/2017
SCE-13-SW-002F	Nonresidential HVAC Program	1/1/2013	N/A
SCE-13-SW-002G	Savings By Design Program	1/1/2013	N/A
SCE-13-SW-002H	Midstream Point Of Purchase Program	1/1/2017	N/A
SCE-13-SW-003	Statewide Industrial Energy Efficiency Program	1/1/2013	N/A
SCE-13-SW-003A	Industrial Energy Advisor Program	1/1/2013	N/A
SCE-13-SW-003B	Industrial Calculated Energy Efficiency Program	1/1/2013	N/A

CPUC ID	Program Name	Date Added	Date Removed
SCE-13-SW-003C	Industrial Deemed Energy Efficiency Program	1/1/2013	N/A
SCE-13-SW-003D	Industrial Continuous Energy Improvement Program	1/1/2013	12/31/2017
SCE-13-SW-003D	Strategic Energy Management Program	8/1/2018	N/A
SCE-13-SW-004	Statewide Agriculture Energy Efficiency Program	1/1/2013	N/A
SCE-13-SW-004A	Agriculture Energy Advisor Program	1/1/2013	N/A
SCE-13-SW-004B	Agriculture Calculated Energy Efficiency Program	1/1/2013	N/A
SCE-13-SW-004C	Agriculture Deemed Energy Efficiency Program	1/1/2013	N/A
SCE-13-SW-004D	Agriculture Continuous Energy Improvement Program	1/1/2013	12/31/2017
SCE-13-SW-005	Statewide Lighting Program	1/1/2013	N/A
SCE-13-SW-005A	Lighting Market Transformation Program, Subprogram of Statewide Lighting Program	1/1/2013	N/A
SCE-13-SW-005B	Lighting Innovation Program, Subprogram of Statewide Lighting Program	1/1/2013	N/A
SCE-13-SW-005C	Primary Lighting Program, Subprogram of Statewide Lighting Program	1/1/2013	N/A
SCE-13-SW-006	Integrated Demand Side Management Program	1/1/2013	N/A
SCE-13-SW-007	Statewide Finance Program	1/1/2013	N/A
SCE-13-SW-007A	On-Bill Financing Program	1/1/2013	N/A
SCE-13-SW-007B	ARRA-Originated Financing Program	1/1/2013	12/31/2018
SCE-13-SW-007C	New Finance Offerings	1/1/2013	N/A
SCE-13-SW-008	Codes and Standards Program	1/1/2013	N/A
SCE-13-SW-008A	Building Codes and Compliance Advocacy	1/1/2013	N/A
SCE-13-SW-008B	Appliance Standards Advocacy	1/1/2013	N/A
SCE-13-SW-008C	Compliance Improvement	1/1/2013	N/A
SCE-13-SW-008D	Reach Codes	1/1/2013	N/A
SCE-13-SW-008E	Planning and Coordination	1/1/2013	N/A
SCE-13-SW-009	Emerging Technologies Program	1/1/2013	N/A
SCE-13-SW-009A	Technology Development Support	1/1/2013	N/A

CPUC ID	Program Name	Date Added	Date Removed
SCE-13-SW-009B	Technology Assessments	1/1/2013	N/A
SCE-13-SW-009C	Technology Introduction Support	1/1/2013	N/A
SCE-13-SW-010	Workforce Education & Training Program	1/1/2013	N/A
SCE-13-SW-010A	WE&T Integrated Energy Education and Training	1/1/2013	N/A
SCE-13-SW-010B	WE&T Career Connections	1/1/2013	N/A
SCE-13-SW-010C	WE&T Planning	1/1/2013	12/31/2016
SCE-13-L-001	Integrated Demand Side Management Pilot for Food Processing	1/1/2013	12/31/2016
SCE-13-L-002	Energy Leader Partnership Program	1/1/2013	12/31/2018
SCE-13-L-002A	City of Beaumont Energy Leader Partnership	1/1/2013	12/31/2015
SCE-13-L-002B	City of Long Beach Energy Leader Partnership	1/1/2013	N/A
SCE-13-L-002C	City of Redlands Energy Leader Partnership	1/1/2013	12/31/2016 Merged with SBREP
SCE-13-L-002D	City of Santa Ana Energy Leader Partnership	1/1/2013	12/31/2016 Merged with OCC
SCE-13-L-002E	City of Simi Valley Energy Leader Partnership	1/1/2013	12/31/2015 Merged with Ventura
SCE-13-L-002F	Gateway Cities Energy Leader Partnership	1/1/2013	N/A
SCE-13-L-002G	Community Energy Leader Partnership	1/1/2013	6/30/2017 Merged with various partnerships
SCE-13-L-002H	Eastern Sierra Energy Leader Partnership	1/1/2013	N/A
SCE-13-L-002I	Energy Leader Partnership Strategic Support	1/1/2013	N/A
SCE-13-L-002J	Desert Cities Energy Leader Partnership	1/1/2013	N/A
SCE-13-L-002K	Kern County Energy Leader Partnership	1/1/2013	N/A
SCE-13-L-002L	Orange County Cities Energy Leader Partnership	1/1/2013	N/A
SCE-13-L-002M	San Gabriel Valley Energy Leader Partnership	1/1/2013	N/A
SCE-13-L-002N	San Joaquin Valley Energy Leader Partnership	1/1/2013	N/A
SCE-13-L-002O	South Bay Energy Leader Partnership	1/1/2013	N/A

CPUC ID	Program Name	Date Added	Date Removed
SCE-13-L-002P	South Santa Barbara County Energy Leader Partnership	1/1/2013	N/A
SCE-13-L-002Q	Ventura County Energy Leader Partnership	1/1/2013	N/A
SCE-13-L-002R	Western Riverside Energy Leader Partnership	1/1/2013	N/A
SCE-13-L-002S	High Desert Regional Energy Leader Partnership (formerly City of Adelanto Energy Leader Partnership)	1/1/2013	N/A
SCE-13-L-002T	West Side Community Energy Leader Partnership	1/1/2013	N/A
SCE-13-L-002U	Local Government Strategic Planning Pilot Program	1/1/2013	N/A
SCE-13-L-002V	North Orange County Cities Energy Leader Partnership	4/3/2015	N/A
SCE-13-L-002W	San Bernardino Regional Energy Leader Partnership	4/3/2015	N/A
SCE-13-L-003	Institutional and Government Core Energy Efficiency Partnership	1/1/2013	N/A
SCE-13-L-003A	California Community Colleges Energy Efficiency Partnership	1/1/2013	N/A
SCE-13-L-003B	California Dept. of Corrections and Rehabilitation EE Partnership	1/1/2013	N/A
SCE-13-L-003C	County of Los Angeles Energy Efficiency Partnership	1/1/2013	N/A
SCE-13-L-003D	County of Riverside Energy Efficiency Partnership	1/1/2013	N/A
SCE-13-L-003E	County of San Bernardino Energy Efficiency Partnership	1/1/2013	N/A
SCE-13-L-003F	State of California Energy Efficiency Partnership	1/1/2013	N/A
SCE-13-L-003G	UC/CSU Energy Efficiency Partnership	1/1/2013	N/A
SCE-13-L-003I	Public Sector Performance-Based Retrofit High Opportunity Program	1/1/2017	N/A
SCE-13-TP-001	Comprehensive Manufactured Homes Program	1/1/2013	N/A
SCE-13-TP-002	Cool Planet Program	1/1/2013	12/31/2018
SCE-13-TP-003	Healthcare EE Program	1/1/2013	12/31/2018

CPUC ID	Program Name	Date Added	Date Removed
SCE-13-TP-004	Data Center Energy Efficiency Program	1/1/2013	12/31/2018
SCE-13-TP-005	Lodging EE Program	1/1/2013	12/31/2018
SCE-13-TP-006	Food & Kindred Products Program	1/1/2013	12/31/2018
SCE-13-TP-007	Primary and Fabricated Metals Program	1/1/2013	N/A
SCE-13-TP-008	Nonmetallic Minerals and Products Program	1/1/2013	N/A
SCE-13-TP-009	Comprehensive Chemical Products Program	1/1/2013	N/A
SCE-13-TP-010	Comprehensive Petroleum Refining Program	1/1/2013	N/A
SCE-13-TP-011	Oil Production Program	1/1/2013	12/31/2018
SCE-13-TP-012	Refinery Energy Efficiency Program	1/1/2013	01/01/2015
SCE-13-TP-013	Cool Schools Program	1/1/2013	12/31/2018
SCE-13-TP-014	Commercial Utility Building Efficiency (CUBE) Program	1/1/2013	12/31/2018
SCE-13-TP-017	Energy Efficiency for Entertainment Centers Program	1/1/2013	01/01/2015
SCE-13-TP-018	School Energy Efficiency Program	1/1/2013	N/A
SCE-13-TP-019	Sustainable Communities Program	1/1/2013	N/A
SCE-13-TP-020	IDEEA365 Program	1/1/2013	12/31/2018
SCE-13-TP-021	Enhanced Retrocommissioning Program	1/1/2013	N/A
SCE-13-TP-022	Water Infrastructure Systems EE Program (WISE)	1/1/2017	N/A
SCE-13-TP-023	Midsize Industrial Customer Program (MICE)	1/1/2017	12/31/2018
SCE-13-TP-024	AB793 Residential Pay for Performance Program	1/1/2017	N/A
SCE-13-L-002Y	Grandfathered Street Lights	12/6/2018	N/A
SCE-13-SWMEO	Statewide Marketing, Education & Outreach Program	1/1/2013	N/A

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Appendix D: **SCE's Final December Monthly Report** **for 2019**

To obtain a copy of SCE's December 2019 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: Water-Energy Nexus Activity

Activity Description

The California Long Term Energy Efficiency Strategic Plan ("Strategic Plan") predates the Water-Energy Nexus (WEN) Proceeding (R.13-12-011) and does not include reference to water-energy savings strategies or market transformation approaches for water. However, in response to California's historic drought, then-Governor Brown issued Executive Order B-29-15 mandating statewide urban water reductions of 25%. The California Public Utilities Commission (CPUC) supports the Governor's Order through the Water-Energy Nexus, which aims to enable further coordination of energy efficiency (EE) and water use efficiency.

As these initiatives continue to be developed, it is important to recognize that a significant amount of data and better understanding are still needed in order to define best practices for joint programming efforts. Equally important, as noted in CPUC Decision D.12-05-015,⁹¹ it is "not prudent to spend significant amounts of [energy] ratepayer funds on expanded water-energy nexus programs until the cost-effectiveness of these programs, and particularly the net benefits that accrue to energy utility ratepayers, are better understood." SCE's WEN activities, seeking reductions both in water and electricity use, work to support these efforts.

Strategies Implemented in 2019

SCE's strategies included holding face-to-face meetings, conducting interactions with various water associations, managing pilot programs, and conducting outreach and educational activities to promote and recommend EE solutions that meet customer needs to save water, save energy, and save money. Provided below are descriptions of such activities.

SCE's Engineering Services pursued Water-Energy Savings opportunities in WEN technologies research, water-energy grid strategies, and integration of data analytics, as well as ongoing water-energy project developments to further water reuse and recycling technologies and water optimization in process operations. The first three of the following projects were finalized in 2019 through joint collaboration with Southern California customers, water districts, and agriculture growers.

⁹¹ *Decision Providing Guidance on 2013-2014 Energy Efficiency Portfolios and 2012 Marketing, Education, and Outreach*, p. 287.

Cooling Towers: Water-Energy Savings Opportunities

As one of the largest water consumption technologies, cooling towers are of particular interest. Cooling towers in the US and California are extremely water-intensive and use traditional chemical treatment processes. Though smaller equipment can be air-cooled, larger space-cooling equipment, refrigeration, and industrial process cooling systems use water cooling to achieve higher efficiencies, which is a major concern given California's prevailing drought conditions. The heat transfer performance of chiller and cooling tower systems must be maintained to sustain the energy efficiency of the equipment. Additionally, cooling tower water historically has been treated with hazardous chemicals to control microbial growth, scale formation, and metal corrosion.

SCE Engineering Services researched opportunities to assess the efficacy of an innovative low-energy-use physical water treatment (PWT) technology, called Vortex Process Technology (VPT), and to assess the energy, water, and chemical savings potential at SCE customer sites. These sites included a world-class pharmaceutical company, a large research hospital's Research & Development Center, and a resort and hotel complex in the California desert. The project's results demonstrated measured benefits in:

- Water savings of 15%-40% through optimizing water reuse and lowering sewer discharge, and
- Energy savings of 6%-8% through better heat transfer in chillers while preventing cooling tower scaling, and
- Additional upstream and downstream kWh and kW savings from reduced water pumping and water treatment, resulting in Embedded Energy Reduction savings.

Water Sector Over-Generation Mitigation and Flexible Demand Response (Flex DR) Pilot

The Water Sector Over-Generation & Flex DR Pilot conducted pursuant to a CPUC Demand Response Rulemaking⁹² explored the potential of pumped water storage as a strategy to address over-supply (that is, over-generation) on California's electric grid.

The scope included establishing a baseline for the State, conducting an analysis that yielded a five-year projection of over-generation status, and conducting

⁹² D.15-11-042, *Decision Addressing the Valuation of Load Modifying Demand Response and Demand Response Cost-Effectiveness Protocols*. See also "Water Sector Over-Generation Mitigation and Flexible Demand Response, Phase 2 Program Recommendations," Laurene Park, Caroline Minasian, Jon Wells, and Martin Vu, Water Energy Innovations, Inc. for Southern California Edison, October 25, 2019.

studies of the potential for seven water and wastewater utilities within SCE's service area to help alleviate over-generation. The pilot found many near-term opportunities for accelerating cost-effective development and implementation of water-related flexible electric resources to support local and regional electric reliability. Many could be implemented at as granular a level as the electric distribution circuit. New programs, rates, information, and education will be needed to harness the full potential of water sector Flex DR.

DER Integration with Water District Project

Related to the Water Sector Over-Generation Pilot is the Distributed Energy Resource (DER) Integration with Water District Project. This project studied the opportunity to leverage water sector hydraulic models to predict changes in water and energy usage, and their impact on the electrical system, at different times of the day and at different locations within complex networked water and wastewater systems. Properly calibrated, hydraulic models can predict electric impacts upstream, downstream, and laterally from any contemplated change in the design and/or operations of a water or wastewater system. Integrating both projected and real-time electric data into hydraulic models and water sector Supervisory Control and Data Acquisition (SCADA) Water-Energy Management Systems (SWEMS) can substantially improve water sector decisions about development and implementation of Flex DR, increasing the State's portfolio of near-term, cost-effective, renewable energy integration resources.

Leveraging Advanced Metering Infrastructure (AMI Project)

SCE has been utilizing advanced metering infrastructure (AMI) to monitor energy usage in various locations where water is also being used. This Water-Energy savings project involved using SCE agriculture customers' AMI meter data in conjunction with a software application that identifies pumping and irrigation efficiency opportunities while providing customers with real-time reporting via computer and mobile apps. The project conducted field demonstration of a Software-as-a-Service (SaaS) product created by PowWow Energy that can calculate pump water use and issue pump alerts by:

- Using patented machine learning algorithms, and
- Leveraging existing energy data to.

To facilitate efficient and easier ways for customers to manage their water and energy use, the software uses AMI data (via the SCE Green Button service) and pump operation data from SCE pump test measurements to provide continuous feedback to customers on a pump's operating conditions. Proprietary algorithms estimate the water flow from a pump and can send messages or alerts to farmers

about their water and energy usage. When growers respond to these alerts and perform necessary interventions, water and energy savings are the result. The software does not require any new hardware installation and can integrate data from existing Smart Meters at the pump location or other telemetry systems on the farm.

The project demonstrated that agricultural AMI data through analytical software can provide useful tools and alerts about pumping operations which can be used by growers to implement Behavioral, Retrocommissioning, & Operational (BRO) interventions to improve water and energy efficiency. Databases of AMI information could potentially be leveraged to enhance existing utility pumping programs through targeted pump testing on high-savings-potential pumps, thus improving implementation of other EE measures (such as pump retrofits, VFD installations, etc.)

The Get Smart Program

The SCE Residential Direct Install (Res DI) Program partnership with the Irvine Ranch Water District (IRWD) and SoCalGas, known as the Get Smart Program, began in 2018 to implement a targeted water-energy nexus program for residential customers. The partnership effort provided targeted customers of both IRWD and the utilities with Rachio 3 Smart Sprinkler Controllers and Nest smart thermostats.

By January 2019, IRWD's funding for this partnership was depleted, so registration for the program was closed. However, later in the year, IRWD submitted an abstract describing the Get Smart Program to the Behavior Energy and Climate Conference (BECC) to highlight the successful water-energy collaborative efforts the program demonstrated. The abstract was selected as a 15-minute presentation for BECC which took place November 17-20, 2019, in Sacramento, California. The IRWD Program Team and SCE's Residential Direct Install Program Team collaborated on developing the presentation, then presented it together at the conference.

The 26th Annual Water Conference

On September 10, 2019, SCE hosted 166 attendees at the 26th Annual Water Conference held at the SCE Energy Education Center in Irwindale. Attendees gathered to hear about important topics highlighting key challenges faced by the water sector. The Conference provided industry-expert perspectives on a wide range of relevant topics, including current statewide and local issues, updates on the Water-Energy Nexus, and customer-specific case studies where best practices and successes were shared:

- Diane Engler, Fleet Technician, Los Angeles County Sanitation Districts, shared the Districts' engagement with SCE's Charge Ready Pilot Program and their continuing effort to purchase more EV fleet vehicles.
- Since the launch of SCE's Public Safety Power Shutoff (PSPS) policy in 2018, the company has significantly increased engagement with our Essential Use customers, in which water agencies play a pivotal role. SCE hosted a panel discussion that included representatives from the Las Virgenes Municipal Water District, the Los Angeles County Office of Emergency Management, and SCE to discuss ongoing efforts to enhance communications and build strategic relationships around wildfire mitigation and PSPS:
 - Dave Pedersen, General Manager, Las Virgenes Municipal Water District, shared his agency's story of last fall's Woolsey Fire and proactive steps the agency has taken to improve communications, bolster its backup generator fleet, and work with the California Air Resources Board (CARB) to address annual operating limitations on certain generators.
 - Other panelists included Brian Chen, Business Resiliency, SCE, and Emily Montanez, Senior Program Manager, Los Angeles County Emergency Preparedness Committee.
- The combined perspectives demonstrated ongoing collaboration between SCE, our water customers, and the Cities and Counties.

Note: *SCE did not offer any classes or workshops at the Conference this year due to budget constraints. Instead, our pump test classes were scheduled throughout the year and hosted at the Irwindale EEC.*

SCE and Metropolitan Water District Memorandum of Understanding Activities

In 2019, SCE continued to expand its activities under the Memorandum of Understanding (developed in 2018) with the Metropolitan Water District (MWD) to co-deliver programs that provide mutual advantages for our joint customers.

- SCE and MWD started a program to co-deliver food service measures through SCE's Midstream Point of Purchase (MPOP) Program, targeting these measures via a midstream channel. This provided a new delivery channel for MWD, as their programs to date had only used downstream channels. Both SCE and SoCalGas presented the partnering strategies to the Board of Directors of the Metropolitan Water District, and they were

well received since the program provides higher value to our shared customers, has more streamlined pathways for customer participation, and lowers the cost of implementation.

For 2020, SCE and MWD had a series of meetings with multiple program stakeholders to identify other partnering opportunities in the following areas:

- Income Qualified Coordination for Direct Install Measures (clothes washers, aerators, etc.)
- SCE Annual Water Conference
- Residential Program Coordination (multifamily and single-family), and
- Emerging Technology Co-Funded Research for cooling tower optimization.

These conversations also identified an opportunity to support the Solar Cup program which challenges students to design and build a solar-powered boat. SCE has committed to supporting this effort, which aids decarbonization goals and creates educational awareness, through SCE's corporate philanthropy department.

During 2019, SCE also met with MWD to set up an agreement (which is still being finalized) to create a process for Energy Savings Assistance (ESA) Program installations of washing machines. SCE will submit a list of installation site addresses to MWD.

Water Savings and the EE Portfolio

CPUC Decision (D.) 16-12-047⁹³ ordered the integration of the WEN calculator and the CPUC's current Cost-Effectiveness Tool (CET), a process that is still ongoing. When the tools are integrated, current EE projects that result in water savings will be able to include "gallon savings" to claim the embedded energy savings. As these tools are refined, they will provide better visibility to coordinated program offerings. At present, offerings resulting in water savings are limited to areas of natural synergies. Less than 5% of SCE's service territory has electric water heating, so areas of overlap between electrical and water energy savings are smaller than their gas counterparts in offerings like food service products or water heaters.

The process of identifying 2019 program activities that might impact water energy savings began by pinpointing what information about water-saving measures and projects was tracked and available, as follows:

⁹³ D16-12-047, Updating the Water Energy Nexus Cost Calculator, Proposing Further Inquiry, and Next Steps, issued December 15, 2016.

Deemed Measures:

For deemed measures, a review was conducted to identify measures that were likely to save water, and then the associated Workpapers were reviewed for water savings. Deemed measures saw some changes from previous years as some were no longer found to be cost-effective.

In 2019, projects (including both deemed and customized measures) saw water savings of approximately 3.5 million gallons, resulting in energy savings of almost 9,000 average annual embedded kWh. Most of the water savings came from deemed measures, including super-efficient commercial ice machines and boilers and connectionless steam cookers, which saved approximately 1.6 million gallons of potable water, equivalent to more than 4,100 average annual embedded kWh⁹⁴ (according to the WEN calculator) within the South Coast hydrologic zone.⁹⁵ These measures were included in SCE's MPOP Program, targeting food service measures via a midstream channel.

Customized Measures:

A similar review process for customized projects required deeper scrutiny of projects that were thought to have impacted water use and a comparative assessment of completed 2019 projects. Since many of the customized projects involved use of more efficient pumps, and water demand continued to be met throughout SCE's service territory, only minimal water savings were observed.

Installation of measures in customized projects through the University of California/California State University (UC/CSU) Partnership Program⁹⁶ in 2019 saw water savings of more than 1.8 million gallons, resulting in savings of approximately 4,800 average annual embedded kWh. These savings came from projects which included above-code comprehensive designs for cooling tower system retrofits.

Go on to the next page

⁹⁴ Embedded energy is not claimed in SCE's goals. Claiming would be more likely to occur, if cost-effective, once the WEN and CET tools are combined as directed by D.16-12-047, OP 2-4.

⁹⁵ The WEN calculator (*available at* http://www.cpuc.ca.gov/nexus_calculator/) uses the South Coast hydrologic zones and indoor water consumption.

⁹⁶ The UC/CSU Partnership is an Institutional and Government Energy Efficiency Partnership program. See **Chapter 11**, above.

Appendix F: 2019 List of EE Program Third-Party Implementers

Program ID	Program Name	Primary Sector (Market Segment)	Sector (Sub-segment / Type of Customers)	Delivery Channel	Vendor	Size of Customer ^{97, 98, 99}	Length	Dollar Value
SCE-13-TP-001	Comprehensive Manufactured Homes	Residential	Residential	Downstream	Synergy Companies	N/A	10 years	
SCE-13-SW-001C	Multifamily Energy Efficiency Rebate Program	Residential	Residential	Downstream	American Power Solutions	N/A	8 years 9 months	
SCE-13-SW-001C	Multifamily Energy Efficiency Rebate Program	Residential	Residential	Downstream	Coast to Coast Lighting Inc.	N/A	8 years 9 months	
SCE-13-SW-001C	Multifamily Energy Efficiency Rebate Program	Residential	Residential	Downstream	Monterey Energy Inc.	N/A	8 years 9 months	
SCE-13-SW-001C	Multifamily Energy Efficiency Rebate Program	Residential	Residential	Downstream	Optima Energy Inc.	N/A	8 years 9 months	
SCE-13-SW-001C	Multifamily Energy Efficiency Rebate Program	Residential	Residential	Downstream	Utility Incentive Corp.	N/A	8 years 9 months	
SCE-13-TP-021	Enhanced Retrocommissioning	Commercial	Commercial	Downstream	Nexant, Inc.	Mid-size, Large	11 years 11 months	
SCE-13-SW-002D	Commercial Direct Install Program	Commercial	Commercial	Downstream	California Retrofit, Inc.	Small	7 years 3 months	
SCE-13-SW-002D	Commercial Direct Install Program	Commercial	Commercial	Downstream	FESS Energy Inc.	Small	7 years 3 months	
SCE-13-SW-002D	Commercial Direct Install Program	Commercial	Commercial	Downstream	FCI Management Consultants	Small	7 years 3 months	
SCE-13-TP-005	Lodging EE Program	Commercial	Commercial	Downstream	Willdan Energy Solutions	Small, Mid-Size, Large	9 years 3 months	
SCE-13-TP-004	Data Center Energy Efficiency	Commercial	Commercial	Downstream	Willdan Energy Solutions	Small, Mid-Size, Large	9 years 3 months	
SCE-13-TP-003	Healthcare EE Program	Commercial	Commercial	Downstream	Willdan Energy Solutions	Small, Mid-Size, Large	9 years 3 months	
SCE-13-TP-008	Nonmetallic Minerals and Products	Industrial	Industrial	Downstream	Onsite Energy Corporation (OEC)	Mid-Size, Large	10 years	
SCE-13-TP-018	School Energy Efficiency Program	Commercial	Commercial	Downstream	Willdan Energy Solutions (fka Intergy Corp.)	Small	8 years 5 months	
SCE-13-TP-022	Water Infrastructure Systems Energy Efficiency Program	Cross-Cutting	Commercial	Downstream	Lincus, Inc.	Mid-size, Large	8 years 10 months	
SCE-13-TP-023	Midsize Industrial Customer Program	Industrial	Industrial	Downstream	Onsite Energy Corporation (OEC)	Mid-Size	8 years	
SCE-13-SW-002F	Nonresidential HVAC Program	Commercial	Commercial	Upstream	Cohen Ventures, Inc.	Small, Mid-Size, Large	5 years	
SCE-13-SW-010B	WE&T Connections	Residential	Residential	Downstream	The Energy Coalition	N/A	4 years 9 months	
SCE-13-SW-001G	Residential Direct Install Program	Residential	Residential	Downstream	Synergy Companies	N/A	4 years 5 months	

⁹⁷ 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.

⁹⁸ *Id.*, p. 41-43.

⁹⁹ "Size of Customer" applies to nonresidential categories only.

Program ID	Program Name	Primary Sector (Market Segment)	Sector (Sub-segment / Type of Customers)	Delivery Channel	Vendor	Size of Customer ^{97, 98, 99}	Length	Dollar Value
SCE-13-TP-010	Comprehensive Petroleum Refining	Industrial	Industrial	Downstream	CLEAResult Consulting, Inc.	Small, Mid-Size, Large	7 years 3 months	
SCE-13-TP-009	Comprehensive Chemical Products	Industrial	Industrial	Downstream	CLEAResult Consulting, Inc.	Small, Mid-Size, Large	6 years 3 months	
SCE-13-TP-011	Oil Production	Industrial	Industrial	Downstream	CLEAResult Consulting, Inc.	Small, Mid-Size, Large	5 years 3 months	
SCE-13-TP-006	Food & Kindred Products	Industrial	Industrial	Downstream	Lockheed Martin Corporation	Small, Mid-Size	4 years 11 months	
SCE-13-TP-007	Primary and Fabricated Metals	Industrial	Industrial	Downstream	Lockheed Martin Corporation	Small, Mid-Size, Large	5 years 11 months	
SCE-13-SW-003D	Strategic Energy Management Program	Industrial	Industrial	N/A	Cascade Energy	Large	4 years 5 months	
SCE-13-TP-025	Facility Assessment Service Program	Commercial	Commercial	N/A	Power TakeOff, Inc.	Small	3 years 1 month	
SCE-13-TP-024	AB793 Residential Pay for Performance	Residential	Residential	Downstream	Home Energy Analytics, Inc.	N/A	5 years 10 months	
SCE-13-SW-010B	WE&T Connections	Residential	Residential	Downstream	Strategic Energy Innovations	N/A	3 years 6 months	
SCE-13-SW-002G	Savings By Design	Commercial	Commercial	Downstream	VCCT Inc. (Vacom Technologies)	Mid-size, Large	9 years	
							Total	\$386,510,668

Appendix G: Statewide Third-Party Program Budgets

On November 15, 2018, San Diego Gas & Electric Company, Southern California Gas Company, Pacific Gas & Electric Company, and SCE filed a joint supplemental advice letter regarding the IOUs' proposed mechanism for shared funding of statewide programs pursuant to Ordering Paragraph (OP)24 of D.18-05-041.¹⁰⁰ The IOUs proposed to submit annual true-up reports with the IOUs' annual EE reports submitted on May 1 of the following calendar year.¹⁰¹ Below is a template of the Statewide EE Shared Funding Report Table which will be reported in the IOUs' 2020 EE Annual Reports.

Statewide EE Report by Program					
[Program Name]					
Program Year 2019					
Lead IOU: [IOU]					
	SDG&E	SoCalGas	SCE	PG&E	Total
Contributions	\$	\$	\$	\$	\$
Interest	\$	\$	\$	\$	\$
Expenses	\$	\$	\$	\$	\$
Remaining Balance	\$	\$	\$	\$	\$

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 will detail proportional funding amounts for each statewide program area, and highlight any IOU cost-sharing discrepancies, with a focus on the requirement for proportional budget contributions described above.¹⁰² Contracted statewide third-party EE programs are not expected to be implemented until 2020. Thus, reporting of statewide third-party budgets will be included in SCE's EE Annual Report for the 2020 program year, to be filed on May 1, 2021.

¹⁰⁰ 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("Joint Supplemental AL").

¹⁰¹ Joint Supplemental Advice Letter, p.3.

¹⁰² D.18-05-041, pp. 86-87.

Appendix H: Metrics

A copy of SCE's Metrics is available at:

<http://eestats.cpuc.ca.gov/Views/Documents.aspx>.

1. Click the **Report Categories: Annual** link on the upper left of the webpage.
2. Under **Report Options**, click **Utility** and select **SCE**.
3. When the page repopulates, click **SCE.AnnualExcel.2019.xlsx**.

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

- *Report progress toward all metrics and indicators¹⁰³ 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 as part of their metrics in their EE Annual Report.¹⁰⁴*

After SCE contracts with third-parties as part of the EE solicitation process, SCE will assess and report on the relative success of third-party implementers' strategies in disadvantaged communities.

In compliance with D.18-05-041, the metrics and indicators included in SCE's 2019 EE Annual Report utilize the definitions for disadvantaged communities (DAC) and hard-to-reach (HTR). As defined in Resolution G-3497, and reaffirmed in D.18-05-041:

- If a 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.

¹⁰³ D.18-05-041, OP 9 (p.183-184).

¹⁰⁴ *Id.*, OP 11 (p.184).

Applying this definition, the 2019 reported metric for HTR declined in 2019 when compared to 2018 measures. HTR participant count measured by SA (service accounts) decreased to 7,918 from 27,841 the prior year. SCE will continue to monitor this metric and its progress toward its 2020 HTR targets.

SCE's EE portfolio also made significant progress on its environmental impact goals in 2019. The EE portfolio realized nearly 550,000 annual tons of CO₂ avoided compared to the 2019 EE portfolio goal of 60,914 annual tons of CO₂ avoided. This equates to over 5 million lifecycle tons of CO₂ avoided versus a goal of over 488,000 lifecycle tons of CO₂ avoided.

A likely contributing reason for some declines in program energy savings is a decrease in EE activity from 2018 to 2019. This is especially true for the Residential portfolio (typically our largest sector), where the project counts of some programs dropped by more than 60% from the previous year. While various programs had successful results, such as the Home Energy Advisor (HEA) Program which reached more than 2.5 million customers in 2019, the Lighting-oriented programs, which had been large sources of energy savings in past years, saw decreasing contributions or were closed outright.

Attachment B

**Notice of Availability of Southern California Edison Company's Posting of 2020 Energy
Efficiency Programs Annual Report and Supporting Documents**

**BEFORE THE PUBLIC UTILITIES COMMISSION OF THE
STATE OF CALIFORNIA**

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

Rulemaking 13-11-005

**NOTICE OF AVAILABILITY OF SOUTHERN CALIFORNIA EDISON COMPANY'S
(U 338-E) POSTING OF 2020 ENERGY EFFICIENCY PROGRAMS ANNUAL REPORT
AND SUPPORTING DOCUMENTS**

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Dated: **May 15, 2020**

**BEFORE THE PUBLIC UTILITIES COMMISSION OF THE
STATE OF CALIFORNIA**

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

Rulemaking 13-11-005

**NOTICE OF AVAILABILITY OF SOUTHERN CALIFORNIA EDISON COMPANY'S
(U 338-E) POSTING OF 2020 ENERGY EFFICIENCY PROGRAMS ANNUAL REPORT
AND SUPPORTING DOCUMENTS**

Pursuant to the Administrative Law Judge's Ruling Adopting Annual Reporting Requirements for Energy Efficiency and Addressing Related Reporting Issues dated August 8, 2007, Southern California Edison Company (SCE) hereby provides notice to the service lists in proceedings R.09-11-014, R.13-12-011, and R.13-11-005 that the following documents are available for viewing and downloading on the CPUC's Energy Efficiency Statistics Application (EESTATS) website:

SCE's 2019 Energy Efficiency Annual Report and supporting documents, including the following appendices, as shown in the table of contents:

- Appendix A – List of Acronyms and Abbreviations
- Appendix B – Technical Appendices
- Appendix C – Southern California Edison Programs for 2019
- Appendix D –SCE's Final December Monthly Report for 2019
- Appendix E – Water Energy Nexus Activity
- Appendix F – 2019 List of EE Program Third Party Implementers

- Appendix G – Statewide Third Party Program Budgets
- Appendix H – Metrics

Additionally, SCE hereby provides notice to the above-referenced service list that SCE's information regarding its Workforce, Education and Training (WE&T) Program for 2019 is included in SCE's 2019 EE Annual Report.

Respectfully submitted,

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May 15, 2020