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

ANNA VALDBERG
ANGELA WHATLEY

Attorneys for
SOUTHERN CALIFORNIA EDISON COMPANY

2244 Walnut Grove Avenue
Post Office Box 800
Rosemead, California 91770
Telephone: (626) 302-3618
E-mail: Angela.Whatley@sce.com

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Southern California Edison Company (SCE) hereby submits its 2020 Energy Efficiency Annual Report (Annual Report) for its energy efficiency programs and results for Program Year 2020, 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 Proposal Evaluation & Proposal Management Application (PEPMA) website.

Respectfully submitted,

ANNA VALDBERG
ANGELA WHATLEY

/s/ Angela Whatley
By: Angela Whatley

Attorneys for
SOUTHERN CALIFORNIA EDISON COMPANY

2244 Walnut Grove Avenue
Post Office Box 800
Rosemead, California 91770
Telephone: (626) 302-3618
E-mail: Angela.Whatley@sce.com

May 03, 2021

Attachment A

SCE's 2020 Energy Efficiency Annual Report

2020
SCE Energy Efficiency Programs
Annual Report

- **Summary Report: 2020 Programs Overview & Strategies**
- **Technical Appendix**

May 3, 2021

SOUTHERN CALIFORNIA EDISON®
Energy for What's Ahead℠

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Executive Summary

As the entire world knows, 2020 was a uniquely challenging year. From the COVID-19 global health pandemic to statewide natural disasters and energy market disruptions, 2020 brought all industries and sectors experiences never before encountered. In the face of disruption and uncertainty, Southern California Edison Company (SCE) strove to meet these exceptional challenges by continuing to build upon its leadership role in energy efficiency (EE) through delivery of a diverse and innovative EE portfolio designed to meet the needs of our customers, contribute to the reliability of the grid, and achieve California's clean energy goals.

California has entered a new, transformative era in the energy space and continues to lead the nation toward a clean energy future. For SCE, the EE landscape continues to experience rapid change with challenging yet meaningful opportunities in several sectors. The progress and actions pursued in 2020 supports SCE's objectives of meeting its EE goals, maximizing cost-effectiveness while successfully managing budget and energy savings, delivering on the energy needs of its customers, and striving toward its corporate Pathway 2045[1] objective.

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

In 2020, SCE's EE programs collectively achieved 1.49 billion kilowatt-hours (kWh) of annualized energy savings and 242 megawatts (MW) of peak demand reduction, equivalent to powering more than 233,000 standard California residential homes annually. SCE's total 2020 EE portfolio was cost-effective with a Total Resource Cost (TRC) of 0.56 (without Codes & Standards), a decrease from a TRC of 1.14 in the prior year, and a TRC of 3.89 (with Codes & Standards) compared to 1.70 in 2019. Including Codes & Standards, SCE achieved 155% and 128% of its 2020 savings and demand reduction goals, respectively.[2]

SCE's EE portfolio also made significant progress toward its environmental impact targets in 2020. The EE portfolio realized nearly 555,000 annual tons of CO_2 avoided compared to the 2020 EE portfolio target of approximately 88,000 annual tons of CO_2 avoided. This amount of CO_2 avoided in the year equates to approximately the annual CO_2 output of 118,000 cars. This equates to over 5.7 million lifecycle tons of CO_2 avoided versus a target of over 884,000 lifecycle tons of CO_2 avoided.

SCE's transition to a new Energy Efficiency paradigm began in 2018 in support of two decisions[3] issued by the California Public Utilities Commission ("CPUC" or

[1] SCE's Pathway 2045 Whitepaper. Link provided in *Appendix I,* below.
[2] D.19-08-034, *Decision Adopting Energy Efficiency Goals for 2020–2030.* Link provided in *Appendix I*, below.
[3] D.18-01-004, *Decision Addressing Third Party Solicitation Process for Energy Efficiency Programs,* and D.18-05-041, *Decision Addressing Energy Efficiency Business Plans*. Links are provided in *Appendix I,* below.

"Commission") which provide an opportunity for third parties to propose, design, implement, and deliver EE programs, under contract, to a utility program administrator (PA). Consistent with our EE Business Plan and the objective of expanding the innovative solutions it offers to customers,[4] SCE completed the Statewide Lighting and SCE's local Residential, Commercial, and Industrial (RCI) solicitations, which resulted in awarding contracts to third-party implementers who will design, deliver, and implement new programs for SCE customers.

During the year, SCE also launched several more solicitations to meet these statewide and third-party requirements.

*See **Chapter 12, Third-Party Programs,** for more information on new third-party programs and SCE's solicitations process.*

In December 2019, the Upstream Lighting Program closed and subsequently SCE's lighting program(s) transitioned to a statewide third-party program administered by SCE as the statewide lead. In June of 2020, SCE retained an independent third party to investigate the Upstream Lighting Program's operations in connection with the Upstream Lighting proceeding (R.13-11-005) covering program years 2017-2019.[5] Findings from that investigation identified shortcomings in SCE's program management that require improvements. As part of these findings, in 2020 and beyond, SCE planned to make several improvements to its energy efficiency portfolio which include developing additional controls for all EE programs that it implements or administers.

SCE continues to be an active participant in a stakeholder process to enable interested parties to collaborate with EE PAs and provide input into the PAs' EE programs, led by the California Energy Efficiency Coordinating Committee (CAEECC) since 2015.[6] SCE participated in all CAEECC meetings (and associated sub-committee meetings) and presented its 2021 budget to CAEECC in advance of our Annual Budget Advice Letter (ABAL) filing. The feedback obtained from stakeholders helped shape SCE's 2021 ABAL filing, submitted on September 1, 2020.

During 2020, SCE's EE portfolio was successful in quickly adjusting to the unprecedented COVID-19 pandemic and the resulting industry disruptions. SCE modified its program designs in response to COVID-19 and in support of its customers' needs. Such modifications included:

- Making changes to its Home Energy Reports to assist customers with tips for saving energy at home
- Implementing virtual inspections for customer installations and virtual training classes for workforce education, and

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

5 SCE's Upstream Lighting Program was closed in December 2019.

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

- Temporarily pausing on-site customer site visits in support of COVID safety.

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

SCE's 2020 Annual Report describes the full set of programs delivering cost-effective energy savings for our customers and details the strategies and accomplishments of SCE's program portfolio. SCE will continue to deliver on its commitments to customers and be a positive contributor to California's success in delivering cost-effective EE and meeting important environmental goals.

As we celebrate our 135-year legacy of serving California's families and businesses, SCE has renewed its commitment to make smart energy choices which save energy, save money, and accelerate our path to a 100% clean energy future. For highlights of the accomplishments of SCE's active EE portfolio during 2020, please see the program descriptions in each chapter of this report.

1. Residential Energy Efficiency Programs

SCE's residential portfolio employs various strategies and tactics to overcome market barriers and to deliver cost-effective programs and services aligned to support customer needs and the goals of the California Energy Efficiency Strategic Plan (CEESP).[7] Six programs make up the residential portfolio:

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

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

In 2020, SCE's residential portfolio offered programs focused on meeting customer expectations, improving customer satisfaction, and lowering operating costs in order to continue providing cost-effective programs for customers, and worked with various industry stakeholders — manufacturers, distributors, contractors, and various governmental, educational, and housing organizations — to create awareness of offerings available to residential customers. Some highlights of 2020 include:

- Reaching more than 2.5 million customers with printed and e-mailed Home Energy Reports
- Helping customers reduce more than 160 MWh (megawatt-hours) of energy[8]
- Adding new rebates for fuel substitution — that is, replacing fossil-fueled appliances with electric Heat Pump technologies, such as Heat Pump HVAC and Heat Pump Water Heaters, and
- Modifying the California Advanced Homes Program to focus on providing technical design assistance for all-electric residential new construction.

Home Energy Advisor (HEA) Program

Program Description

The Home Energy Advisor (HEA) Program focuses on implementing behavior intervention strategies designed to help customers understand and manage their household

[7] January 2011 Update. Link provided in *Appendix I*, below.
[8] Not including Codes & Standards Program energy savings.

energy use. HEA offers customers an interactive online tool designed to engage customers and encourage them to reduce energy, water, and gas consumption by recommending EE tips, EE programs, behavior changes, and other related efficiency information. HEA also implements Home Energy Reports which use Randomized Control Trials (RCTs) to provide energy reduction information and social science techniques to change or improve customers' energy-related behaviors.

Strategies Implemented in 2020

Home Energy Reports (HERs):

In 2020, SCE continued mailing Home Energy Reports (Waves 2-8), and also launched a new Wave 9, adding 300,000 new customers. More than 2.5 million customers benefited from the recommendations, tips, and social science techniques promoted by HERs. The total reduction in energy supported the EE portfolio and customers by helping them reduce more than 130 MWh and 20 MW of peak demand. Each HER wave was designed using a Randomized Control Trial (RCT) to ensure confident savings evaluations.

HERs supported customers by promoting the following initiatives:

- The SCE Solar and Battery Storage Marketplace
- SCE Bill Assistance Programs
- Public Safety Power Shutoff Information
- SCE's Response to COVID-19
- COVID-19 At Home EE tips
- Links to SCE's various support programs, and
- Other critical energy-related information.

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

The EEAT website[10] offers customers an innovative online survey which provides customized EE tips, household improvements, and actions to help customers reduce energy use. SCE continued offering EEAT in 2020 to residential customers through promotional e-mails, search engine marketing ads, and other multi-layered promotions via both the websites and printed HERs. EEAT tips continued to promote replacing gas appliances with electric appliances, Time of Use (TOU) plans, Electric Vehicle tips, and multiple references of when best to use the SCE Marketplace.

Online Buyer's Guide:

The Online Buyer's Guide remained available[11] for customers who were researching any of the following topics: Building Materials, Heating and Cooling, Lighting, Kitchens,

[9] Also called Universal Audit Tool (UAT) or Energy Survey.
[10] Enhanced Energy Advisor website *available at* www. sce.com/energysurvey.
[11] The Online Buyer's Guide is *available at* https: //www.sce.com/residential/home-energy-guide.

Laundry, and/or Plug Loads. Helpful tools and tips were available to guide customers in selecting the most energy-efficient products.

The site was improved by including information on Going Green in order to help customers identify SCE fuel-substitution rebates available to them.

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 EnergyStar® 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 energy efficiency and make well-informed decisions when researching efficient Energy Management Technologies (EMTs)[12] or products for their home.

Strategies Implemented in 2020

Core Function Activities:

In 2020, to support California's decarbonization objective of reducing greenhouse gas emissions, the PLA Program focused on incentivizing energy-efficient electric heat pump technologies that can deliver greater efficiency, improve indoor air quality and comfort, and reduce greenhouse gas (GHG) emissions. The program provided incentives to replace fossil-fueled space heating and water heating systems with advanced all-electric Heat Pump HVAC and all-electric Heat Pump Water Heating systems. To maximize PLA's reach and effectiveness, two delivery channels (midstream and upstream) were implemented to offer transactional sales discounts to manufacturers and distributors for qualifying equipment sold for installation at residential customer sites.

The program also collaborated with manufacturers, distributors, contractors, installers, and industry leaders to gain cooperation and create a positive and productive relationship between SCE and these market actors. The program focused on the following:

- Using the midstream channel, the program leveraged distributor relationships with hundreds of contractors to motivate increased sales of qualifying Heat Pump HVAC equipment. The program enrolled over 20 participating distributors in

[12] Resolution E 4820, *Request for Approval of PG&E, SDG&E, SCE and SoCalGas' Assembly Bill 793 (AB 793) Advice Letters (ALs)*, Page 2: "…'energy management technology' may include products, services, or software that allow customers to better understand and manage electricity or natural gas use in the their homes or places of business." Link provided in *Appendix I,* below.

SCE's service territory and incentivized over 12,000 Heat Pump HVAC units for residential site installations. This increased customer benefits and improved cost-effectiveness.

- Using the upstream channel, the program enrolled three large Heat Pump Water Heater manufacturers. The participating manufacturers supported SCE's market development efforts, proactively marketed their products, and recruited their distributors and retail stores to increase inventory and promote the products. The program continued to work with the manufacturers to address data collection challenges and lack of database infrastructure for managing and retaining required data.

The PLA program successfully:

- Launched a marketing campaign to increase customer awareness through online landing pages, social media, magazine ads, and printed sales collateral.
- Created product training and value proposition tools, including an SCE Heat Pump HVAC Energy Cost Estimator tool to help manufacturers, distributors, and contractors compare existing HVAC systems to new Heat Pump HVAC systems, helping them make the case to customers for purchasing these products to improve whole house energy usage.
- Developed multiple new fuel-substitution Heat Pump HVAC technology workpapers to allow for claiming of both EE and fuel-substitution savings. As part of continuous process improvement, and to maximize statewide EE and decarbonization goals, SCE further collaborated with HVAC equipment manufacturers in compiling equipment performance data to support measure evaluation and development of new workpapers for high-efficiency heat pump technologies currently not supported by the CPUC in its Database for Energy Efficient Resources (DEER).[13]

  The new workpapers, using the most recent DEER water heater calculator released by the CPUC, cover Heat Pump Water Heater measure installation to replace gas and/or electric-resistance water heaters, and are available for all Residential building type savings claims.
- Supported the prototype development for centralized Heat Pump Water Heaters that are commonly used for multifamily settings, which are not readily available in the latest DEER water heater calculator.
- Conducted customer and contractor surveys to understand customer decision-making processes, the motivation for their decisions to install such units, factors influencing their decisions, and their overall satisfaction with the program.

[13] The DEER website is *available at* http: //www.deeresources.com/.

- Supported the CPUC Statewide Lead PA model decision by coordinating with the lead Program Administrator, San Diego Gas & Electric (SDG&E), on the Statewide HVAC Upstream and Statewide PLA programs.

The SCE Marketplace

The PLA program funds the implementation of the SCE Marketplace, mandated under CPUC Resolution E-4820.[14] The online SCE Marketplace is designed to help consumers become aware of Energy Management Technologies (EMT) by offering rebates, energy-related information, scores, referrals to the lowest prices, and reviews and other information that will help customers determine the best products to purchase. The SCE Marketplace continued providing benefits to customers through three related Marketplace pages:

1. The EE SCE Marketplace: The principal website where customers can research energy-related information and shop for appliances, consumer electronics, mobile apps, lawn equipment, and many other products.
2. The Cars Marketplace: A website where customers can compare the cost of ownership of gas-powered automobiles to the cost of ownership of electric or hybrid vehicles.
3. The SCE Solar Marketplace: A website created to support customers shopping for rooftop solar products.

Aligning with Commission guidance and the mission of the Marketplace tool,[15] the SCE Marketplace also added new features, funded outside of SCE's energy efficiency programs, including:

- $50 rebates for purchasing up to five portable power stations to support customer preparedness during a temporary outage.
- A $300 rebate for purchasing a portable generator to support customers who are dependent on water wells or water pumps and who may be temporarily impacted by Public Safety Power Shutdown (PSPS) events.
- A $500 rebate for purchasing a portable generator to support CARE or FERA Program customers who are dependent on water wells or water pumps and who may be temporarily impacted by PSPS events.
- The Battery Backup and Storage Marketplace: A website developed to assist customers in researching and shopping for battery solutions that support solar or prolonged grid disruptions, and
- The Heat Pump Water Heater Concierge Marketplace: A website created to support customers looking to replace their natural gas water heaters. The

[14] Resolution E-4820, *Request for Approval of AB 793 Advice Letters (ALs)*. Link provided in *Appendix I,* below.
[15] *Id.*, pp. 21-23.

concierge site helps customers understand why heat pumps are more efficient and cost-effective than natural gas water heaters, and also helps customers obtain estimates from and referrals to qualified contractors who are trained to install Heat Pump Water Heaters.

Multifamily Energy Efficiency Rebate (MFEER) Program

Program Description

The Multifamily Energy Efficiency Rebate (MFEER) Program closed at the end of 2020. While in operation, the MFEER program offered deemed rebates for EE products to motivate multifamily property owners and managers to purchase and install measures to help them lower their electricity consumption.

While the program was open, SCE worked very closely with customers and contractors to guide them through the rebate process. MFEER rebates were available to participants such as apartment buildings, 501(c)(3) housing facilities, single-room-occupancy facilities, senior living facilities, dormitories, and common areas in homeowner association (HOA) communities.

Although MFEER was a successful program, the COVID-19 pandemic had a major impact on program activities during 2020. Following the guidance of local, state, and federal government health and emergency response agencies, as well as the California Public Utilities Commission, SCE suspended contract services through the spring and summer months. As a result, the program's kWh savings were greatly reduced. The MFEER program is no longer available as of December 31, 2020.

Strategies Implemented in 2020

In 2020, the MFEER program offered rebates for LED T8 Replacement Lamps and Energy Star Certified Smart Thermostats.

Residential New Construction (RNC) Program

The Residential New Construction (RNC) Program is a continuing statewide program that includes the California Advanced Homes Program (CAHP). The RNC Program is designed to guide builders to produce energy-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, a subprogram of the Residential New Construction Program, provides comprehensive support for saving energy in the residential new construction sector, with a cross-cutting focus on sustainable design and construction, green building practices, EE, and emerging technologies. Through a combination of education, design assistance, and financial support, CAHP works to encourage building and related industries to exceed California's Title 24 Building Energy Efficiency Standards,[16] and to prepare builders for future changes to these standards.

Strategies Implemented in 2020

Administrative Changes:

- An updated Implementation Plan (IP) was filed to modify the program to be fully all-electric, as summarized in the Program Enhancements section below.

Program Enhancements:

- Through the IP update process, CAHP was modified to offer financial incentives and technical design assistance for all-electric residential new construction only. The intent was to provide a cost-effective program that could support California's decarbonization goals and fill a gap in program service attributed to delays in the solicitation process, led by PG&E, for the pending Statewide Residential New Construction program. The program will remain open until the Statewide program becomes available.
- The program's Energy Design Rating was modified so that new projects will be required to meet a standard that is 8.5% higher than the 2019 Building Energy Efficiency Standards.
- A requirement for projects to have no natural gas on-site was also added.

Core Function Activities:

- The program updated its project database to reflect the latest changes in the 2019 Energy Code.
- The program enrolled eligible projects into the program based on the revised program design.

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

Outreach to Customers:

- Marketing materials for the program were updated to reflect the modified program design and incentives, and advertisements were placed in builder-focused magazines to promote the program.
- The program continued to outreach to customers through partnerships with organizations such as the Building Industry Association, United States Green Building Council, and the California Association of Building Energy Consultants.

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 2020

Core Function Activities:

- Continued installation of comprehensive EE measures (such as Smart Thermostat, Fan Delay Controller, Efficient Showerheads, Faucet Aerators, etc.) to optimize energy savings and help customers identify opportunities for demand response and efficient water use.
- Due to the COVID-19 pandemic, all face-to-face interaction between the implementer and SCE customers, including customer outreach, enrollment, installation, and inspection work, was suspended effective March 20. Following the guidance of local, state, and federal government health and emergency response agencies, as well as the California Public Utilities Commission, the suspension remained in place through May 31. On June 1, the implementer resumed face-to-face interactions while following safe work practices outlined by SCE as well as the most restrictive state, county, or local orders for all relevant work activities.

Outreach to Customers:

- At the start of 2020, the program continued to outreach to and enroll customers primarily through door-to-door canvassing and word of mouth. Due to the suspension of face-to-face interaction on March 20, door-to-door canvassing ceased. However, many customers expressed interest in participating in the program during this time, so the implementer created a wait list of customers to be serviced when face-to-face interactions would resume. On June 1, the implementer began to contact customers on the wait list to schedule installation appointments.

AB 793 Pay for Performance Program

Program Description

In 2017, California Assembly Bill 793 (AB) 793[17] and the associated CPUC Resolution E-4820[18] mandated all the California IOUs to develop and implement incentive programs targeting residential and Small and Medium Business (SMB) customers who acquire Energy Management Technologies (EMTs). Pursuant to Resolution E-4820, to meet EE savings goals, program offerings include a mechanism to incentivize residential and SMB customers to acquire EMTs under a pay-for-performance (P4P) model. This model seeks to more fully engage existing market actors such as program implementers ("aggregators") to advance and scale residential retrofits. Aggregators are the parties responsible for managing a portfolio consisting of numerous residential homes that receive EE interventions to maximize energy savings from those sites.

The goals of the Program are to:

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

Strategies Implemented in 2020

Core Function Activities:

The program's implementer withdrew from the program owing to lack of customer participation. SCE intends to pursue stakeholder input and feedback as part of the planning process for AB 793-compliant residential programs.

[17] AB 793, Energy Efficiency. Link provided in *Appendix I*, below.
[18] Resolution E-4820, *Request for Approval of AB 793 Advice Letters (ALs)*. Link provided in *Appendix I,* below.

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)
- Commercial Deemed Energy Efficiency Program
- Midstream Point of Purchase (MPOP) Program
- Commercial Direct Install Program
- Nonresidential HVAC Program, and
- Market-Based Incentives (MBI) Pilot Program.

Commercial Energy Advisor Program

Program Description

The Commercial Energy Advisor Program includes three components:

1. Benchmarking, which aligns with Assembly Bill (AB) 802,[19] California Energy Commission (CEC) benchmarking regulations, and Public Resource Code §25402.10,[20] which requires utilities to maintain records of the energy consumption data of all nonresidential buildings.
2. 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 SCE's Customer Relationship Management (CRM) processing system.
3. Pump Efficiency Service (PES), also referred as Hydraulic Services, which offers pump test services to SCE commercial customers such as water agencies. Pump tests are designed to help customers make informed decisions about improving inefficient pumping systems. The PES component also

[19] AB 802, Energy Efficiency. Link provided in *Appendix I*, below.
[20] California Public Resources Code § 25402.10 (Chapter 5, Energy Resources Conservation). Link provided in *Appendix I*, below.

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

Strategies Implemented in 2020

In 2020, 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. AB 802 is an energy benchmarking and public disclosure regulation for commercial and multifamily buildings that meet certain criteria (building size, type, etc.) It requires owners of disclosable buildings to report electricity usage data to the California Energy Commission (CEC). SCE's ABS system was developed to intake customer data requests and deliver the data to the Environmental Protection Agency's ENERGYSTAR™ Portfolio Manager (ESPM) system, which allows the building owners to receive the usage data from SCE and submit reports to the CEC.

In 2020, SCE's Benchmarking activities included:

- SCE fulfilled customer data requests for approximately 5,500 active buildings via the ABS system.
- 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,[21] which was replaced by AB 802 in 2017.)

To prepare for SCE's Customer Service Replatform (CSRP) implementation in April 2021, SCE's benchmarking support team performed a series of User Acceptance Tests (UATs). As a result of these UATs, risk mitigation plans were developed to ensure customer satisfaction while meeting the 2021 reporting timelines.

OASIS:

In 2020, there were 30 users for OASIS. The users include Business Customer Division (BCD) Account Managers, IDSM Specialists, Field Engineers, and Pump Test Technicians.

Pump Tests:

Pump Test services are provided to Commercial customers by SCE's BCD Hydraulic Service team. However, funding for the Pump Test service, which no longer produces claimable energy savings, is being transitioned from EE funding to SCE's 2021 General Rate Case (GRC) since it is better aligned with a customer service focus under GRC funding.

In 2020, Pump Test activities included the following:

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

- To mitigate the risk of exposure to the COVID-19 virus, SCE's field activity was suspended from March 16 to June 8. The number of pump test audits during the Second Quarter was much lower as a result of suspended field activity. Return to field work was slowly implemented in a phased approach, with the first phase effective beginning on June 8. Low-risk field activities were identified for customer sites in unoccupied, outdoor-only areas with no public access and away from main customer facilities. Effective July 20, additional customer sites, such as unoccupied indoor and confined spaces with limited public interaction, were included. Field restrictions still remain in effect.
- In 2020, SCE performed approximately 1,600 pump tests for commercial customers, who were eligible to receive free Pump Test service every two years. SCE also continued to provide a fee-based pump test (implemented in May 2018), based on previous California Public Utilities Commission (CPUC or Commission) comments and guidance.
- SCE supported the continued availability of the pump overhaul measure for commercial customers after Commission Staff approval,[22] based upon changes to the effective useful life (EUL) of the measure and overall cost-effectiveness.

Commercial Calculated Energy Efficiency Program

Program Description

The Commercial Calculated Energy Efficiency Program (also known as Customized Retrofit Offering Program) offers incentives for customized retrofit and BRO (Behavioral, Retrocommissioning and Operational)[23] EE projects. It also provides comprehensive technical and design assistance through the Savings By Design Program (see ***Page 17,*** below). Through this program, customized incentives are paid based on a project's energy savings and permanent peak demand reduction above baseline energy performance (that is, above the requirements of state-mandated codes, federal-mandated codes, industry-accepted performance standards, or existing energy performance, as applicable). New offerings provide a framework to encourage emerging technologies and deeper, more comprehensive retrofits.

Strategies Implemented in 2020

In 2020, 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:

[22] Resolution E-4818, *Measure level baseline assignment and preponderance of evidence guidance to establish eligibility for an accelerated replacement baseline treatment*. Link provided in *Appendix I*, below.
[23] Formerly known as Retrocommissioning (RCx).

Administrative Changes and Successes:

- Implemented a new "Concierge" application submission process for the Project Feasibility Study (PFS) and all supporting documents. Calculated projects are no longer submitted by Trade Professionals or customers through SCE's automated online application tool. Instead, all calculated applications are submitted through SCE's Business Customer Division Center of Expertise (BCD COE). This new process greatly improves project quality and improves customer satisfaction by identifying potential issues before applications are uploaded into the processing system. Data gathered through the Concierge process helped SCE assess and determine whether to decline projects due to free ridership, insufficient influence or impact, or other related reasons.
- As the Statewide lead on project quality, SCE continued to make updates to the Statewide PFS based on Efficiency Savings and Performance Incentive (ESPI) results, industry standard practice (ISP) and other guidance, and the *Normalized Metered Energy Consumption (NMEC) Rulebook*.
- In alignment with the *NMEC Rulebook*, SCE successfully rolled out its Commercial NMEC offering to the marketplace (which includes Trade Professionals, implementers, and industry organizations). In conjunction with the roll-out, SCE developed several supporting documents that are used to inform and train market actors on program policies and requirements. These documents include, but are not limited to:
    - NMEC Fact Sheet
    - NMEC Measurement and Verification (M&V) Plan Template
    - NMEC Procedures Manual, and
    - NMEC Savings Report Template.

Core Function Activities:

- Developed and created 23 new EE measures across the Commercial, Industrial, and Agricultural segments, including such measures as:
    - Pump controls (new)
    - Compressed air leak mitigation (retrocommissioning)
    - Industrial process cooling tower variable-frequency drive (VFD) add-on equipment, and
    - Low global warming-potential high-efficiency process chiller (normal replacement).

Education & Training Activities:

- Conducted the annual EE program training event for Trade Professionals ("TradePros"), such as contractors and/or other energy service providers, who act on behalf of customers to submit EE program applications. This helps to ensure

that TradePros are knowledgeable about the program's technical and policy requirements, in order to:

- Improve the quality of the project applications they submit, and
- Enhance customers' experience with SCE's Calculated EE programs.

- The TradePro kick-off was done virtually as a result of the COVID-19 pandemic, with more than 120 TradePros in attendance. SCE also processed 81 new TradePro agreements in 2020 for both lighting and non-lighting vendors.

Savings By Design Program

Program Description

The Savings By Design (SBD) program is a statewide nonresidential new construction (NRNC) program. This statewide program also includes Pacific Gas and Electric (PG&E), San Diego Gas and Electric (SDG&E), and the Southern California Gas Company (SoCalGas). The SBD Program provides technical design assistance and financial incentives to influence and encourage facility owners, design teams, and builders to integrate energy-efficient technologies into their building design and construction practices.

Strategies Implemented in 2020

In 2020, SCE implemented activities to achieve its key goals of increasing cost-effectiveness and ensuring a successful transition to PG&E's statewide Nonresidential New Construction (NRNC) Program:

Administrative Changes and Successes:

- In preparation for the scheduled transition of the SBD Program to PG&E, SCE developed program budget requirements and pipeline project management analyses.
- SCE continued its participation in the statewide SBD transition through collaboration meetings with other IOUs. The key focus of these meetings included:
  - Providing support to PG&E in its development of the statewide NRNC solicitation Request For Abstracts (RFA) and Request For Proposals (RFP) and proposal scoresheet, and
  - Obtaining the latest information regarding the estimated timeline before the new program's launch.

Core Function Activities and Retrofit Projects:

- Established a 100,000 kWh minimum energy savings threshold to increase the cost-effectiveness of the program. New construction projects require a large

amount of quality documentation to support the influence and energy savings calculations for a project. Both customers and SCE must invest a considerable amount of resources (skilled personnel) to provide and review this required documentation. Analysis of these cost factors showed that, in order to achieve a reasonable level of cost-effectiveness on a project-level basis, a minimum energy savings threshold was necessary.

- Worked with Commission Staff to modify the variable refrigerant flow (VRF) calculation methodology used in new building modeling tools, and agreed with their recommendation to modify the EUL value for SBD's Whole Building Approach measure.
- Worked with customers with projects impacted by the COVID-19 pandemic.
- Implemented, on a case-by-case basis, the use of virtual inspections and other solutions, such as analyzing the impact of delaying inspections.

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 2020 were LED Ambient Fixtures, Adding Glass Doors to Open Vertical Display Cases with Night Covers, and Variable Frequency Drives (VFDs) on well pumps.

Strategies Implemented in 2020

In 2020, SCE implemented the following strategies for the Commercial Deemed Energy Efficiency Program:

- Developed useful tools and resources for the account management group to assist in offering cost-effective measures to commercial customers:
    - Created the NAICS[24] Reference Tool (NRT) to assist SCE's Business Customer Division in offering cost-effective Commercial Deemed measures to customers to help drive energy savings and program results.

[24] North American Industry Classification System.

The NRT tool provides eligible Commercial Deemed measures in a summary format based on a specific customer's NAICS code.

- The Excel tool references a NAICS code and displays eligible measures for account management to offer to customers. This tool helped account management offer relevant solutions to specific groups of customers based on approved building types mapped to the Database of Energy Efficient Resources (DEER).[25]

- Offered LED ambient fixtures for certain building types in order to provide customers with a downstream lighting offering. Ambient lighting fixtures include new luminaires and retrofit kits, as well as direct linear ambient lighting which is common in commercial office and grocery store settings. The products are offered for certain building types to ensure the measures are cost-effective (that is, with a higher Total Resource Cost [TRC]). These measures were also made available with On-Bill Financing. In March, the program introduced the small-office-building type as an eligible building type to assist small- and medium-size business customers that were impacted by the COVID-19 pandemic.
- 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. At the beginning of 2020, deemed workpapers were updated at the statewide level, resulting in the creation of new solution codes. SCE conducted a mapping exercise to map the new solution codes to existing codes so measure claims were accurate and customer-facing documents contained the correct measure eligibility requirements.
- Reviewed measure cost-effectiveness and increased incentives on more cost-effective measures, such as combination ovens:
    - Increased incentives for oven models with 28 or fewer pans to help drive customer demand and assist customers in the restaurant industry.
    - Increased incentives from $1,350 to $2,000 for the under-15 pan model and from $1,375 to $2,200 for the 15- to 28-pan model.
- Launched a software control switch motor measure as a new offering in 2020.
- 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

[25] Database of Energy Efficient Resources (DEER), link provided in *Appendix I,* below.

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

Program Description

In 2020, 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 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 2020 MPOP Program were LED T8 Type A tubes and LED high/low bays.

Strategies Implemented in 2020

In 2020, SCE implemented the following strategies for the MPOP Program:

- Recruited approximately 60 distributor partners to the MPOP Program in order to expand the program's reach and to provide point-of-purchase incentives to eligible business customers.
- Managed over 100,000 eligible products and created product eligibility lists based on LED workpaper requirements by utilizing Design Lights Consortium (DLC) product lists to store in the Online Application Tool (OLT) for product validation. When product data is submitted to SCE, the OLT validates product eligibility.
- Created distributor- and customer-friendly product eligibility information sheets on LED high/low bay and LED Type A tube products so distributors and customers could easily view all product requirements in a single document.
- Continued to offer On-Bill Financing (OBF) for MPOP lighting measures to customers.

Commercial Direct Install Program

Program Description

The Commercial DI Program delivered 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, which also includes national chain franchises). The program targeted these businesses in a

staged delivery approach that provided its services in specific geographic areas at different times, allowing for a more concentrated and directed program.

Strategies Implemented in 2020

SCE received CPUC approval to close its Commercial Direct Install (DI) Program; therefore, the Program did not accept new projects after December 31, 2019. In 2020, the program was fully closed and remaining activities consisted of final invoicing.

Nonresidential HVAC Program

The Statewide Nonresidential HVAC Program includes three programs:

- 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 2020

In 2020, 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, and added two new distributors.
- Continued the "Non-DEER Chiller Performance Data Gathering and Evaluation Including the Workpaper Development Plan" study to support the broadening of available air-cooled and water-cooled chiller measures based on Title 24 Path B.[26] The current Database for Energy Efficient Resources (DEER) approach is based on Title 24 Path A, although chiller distributors and SCE's program data suggest that the majority of chiller equipment distribution and implementation is based on Path B performance characterization. Activities included:

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

- 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.

- Work on this study resulted in two critical items expected to improve program chiller offerings:
  - Improvements in policy (DEER2022/E-5082[27]) and tier efficiency levels for Non-DEER Path-B Chillers, and
  - The development of a Non-DEER Path-B Chillers workpaper, submitted to the CPUC on March 4, 2021.
- Supported the CPUC Statewide Lead Program Administrator (PA) model Decision.[28]
- Coordinated with the lead Program Administrator, San Diego Gas & Electric (SDG&E), on monthly meetings to plan the rampdown of the program and the transition to the Statewide HVAC Upstream Program.
- Although still a component of the Upstream HVAC Equipment Incentive Program, the Early Retirement subprogram remains 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).

[27] Resolution E-5082, *Approval of the Database for Energy-Efficiency Resources Updates for Program Year 2022 and Revised Version for Program Years 2021 and 2020*. Link provided in *Appendix I*, below.
[28] D.18-05-041.

Strategies Implemented in 2020

In 2020, 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.

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 2020

The QM Program's focus in 2020 was to continue to bolster performance by reviewing barriers described by participating contractors, customers, and the CPUC. The specific strategies implemented in 2020 for the Program included:

Core Function Activities:

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

Administrative Successes:

- Continued to align with industry standard practice by allowing customers to enroll in a one-year maintenance agreement, as opposed to a three-year requirement. This aligned customer maintenance plan requirements with objectives described in Section 4 of ASHRAE Standard 180.[29]

Collaboration With External Partners:

- QM Program customers became eligible for the On-Bill Financing (OBF) Program, a statewide finance offering, in 2020.
- In late 2019, the QM Program had initiated a new training for contractors to promote the OBF Program to their customers upon enrollment in the QM Program. However, because of the impact of the COVID-19 pandemic, the QM Program was unable to conduct this training in 2020.

*For more information on the OBF Program, see **Chapter 5, Finance Programs,** below.*

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

Market-Based Incentives (MBI) Pilot Program

Program Description

SCE filed Advice Letter 3992 E [30] to the CPUC on April 19, 2019 to request approval of a Market-Based Incentives (MBI) Pilot Program. The CPUC approved this Advice Letter on December 5, 2019 in Resolution E-5022.[31] The MBI Pilot Program was an online reverse auction for financial incentives, where pre-qualified customers submitted bids to receive incentives for EE process measures.

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

- Streamlined eligibility rules for targeted Customized EE customers
- Tested a new and innovative incentive mechanism, and
- Utilized financial influence as the driver for participation.

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

With this in mind, the MBI Pilot was sunsetted effective December 31, 2020.

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

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

3. Industrial Energy Efficiency Programs

The Statewide Industrial Energy Efficiency Program works with industry stakeholders to promote integrated energy management solutions to industrial end-use customers, such as printing plants, petroleum refineries, chemical industries, and water and wastewater treatment plants. The program is designed to overcome the traditional market barriers to energy efficiency (EE), while also advancing distributed generation (DG) and demand response (DR) opportunities. The four programs that provide the core EE products and services offered to industrial customers include:[32]

- 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 two components:

4. Onsite Audit Services Information System (OASIS), a centralized and mobile-enabled on-site audit tool that provides capabilities to centralize and standardize audits delivering DSM recommendations for customers, and integrates these findings with SCE's Customer Relationship Management (CRM) processing system.

5. Pump Efficiency Service (PES), also referred as Hydraulic Service, offers pump test services to SCE industrial customers. Pump tests are designed to help customers make informed decisions about improving inefficient pumping systems. The PES component also provides targeted education, training, technical support, and renovation and/or replacement incentives.

Strategies Implemented in 2020

In 2020, SCE implemented the following strategies for the Industrial Energy Advisor Program:

OASIS:

In 2020, there were 30 users for OASIS, including Business Customer Division (BCD) Account Managers, IDSM Specialists, Field Engineers, and Pump Test Technicians.

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

Pump Tests:

Pump Test services are provided to Industrial customers by SCE's BCD Hydraulic Service team. However, funding for the Pump Test service, which no longer produces claimable energy savings, is being transitioned from EE funding and was submitted in SCE's 2021 General Rate Case (GRC) filing, since it is better aligned with a customer service focus under GRC funding.

2020 Pump Test activities included:

- To prevent the risk of exposure to the COVID-19 virus, SCE's field activity was suspended from March 16 to June 8. (For further details, please see the *Commercial Energy Advisor Program* in ***Chapter 2***, ***Commercial EE Programs,*** above.)
- SCE performed approximately 100 pump tests for Industrial customers, who were eligible to receive free Pump Test service every two years. SCE also continued to provide a fee-based pump test (implemented in May 2018), based on previous CPUC comments and guidance.
- SCE supported the continued availability of the pump overhaul measure for Industrial customers after Commission staff approval,[33] based upon changes to the effective useful life (EUL) of the measure and overall cost-effectiveness.

Industrial Calculated Energy Efficiency Program

Program Description

The Industrial Calculated Energy Efficiency Program offers incentives for customized retrofit and Behavioral, Retrocommissioning and Operational[34] (BRO) 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 2020

In 2020, 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.

[33] CPUC Resolution E-4818, *Resolution on Existing Baseline*. Link provided in *Appendix I,* below.
[34] Formerly known as Retrocommissioning (RCx).

For the specific strategies, please see the *Commercial Calculated Energy Efficiency Program* 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, distributors, and trade allies.

Strategies Implemented in 2020

In 2020, 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 2020 were LED ambient fixtures.

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, launched statewide by the California IOUs in 2018, engages large industrial customers in two-year cycles to drive persistent electric and natural gas savings across their entire facilities.

The Program, in compliance with the CPUC-approved *California Industrial SEM Design Guide* and the *California Industrial SEM Measurement and Verification (M&V) Guide,*[35] includes a full spectrum of services:

- Customer workshops with clearly defined learning objectives and well-facilitated peer-to-peer learning
- Annual (that is, once during each two-year cycle) on-site "Energy Treasure Hunts" to identify energy-saving opportunities
- On-site and remote support for goal development, employee engagement, energy map development, energy data collection, and project savings persistence

[35] Links provided in *Appendix I,* below.

strategies, and

- Implementation of an "Energy Management Information System" (EMIS) to assess progress on each participant's management approach and to plan future improvements.

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

Currently, the majority of SCE's SEM customers are located in the Inland Empire region of SCE's Southern California service area. The SEM Program is not open for enrollment in the same way as other EE programs. Instead, customers are recruited into "cohorts" or groups. SCE's SEM Program started with one cohort in 2018 and expanded to three cohorts in 2020 (see the table below). The implementer, Cascade Energy, targets potential industrial customers with high annual usage, works with SCE's Business Customer Division to recruit and enroll customers into a cohort, and provides all SEM Program services.

Table: SEM Program Cohorts 2018-2020

Cohort	Number of Participants	Two-Year Engagement Start & End Dates	Industry Types ("Verticals")
1 *	**8**	8/1/2018 – 7/31/2020	• Beverages • Industrial gases • Food processing • Metal smelting • Plastic packaging • Water bottling
2 *	**7**	1/1/2020 – 12/31/2021	• Aerospace • Beverages • Cardboard packaging • Construction materials
3 **	**7**	1/1/2020 – 12/31/2021	• Aerospace • Beverages • Food processing • Plastic formulation

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

*** Cohort 3 is 100% funded by SCE only.*

Strategies Implemented in 2020

Administrative Changes and Successes:

SEM Program staff, the implementer, and third-party reviewers streamlined all aspects of SEM Program administration in 2020, including recruitment, onboarding, reporting, and measurement & verification (M&V). As a result, the Program was able to complete the end-of-year reporting process two months sooner than expected. The Program team adapted quickly to COVID-19 restrictions, which enabled them to complete deliverables and meet key deadlines during 2020.

Core Function Activities:

Adjustments to Program implementation were made in the 2nd Quarter of 2020 due to the COVID-19 pandemic. The Program shifted all activities online, including workshops, treasure hunts, and site check-ins. All participants were deemed essential businesses and continued to operate, so it was possible to find and complete savings projects despite the challenges.

The Program wrapped up the first two-year cycle for the initial group of SEM participants — Cohort 1 — on July 31, 2020,[36] having achieved 130% of the savings goal, including an adjustment made in the trued-up[37] savings for Year 2. The majority of Cohort 1 participants continued into a second two-year cycle. Cohorts 2 and 3 completed their first program year on December 31, 2020.

Program Successes

- One participant in Cohort 1 saved more than one million dollars in electricity costs and was written up as a case study by the Alliance to Save Energy.[38] A beverage company in Cohort 2 finished its first program year with a 9% energy savings rate.
- Participants generated most of their savings through BRO measures such as:
    - Changing temperature setback in production zones when not in production
    - Changing tap settings on an arc furnace to improve efficient current flow
    - Reducing high pressure setpoint, and
    - Conducting a compressed air leak program.
- Participants in all cohorts generated more than a thousand energy savings projects since the beginning of the Program, or more than 60 projects per site. More than

[36] According to the program rules in the *SEM Design Guide*, savings will be calculated at the end of each Program Year (July 31 for Cohort 1, and December 31 for Cohorts 2 and 3).

[37] The adjustment made in the trued-up savings for Year 2 (for 2019 and 2020) was for one participant where the 2019 annual savings through the SEM program should have been adjusted down by -553,711 kWh in 2019.

[38] *Active Efficiency in Action*. Link provided in *Appendix I*, below.

340 projects were completed by the end of the calendar year.

- The Program developed a pipeline of SEM-influenced custom capital projects that are moving through the standard custom (calculated) process.

Outreach to Customers:

At the onset of 2020, the implementer finalized recruitment of another 15 large industrial sites into two SEM cohorts. In the 4th Quarter, the Program began recruitment for a new (fourth) cohort of ten more sites to be launched in early 2021.

Market-Based Incentives (MBI) Pilot Program

Program Description

On April 19, 2019, SCE submitted Advice Letter (AL) 3992-E[39] to request Commission approval of a Market-Based Incentives (MBI) Pilot Program. The CPUC issued Resolution E-5022[40] approving AL 3992-E on December 5, 2019.

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

[39] AL 3992-E, *SCE Request for Approval of MBI Pilot*. Link provided in Appendix I, below.
[40] Resolution E-5022, *Modifies and approves AL 3992-E.* Link provided in *Appendix I,* below.

4. Agriculture Energy Efficiency Programs

The Statewide Agriculture Energy Efficiency (EE) Program offers Demand Side Management (DSM) solutions to help agricultural customers save money and energy, including strategic energy planning support, technical support (facility audits, calculation and design assistance, and pump tests), and financial support through calculated and deemed incentives and rebates. Targeted segments include dairies, farms, food processing facilities, and water pumping facilities.

This program includes the following subprograms:

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

A key focus of the three agriculture subprograms in 2020 was to enhance the flexibility of the programs by:

- Streamlining and improving program technology offerings
- Maximizing program performance and cost-effectiveness, and
- Implementing strategies to effectively work around COVID-related issues.

Both the Agriculture Calculated EE and Agriculture Deemed EE programs were successful in these efforts. As a result, they recorded energy savings that exceeded their goals and improved overall program cost-effectiveness.

Agriculture Energy Advisor Program

Program Description

The Agriculture Energy Advisor Program, through SCE's Business Customer Division (BCD) Hydraulic Service team, provided Pump Efficiency Service[41] (PES) to agricultural customers. Pump tests are designed to help customers make informed decisions about improving inefficient pumping systems. The PES Program also provided targeted education, training, technical support, and renovation and/or replacement incentives. The Onsite Audit Service Information System (OASIS), an onsite audit tool, was used to support Pump Tests and other on-site audits by providing targeted recommendations to customers.

Because it is no longer producing claimable energy savings, the Pump Efficiency Service is transitioning away from EE funding and was, instead, included in SCE's 2021 General Rate Case (GRC)[42] filing, since it is better aligned with a customer service focus

[41] Also referred to as Hydraulic Service.

[42] A.19-08-013. *Test Year 2021 General Rate Case Application of Southern California Edison Company (U338-E)*. Link provided in *Appendix I*, below.

under GRC funding. As a result of removing Pump Efficiency Services from the EE portfolio, the Agriculture Energy Advisor program was closed as of December 31, 2020.

Strategies Implemented in 2020

In 2020, SCE implemented the following strategies for the Agriculture Energy Advisor Program:

- To prevent the risk of exposure to the COVID-19 respiratory virus, SCE's field activity was suspended from March 16 to June 8. (For further details, please see the *Commercial Energy Advisor Program* in ***Chapter 2***, above.)
- Nonetheless, during the year, SCE succeeded in performing approximately 850 pump tests for agricultural customers who were eligible to receive free Pump Test services every two years. SCE also provided a fee-based pump test (originally implemented in May 2018, based on previous CPUC comments and guidance).
- SCE also supported the continued availability of a pump overhaul measure for agricultural customers after CPUC staff approval (CPUC Resolution E-4818),[43] based upon 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 Behavioral, Retrocommissioning and Operational (BRO) EE projects for agricultural customers. 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 2020

In 2020, SCE continued to implement strategies 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 of historical project data by horsepower ranges and by

[43] Resolution E-4818, *Measure level baseline assignment*. Link provided in *Appendix I*, below.

different customer types, commercial and agricultural, to determine the most cost-effective horsepower ranges for pump overhauls. Using this analysis, SCE should achieve higher cost-effectiveness by matching customer needs to our 20 current measure codes (incentive offerings).

For more information on specific strategies, please see the *Commercial Calculated Energy Efficiency Program* in ***Chapter 2, Commercial EE Programs*****,** 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, distributors, and trade allies.

Strategies Implemented in 2020

In 2020, 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 2020 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.

5. Finance Programs

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

- On-Bill Financing (OBF) Program, and
- New Finance Offerings, which includes one program and two 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, who repay their loan as a line item on their electric bill. This program supports the commercial sector goals and strategies of the California Energy Efficiency Strategic Plan (CEESP).[44]

In 2020, OBF was 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 2020, OBF funded over 95 loans covering more than 190 Service Accounts, representing over $5 million in funded loans and over $7.5 million in loan repayments.[45]

Strategies Implemented in 2020

In 2020, SCE implemented the following strategies in order to fulfill CPUC-mandated compliance requirements, reduce program constraints, and expand the potential for OBF financing to better meet customers' needs:

[44] Link provided in *Appendix I*, below.
[45] Figures represent projects installed in 2019, which may have been initiated or committed in previous program years.

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

In order to address the safeguard and control requirement of D.19-03-001,[46] Ordering Paragraph (OP) 2, SCE continued to apply the following measures to reduce free ridership in 2020:

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

SCE has internal safeguards to assure that customers are aware of the $250,000 cap for OBF loans and incentives (so that SCE does not accidentally pay incentives for loans over $250,000), such as:

- Having customers acknowledge the $250,000 incentive cap on the OBF application
- Communicating the $250,000 cap to customers in the OBF Reservation Confirmation Letter they receive, and
- Using 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 for 2020:

- **Default Rates:** The OBF Program had no loan defaults in 2020. The total overall OBF Program default rate remained below 0.75% of all funded loan amounts since program inception.
- **Energy Savings:** The OBF Program does not claim energy savings directly. Instead, SCE will continue to report energy savings through the associated EE programs that OBF customers participate in.
- **Status of efforts to replace incentives with loans:** SCE did not fund individual OBF loans in 2020 over $250,000; therefore, there is no data to report on the results of replacing incentives with loans.
- **Degree of free ridership, if any, associated with EE projects financed through the OBF Program:** Currently, the degree of free ridership is calculated in the Net-to-Gross (NTG) score for SCE's EE Incentive Programs. SCE's estimated program-level NTG ratio (for SCE programs in general) is 0.64. Additionally,

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

SCE 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, and
- Streamlined the OBF process for Custom Projects and reduced OBF processing by one business day.

Marketing and Communications:

In August of 2020, SCE launched a targeted e-mail OBF Program marketing campaign which expanded across SCE's service area to promote the Program. The marketing campaign successfully reached over 4,500 SCE customers.

New Finance Offerings

Program Description

In accordance with D.13-09-044,[47] the IOUs, along with the California Alternative Energy and Advanced Transportation Financing Authority (CAEATFA, a subdivision of the California Treasurer's Office serving as the pilots' Program Administrator), have developed and are continuing to improve statewide financing pilot programs that:

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

The New Finance Offerings include the following programs and pilots:

- Single Family Loan Program with Credit Enhancements, commercially known as the Residential Energy Efficiency Loan (REEL) Assistance Program
- Small Business OBR Loan/Lease with Credit Enhancements Pilot Program, commercially known as the Small Business Finance (SBF) Program, and
- Master-Metered Multifamily OBR Pilot Program, commercially known as the Affordable Multifamily Finance (AMF) Program.

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

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

Strategies Implemented in 2020

In 2020, SCE worked with CAEATFA and the other IOUs to implement the following strategies for the New Finance Offerings:

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 2020, the program team worked with the CSRP team on a weekly basis to develop functional specifications, business requirements, and training documentation for the New Finance Offerings.

The on-bill repayment (OBR) infrastructure was originally expected to go live in 2020. Due to the delay of the CSRP project, the launch of the OBR functionality has been postponed to 2021, after SCE's new SAP processing system and software is expected to be launched.

General Marketing Strategies:

- The SCE program team, in coordination with CAEATFA and the IOU statewide team, deployed a comprehensive marketing strategy for the New Finance Programs in 2020 which included website landing pages, banner ads, translation services, printing, direct mail, e-mail "blasts," and social media.
- In coordination with the Center for Sustainable Energy (CSE), SCE's program team worked to increase traffic to the Pilots' statewide website, gogreenfinancing.com, by directing customers to the website from SCE's public website, SCE.com.
- SCE's targeted marketing campaigns expanded awareness and also increased e-traffic to gogreenfinancing.com and to participating lenders' pages.

REEL Assistance Program-Specific Strategies:

- SCE made over 120 REEL loans in 2020 that totaled over $2.3 million, conducted outreach, and attended virtual community events to market the program and to maintain awareness of the changing landscape of EE financing.
- In April 2020, the Commission adopted Resolution E-5072,[48] which approved the transition of the REEL pilot to a full-scale program and provided guidance on

[48] Resolution E-5072, *Disposition of the Residential Energy Efficiency Assistance Loan Program (REEL) Pursuant to Decision 17-03-026*. Link provided in *Appendix I*, below.

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 social media, email, and direct mailing campaigns:
    - In October 2020, SCE launched an e-mail campaign targeted to over 350,000 customers.
    - In parallel, SCE launched a two-month limited (October and November) multi-platform social media campaign that targeted nearly 934,000 customers.

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. In 2020 SCE made its first SBF loan. As mentioned above, on-bill repayment functionality is scheduled to go live in 2021.
- SCE's marketing team worked closely with CAEATFA and the statewide team to design and implement marketing campaigns promoting SBF that included Facebook, Twitter, and Instagram ads. In October 2020, SCE launched an e-mail campaign targeted to approximately 61,000 small business customers in SCE's service territory.
- SCE promoted the SBF Pilot during the annual TradePro Kickoff Meeting which was a virtual event in 2020 due to COVID-19 restrictions. SBF was also promoted internally among SCE Account Managers, as a way to increase program awareness and promote customer participation.

Master-Metered Multifamily OBR Program Strategies:

- This program, also called the Affordable Multifamily Finance (AMF) Pilot, closely follows the development of the Small Business Finance (SBF) Pilot. 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 June of 2022.
- In 2020, SCE's CSRP team continued the development of the OBR functionality for the AMF Pilot. Just as with the SBF Pilot, the OBR functionally for AMF is scheduled to go live in 2021.

6. Codes and Standards Program

Program Description

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

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

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

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

- The C&S Compliance Improvement Subprogram provides additional tools, resources, and training for compliance with all-electric options under the 2019 Title 24, Part 6 California Building Code by offering training and webinars (virtually in 2020, in response to the COVID-19 pandemic).
- The C&S Reach Codes Subprogram continually supports local government reach code activities by developing cost-effectiveness studies and by tracking their various activities for addressing climate action plans and adopting reach codes.
- The C&S Planning and Coordination Subprogram continually supports, in collaboration with the CEC, the California Building Energy Modeling (CalBEM) consortium to devise simple, elegant building energy modeling solutions to drive zero-carbon (or near-zero-carbon) building design and construction.

These subprograms conduct efforts to increase compliance with existing C&S regulations, to ensure that the State of California realizes the energy savings from new codes and standards, and to support local governments that include reach codes as a climate strategy. They also bring together statewide IOUs and external stakeholders to optimize building decarbonization planning and coordination activities in preparation for future codes.

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

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

- Carbon reduction targets in 2030 that are 40% below 1990 emissions levels[49, 50]
- A cumulative doubling of statewide EE savings in electricity and natural gas final end-uses by January 1, 2030,[51] to reduce existing building energy usage by 50%, and
- Near-zero-emission building technologies to significantly reduce greenhouse gas (GHG) emissions from buildings,[52] in alignment with Executive Order B-55-18,[53] to achieve carbon neutrality by 2045.

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

Key Initiatives

Key initiatives of the C&S Program in 2020 included:

- Training, tools, and resources to support compliance with existing and upcoming codes and standards, and various activities further supporting the all-electric compliance path under 2019 Title 24, Part 6.[54]
- Development of new cost-effectiveness studies to support local government reach codes, including tracking local governments' various activities for addressing climate action plans and adopted reach codes (a web-based database is developed and continuously updated).
- Long-term planning and coordination activities, including oversight of the California Building Energy Modeling (CalBEM) consortium,[55] to optimize work across California's utilities.

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[49] AB 398, *California Global Warming Solutions Act of 2006: market-based compliance mechanisms: fire prevention fees: sales and use tax manufacturing exemption*. Link provided in *Appendix I,* below.
[50] SB 32, *California Global Warming Solutions Act of 2006: emissions limit*. Link provided in *Appendix I,* below.
[51] SB 350, *Clean Energy and Pollution Reduction Act of 2015*. Link provided in *Appendix I,* below.
[52] SB 1477, *Low-emissions buildings and sources of heat energy*. Link provided in *Appendix I,* below.
[53] *California Executive Order B-55-18 To Achieve Carbon Neutrality - State of California*, September 10, 2018. Link provided in *Appendix I,* below.
[54] *Building Energy Efficiency Title 24 Standards*. Link provided in *Appendix I*, below..
[55] https: //calbem.ibpsa.us/. *See also Planning and Coordination Subprogram,* below.

- Coordination of market-readiness 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" and "flexible demand."

Appliance Standards Advocacy Subprogram

Program Description

To comply with the Commission's Statewide program and outsourcing goals, the Appliance Standards Advocacy subprogram transitioned to a Statewide Codes and Standards Advocacy program, led by PG&E, which launched in early 2020. SCE supports PG&E with the review of comment letters. For complete information on this subprogram, see the ***Pacific Gas & Electric (PG&E)*** heading in ***Appendix G,*** below.

Building Codes Advocacy Subprogram

Program Description

To comply with the Commission's Statewide program and outsourcing goals, the Building Code Advocacy subprogram transitioned to a Statewide Codes and Standards Advocacy program, led by PG&E, which launched in early 2020. For complete information on this subprogram, see the ***Pacific Gas & Electric (PG&E)*** heading in ***Appendix G,*** below.

National and International Standards Subprogram

Program Description

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

2020 Strategies and Successes

For complete information on this subprogram, see the ***Pacific Gas & Electric (PG&E)*** heading in ***Appendix G,*** below.

Compliance Improvement Subprogram

Program Description

The Compliance Improvement (CI) Subprogram helps customers comply with building energy efficiency standards and appliance standards, and helps local jurisdictions to enforce them. Compliance improvement activities maximize verified, persistent savings

from building codes and appliance standards. The CI Subprogram targets market actors throughout the entire compliance chain, providing education, outreach, and technical support and resources to improve compliance with both building and appliance energy standards.

2020 Strategies and Successes

Throughout 2020, the CI Subprogram continued to employ a systematic approach to mobilize the market throughout the building and appliance efficiency supply chains. The three-pronged performance improvement approach addresses the essential elements of behavior change:

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

The work accomplished in each area reflects specifically what key market actors have indicated they want and need in order to improve compliance, and was completed in close collaboration with the CEC, which:

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

Education & Training Highlights:

Compared to previous years, 2020 saw an overall increase in delivered courses and attendees reached, despite pivoting to an all-virtual delivery format in March due to the COVID-19 pandemic. The statewide training team delivered more than 150 classes and workshops across eight modalities, including in-person trainings, webinars, self-study, etc. The team reached more than 3,200 students and achieved a 97% satisfaction rate, with an average knowledge swing of 27%. Additionally, new courses were launched:

- An introductory and advanced course in support of the California Building Energy Code Compliance-Residential (CBECC-Res) energy modeling compliance software, and
- New SCE CI courses to support the 2019 Title 24 standards All-Electric Compliance pathway:
    - A course designed to teach industry stakeholders the value-proposition and code-compliance considerations for heat pumps in new construction
    - A course designed to teach industry stakeholders the value-proposition and code-compliance considerations for heat pumps in retrofit applications, and

- A Clean Energy Homes course designed for home builders, focused on homeowner preferences, incremental costs and savings, and the value proposition of all-electric residential new construction, updated for the 2019 Title 24 Standards.

The education and training team also:

- Expanded delivery of the revamped *Plans Examiner and Building Inspector Workshop*, the *Nonresidential Standards for Architects Workshop*, the *Title 24: Where We're Headed with the 2019 Energy Standards Workshop*, and EnergyPro software trainings.
- Updated and administered 2019 Certified Energy Analyst (CEA) exams — comprehensive certification examinations for energy modelers that incorporate the latest Title 24, Part 6, material — and launched a CEA mentoring program in partnership with the California Association of Building Energy Consultants (CABEC) to facilitate direct knowledge sharing within the industry.
- Delivered training on the new healthcare energy standards to the Office of Statewide Health Planning and Development (OSHPD) and the American Institute of Architects (AIA).
- Provided information to market actors through the EnergyCodeAce.com (ECA) YouTube channel via:
  - "Code and Coffee" videos that received more than 7,000 views, and
  - Compliance forms tutorials that received over 4,000 views.
- Delivered 23 virtual "Decoding Talk" sessions, a series of interviews with subject matter experts on specific code-compliance topics, which reached nearly 600 people.
- Distributed 158 targeted e-mails to promote CI Subprogram role-based offerings and classes, along with connecting with market actors during virtual events.

In addition to serving as the gateway to training, tools, and resources, the EnergyCodeAce.com website also facilitates communication between industry and Energy Code Ace experts. In 2020 alone, the CI Subprogram fielded over 1,800 e-mails, responding through e-mail conversations and/or in-depth phone calls with various types of code practitioners. EnergyCodeAce.com's user base and activity continue to grow.

Tools and Resources Highlights:

- Expanded the automation of the Title 24 compliance process by launching a suite of 2016 and 2019 dynamic nonresidential forms. The CEC has successfully uploaded the dynamic forms to their website, and they have been used extensively since becoming available.

- Migrated all Title 24, Part 6 compliance forms from the CEC website to EnergyCodeAce.com and developed annotated forms and videos designed to help the industry use these new forms. The Energy Code Ace Virtual Compliance Assistant (VCA) not only helps people identify and complete the appropriate forms for their specific project, but also verifies compliance along the way and eases plans examiner review. As of January, the VCA had assisted with more than 4,000 nonresidential prescriptive projects.
- Worked with subject matter experts and the CEC to edit the vast library of existing 2016 resources to provide more detailed and refined information relevant to the 2019 code cycle, including expanded resources in the existing library of:
    - Fact Sheets
    - Trigger Sheets
    - Quick Reference Sheets
    - Navigator and Installation Ace
    - Application Guides, and
    - Note Blocks.

Collaboration with Partners:

In response to the cancellations and changes to in-person conferences and trade shows caused by the COVID-19 pandemic, the CI Subprogram increased emphasis on targeted online education content and outreach, specifically through the Energy Code Ace components of the subprogram (EnergyCodeAce.com, webinars, and online trainings). The CI Subprogram strengthened strategic partnerships with key industry organizations, such as the following, in order to provide their members with training and resources targeted specifically to their needs:

- American Institute of Architects (AIA)
- California Building Officials (CALBO)
- California Association of Building Energy Consultants (CABEC)
- Regional Energy Networks, and
- US Green Building Council (USGBC).

As part of these efforts, the Subprogram:

- Supported AIA California's new Climate Action efforts, contributing resource links and information for its microsite and developing and administering three webinars.
- Supported CALBO in its efforts to increase virtual training for its members by developing and administering two online courses, delivered by Energy Code Ace subject matter experts, for the CALBO Training Institute (CTI).
- Supported CEA development with CABEC.

- Developed and administered a webinar for USGBC-LA.
- Conducted presentations at approximately 45 online conferences and member meetings.

The CI Subprogram also continued transitioning administration of the CEA exam to CABEC while supporting exam proctoring and revisions as needed, as well as continuing to assess the quality of compliance documents submitted for permits by CEAs and energy consultants who are not certified. The education and training team continues to host the course in order 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[56] compliance in 2020 by targeting key measures,[57] conducting needs assessments, and developing work plans for portable air conditioners, lighting, computers, and small battery charger systems (SBCS). Additionally, the CI team:

- Began engaging organizations, such as state government agencies, with the goal of providing procurement guidelines to explain Title 20 and influence their purchasing decisions to include only compliant products
- Conducted outreach to prepare industry for new spray sprinkler body standards, which became effective in October 2020, and
- Launched a new online residential pool pump course.

The CI Subprogram's 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 improved to 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 worked to address these barriers through measure-specific fact sheets, contractor training, YouTube videos, and conversations with major retailers.

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

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

Reach Codes Subprogram

Program Description

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

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

Many local jurisdictions have established goals within their Climate Action Plans to reduce building energy use and GHG emissions through adopting and implementing local energy ordinances. This has translated to unprecedented interest in reach codes as a policy tool to achieve those goals. In recognition of the high priority of reducing GHG emissions, focus is shifting from solely reducing energy use to reducing energy use associated with carbon emissions. This shift has resulted in increased interest in building electrification, both at the local and state level. The 2019 Title 24 standards created an all-electric baseline for low-rise residential new construction, which allows all-electric designs to readily comply with and exceed the code, and this change to the state code created a path for local jurisdictions to accelerate emissions reductions in new construction. At the local level, most jurisdictions are selecting one or a combination of the following ordinance structures, applied by building use type:

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

Some jurisdictions are pursuing measure-based reach codes, such as requiring sustainable or cool roofs or photovoltaic (PV) systems on nonresidential projects, but most are assembling a pro-electrification package targeting the whole building. In addition, many

jurisdictions adopted reach codes accelerating the requirements for electric vehicle charging infrastructure in new buildings.

2020 Strategies and Successes

When the 2019 Title 24 codes became effective on January 1, 2020, seven jurisdictions had already completed the CEC approval process for reach codes based on the 2019 Residential and Nonresidential New Construction Cost-Effectiveness reports prepared by the Reach Codes Subprogram. Achieving this early approval aligned the reach codes' effective dates with the rest of the building code. Throughout California in 2020, 20 ordinances passed through the city council adoption process, for a total of 43 adopted in 2019 and 2020.[58] Twenty-six of these 43 ordinances amended the energy code and received CEC approval.

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

Reach Codes Subprogram activities fall into two main categories:

- Direct technical support, and
- Resources, communications, and events.

Direct Technical Support:

Cost-Effectiveness Studies

The IOUs shared resources in 2020 to complete the Mid-Rise Multifamily New Construction study begun in 2019, and began work on several additional studies:

- High-Rise Multifamily New Construction
- Detached Accessory Dwelling Units (ADUs)
- Residential Retrofits and Electrification
- Large Offices, Hotel Laundries and Restaurants (including Commercial Kitchen Equipment)
- Nonresidential Retrofits and Electrification
- Replacing Space or Water Heating with Heat Pump when Purchasing a PV System, and
- Battery Storage.

In addition, the subprogram completed analyses for several individual jurisdictions and documented the results using local utility rates, including the cities of Piedmont, Sacramento, San Jose, Truckee, Palo Alto, Los Angeles, and Alameda.

[58] One jurisdiction, the Town of Windsor, has since rescinded its ordinance in response to a lawsuit filed by a local developer. The Town determined that because of the COVID-19 pandemic, funds used to defend the ordinance against the lawsuit would be better spent on other priorities.

Several reach codes were adopted in 2020 and approved by the Energy Commission based on IOU cost-effectiveness studies. Approved local ordinances may be found on the LocalEnergyCodes.com and CEC websites.[59]

Supporting Documents

In addition to developing new cost-effectiveness reports, the Reach Codes Subprogram, independently and in collaboration with other organizations, supported reach code adoption by creating supplemental support documents. Beginning from a common core helps to support consistent code language across jurisdictions with similar objectives. Supporting documents completed in 2020 cover topics including:

- Model ordinance language
- Compliance checklists
- Reach code training materials
- CEC cover letters
- Reach code options, and
- A *Reach Codes Primer*.

The RC Subprogram continued partnering with the Building Decarbonization Coalition and Community Choice Aggregators (CCAs) to support jurisdictions through events, resources, and training, while being careful to avoid overlapping efforts:

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

Cost-Effectiveness (C/E) Explorer

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

Phase 1 of the C/E Explorer, launched in October 2020, allows users to easily access results for their jurisdiction and to format, share, or download a report documenting the results. The C/E Explorer interface includes a multi-level pop-up help system that provides

[59] The California Energy Commission website is *available a*t https: //www.energy.ca.gov/.

details about each input field, including definitions, measure descriptions, and assumptions. Users may also sort results to highlight specific metrics of importance to their jurisdiction.

Resources, Communications, and Events:

LocalEnergyCodes.com Website Refresh

Local interest in reach codes continued to accelerate throughout 2020, fueled by the desire to decarbonize the building sector. As jurisdictions began expanding the scope of ordinances beyond Title 24, Part 6, they sought input from a more diverse community.

- To support improved outreach efforts to remain a trusted resource in this growing area, the Reach Codes Subprogram completed a refresh of the LocalEnergyCodes.com website. Throughout the year, the number of site subscribers grew approximately 10% (from 360 to 397 subscribers).
- The refresh included restructuring the content to lead a user through the initial decision-making process, beginning with basic information about reach codes, and selecting a "Reach Code Path" from five categories:
    - Building Efficiency/Renewables
    - Electric Readiness
    - Energy Plus Water
    - Information Disclosure, and
    - Process Loads.

  Each "Path" lists several ordinance options, the pros and cons of each, and lists cost-effectiveness studies and other documentation supporting adoption and implementation.
- The Local Ordinance Map is an interactive map of California that allows users to search geographically or by Reach Code Path.
    - At the individual jurisdiction level, the map provides a brief summary of an ordinance's scope and requirements, and users may download the ordinance text and the staff report that was presented at the public adoption meeting.
    - The map is accompanied by a matrix listing the information contained in the map to allow users to view the information in a different format. This saw 900 downloads from June through December 2020.
- Since the site refresh, the Reach Codes Path and Map pages are consistently the most viewed pages on the site, each garnering over 1,000 views, on average, per month.
- In addition to fostering stakeholder engagement through the website, the Reach Codes team continued publishing the *Reach Codes News Brief*

monthly newsletter throughout the year. The *News Brief* offers insight into the rapidly evolving reach code landscape and highlights "Frontrunner" cities that are leading the way. On average, 370 subscribers received the newsletters each month via e-mail, and 39% of the e-mails were opened with a click-through rate of 12%.

- The subprogram completed seven "Frontrunner" articles, featuring the Cities of Davis, San Mateo, Santa Cruz, Santa Monica, and West Hollywood, and the Counties of Marin and San Mateo. In addition to being part of the *News Brief*, each Frontrunner is also featured on the website's home page carousel of images, and these together were downloaded more than 4,000 times in 2020.

The Reach Codes team continues to develop its social media presence and maintains a Twitter account where the program posts content two or three times weekly. The California Local Energy Codes Twitter page (@ca_codes) continues to grow and now has more than 75 followers.

Conferences and Events:

The Reach Codes Program presented and participated in several conferences and held two technical webinars in 2020:

- California Irrigation Institute
- Public Works Officers Conference
- 2020 SEEC Forum (virtual)
- Municipal Green Building Conference and Expo (virtual)
- New Mid-Rise Multifamily Cost-Effectiveness Study Webinar, and
- Residential Retrofits Cost-Effectiveness Study Webinar.

Planning and Coordination Subprogram

Program Description

California's increasing commitment to energy-efficient building decarbonization has resulted in a growing number of state policy goals, expressed in Executive Orders, legislative bills, and state agency action plans. California is currently at the forefront of a fundamental power system transformation towards a cleaner, more diverse "plug and play" grid that integrates an ever-growing set of distributed energy resources and technologies, including demand response (DR), electric vehicle (EV) infrastructure, photovoltaic (PV) systems, and battery energy storage. Specific emphasis is placed on energy-efficient building decarbonization and grid flexibility, to support the state in achieving its "bold clean energy" goals. Therefore, SCE's Planning and Coordination (P&C) subprogram[60] has been leading

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

the way in meeting California's challenging, urgent decarbonization goals by integrating and coordinating zero-net-emission and all-electric buildings with various programs — including but not limited to the Emerging Technologies, Residential New Construction, and Workforce Education and Training programs — as envisioned by the CPUC in its Decision (D.)12-05-015.[61]

Since SCE's creation of the California Building Energy Modeling (CalBEM) consortium,[62] Building Energy Modeling (BEM) coordination has been a key part of the P&C subprogram that supports four key areas:

- Oversight and financial support for CalBEM
- Code baseline simulation
- Grid impacts simulation, and
- Alternative metrics research.

CalBEM coordinates with the California Energy Commission to manage and support updates and changes to Title 24 compliance software (except for Codes and Standards Enhancement-driven compliance support, which is a part of the Statewide advocacy activities led by PG&E). Additionally, CalBEM coordination activities seek to establish a common building energy model set of prototypes for the State of California and work toward the implementation of a simplified baseline code compliance option. The CalBEM organization is facilitated by industry leaders who thoughtfully plan and drive progress through Action Plans focused on three core goals:

1. Educating BEM users,
2. Improving BEM capabilities and accuracy, and
3. Streamlining and simplifying BEM processes.

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

2020 Strategies and Successes

With the current absence of a formal energy-efficient building decarbonization subprogram, the 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.

- P&C coordinated and collaborated on various advanced Heat Pump Water Heater (HPWH) initiatives, including development of technical specifications (for

[61] D.12-05-15, *Decision Providing Guidance on 2013-2014 Energy Efficiency Portfolios and 2012 Marketing, Education, and Outreach*. Link provided in *Appendix I,* below.
[62] California Building Energy Modeling website is *available at* https: //calbem.ibpsa.us/.

example, CTA-2045 and 120V HPWH specifications) with manufacturers and professional organizations.

- A "knowledge gap" about central HPWHs has been identified by various organizations, including the CEC. Therefore, P&C coordinated and collaborated with the Sacramento Municipal Utility District (SMUD) in developing an online tool, available for anyone at no cost, for sizing central water heating systems using highly efficient HPWHs in multifamily buildings. The tool is designed to support the building industry to adopt HPWHs to improve energy efficiency and reduce greenhouse gas emissions.
- P&C coordinated and collaborated with the Emerging Technologies Coordinating Council (ETCC) to bring awareness of a variety of building electrification and transportation electrification efforts by initiating quarterly meetings to share information about decarbonization efforts and results.
- P&C led SCE's participation in the Market Transformation Working Group Phase II workshops. The primary purposes of the Phase II workshops were to determine:
    - How energy-savings goals would be set by the Market Transformation Administrator
    - How the energy savings would be attributed to Market Transformation Initiatives (MTIs), and
    - How to ensure minimal duplication or negative overlap between MTIs and resource acquisition and non-resource acquisition programs.

  A major aspect of SCE's position was based upon a paper published in 2020, "Market Transformation, Codes and Standards, and the Attribution Dilemma" by P&C staff.
- P&C led SCE's participation in the Low-Carbon Research Initiative (LCRI) End-Use Technical Subcommittee Working Group for Buildings. The LCRI is a joint effort between the Electric Power Research Institute and the Gas Technology Institute to propose and conduct research on reducing GHG emissions from the building sector.
- Working with the ASHRAE[63] Standard 189.1[64] Committee's Marginal Emissions Task Group, under Working Group 7.5, Energy Performance, P&C led SCE's participation in determining the optimal metric for valuing marginal GHG emissions from proposed new buildings.

[63] ASHRAE.org, formerly the American Society of Heating, Refrigerating, & Air-Conditioning Engineers.
[64] ASHRAE Standard 189.1, *Standard for the Design of High-Performance Green Buildings*. Link provided in *Appendix I,* below.

- P&C provided support to the development of the SB 1477 BUILD and TECH Programs that were signed into law in 2018 to address building decarbonization. This included:
    - Coordinating with CEC staff to align the BUILD Program with the 2019 Title 24 requirements which establish the baseline for GHG emissions, and
    - Coordinating the technical support for the BUILD Program to provide parametric energy modeling for mid- and high-rise buildings.
- P&C continued coordination between ASHRAE Region X and the CEC to update the design temperature tables that, since they have not been updated since 1992, primarily rely on 1970s weather data. In most cases, the updated data will better reflect weather conditions and will help justify the need for higher-efficiency heating and cooling equipment due to increasingly hot summer days and increasingly cold winter days.
- P&C updated the *Zero Net Energy (ZNE) Cookbook*, which aims to help the residential new construction community (including architects, developers, engineers, etc.) to identify least-cost features for meeting either prescriptive path, zero-net-energy path, or zero-net-carbon path requirements while complying with the 2019 Title 24 code.
- P&C supported and coordinated creating "GridOptimal" metrics that will give higher Leadership in Energy and Environmental Design (LEED®) credits for building designs that will:
    - Reduce grid peaks
    - Optimize the use of on-site distributed energy resources
    - Reduce carbon emissions when needed to align with the grid, and
    - Improve overall building efficiency.

    In 2021, LEED credits are planned to be given, through a pilot program, to building designers, architects, engineers, and builders who incorporate the GridOptimal concepts in building designs.

In 2020, CalBEM accomplished the following:

- Established a Steering Committee comprised of members from CABEC, CEC, CPUC, International Building Performance Simulation Association (IBPSA-USA), Los Angeles Department of Water & Power (LADWP), PG&E, SCE, and SDG&E. The Steering Committee met six times, providing high-level guidance throughout the year.
- Supported three CalBEM Working Groups (62 participants total), which met continually through the year and marked significant progress in areas including:

  - Increasing California stakeholder engagement in national activities related to building data exchange and ruleset testing
  - Developing California BEM educational resource lists
  - Generating concepts for multifamily software solutions, and
  - Identifying software gaps.
- Rolled out a new project review and funding process, leading to three Working Group-led proposal submissions reviewed by the Steering Committee.

  One of these proposals, "Develop Recommendations for BEM Education in California," was approved by the Steering Committee and funded by SCE to begin in 2021.
- Held a CalBEM 2020 digital event on November 17th and 18th, marking the fifth BEM long-term planning and coordination event held by the Public Programs Coordination subprogram. This event was attended by 81 individuals representing over 38 institutions.

7. Emerging Technologies Program

The Emerging Technologies Program (ETP) supports the California Investor-Owned Utility (IOU) energy efficiency (EE) programs in their achievement of aggressive objectives through three subprograms:

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

ETP uses various tactics to achieve the objectives of these subprograms. Key tactics are described under each subprogram below.

Most notably in 2020, ETP conducted projects in support of new measure development for the following technologies:

- Software-Controlled Switch Reluctance Motor
- Oxygen Infusion for Wastewater Air Blower Load Reduction
- Two Stage Heat Pump Water Heater (HPWH) System for Low Pressure Saturated Steam Food Processing Applications
- Tier 2 Advanced Power Strip (Smart Plug Load Remote Management & Analytics)
- Wastewater Treatment & Process Water Recycling Systems
- Non-Chemical Cooling Tower Water Treatment, and
- Ammonia/Glycol Process Chiller Technology.

ETP Implementation Challenges

In all three subprograms, all active project timelines were delayed by three to six months because of the COVID-19 pandemic, and most meetings and collaborative activities took place virtually. When field activities occurred, participants followed SCE's COVID-19 Contractor Protocols.

Technology Assessment Subprogram

Subprogram Description

Through its Technology Assessment (TA) element, a historical core function providing critical support to EE programs, the ETP evaluates the performance claims of EE 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 and program tactics may be used to support assessment findings, including *in situ* testing (conducted at customer or other field sites), laboratory testing, or paper studies. In addition to other findings, assessments typically generate some of the data that EE incentive programs can use to construct a Work Paper for each measure, estimating energy and demand savings over the life of the measure.

Strategies Implemented in 2020

In 2020, the Technology Assessment subprogram implemented the following strategies:

- Collaborated with IOU and non-IOU partners in scanning a wide variety of sources for assessment candidates.
- Identified, screened, and prioritized technologies or strategies.
- Produced reports describing TA results, conclusions, and recommendations.
- Engaged the various EE programs, including commercial, residential, agricultural, and industrial resource programs and the Codes & Standards Program, and other program stakeholders (including demand response, building electrification, and income qualified programs), to provide input into project ideas and plans.
- Transferred TA results to EE program stakeholders, with technology study results successfully transferring to deemed (rebated) measures and customized (incentivized) measures.
- Coordinated intake ideas and assessments and shared technology information through the virtual ET Summit 2020.
- Coordinated to develop webinars with the Emerging Technologies Coordinating Council (ETCC)[65] on various topics for the commercial building, industrial, agricultural, and residential sectors.

[65] More information on ETCC is available at https: //www.etcc-ca.com/about-etcc. //www.etcc-ca.com/about-etcc.

Technology Development Support Subprogram

Subprogram Description

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

Strategies Implemented in 2020

In 2020, SCE implemented the following strategies for the TDS Subprogram:

- Collaborated with industry directly and through partners such as the Western Cooling Efficiency Center (WCEC), the California Lighting Technology Center (CLTC), the California Plug-Load Center (CalPlug), and the Electric Power Research Institute (EPRI) to provide targeted support for technology development.
- Collaborated with innovators from universities and other research institution such as Lawrence Berkeley National Labs, National Reviewable Energy Labs, Stanford University, University of California at Irvine, University of California at Davis, California Institute of Technology, and others.
- Supported early-stage technology companies through SW ETP membership in the California Institute of Technology (CalTech) RocketFund Program.[66]
- Continued ongoing business relationships with investors interested in funding cost-effective EE technologies.

Technology Introduction Support Subprogram

Subprogram Description

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

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

[66] Information on the CalTech RocketFund Program is *available at* http: //www.flow.caltech.edu/rocket-fund.

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

Strategies Implemented in 2020

In 2020, 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.

Note: *As a result of the COVID-19 pandemic, all work conducted with third parties halted for approximately two months. Subsequently, after safety protocols were set in place, operations and engagement, including demonstrations, resumed.*

- Scanned and screened a wide variety of sources for measures, coordinating closely with SCE's EE programs, and prioritized measures suitable for TIS projects.
- Conducted TIS projects in support of measure development.
- Implemented SFP and D&S projects in actual field conditions, with proper COVID-19 safety precautions in place.
- Performed primary or secondary research, as necessary, to gain market insights on technologies.

Other Notable ET Program Activities in 2020

- In collaboration with ETCC leadership and partners, the Statewide ETP program successfully conducted a virtual ET Summit 2020, which attracted more than 300 attendees over two days.[67]
- Collaborated with the ETCC and the other IOUs on various program-related activities such as new technology idea submissions, ETCC outreach webinars, and Virtual ETP Summit.
- Coordinated with the California Energy Commission (CEC) Electric Program Investment Charge (EPIC) Building Technologies Team on the technology transfer process, and developed a technology transfer form. This form embodies custom measure data requirements to help EPIC program contractors and staff communicate with the IOUs in the measure development process.
- Completed the electric Technology Priority Maps[68] (TPMs) statewide updates.
- Enhanced the ETCC Website to facilitate project activity searches.
- Released a Request for Abstracts (RFA) for the Statewide Electric ETP Program to market, in collaboration with the SoCalGas Statewide Gas ETP Program Administrator, the non-lead funding IOUs, the SCE and SoCalGas Independent Evaluators (IEs), and the SCE Procurement Review Group (PRG). Bidders for the Request for Proposals (RFP) stage were selected and notified, and the RFP was released in January 2021.

[67] More information on the 2020 Emerging Technologies Summit *is available* at https: //www.etcc-ca.com/summits/2020/program.

[68] Electric TPMs are *available at* https: //ca-etp.com/tpm.

8. Workforce Education & Training Program

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

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

In 2020, 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 2020 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. SCE's two Energy Education Centers (EECs or "Energy Centers") in Irwindale and Tulare, California, represent the largest component of this subprogram. The subprogram delivers educational workshops and seminars, tool loans, equipment demonstrations, and consultations, and holds 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 2020, 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 Donald Vial Center-produced "Guidance Plan" document,[69] 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.

Noteworthy WE&T IEET Program highlights in 2020 include:

- The Program accelerated its development and delivery of online workshops due to SCE's Energy Education Centers being closed to the public because of the COVID-19 pandemic.
- WE&T's work with the National Comfort Institute (NCI) focused on hands-on and certification training. Over 300 participants were certified, and approximately 3,300 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 3,000 contractors and technicians in 2020. One hundred and fifty (150) NATE Core and Specialty exams were delivered with a pass rate of 98%.

Strategies Implemented in 2020

In 2020, 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
- Exploring new ways to engage stakeholders through strategic partnerships, and
- Accelerating delivery of online workshops in all technologies to reach customers during the COVID-19 pandemic.

[69] *Workforce Issues and Energy Efficiency Programs, A Plan for California's Utilities*. Donald Vial Center on Employment in the Green Economy, Institute for Research on Labor and Employment, University of California, Berkeley, 2014. Link provided in *Appendix I,* below.

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.

Irwindale and Tulare Energy Education Centers:

In 2020, due to the COVID-19 pandemic, the SCE Energy Education Centers in Irwindale and Tulare:

- Focused on delivering online offerings.
- Partnered with other IOU energy centers (PG&E and SDG&E) to market each other's online workshops, expanding their reach and resulting in increased online attendance.
- Continued to provide core skills training and job-site mentoring for contractors and technicians who participate in SCE's HVAC programs, through an industry partnership with HVACRedu (Air Conditioning Technician Training) and the National Comfort Institute (NCI), which offers ten different nationally recognized certifications. Due to the COVID-19 pandemic, all in-person classes were cancelled in March and many offerings were made available online.
- Efforts with NCI focused on intermediate- and advanced-level performance-based, 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
    - Introduction to Hydronic Testing, Adjusting, & Balancing
    - National Balancing Council (NBC), and
    - Performance-Based Selling of Energy Efficiency Systems.

  The NCI Training certified over 300 participants, and approximately 3,300 Continuing Education Units (CEUs) were earned by NCI participants in 2020.
- 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 at the highest possible efficiency and capacity. Due to the pandemic, several in-person classes were cancelled in March and April, but starting in May, 32 classes were delivered online. In total, over 50 evening classes were delivered in 2020.

- Trained over 3000 contractors and technicians in 2020, through online classes using both IHACI (QI, QM, and QS) and North American Technician Excellence (NATE) preparation curricula. Most participants in these offerings have two or more years of industry experience, and the majority demonstrated an increase in knowledge as measured by pre- and post-training tests.
- Continued partnership with HVACRedu (an online, on-demand organization for training HVAC and Refrigeration [HVAC/R] contractors and technicians in quality 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: 150 exams were delivered with a pass rate of 98%.
    - Three-hour online class modules: 11,000 modules were completed, 80% of which were in the Beginner/Intermediate category, and 20% of which were in the Advanced category.
    - Due to the pandemic, in-person classes were suspended for the majority of 2020. However, the California Advanced Lighting Controls Training Program (CALCTP) was still able to certify 10 Acceptance Technician Certifications.
- Continued partnership with the Codes & Standards Program to deliver 35 seminars (25 of which were online) on the following topics to approximately 900 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, and CBECC), and
    - Title 24 Part 6 Essentials Res and Non-Res Standards – Plans Examiners & Building Inspectors

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

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

- To support California and SCE decarbonization goals, continued partnership with the Codes & Standards Program to deliver 12 Building Electrification seminars (11 online) in the following areas:
  - Zero Net Energy to Zero Net Carbon
  - All Electric Homes
  - HVAC Heat Pumps in New Construction and Retrofit, and
  - Heat Pump Water Heaters Retrofit.
- To provide customers more choices of online classes during the pandemic, SCE collaborated with PG&E and SDG&E WE&T teams to deliver more than 40 online seminars in the energy efficiency, renewable energy, and building electrification areas.

Foodservice Technology Center Activities:

The Foodservice Technology Center (FTC) continued collaborations with the statewide IOU WE&T programs in 2020 to educate professionals at all levels of the commercial food service industry.

- At the start of the year, FTC and SCE partnered with the North American Sustainable Refrigeration Council (NASRC) to host a training about Natural Refrigerants, code and regulation updates, and utility and energy policies. Activity for the FTC in 2020, including both in-person and virtual activity, is shown in the following table:

Table: Foodservice Technology Center 2020 Customer Activities

Activity Types & Numbers	Number of Attendees
9 Equipment Demonstrations	**64**
8 Seminars	**223**
1 Consultation	**2**
1 Tour	**9**
6 Trainings	**565**
Total	**863**

- The FTC continued the Tabletop Induction Range Lending Program in 2020. Due to the pandemic, the program was closed for eight months, resulting in a reduction of loans for the year. During the downtime, the inventory was enhanced to include specialty cookware and accessories to support the introduction to induction cooking for both residential and commercial customers. A total of 16 units were loaned in 2020.
- The FTC continued to train culinary students and their teachers in high school, community college, and university programs, both in person and virtually during the year. Through coordinated efforts between SCE's FTC and Emerging Technologies teams, commercial food service equipment tests and demonstrations have resulted in projects yielding energy savings potential for customers including retail chains, local governments, and educational institutions.[70]
- In 2020, SCE's Tool Lending Library (TLL) loaned 66 unique energy measurement and building performance evaluation tools to homeowners, business owners, and contractors throughout SCE's service territory. Due to the COVID-19 pandemic, the TLL was closed for several months, limiting total tool loans for the year.

Table: 2020 Energy Education Centers Performance

Goal	Target	Results
Collaborations	4	4
Number of participants	14,216	18,936
Number of Participants – Residential	5,359	4,685
Number of Participants – Commercial	8857	14,251
Percentage of Target Audience Reached	10%	13%
Percentage of Disadvantaged Participants	43%	57%

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 in grade levels K-12, as well as through community outreach. WE&T Career Connections achieves its educational goals and

[70] For more information, *see* "7 Leaves Brings Sustainability to Popular Vietnamese Drinks," *available at* https: //energized.edison.com/stories.

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 includes three (3) elements: [71]

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

Strategies Implemented in 2020

Core Function Activities:

- 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.
- Because of the COVID-19 pandemic, schools and districts had the challenge of transitioning to a virtual distance learning model. The WE&T Career Connections programs adapted to the transition by identifying solutions to address these challenges and providing flexible, adaptable distance learning resources, where possible.

Outreach to Customers:

- Promoted program offerings at various events and workshops serving existing participants as well as reaching new participants within targeted areas, particularly those working with disadvantaged community populations. Some of these events included:
    - Next Generation Science Standards Leadership Symposium
    - Rising Sun Center for Opportunity Alumni Event
    - San Bernardino District Science Leaders Community of Practice, and
    - Educating for Careers Conference.

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

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 7,000 students were reached throughout SCE's service territory. Of the almost 60 schools that participated in the K-8 Subprogram, over 40 were Title 1 schools.

K8 Subprogram highlights include:

- In response to the challenges presented for educators, students, and their families due to COVID-19, the K-8 Subprogram quickly adapted existing hands-on PEAK Student Energy Actions curricula to meet the growing and changing needs of students, their families, and their educators. Through this adaptation, a "PEAK@Home" curriculum was developed which provided high-quality, ready-to-implement distance learning to ensure students did not lose their skills and knowledge related to energy science and sustainability actions.
    - Twenty-six lessons were modified with easily accessible materials commonly found in the home.
    - Family-facing materials, including step-by-step videos and a YouTube channel dedicated to helping in-home learning, were developed.
    - Additionally, the program provided ongoing support for educators struggling with distance learning through PEAK@Home professional development training and live lesson webinars, in order to engage educators and their students in energy-saving actions and future STEM careers.

  Close to 9,000 students were reached through PEAK@Home in 2020.
- Attended the first annual Nature Education Resource Forum, hosted by the Santa Rosa Plateau Nature Education Foundation in Murrieta. The goals of this event were:
    - To provide educators with educational resources related to outdoor and environmental education
    - To identify the needs educators have when teaching students about environmental literacy, and

- To provide a networking opportunity for local K-12 educators, curriculum administrators, and nonprofit organizations.

At the event, the program hosted an engagement booth to demonstrate a solar circuit activity and promote the K-8 Subprogram. Many educators and partners connected with the program, including the Riverside County Habitat Conservation Agency and the Western Science Center, which laid the groundwork for future partnerships and collaborations.

- Through the program's partnership with the University of California at Merced YES Academy, the program co-hosted a student field trip event for Engineering Week. Over 50 students from three different local elementary schools attended the event held at the UC Merced campus. The students learned about solar energy and energy conservation topics, then toured the campus' energy-efficient heating and cooling monitoring station. Using on-campus energy and sustainability features and buildings helped bring the lessons to life.
- Facilitated a three-part Educator Professional Development Webinar Series to help provide educators information and tips on using Google Education tools in a better, more efficient manner. The series covered topics such as:
  - Tips and tools on how to organize and set up a Google Classroom
  - Connecting K-8 Subprogram lessons directly to the Google Classroom
  - Using Google Meet to enhance student engagement and track attendance, and
  - Using Google Sites to create an interactive site for students to submit assignments.

  Over 100 educators attended the webinars and provided very positive feedback. All webinars were recorded and made available to educators on demand via the program's educator dashboard.

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 7,300 students were reached throughout SCE's service territory. Over 50 schools in SCE's service territory participated in the 9-12 Subprogram, with almost 40 of them being Title 1 schools.

Highlights of the 9-12 Subprogram include:

- Hosted its first ever Virtual Green Careers Conference for California high school students. The event was originally planned to be hosted in-person in Los Angeles, but due to the pandemic, the event transitioned to a virtual platform allowing

students throughout California to attend. The conference consisted of eight professional presentations covering a wide range of sustainability topics such as renewable energy, biomimicry, community choice energy, and electrical apprenticeships. Over 100 students attended the virtual conference.

- Launched the Green Careers Webinar Series. The webinars were held twice a week during the spring semester and provided students with opportunities to chat with sustainability professionals on many topics, such as:
    - The Built Environment
    - Clean Transportation Equity
    - Clean Energy, and
    - Pursuing an Educational Career in STEM.

  Over 1,100 students from all across California participated in the webinar series. The webinars were recorded and provided as distance learning resources to teachers and students who could not attend the live webinars.
- Transitioned the in-person Summer Teacher Trainings to virtual. The trainings covered Energy Auditing, Climate Change, Renewable Energy, and Air Quality. Each training included instructional support on key lessons and activities for each of the units. For example, in the Energy Auditing training:
    - Program staff guided teachers through the Energy Auditing curriculum, which includes an introduction to energy and power, energy efficiency and conservation, and energy audits.
    - To accommodate the lack of typical in-person materials and the virtual learning setting, program staff led attendees through an energy audit using appliance power tags to calculate total energy use and cost.

  Almost 80 teachers attended the training series, with almost 70 of those teachers from SCE's service territory. The program has continued to support the teachers who attended by offering instructional planning support and resources.
- Throughout 2020, the 9-12 Subprogram continued to work with the prize winners in the Subprogram's 2019 Fall Energy Conservation Competition, Mission Viejo High School. Using their prize winnings, the Advanced Placement Environmental Science teacher and her students invested in Solar Cockroach Kits:
    - The Solar Cockroach resembles a little bug that uses solar energy to power a vibrating motor. The vibrations from the motor travel down the legs, causing the bug to scoot around. This project offers students a lesson in solar energy, motion, and vibration.
    - In March 2020, program staff visited the teacher and her students to lead a lesson on Solar Science, as well as a hands-on solar activity using motors,

fans, LEDs, and solar panels to optimize the panels' tilt and direction. Following the lesson, the students went on to create their Solar Cockroaches, using the information they had just learned.

Mobile Education Unit Subprogram Highlights

The Mobile Education Unit Subprogram has historically been used as the primary program for community outreach, attending various local and community events throughout SCE's service territory. However, due to the COVID-19 pandemic, the events this program would typically attend were cancelled or delayed until further notice. As a result, the Mobile Education Unit Subprogram ceased all activity in 2020.

9. Statewide Marketing, Education & Outreach Program

Program Description

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

The 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,[72] the California Public Utilities Commission (CPUC or Commission) 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[73] 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 Investor-Owned Utility (IOU). Subsequently, the statewide Program Administrator, PG&E, notified the CPUC that a contract with DDB as the new statewide ME&O implementer had been executed.[74] 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® (EUC) 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 proceeding[75] to allow the Commission flexibility to monitor the EUC Program.

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[72] D.16-03-029, *Decision on Phase 3 Issues: Post-2016 Statewide Marketing, Education, and Outreach Activities*, dated March 17, 2016. Link provided in *Appendix I,* below.

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

[74] PG&E notified the CPUC in its Advice Letter 3770-G/4939-E, *SW ME&O 2017-2019 Contract and Budget*. Link provided in *Appendix I,* below.

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

On January 10, 2019, the CPUC issued D.19-01-005[76] 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 authorized three additional months of funding for October, November, and December 2021.

On May 15, 2020, DDB filed the 2020-2021 JCAP that described what the customer engagement campaign would accomplish in Year 4. DDB's fourth annual JCAP will remain in effect until March 31, 2021.

Strategies Implemented in 2020

DDB's 2020-2021 JCAP outlined how DDB would execute strategies to support the objective of increasing customers' awareness of the State's energy efficiency (EE), demand side management (DSM), and clean energy goals, and their intent to act based on such increased awareness, as previously detailed in the Strategic Roadmap. It included a review of lessons learned in Years 1 through 3 (2017, 2018, and 2019) and provided recommendations on how the customer engagement initiative could optimize and build upon that learning in Year 4 (2020). The focus for Year 4 was to drive sustained energy action, encompassing both electricity and natural gas, by all Californians, and to empower communities to "Keep California Golden" through collective energy action.

The Year 4 JCAP also established the following high-level priority topics to be incorporated into customer engagement messaging:

- Energy Management Behaviors
- Low-Cost Home Improvements (such as lighting, HVAC maintenance, and Energy Management Technologies such as smart thermostats)
- The Energy Savings Assistance (ESA) Program, and
- Small Business Owner Engagement.

Given the ongoing dire impacts of the COVID-19 pandemic, the Energy Upgrade California® campaign served as a resource for Californians who were experiencing a rise in their energy bills due to spending significantly more time at home. A COVID-focused customer support campaign launched in the 2nd Quarter of 2020 provided helpful, seasonally relevant no-cost energy savings tips while also generating awareness of the various Income Qualified Programs available to IOU customers facing financial hardship. Contingency plans for shifting the message focus to post-COVID EE community action were also contemplated during the campaign planning phase, but only if stay-at-home restrictions were lifted.

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

10. Integrated Demand Side Management (IDSM) Program

Statewide Summary Program Description

The California Energy Efficiency Strategic Plan ("Strategic Plan") (2008-2020) recognized the integration of demand-side management (DSM) options, including energy efficiency (EE), demand response (DR), and distributed generation (DG), 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 continued coordinating statewide activities that promote the strategies identified in the Strategic Plan and the eight integration directives in California Public Utilities Commission (CPUC or Commission) Decision (D.) 09-09-047.[77]

In 2018, CPUC D.18-05-041 repurposed IDSM funds to focus on the limited integration of EE-DR by providing requirements and general policy principles for Program Administrators (PAs). Simultaneously, the IOUs began the process of soliciting third party-implemented programs to meet their 60% outsourcing threshold by December 31, 2022. During the ramp-up of third-party activities in 2020, the IOUs have utilized various strategies to begin deploying the repurposed IDSM funds. This chapter covers new or anticipated activities and includes a summary of legacy projects and programs from historical directives.

Repurposed IDSM Funding Strategies

In 2018, the IOUs began the two-stage solicitation process for programs to be designed, delivered, and implemented by third parties. The process entailed a Request for Abstract (RFA) followed by a Request for Proposal (RFP), and concluded with a final selection of third party-implemented programs. The IOU solicitations included elements of IDSM, which underwent similar but varying processes. Due to variations among the IOUs in the scope, launch timing, sector coverage, and approach of their solicitations, each IOU ended 2020 at varying stages of the solicitation process, which influenced the status of IDSM in their portfolios. Additionally, each IOU may have legacy or ongoing IDSM activities in their portfolio.

The following subsections of this chapter include:

- Historical IDSM Activity Conclusions and Highlights, and
- IDSM Activities for Third Parties and IOU Programs.

[77] D.09-09-047, *Decision Approving 2010 to 2012 Energy Efficiency Portfolios and Budgets*, Pages 210-211. Link provided in *Appendix I,* below.

Historical IDSM Activity Conclusions and Highlights

This section describes the IOUs' various activities associated with historical IDSM directives, if relevant, and highlights legacy activities from previous reporting structures as needed. The IOUs have updated this reporting template to better reflect EE and DR integration activities.

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.[78]

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.

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 IOUs anticipate that these activities may diminish as IDSM funds are transitioned to meet the new IDSM objectives.

SCE Highlights:

SCE transitioned to a new audit provider and made process improvements in 2020. To make the audits more user-friendly, SCE adopted an approach that simplified access to the audit for customers logging on to SCE's website. This enhancement, accompanied with a marketing campaign, drove 85% of the completed audit participation for the year. SCE plans to continue these activities in 2021.

SCE Audits in 2020

Sector	Number of Audits
Residential	13,628
Commercial	N/A
Industrial	N/A
Agriculture	N/A

[78] Rulemaking (R.) 14-10-003, *Order Instituting Rulemaking to Create a Consistent Regulatory Framework for the Guidance, Planning and Evaluation of Integrated Distributed Energy Resources*. Link provided in *Appendix I,* below.

Directive 5: Integrated Pilots, Programs, and Activities

The Task Force regularly reviewed and tracked the results of various programs, IDSM Pilots, and other activities, identified and promoted integration opportunities, and tracked projects where integrated efforts were underway to identify and develop best practices.

SCE Highlights:

The reliability crisis in the summer of 2020 accelerated efforts to better integrate SCE's Residential Direct Installation (DI) Program and its demand response Smart Energy Program. Specifically, SCE evaluated the ability to capture DR cobenefits while installing a smart thermostat onsite. As a result, SCE determined that, beginning in 2021, when customers start participating in the Residential DI program, SCE will leverage each site visit to enroll them in the appropriate DR program as well.

Directive 6: Regular Reports

The Statewide IDSM Task Force held regular coordination phone calls to continue ensuring alignment across the state and planned to expand beyond ad-hoc engagement as new IDSM activities ramp up.

Note: *In 2019, SCE received approval from CPUC Energy Division Staff to discontinue the requirement to submit IDSM quarterly reports and to consolidate all reporting 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 / California Solar Initiative (CSI), and Energy Savings Assistance (ESA) Programs.

SCE Highlights:

The Quarterly IDSM Webinar was updated to reflect the Business Customer Division (BCD) Monthly Outlook activities and calendar, in order to keep up with frequent changes in the field. Standing agenda items of the Webinar include safety, BCD Broadcasts, energy efficiency, broader DSM updates, transportation electrification, and operational impacts. In addition, a technical briefing on new EE opportunities was given to BCD account managers to provide them the full scope of available EE measures, and equip them with the skills needed to encourage higher customer participation in EE programs, in order to reach corporate goals. BCD is currently transitioning from delivering energy savings to a third party-implemented program.

Directive 8: Integrated Marketing

Historically, the Statewide IDSM Task Force tracked, reported, and shared best practices related to local integrated marketing campaigns for residential and business customers. The IOUs anticipate that these activities may decline as IDSM funds are

transitioned to meet the new IDSM objectives, and may be replaced by integrated efforts associated with new third party-implemented programs or other relevant programs, as needed.

SCE Highlights:

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

- 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 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 ads (on Facebook and Twitter) sent customers to the CPP web page. The content primarily featured business customers who installed EE projects, along with demand-side management tips for customers on time-of-use (TOU) rates managing energy use during summer on-peak hours and CPP events.

SCE's IDSM Activities for Third Parties and IOU Programs

This section describes each of the IOUs' various IDSM activities associated with third-party solicitations and/or their own programs, in accordance with the repurposing of IDSM funding.

For Third Parties in 2020:

- SCE continued its progress on the Residential, Commercial and Industrial Sector Solicitation and the Statewide Lighting Solicitation. Each solicitation included references and guidance encouraging IDSM activities to be pursued by third-party implementers. The proposals (including IDSM proposals) underwent a rigorous review and evaluation process throughout the course of this year (highlighted in ***Chapter 12,*** below). At the end of the RFP process, several program proposals which included IDSM activities were selected, and the contracts were submitted to the Commission for approval. (The contracts were still under review and awaiting approval at the end of the year.)
- SCE also launched solicitations in 2020 for the Public and Agricultural sectors which will conclude in 2021, along with other pending solicitations (e.g., Statewide Higher Education and Statewide Water/Wastewater). As with the Residential, Commercial, and Industrial Sector and the Statewide Lighting solicitations, each solicitation included references and guidance encouraging IDSM activities to be pursued by third-party implementers.

For Program Activities in 2020:

- The reliability crisis in the summer of 2020 accelerated efforts to better integrate SCE's Residential Direct Installation (ResDI) Program and the demand response Smart Energy Program. Specifically, SCE evaluated the ability to capture DR co-benefits while installing smart thermostats onsite at customer homes. As a result, SCE determined that, beginning in 2021, when customers start participating in the ResDI program, SCE will leverage each site visit to enroll them in the appropriate DR program as well.

11. Local Programs

Energy Atlas

Project Description

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

Developments in 2020

Southern California Edison (SCE) was assigned as the lead to administer a contract with the University of California at Los Angeles (UCLA) Center for Sustainability for the maintenance and operational cost of the Energy Atlas Tool. SCE successfully executed a contract and used its purchase order process for monthly payments to UCLA (from January through December of 2020). This allowed the Energy Atlas Tool to continue to operate while the new CATALENA tool (described below) is under construction. The costs of both the Energy Atlas and the CATALENA projects are funded by the Investor Owned Utilities (IOUs), based on an agreed-upon cost-sharing percentage approved in SCE Advice Letters 3859-E[79] and 3859-E-A.[80]

California Analysis Tool for Locational Energy Assessment (CATALENA) Project

Project Description

In its Decision (D.)18-05-041,[81] the Commission directed the IOU Program Administrators[82] (PAs) to select a lead to oversee the statewide deployment California Analysis Tool for Locational Energy Assessment (CATALENA), a tool akin to the Energy Atlas described above, and competitively solicit a third party to:

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79 AL3859-E, *Southern California Edison Company's 2019 Energy Efficiency Program and Portfolio Annual Budget Advice Letter*, p. 7. Link provided in *Appendix I,* below.

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

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

82 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 was selected as lead PA to oversee the statewide deployment of the new CATALENA tool.

D.18-05-041 also directed the IOU PAs to:

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

In 2020, the IOUs began the development of the CATALENA tool and are expected to launch a solicitation for an implementer to design and develop the website in 2021.

Although still in development, 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 2020

In 2020, the IOUs' CATALENA Working Group ("Working Group"), led by SCE, continued to develop the scope of work (project work specifications) for the development and implementation of CATALENA, as directed in D.18-05-041.

Core Function Activities:

Key CATALENA Working Group goals achieved in 2020 include:

- Built consensus on interpretation of the rules set forth in D.14-05-016[83] (and other energy data privacy rules) and their applicability to the CATALENA scope, and

[83] D.14-05-016, *Decision Adopting Rules to Provide Access to Energy Usage and Usage-Related Data While Protecting Privacy of Personal Data*. Link provided in *Appendix I,* below.

- Completed the drafts of business requirements and functional capabilities for CATALENA, with review based on local government stakeholder surveys and meetings.

Collaboration with Others:

To advance the development of the work specification, the Working Group:

- Coordinated with California Energy Commission (CEC) Staff to leverage their energy database in support of the project
- Collaborated with Regional Energy Network (REN) to plan for the future launch of a Request for Proposals (RFP) to identify a project developer to design, implement, and maintain the CATALENA website and database, and
- Continued to collaborate with the CPUC to determine the appropriate level of data reporting to include in the work specification.

The Working Group continued to meet bi-monthly via phone conference for project status updates.

Local Government Partnerships

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

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

A key goal of SCE's LGPs is helping cities and counties to lead by example, by addressing EE in their own municipal facilities first. The partnerships strive to expand the energy management policies and capacities of local governments in order to maintain a focus on long-term sustainability. They focus on delivering energy savings by bringing innovative strategies to Public Sector customers, because these customers encounter unique barriers to adopting EE measures compared to those of larger, better-resourced commercial facilities.

SCE's LGPs are built around the communities which they serve. While local governments represent a majority of partners, some LGPs are led by local economic development groups, associations of governments, joint power authorities, or regional non-profit organizations. These local organizations have missions aligned with supporting the economic, environmental and societal health of their communities. Local partners are best positioned to understand and identify customers within their communities and effectively partner with program implementers to overcome barriers to energy efficiency adoption.

Over the past 10 years, SCE's portfolio of LGPs has grown to cover most of its service territory. In 2020, SCE our LGPs served 137 cities as well as Los Angeles, Riverside, and San Bernardino Counties.

LGP Implementation Challenges

In its 2020 Annual Budget Advice Letter[84] (ABAL), SCE requested CPUC approval to discontinue certain non-resource activities of Public Sector programs in order to improve Total Resource Cost (TRC). To this end, the following non-resource activities of the Public Sector programs were discontinued in 2020:

[84] Advice Letter 4068-E, *SCE 2020 Annual Budget Advice Letter*, filed September 3, 2019. Link provided in *Appendix I,* below.

- Strategic Plan[85] Implementation
- Marketing, Education, and Outreach, and
- Monthly Partnership meetings.

LGP Strategies Implemented in 2020

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

Across most LGPs, no meetings occurred in 2020. However, BCD Account Managers continued to work with the LGPs to explore new opportunities in relation to EE, and helped push existing projects forward within their respective region. In addition, Account Managers also continued to educate the Cities and Counties on transportation electrification offerings and Public Safety Power Shutoff (PSPS) events, and delivered rate-related information throughout the year.

Partnership Descriptions

City of Long Beach Energy Leader Partnership

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.

Gateway Cities Energy Leader Partnership

The Gateway Cities Energy Partnership Program is a local government partnership including the Cities of South Gate, Norwalk, Downey, Lakewood, and Lynwood, 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

[85] Referring to the goals of the *California Energy Efficiency Strategic Plan*. Link provided in *Appendix I*, below.

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.

Eastern Sierra Energy Leader Partnership

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

Desert Cities Energy Leader Partnership

The Desert Cities Energy Partnership 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, and SCE. The program is designed to assist local governments to effectively lead their communities to increase energy efficiency, reduce greenhouse gas (GHG) emissions, increase renewable energy usage, protect air quality, and ensure that their communities are more livable and sustainable.

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

Kern County Energy Leader Partnership

The Kern County Energy Leader Partnership (also known as 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.

Orange County Cities Energy Leader Partnership

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 2020 the principal Partnership activities were identifying and implementing EE retrofits for municipal facilities.

San Gabriel Valley Energy Leader Partnership

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 customized and deemed EE programs.

San Joaquin Valley Energy Leader Partnership

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

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

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

The VIEW Partnership identifies opportunities for improved energy efficiency in municipal infrastructure, offers customized incentives for municipal projects, conducts EE trainings, and hosts and participates in outreach events to drive participation in core EE programs.

South Bay Energy Leader Partnership

The South Bay Energy Leader Partnership Program[86] provides integrated technical and financial assistance to help the South Bay Cities effectively lead their communities to increase energy efficiency, reduce greenhouse gas emissions, increase renewable energy usage, protect air quality, and ensure that their communities are more livable and sustainable. The Partnership 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.

[86] Also known as the South Bay Cities Council of Governments (SBCCOG) Energy Efficiency Partnership Program. For more information, see http: //www.southbaycities.org/.

South Santa Barbara County Energy Leader Partnership

The South Santa Barbara County Energy Efficiency Partnership includes SCE, Santa Barbara County, and the Cities of Santa Barbara, Goleta, and Carpinteria. The Partnership 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 EE programs. The Partnership:

- Funnels customers to existing SCE 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 Program
- Provides energy information to all market segments, and
- Identifies projects for municipal retrofits.

Ventura County Energy Leader Partnership

The Ventura County Energy Leader Partnerships, also known as the Ventura County Regional Energy Alliance (VCREA), in partnership with SoCalGas and SCE, builds on progress towards implementing a targeted program of energy savings for public agencies[87] throughout the Ventura County region. The Partnership 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, and applies the strengths of the VCREA and its utility partners to help public agencies lead their communities to greater participation in EE programs.

Western Riverside Energy Leader Partnership

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

High Desert Regional (HDR) Energy Leader Partnership

The High Desert Regional (HDR) Energy Leader Partnership (formerly known as 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).

[87] That is, city or county governments and any other public sector organizations.

The HDR Partnership identifies opportunities for improved EE in municipal infrastructure, offers customized incentives for municipal projects, and conducts EE trainings.

West Side Community Energy Leader Partnership

The West Side Community Energy Leader Partnership 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, and
- Identifying, scoping, and implementing EE projects.

North Orange County Cities Energy Leader Partnership

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 projects 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

San Bernardino Regional Energy Leader Partnership

The San Bernardino Regional Energy Leader Partnership (SBREP) is a joint energy efficiency 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 activities through identifying and helping coordinate opportunities for cost-effective implementation of natural gas and electric energy-savings projects
- Coordinating community outreach and training efforts to educate consumers and promote programs, and

- Identifying and offering financial packages that bundle practical utility incentives and provide various monetary incentives aimed at improving the participation of residents, businesses, and local government agencies.

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 Partnerships for reporting purposes.

County of Los Angeles Energy Efficiency Partnership

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 for each of the 38 County departments served by the Energy Management division of the County Internal Services Department.

County of Riverside Energy Efficiency Partnership

In 2010, the County of Riverside formed a Partnership with SCE and SoCalGas to help the County achieve its green policy initiatives and formulate an integrated approach to EE. This collaborative effort 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 CO_2 reduction requirements of AB 32,[88] and second, CPUC energy savings goals and objectives.

County of San Bernardino Energy Efficiency Partnership

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 opportunities. The County can then increase EE 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,

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

and California IOU customers. 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.

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.

Strategies Implemented in 2020

In 2019, the Program was closed to further activity, with the exception of final invoices that were submitted by March 31, 2020. All invoices were submitted and paid in 2020.

Partnership Strategic Support Subprogram

Program Description

Through the Partnership Strategic Support Subprogram, SCE joined with the other three California IOUs —PG&E, SoCalGas, and SDG&E — to contract with the International Council for Local Environmental Initiatives (ICLEI), the Institute for Local Government (ILG), and the Local Government Commission (LGC) to implement the Statewide Energy Efficiency Collaborative (SEEC).[89] 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 2020

In 2020, SCE implemented the following strategies for the Partnership Strategic Support Subprogram:

- The annual SEEC Forum transitioned to a virtual forum in light of the challenges posed by the COVID-19 pandemic this year. SEEC hosted three networking activities, organized and attended a raffle, and created SEEC Peer-to-Peer Networking via LinkedIn to help foster community engagement. The traditional multi-day event was redesigned as a six-month webinar series consisting of 20

[89] The SEEC website is *available at* https: //californiaseec.org/about-seec/.

webinars which followed the theme of "Promising Solutions for a Clean Energy Future" and reached 1,824 attendees.

- The ILG honored 36 California cities that have taken significant steps to reduce greenhouse gas emissions, save energy, and implement best practices in sustainability. In total, ILG handed out 55 Beacon Spotlight and Vanguard Awards at the October 8 virtual awards ceremony. Six cities received the prestigious Beacon Vanguard Award, which recognizes communities that have made significant achievements in all Spotlight Award categories.
- ICLEI focused on providing technical assistance to SEEC California communities completing community-wide and local government operation greenhouse gas (GHG) inventories, even though the SEEC Program was set to end December 2020. To do this, ICLEI provided direct technical assistance and hosted office hours from June to October 2020, open to all California communities, to complete inventories and move into the climate action planning phase.
- ICLEI also developed a 2020 update of the State of Local Climate Action report[90] for California communities that highlighted California communities and the achievements in climate actions made in the years 2016-2020. ICLEI developed California specific ClearPath calculators to aid the cities in developing and implementing their GHG inventories and Climate Action Plans (CAP), and plans to continue supporting California communities through ICLEI membership.
- The Best Practices Coordinator (BPC):
    - Created the California Local Energy Technical Assistance Directory[91] as a resource for local governments, with free technical assistance from professionals on energy and climate topics, in conjunction with the Best Practices Database[92] which provides case studies on successful and replicable energy projects.
    - Continued to provide technical and programmatic support to local governments throughout 2020, including *Local Natural Gas Emission Reductions Options* and *Self-Generation Incentive Program Eligibility and Savings Performance (ESPC) Guidance*[93] on the Technical Assistance Directory.
    - Hosted two webinars during the 11th Annual SEEC Forum.

[90] State of Local Climate Action report, available at https: //californiaseec.org/resource/state-of-local-climate-action-california-2016/.
[91] California Local Energy Technical Assistance Directory, available at https: //eecoordinator.info/technical-assistance/.
[92] California Climate & Energy Collaborative- Best Practices: https: //eecoordinator.info/best-practices-database/.
[93] California Climate & Energy Collaborative- Technical Assistance: https: //eecoordinator.info/technical-assistance/.

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 2017. Subsequently, on June 6, 2018, the Commission approved SCE's 2018-2025 Energy Efficiency Rolling Portfolio Business Plan.[94] In December 2019, the Commission approved D.19-12-021,[95] removing the pilot status of SoCalREN and authorizing the continuation of SoCalREN through the end of the business plan period.

A joint agreement between SCE, SoCalGas, and SoCalREN, with SoCalGas as the lead administrator, defines the SoCalREN Partnership, through which the Investor-Owned Utilities (IOUs) provide fiscal oversight for the programs but do not directly manage them.

Strategies Implemented in 2020

In 2020, SCE implemented the following strategies for the SoCalREN Partnership:

Program Activities:

- On a monthly basis, reviewed and processed for payment all program implementer invoices forwarded through SoCalGas for work performed in 2019 and 2020, and participated in working meetings with Los Angeles County's financial team to resolve invoice issues within 15 days of receipt of any monthly invoice package.
- Continued to keep records of customer account validation and past participation, and to store project data for reporting purposes.
- Continued to validate customer account data that SoCalREN submitted and to check for customers with prior SCE program participation.

Collaboration Among Partners:

- SCE, SoCalGas, and SoCalREN worked together, as required by D.18-05-041, to develop a Joint Cooperation Memo (JCM) which details SoCalREN's 2021 programs, SoCalGas and SCE's comparable 2021 programs, and the coordination

[94] D.18-05-041.

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

among the Program Administrators (PAs) in overlapping service territories. The 2021 JCM was approved on July 15, 2020.[96]

- Partnership committees continued meeting (virtually, due to the COVID-19 pandemic), which facilitated discussion and resolution of issues:
    - The IOU-SoCalREN Coordinating Committee met quarterly to discuss overarching and strategic issues.
    - The IOU-Southern California Public Agency Program Committee met monthly to discuss coordination of energy efficiency and demand response project development activities to minimize customer confusion.
    - Additional working meetings were conducted as needed to coordinate and support implementation of SoCalREN Residential, Finance, and Public Agency Programs.

The Partnership also:

- Continued to refine 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 confusion when working with SoCalREN, and
- Actively participated in technical meetings and coordinated monthly subprogram meetings, as needed.

Tri-County Regional Energy Network Fiscal Oversight and Partnership

Program Description

The Tri-County Regional Energy Network (3C-REN), jointly administered by the Counties of San Luis Obispo, Santa Barbara, and Ventura, was approved as a pilot in D.18-05-041 (cited above). In December 2019, the Commission approved D.19-12-021,[97] removing the pilot status of 3C-REN and authorizing the continuation of 3C-REN through the end of the business plan period.

A joint agreement between Pacific Gas and Electric, SCE, SoCalGas, and 3C-REN, with SoCalGas as the lead administrator, defines the 3C-REN Partnership, through which the IOUs provide fiscal oversight for the programs but do not directly manage them.

[96] Advice Letter 4232-E, *SoCalREN, SCE, and SoCalGas' 2021 Joint Cooperation Memorandum Pursuant to Decision 18-05-041.* Link provided in *Appendix I,* below.

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

In 2020, SCE worked cooperatively and collaboratively with PG&E, SoCalGas, and 3C-REN to coordinate complementary services and create a positive, successful experience for customers..

Strategies Implemented in 2020

In 2020, SCE implemented the following strategies for the 3C-REN Partnership:

Program Activities:

The 3C-REN Fiscal Oversight and Partnership:

- On a monthly basis, reviewed and processed for payment all program implementer invoices forwarded through 3C-REN for work performed in 2020, and
- Developed a process to validate customers to ensure they are not claiming incentives for any projects from more than one program (double-dipping).

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) which details 3C-REN's 2021 programs, PG&E, SoCalGas, and SCE's comparable 2021 programs, and the coordination among the Program Administrators (PAs) in overlapping service territories. The 2021 JCM was approved on July 15, 2020.[98]
- Partnership committees continued meeting (virtually, due to the COVID-19 pandemic), which facilitated discussion and resolution of issues:
    - The IOU and 3C-REN partners (IOUs and Counties) met as necessary to discuss overarching and strategic issues, and
    - Additional working meetings were conducted as needed to coordinate and support implementation of 3C-REN's Residential, Codes and Standards (C&S), and Workforce, Education and Training (WE&T) Programs.
- Coordinated WE&T training activities and provided 3C-REN with lists of classes available in the Tri-County area such as Clean Energy Building Design.

[98] AL 4230-E, *2021 Joint Cooperation Memorandum (JCM) of 3C-REN, SoCalGas, SCE and PG&E Pursuant to Decision (D.) 18-05-041.* Link provided in *Appendix I,* below.

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 (University of California [UC] and California State University [CSU])
- California Department of Corrections and Rehabilitation (CDCR), and
- State of California Government.

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

2020 Program Implementation Barriers and Problems Encountered

The Statewide Energy Efficiency Partnerships were impacted both operationally and financially due to the outbreak of COVID-19 in the State of California, leading to the Governor's declaration of a Statewide emergency on March 4, 2020. On March 19, 2020, Governor Newsom issued a statewide Stay-at-Home Order. There were significant impacts to all operations and functions associated with Statewide customers, including the following:

- All educational institutions transitioned to virtual learning
- All campus housing facilities were shut down
- All medical facilities saw a significant uptake in activity due to an increase in patient load
- All State Agencies changed operations with a new focus on the impact of COVID-19, and
- All Prison and Inmate services saw a significant outbreak of the coronavirus and energy usage changed because of changes in facility use patterns.

California Community Colleges Energy Efficiency Partnership

Program Description

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

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

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

Strategies Implemented in 2020

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. All the Proposition 39[99] projects[100] were completed and closed out in 2019, but owing 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 issued a Proposition 39 extension to move these project savings to new projects in 2020.

[99] Proposition (Prop) 39, California Clean Energy Jobs Act K-12 Program. Link provided in *Appendix I,* below.
[100] 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 California Higher Education Sustainability Conference (CHESC), Community College Facilities Coalition Conference (CCFC), and the Association Of College Business Officers (ACBO) Conference to reach a diverse audience of facilities' business officers, administration, and board members.
- 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.

Program Implementation Barriers and Problems Encountered:

- As mentioned above, all educational institutions in the State of California transitioned to virtual learning in 2020, and all campus housing facilities were shut down.

California Dept. of Corrections and Rehabilitation (CDCR) Energy Efficiency 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 2020

Administrative Successes:

- Regular management team meetings (every four weeks) and executive team meetings (quarterly) were key to identifying and managing projects, and to proactively addressing any challenges the program may face.
- The Partnership continued the effort to ensure new construction projects, gas-saving projects, and water conservation projects were clearly tracked and proactively managed.
- Through the Partnership, energy audits were originally performed in 2006 for the institutions within the IOU territories. In 2020, CDCR and the IOUs continued to create a master schedule and to prioritize EE audits to use as a planning tool for future EE projects, and expect this effort to continue to create a robust pipeline.

Retrofit Projects:

- In 2020, 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 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 limits[101] to $4 million per premise.
- In select instances, CDCR continued implementing retrofit projects and performing Investment Grade Audits, with OBF funds supplemented by either Special Repairs Project funding or the Department of General Service's GS$mart Program.
- The IOUs and the Program Administration Manager supported development of the new projects. To support further project development, the IOUs performed energy audits of a subset of CDCR's facilities, which CDCR used to prioritize the next wave of projects.

Education and Outreach:

- The Partnership continued to provide guidance and trainings for CDCR and their

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

Energy Services Companies (ESCOs) to help ensure that financing options are identified early in the development cycle, so each project can capitalize on the unique and evolving mix of opportunities.

Program Implementation Barriers or Problems Encountered:

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

State of California Energy Efficiency Partnership

Program Description

The State of California Energy Efficiency Partnership 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 2020

Administrative Successes:

- The Partnership continued to attend the State of California's Sustainable Building Working Group (SBWG) virtually and to assist the SBWG with its task of planning and implementing all aspects of the Governor's *State of California Green Buildings* Executive Order B-18-12[102] and the Green Building Action Plan.[103]
- 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.

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

[102] Executive Order B-18-12, *State of California Green Buildings*. Link provided in *Appendix I,* below.
[103] *Green Building Action Plan for Implementation of B-18-12*. Link provided in *Appendix I,* below.

provided extensive outreach and technical support to agencies including:

- California Highway Patrol
- Department of Motor Vehicles
- Department of Parks and Recreation
- Judicial Council of California, and
- Department of Food and Agriculture.

Education and Outreach:

- In a supporting role, the IOUs continued to attend the Sustainable Building Working Group meetings virtually, in order to ensure that agency needs regarding energy data for benchmarking are met, and to continue to use this platform for agency outreach.
- In response to the Public Safety Power Shutoffs that occurred in 2020, 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.

Program Implementation Barriers or Problems Encountered:

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

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

Program Description

The UC / CSU Energy Efficiency Partnership is a unique, statewide program which includes California's four IOUs, PG&E, SCE, SoCalGas, and SDG&E, as well as the Los Angeles Department of Water and Power (LADWP), in partnership with the University of California (UC) and the California State University (CSU) systems. The program generates energy savings by identifying and implementing EE projects and supporting the projects through training and education. The Partnership offers three main project types: retrofit, monitoring-based commissioning (MBCx), and new construction. Since its establishment in 2004, the Partnership has provided over 65 MW in demand reduction and delivers over 500 million kWh/year and over 25 million therms/year in energy savings statewide.

Strategies Implemented in 2020

Administrative Successes:

As the transition to the new third-party programs has taken longer than anticipated, the Partnership team decided to look at ways the current Partnership could be reinvigorated

and could incorporate current priorities to enhance its value over the next two years. The following five priority areas were identified as offering the most value to UC and CSU:

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

Throughout 2020, the team continued to discuss potential opportunities and to monitor progress of ongoing initiatives in these priority areas. In addition, with the assistance of and input from the University of California, the IOUs continued implementation and development of various program offerings and High Opportunity Projects or Programs (HOPPs), including a Whole Building program consistent with SB 350,[104] AB 802,[105] and AB 1150,[106] to demonstrate measured savings against existing conditions, pay for performance, and a comprehensive whole-building approach to building efficiency.

Retrofit Projects:

A significant volume of energy efficiency projects was delivered in 2020 and continues underway for future years:

- The Partners completed over 45 Retrofit, MBCx, and New Construction projects at 17 different UC and CSU campuses (including the UC Med Centers), and
- SCE's Clean Energy Optimization Pilot (CEOP) began at several campuses on July 1, 2019 and continued in 2020. CEOP and the Partnership are mutually exclusive, so Partnership activities at CEOP campuses are winding down.

Education and Outreach:

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

Program Implementation Barriers:

- As mentioned above, all educational institutions in the State of California transitioned to virtual learning in 2020, and all campus housing facilities were shut down.
- Some campuses stopped pursuing certain projects due to incentive cuts resulting from non-utility supply hourly analysis. In addition, current Commission policy requiring energy savings above code (Title 24[107]) and industry standard practice baselines is not always aligned with determining project financial impact to

[104] SB 350, *Clean Energy and Pollution Reduction*. Link provided in *Appendix I,* below.
[105] AB 802, *Energy Efficiency*. Link provided in *Appendix I,* below.
[106] AB 1150, *Self-Generation Incentive Program*. Link provided in *Appendix I,* below.
[107] *California Building Energy Efficiency Standards.* Link provided in *Appendix I,* below..

support project financing, or with translating savings to carbon reductions to meet university carbon goals.

- MBCx offerings at the various IOUs were discontinued in 2016, limiting project opportunities for UC and CSU, leaving a significant gap from what was a practical and popular delivery method for campuses.
- Additionally, many custom measures were re-designated as deemed, decreasing the claimable energy savings and incentives received by universities.

Program Changes Made in 2020:

- The Partnership focused widely on efforts surrounding normalized metered energy consumption (NMEC) in compliance with AB-802. SCE and SCG closed out their first whole building HOPPs project at UC Santa Barbara, in parallel to the Partnership.
- In addition to NMEC projects, UC and CSU focused on:
    - Addressing barriers to energy efficiency
    - Developing new contracting mechanisms
    - Looking into opportunities for financing projects via OBF, and
    - Continuing work on a California Energy Commission (CEC) Grant to develop a Master Enabling Agreement for energy efficiency at UC and CSU campuses.
- The Partnership determined several programmatic changes which will take effect in the 2021 cycle. Beginning in 2021, the Savings By Design Program will transition to a statewide third-party program and its incentives will no longer be provided through the Partnership.

Program Objectives Met:

- Overall, the UC / CSU Partnership made progress towards the 2020 program cycle goals, totaling:
    - Over 1,160 kW (~87% of goal)
    - Approximately 8.3 million kWh (~67% of goal)
    - Approximately 552,000 therms (~65% of goal), and
    - Over $2.9 million in incentives (~101% of goal).

Public Sector Performance-Based Retrofit Program

Program Description

The Public Sector Performance-Based Retrofit Program[108] (PSPBR) was designed to leverage smart meter investments while bringing the benefits of Normalized Metered Energy Consumption (NMEC) to Public Sector (PS) buildings. NMEC represents the next progression in energy efficiency (EE) by measuring, tracking, and incentivizing savings delivered at the meter.

The PSPBR Program complements the goals of Public Sector programs by allowing participants to track savings and ensure the performance of their long-term EE investments, and supports their economic goals and climate action plans. The shift to NMEC makes it possible to confirm to Program participants that their project can result in greater and more sustainable energy savings, a strong additional benefit of the methodology. By aligning with climate and cost-reduction goals, the Program can also provide a valuable strategy for helping Public Sector customers meet their sustainability goals. SCE has developed this Program to eliminate barriers, improve transparency, ensure persistence, and increase overall energy savings in the public sector.

Strategies Implemented in 2020

Any EE program will provide greater benefits when all stakeholders are working towards customer satisfaction and improving cost-effectiveness. SCE, collaborating with the Southern California Gas Company (SoCalGas) and the Southern California Regional Energy Network (SoCalREN), has led the way in identifying and enhancing the PSPBR Program's all-around effectiveness.

In 2020, SCE implemented the following strategies for the PSPBR Program:

Core Function Activities:

- The Program continued to attract the attention of PS customers, as it continued to review new projects, submitted by SCE and SoCalREN representatives, for their potential to participate in the Program at the NMEC site level. When PS customers were considering whether to participate in the Program, the On-Bill Financing option was a strong influencing factor.
- The Program explored alternative metered data analysis strategies, such as obtaining additional meter data and normalization methodologies, to mitigate the impact of the COVID-19 pandemic, which hindered multiple performance-based

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

retrofit projects by affecting the ability to perform initial project audits and post-installation measure inspections.

Administrative Changes and Successes:

- The Program began integrating its project review process with the same process used for SCE's Custom Calculated programs. This change offered greater clarity to the process and used resources, internal and external, more effectively.
- The Program is reporting the calculated energy savings results of 14 projects and based on the resulting meter data based analyses will adjust the energy savings amount as appropriate. This activity aligns with the Energy Division Staff Guidance on NMEC reporting of energy savings (Section 2).
- The Program revised key steps and clarified roles and responsibilities in the project hand-off process between SCE, SoCalGas, and SoCalREN.

Outreach to Customers:

- The Program increased the transparency of the information profiled in SoCalREN's Agency Services Plan (ASP). The ASP is a customer-facing document providing PS customers with:
    - First review of their project's estimated energy savings
    - Descriptions of SCE, SoCalGas, and SoCalREN programs' offerings and services
    - Customer documents that identify programs and services for which their project meets minimum participation requirements, and
    - The estimated incentive amounts for customer projects.

12. Third-Party Programs

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

In 2020, Third-Party Program implementers continued to perform site assessments and reports to identify energy efficiency (EE) savings opportunities, offer EE savings recommendations, and provide technical assistance, incentives, and rebates to program participants to support the installation of the recommended equipment.

Additionally, SCE continued the process of soliciting third party-implemented programs to meet their 60% outsourcing threshold by December 31, 2022, per California Public Utilities Commission (CPUC or Commission) Decision (D.)18-01-004,[109] which directed IOUs to seek new programs that were both designed and delivered by third parties.

New Third Party-Implemented Programs

Transition to Third-Party Implementers

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

- Established a process for third-party solicitations for EE rolling portfolio programs overseen by the IOU Program Administrators (PAs)
- Adopted a requirement that the IOUs use a two-stage process to solicit third party-designed and -implemented programs for the EE portfolio, and
- Refined budget targets to result in a smooth transition from a portfolio of programs designed by the IOUs to one where a majority of programs are designed and delivered by third parties.

In order to provide for a smooth and sustainable transition from current portfolios, in D.18-01-004, the Commission also established a phased-in approach to allow the IOUs to transition to third-party design and implementation over a period of years. In D.18-05-041,[110] the Commission approved SCE's Business Plan and partially modified the compliance deadlines, such that at least 25 percent of SCE's EE portfolio budget was required to be under contract to third parties by December 19, 2019, 40 percent by December 31, 2020, and 60 percent by December 31, 2022. At the conclusion of 2020, SCE entered into contracts with

[109] D.18-01-004, *Third Party Solicitation Process for EE Programs*. Link provided in *Appendix I,* below.
[110] D.18-05-041, *EE Business Plans.* Link provided in *Appendix I,* below.

third-party implementers for more than 40 percent of its EE budget and met both of the 2020 deadlines.

Solicitation Activities

In 2020, SCE used the two-stage solicitation process — a Request for Abstracts (RFA) followed by a Request for Proposals (RFP) — in accordance with D.18-01-004. SCE worked closely with its Procurement Review Group (PRG) and an Independent Evaluator (IE) in both stages of the solicitations, while also leveraging the standard solicitation processes SCE typically uses for competitive solicitations.

Completed Solicitations in 2020

SCE completed two solicitations in 2020 that resulted in the award of six contracts to four implementers:

- The Residential, Commercial, and Industrial (RCI) Solicitation was designed for local EE programs spanning the Residential, Commercial, and Industrial sectors. SCE submitted six RCI Advice Letters to the CPUC in October of 2020 and has received approval for two of the six Advice Letters. The two Advice Letters for the Residential and Commercial Behavioral Program were approved in February of 2021. SCE is currently awaiting the CPUC's approval of the other four Advice Letters.
- SCE's Statewide Lighting (SWL) Solicitation was designed for lighting solutions for industrial and commercial sector customers across all electric IOU service areas, and will employ deemed measures through midstream delivery channels. SCE submitted the SWL Advice Letter to the CPUC for approval in October of 2020 and received approval in December of 2020.

*See **California Statewide Lighting Program,** below.*

Active Solicitations

SCE is conducting several active solicitations as of the date of this report, including solicitations for Statewide Electric Emerging Technologies, Local Public Sector, Local Agricultural Sector, Statewide Higher Education, and Statewide Water/Wastewater.

California Statewide Lighting Program

Program Description

The California Statewide Lighting Program (SWL Program) serves all eligible electric customers in the participating IOUs' service areas: Southern California Edison (SCE), San Diego Gas & Electric (SDG&E), and Pacific Gas & Electric (PG&E). The goal of the SWL Program is to promote the sale and installation of high-efficiency LED lighting products through midstream channels. The third-party implementer, TRC Solutions, will

achieve the Program's objectives through implementation of a cost-effective midstream program for the non-Residential, Commercial & Industrial (C&I) market throughout the IOUs' service areas.

Strategies Implemented in 2020

SCE submitted Advice Letter AL 4356-E [111] in 2020 to request approval for its California Statewide Lighting Program solicitation, and received a CPUC disposition letter approving the request, effective December 23, 2020. The Program, administered by TRC Solutions, is set to launch in Q2 2021.

Closed Third Party-Implemented Programs

In Advice Letter 3859-E,[112] 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.

The following programs were closed to new applications effective December 31, 2019:

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

The following programs were closed to new applications effective December 31, 2020:

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

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

[111] AL 4356-E, *Advice Letter for Approval of Statewide Lighting Energy Efficiency Third Party Contract for CA Statewide Lighting Program*. Link provided in *Appendix I,* below.
[112] AL 3859-E, *SCE 2019 EE Program and Portfolio ABAL*. Link provided in *Appendix I,* below.

- Facility Assessment Services 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 2020

Core Function Activities:

- Continued installation of comprehensive EE measures to optimize energy savings and help customers identify opportunities for demand response and efficient water use.
- Because of the COVID-19 pandemic, all face-to-face interaction between the implementer and SCE customers, including customer outreach, enrollment, installation, and inspection work, was suspended effective March 20. Following the guidance of local, state, and federal government, health, and emergency response agencies, as well as of the California Public Utilities Commission, the suspension remained in place through May 31. On June 1, the implementer resumed face-to-face interactions while following safe work practices outlined by SCE as well as the most restrictive state, county, or local orders for all relevant work activities.

Outreach to Customers:

- Continued outreach to mobile home parks that had not previously participated in the program. The implementer conducted this outreach through in-person and virtual presentations for mobile home park managers and their staff.
- Because of the COVID-19 pandemic, outreach to mobile and manufactured home parks and communities specific to residents ages 55+ was discontinued.

Collaboration with Internal Partners

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

Healthcare Energy Efficiency Program

Program Description

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

The Healthcare Innovative Technology EE Program (HITEEP), a retrofit subprogram of HEEP, as described in SCE's Healthcare Program Implementation Plan filing, serves small and mid-size healthcare customers. This subprogram primarily targets medical office buildings and acute care facilities that experience low levels of support from the Office of Statewide Health Planning and Development (OSHPD), and offers customized measure solutions, deemed measure solutions, and Demand Response solutions for these facilities' energy management needs. HITEEP provides complete audit and project identification services, in addition to incentives and fixed-unit-price measures (with or without a customer copayment) to qualified customers.

Strategies Implemented in 2020

As a result of the Total Resource Cost (TRC) for the Health Care Energy Efficiency Program was below SCE's minimum threshold, HEEP was closed to new applications as of December 31, 2018. In Advice Letter 3859-E, SCE requested CPUC approval to close the Program when existing commitments were fulfilled. In 2020, the Program continued to complete committed projects. Notably, due to the impact of the COVID-19 pandemic, technical reviews transitioned from in-person to virtual.

Data Center Energy Efficiency Program

Program Description

The Data Center Energy Efficiency Program (DCEEP) encourages this industry's adoption of EE behaviors. 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 2020

In Advice Letter 3859-E, SCE requested CPUC approval to close the Program as a result of the Total Resource Cost (TRC) being below SCE's minimum threshold. Upon CPUC approval, the Program closed to new applications as of December 31, 2018, but continues to operate until existing commitments are fulfilled. In 2020, the Program continued to complete committed projects.

Lodging Energy Efficiency Program

Program Description

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

Strategies Implemented in 2020

In Advice Letter 3859-E, SCE requested CPUC approval to close the Program when existing commitments were fulfilled, as a result of the Total Resource Cost (TRC) being below SCE's minimum threshold. On December 31, 2018, the Lodging Energy Efficiency Program closed to new applications; however, in 2020, the Program continued to complete committed projects. Notably, due to the impact of the COVID-19 pandemic, technical reviews transitioned from in-person to virtual.

Schools Energy Efficiency Program

Program Description

The Program provides 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 2020

The Program was closed to new applications effective December 31, 2019, per Advice Letter 4068-E, filed September 3, 2019. In 2020, the only activity was payment of a final invoice upon submittal of a final report, and the Program was finally closed as of December 31, 2020.

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 2020

Because the Total Resource Cost (TRC) for the Program was below SCE's minimum threshold, the Program was closed to new applications as of December 31, 2018. In Advice Letter 3859-E, SCE requested CPUC approval to close the Program when existing commitments were fulfilled. In 2020, the Program continued to complete committed projects.

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 2020

Administrative Changes:

- The Program was closed to new applications effective December 31, 2020, per Advice Letter 4285-E,[113] filed September 1, 2020.

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

Core Function Activities:

- Continued 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.
- 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.
- Due to the impact of the COVID-19 pandemic, transitioned technical reviews from in-person to virtual.

Customer Outreach:

- Continued outreach through Business Customer Division (BCD) account executives to help customers identify eligible EE measures.
- Continued to provide support services through site assessments and on-site performance measurements conducted by third-party implementers.
- Continued to provide BCD account executives with guidance on program policy 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 related to variable speed drives, pumping soft starts, process cooling, and retrocommissioning (RCx).
- 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.

Strategies Implemented in 2020

Administrative Changes

- The Program was closed to new applications effective December 31, 2020, per Advice Letter 4285-E, filed September 1, 2020.

Customer Outreach:

- Following COVID-19 safety protocols, continued outreach through presentations to trade groups, industry functions, and conferences serving local manufacturers.
- Continued outreach through BCD account executives to help customers identify eligible EE measures.
- Continued to provide support services through site assessments and on-site performance measurement conducted by third-party implementers.
- Continued 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, 2020 deadline for new Project Feasibility Studies (PFS).
- Continued the use of the Project Influence Job Aid to improve the quality of influence evidence for all submitted projects.
- Continued the early screening process for project development, to increase the likelihood that large EE projects using newer technology will produce viable savings opportunities.
- Continued to use the Effective Useful Life (EUL) Simple Payback Tool to screen out projects and measures with payback periods that would exceed their useful life.
- Due to the impact of the COVID-19 pandemic, transitioned technical reviews from in-person to virtual.

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.
- Performs financial analyses to assist customers in understanding and justifying project expenditures, help them understand available incentives, assist them in completing the necessary paperwork, and refine energy savings calculations.

Strategies Implemented in 2020

The Program was closed to new applications effective December 31, 2019, per Advice Letter 4068-E, filed September 3, 2019. In 2020, the Program continued to work on completing projects.

Comprehensive Petroleum Refining Program

Program Description

The Comprehensive Petroleum Refining program targets all the major petroleum refineries and petroleum product manufacturers in SCE's service territory to produce long-term, cost-effective electrical energy savings. The program achieves this goal by implementing a comprehensive set of calculated and deemed approaches to address every major electrical operation within the oil and petroleum refining industry. The program:

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

Strategies Implemented in 2020

Administrative Changes:

- The Program was closed to new applications effective December 31, 2020, per Advice Letter 4285-E, filed September 1, 2020.

Customer Outreach:

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

- Continued to apply 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.
- Continued using an Effective Useful Life (EUL) Simple Payback Tool to screen out projects and/or measures with payback periods that would exceed their useful life.
- Due to the impact of the COVID-19 pandemic, transitioned technical reviews from in-person to virtual.

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 2020

As a result of failing to meet SCE's minimum Total Resource Cost (TRC) threshold , the Program was closed to new applications as of December 31, 2018. In Advice Letter 3859-E, SCE requested CPUC approval to close the program when existing commitments were fulfilled. In 2020, the program continued to complete the few committed projects remaining.

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 2020

In Advice Letter 3859-E, SCE requested CPUC approval to close the Program as a result of not meeting SCE's minimum Total Resource Cost (TRC) threshold. Upon CPUC approval, the Program closed to new applications but continued operations until existing commitments were fulfilled. In 2020, the Program continued to complete committed projects and is set to close upon completion.

Enhanced Retro-Commissioning Program

Program Description

The primary objective of the Enhanced Retro-Commissioning Program is to provide comprehensive integrated demand-side management (IDSM) solutions for customers by using advanced analytic tools to identify retro-commissioning opportunities in complex buildings, including large commercial offices, hospitals, and resorts. The technical services that the Program provides assist customers in identifying energy optimization opportunities in their qualifying facilities and, along with program incentives, encourage the implementation of qualifying energy-saving and demand reduction measures. These solutions ensure that energy savings and demand reduction will persist over time.

Strategies Implemented in 2020

The Program was closed to new applications effective December 31, 2019, per Advice Letter 4068-E, filed September 3, 2019. In 2020, the Program continued to work on completing the remaining "pipeline" projects.

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 area, targeting customers that include water agencies, special districts, and local government (LG) agencies that oversee water and wastewater treatment and pumping facilities and systems.

SCE proposed to close the Program to new applications after June 30, 2019, per Advice Letter 4068-E, filed on September 3, 2019. Upon CPUC approval, the Program closed to new applications but continued operations until existing commitments were fulfilled. In 2020, the Program continued to complete committed projects and is set to close upon completion.

Strategies Implemented in 2020

Administrative Successes:

The program team continued to meet on a bi-weekly basis to track project progress and address project issues. Monthly vendor invoicing, monthly activity reporting, and updating the Subcontractor Management and Reporting Tool (SMART) are ongoing until the project pipeline is cleared.

Core Function Activities:

The program team continued to work on the existing project pipeline and progress projects through completion by:

- Performing preliminary program services for 12 customers
- Submitting 16 projects for project approval, and
- Facilitating project application reviews for 32 projects.

The following milestone events indicate the progress of projects in the pipeline:

- Proof of Equipment Orders received for eight projects
- Installation Reports (IRs) received for 17 projects
- IRs approved for 13 projects, and
- Incentives disbursed for 13 projects.

The COVID-19 pandemic caused customer project planning and construction timeline delays, and in some cases projects may be cancelled. SCE is working with the program implementer to extend the project approval period, thereby providing extra time to close out delayed projects.

Customer Outreach:

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

Facility Assessment Service Program

Program Description

The Facility Assessment Service Program (FASP) is a third party-implemented program that provides services that help eligible SCE customers:

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

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

Strategies Implemented in 2020

Administrative Changes:

- Per Advice Letter 4285-E, filed September 1, 2020, SCE proposed to close the Facility Assessment Program to new applications after December 31, 2021 in

order to ensure compliance with AB 793 for Program Year 2021. Afterwards, program closure activities will include final invoicing and a final report.

Core Function Activities:

- Leveraged energy management technology to identify energy saving opportunities, and
- Ensured that projects are reviewed by the CPUC.

Customer Outreach:

- Engaged customers (via phone and e-mail, both before and during the COVID-19 pandemic) that were identified as having significant opportunities to better understand their operations, to generate energy savings, and to reduce demand at their facilities through BRO changes. There were no in-person inspections or technical reviews.

Appendix A.
List of Acronyms and Abbreviations

Acronym or Abbreviation	Explanation
3C-REN	Tri-County Regional Energy Network
9-12	A program for high schools (see **WE&T,** below)
AB	Assembly Bill
ABAL	Annual Budget Advice Letter
ABS	Automated Benchmarking System
ACBO	Association of Chief Business Officials, California Community Colleges
ADUs	Accessory Dwelling Units
AGA	American Gas Association
AHRI	Air Conditioning, Heating and Refrigeration Institute
AIA	American Institute of Architects
aka	also known as
AL	Advice Letter
AMF	Affordable Multifamily Finance [Program]
AMI	Automated (or Advanced) Metering Infrastructure
ANSI	American National Standards Institute
ASHRAE	ASHRAE.org, formerly the American Society of Heating, Refrigerating, & Air-Conditioning Engineers
ASA	Appliance Standards Advocacy
ASP	Agency Services Plan
BayREN	Bay Area Regional Energy Network
BCD	(1) Business Customer Division; (2) Business Customer Development
BCD COE	Business Customer Division Center of Expertise
BPC	Best Practices Coordinator
BRO	Behavioral, Retrocommissioning and Operational
C&I	Commercial & Industrial
C&S	Codes and Standards
C/E	Cost-Effectiveness (see also **CET,** below)
CABEC	California Association of Building Energy Consultants
CAEATFA	California Alternative Energy and Advanced Transportation Financing Authority
CAEECC	California Energy Efficiency Coordinating Committee

Acronym or Abbreviation	Explanation
CAHP	California Advanced Home Program
CALBEM	California Building Energy Modeling
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
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
CBO	Community-Based Organization
CCA	Community Choice Aggregator
CCC	California Community Colleges [System]
CCFC	Community College Facilities Coalition Conference
CDCR	California Department of Corrections & Rehabilitation
CEA	Certified Energy Analyst
CEC	California Energy Commission
CEDARS	California Energy Data and Reporting System
CEESP	California Energy Efficiency Strategic Plan [*preferred acronym*]
CEI	Continuous Energy Improvement [Program]
CEOP	Clean Energy Optimization Pilot
CET	Cost-Effectiveness Tool
CHESC	California Higher Education Sustainability Conference
CI	Compliance Improvement [Subprogram]
CLTC	California Lighting Technology Center
CMHP	Comprehensive Manufactured Homes Program
CO	Carbon monoxide
CO_2	Carbon dioxide
COVID-19	Coronavirus Disease 2019
CPUC	California Public Utilities Commission
CQM	Commercial Quality Maintenance
CRM	Customer Relationship Management
CSE	Center for Sustainable Energy

Acronym or Abbreviation	Explanation
CSI	California Solar Initiative
CSRP	Customer Service Replatform Project
CSS	Customer Service System
CSU	California State University [System]
CTA	Consumer Technology Association
CUBE	Commercial Utility Building Efficiency [Program]
D&S	Demonstration and Showcase
DCEEP	Data Center Energy Efficiency Program
DDB	DDB (Doyle Dane Bernbach) San Francisco
DEER	Database for Energy Efficient Resources
DER	See **IDER,** below
DG	Distributed Generation
DGS	[California] Department of General Services
DI	(a) Direct Install [Program] (b) Direct implementation
DLC	Design Lights Consortium
DOAS	Dedicated Outdoor Air Systems
DOE	U.S. Department of Energy
DR	Demand Response
DS	See **D&S,** above
DSM	Demand-Side Management
DWP	See **LADWP,** below
ECA	Energy Code Ace
ECM	Energy Conservation Measures
ED	[CPUC] Energy Division
EE	Energy Efficiency
EEAT	Energy Efficiency Online Audit Tool (aka Enhanced Energy Audit Tool)
EEC	Energy Education Center
e.g.	*Exempli gratia*: for example; such as
ELP	Energy Leader Partnership
EM&V	Evaluation, Measurement & Verification
EMT	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)
ESPC	Eligibility and Savings Performance
ESPI	Efficiency Savings and Performance Incentive
ESPM	ENERGYSTAR™ Portfolio Manager
ETCC	Emerging Technologies Coordinating Council
ETP	Emerging Technologies [Program]
EUC	Energy Upgrade California® [Program]
EUL	Effective (or Estimated or Expected) Useful Life
EV	Electric Vehicle
FASP	Facility Assessment Service Program
FPCM	Facility Planning, Construction and Management [Division] (see **CDCR**, above)
FTC	(1) Federal Trade Commission; (2) Foodservice Technology Center
GHG	Greenhouse Gas
GRC	General Rate Case
GW, GWh	Gigawatts, Gigawatt-hours
HDR	High Desert Regional [Partnership]
HEA	Home Energy Advisor [Program]
HEEP	Healthcare Energy Efficiency Program
HERS	(1) Home Energy Reports; (2) Home Energy Rating System
HITEEP	Healthcare Innovative Technology EE Program
HOA	Homeowners Association
HOPPs	High Opportunity Projects or Programs
HPWH	Heat Pump Water Heater
HTR	Hard-to-Reach
HVAC	Heating, Ventilation and Air Conditioning
HVAC/R	HVAC and Refrigeration
IBPSA	International Building Performance Simulation Association
ICLEI	International Council for Local Environmental Initiatives
IDEEA	Innovative Design for Energy Efficiency Activities
IDER	Integrated Distributed Energy Resources
IDSM	integrated demand-side management
i.e.	*Id est*: that is; that is to say; namely; in other words

Acronym or Abbreviation	Explanation
IE	Independent Evaluator
IECC	International Energy Conservation Code
IEET	Integrated Energy Education and Training (see **WE&T**, below)
IGPP	Institutional and Government Energy Efficiency Partnership Program
IHACI	Institute of Heating and Air Conditioning Industries
ILG	Institute for Local Governments
IOU	Investor-Owned Utility
IR	Installation Report
ISP	Industry Standard Practice
IT	Information Technology
JCAP	Joint Consumer Action Plan
JCM	Joint Cooperation Memorandum
K-8, K-12	Kindergarten through 8th / 12th grade schools
KEDC	Kern Economic Development Corporation
kW, kWh	Kilowatts, Kilowatt-hours
LADWP	Los Angeles Department of Water & Power
LED	Light-emitting diode
LEED	Leadership in Energy and Environmental Design
LEEP	Lodging EE Program
LG	Local Government
LGC	Local Government Commission
LGP	Local Government Partnership
M&V	Measurement and Verification
MBI	Market-Based Incentives
MBCx	Monitoring-Based Commissioning
ME&O	Marketing, Education and Outreach
MFEER	Multifamily EE Rebate [Program]
MICE	Mid-Sized Industrial Customer Energy Efficiency [Program]
MPOP	Midstream Point-of-Purchase [Program]
MW, MWh	Megawatts, Megawatt-hours
MWD	Metropolitan Water District
NAICS	North American Industry Classification System
NASRC	North American Sustainable Refrigeration Council
NATE	North American Technician Excellence

Acronym or Abbreviation	Explanation
NBC	National Balancing Council
NCI	National Comfort Institute
NEM	Net Energy Metering
NMEC	Net (or Normalized) Metered Energy Consumption
NRDC	Natural Resources Defense Council
NRNC	Nonresidential New Construction
NRT	NAICS Reference Tool
NTG	Net-to-Gross
O&M	Operations & Maintenance (or Operational & Maintenance)
OASIS	Onsite Audit Services Information System
OBF	On-Bill Financing
OBR	On-Bill Repayment
OLT	Online Application Tool
OP	Ordering Paragraph
OSHPD	[California] Office of Statewide Health Planning and Development
P4P	Pay for Performance
P&C	Planning & Coordination [Subprogram]
PA	Program Administrator
PSPBR	Public Sector Performance-Based Retrofit
PEPMA	Proposal Evaluation and Proposal Management Application
PES	Pump Efficiency Services
PFS	Project Feasibility Study
PG&E	Pacific Gas & Electric Company
PLA	Plug Load and Appliances [Program]
POP	Point of Purchase (see **MPOP,** above
POS	Point of Sale (see **POP,** above)
PPCC	Policy Product Change Checklist
PRG	Procurement Review Group
Prop 39	California Proposition 39, the California Clean Energy Jobs Act
PS	Public Sector
PSPS	Public Safety Power Shutdown
PUC	(1) See **CPUC,** above; (2) Public Utilities Code
PV	PhotoVoltaic
QA	Quality Assurance

Acronym or Abbreviation	Explanation
QC	Quality Control
QI	Quality Installation
QM	Quality Maintenance
RC	Reach Codes [Subprogram]
RCI	Residential, Commercial, and Industrial
RCT	Randomized Control Trial
RCx	Retrocommissioning
READI	Remote Ex-Ante Database Interface
REEL	Residential Energy Efficiency Loan [Program]
REN	Regional Energy Network
RFA	Request for Abstract
RFP	Request for Proposal
RNC	Residential New Construction
SB	Senate Bill
SBCOG	San Bernardino Council of Governments
SBCS	Small Battery Charger Systems
SBD	Savings By Design [Program]
SBF	Small Business Finance [Program]
SBREP	San Bernardino Regional Energy Partnership
SBWG	Sustainable Building Working Group
SCE	Southern California Edison Company
SCG	Southern California Gas Company (aka SoCalGas or The Gas Company)
SDG&E	San Diego Gas & Electric Company
SEEC	Statewide Energy Efficiency Collaborative
SEEP	Schools Energy Efficiency Program
SEM	Strategic Energy Management [Program]
SFP	Scaled Field Placement
SJVCEO	San Joaquin Valley Clean Energy Organization
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association
SMART	Subcontractor Management and Reporting Tool
SMB	Small and Medium Business
SME	Subject Matter Expert
SMUD	Sacramento Municipal Utility District
SoCalGas	Southern California Gas Company (aka SCG or The Gas Company)

Acronym or Abbreviation	Explanation
SoCalREN	Southern California Regional Energy Network
Strategic Plan	See **CEESP,** above
SW or S/W	Statewide
SWL	Statewide Lighting
T20, T24	Title 20, Title 24
TA	Technology Assessment [Subprogram]
TDS	Technology Development Support [Subprogram]
TEC	The Energy Coalition
TIS	Technology Introduction Support [Subprogram]
TLL	Tool Lending Library
TOU	Time-of-Use
TPI	Third-Party Implementer (or Third Party-Implemented)
TPMs	Technology Priority Maps
TradePro	Trade Professional (formerly Customer's Authorized Agent)
TRC	(1) Total Resource Cost; (2) TRC Solutions, a consulting company
UAT	(1) Universal Audit Tool; (2) User Acceptance Test
UC	University of California
UCLA	University of California at Los Angeles
USGBC	U.S. Green Building Council
VCREA	Ventura County Regional Energy Alliance
VFD	Variable Frequency Drive
VIEW	Valley Innovative Energy Watch
VRF	Variable Refrigerant Flow
VPT	Vortex Process Technology
WCEC	Western Cooling Efficiency Center
WE&T	Workforce Education & Training
WE&T IEET	Workforce Education & Training Integrated Energy Education and Training [Subprogram]
WEN	Water-Energy Nexus
WISE	Water Infrastructure System Efficiency [Program]
WRELP	Western Riverside Energy Leader Partnership
ZNE	Zero Net Energy

Appendix B. Technical Appendices

Section 1: Energy Savings

Table 1. Electricity and Natural Gas Savings and Demand Reduction (Net) [114]

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

Annual Results	2020 Installed Savings [1]	CPUC 2020 Adopted Goals (D.19-08-034)	% of Goals (2020)
2020 Energy Savings (GWh) – Annual	***1,490***	***961***	***155%***
2020 Energy Savings (GWh) – Lifecycle	***20,167***	***N/A***	***N/A***
2020 Natural Gas Savings (MMth) – Annual			
2020 Natural Gas Savings (MMth) – Lifecycle			
2020 Peak Demand savings (MW)	***242***	***190***	***128%***

[1] Decision 19-08-034 removed Energy Savings Assistance Program (ESA) savings from Energy Efficiency goals. Therefore, the 2020 Annual Report Installed Savings does not include 33.86 GWh and 5 MW in First Year Net savings and 406 GWh in Lifecycle savings attributed to the ESA program. 2020 ESA Performance can be reviewed in the 2020 Low Income Annual Report and on CEDARS.

In 2020, the following five programs and program strategies accounted for approximately 88 percent of SCE's portfolio energy savings results (excluding Codes & Standards and ESA programs). [115]

In 2020, Codes & Standards program savings accounted for approximately 84 percent of SCE's portfolio energy savings results.

Top Five Programs by Percentage of Savings
(Excluding Codes and Standards and Energy Savings Assistance)

Program ID	Program Name	FirstYearNetKWh	FirstYearNetKW
SCE-13-SW-001A	Energy Advisor Program (56%)	129,677,409	21,992
SCE-13-SW-001B	Plug Load and Appliances Program (24%)	56,052,301	187
SCE-13-SW-003D	Strategic Energy Management (3%)	8,159,022	1,096
SCE-13-L-002Y	Grandfathered Street Lights (3%)	6,123,229	-
SCE-13-SW-001G	Residential Direct Install (2%)	5,689,868	3,175

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

[115] 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) [116]

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
2020Portfolio Targets	**88,231**	**883,771**	**28**	**275**	**14**	**142**
2020 SCE Energt Efficiency Portfolio	555,065	5,767,892	46	621	24	321

[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 2020 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.

[116] The data shown in this Annual Report is based on SCE's ex ante savings, adjusted for actual installations, consistent with the ex ante values and processes adopted by the CPUC in D.11-07-030 (link provided in *Appendix I,* below).

Section 3: Expenditures

Table 3. 2020 Expenditures, Including Expenditures From Past Cycle Commitments, Paid in 2020[117]

Table 3 is available on the PEPMA home page at: https://pepma-ca.com/Public/Default.aspx.

1. On the **Resources** section of the PEPMA[118] home page, click the **More** link on the lower right of the page.
2. The **More** link takes you to a "Quick Links" list of key EE documents, including the IOUs' EE annual reports.
3. The *Table 3* file is titled **SCE 2021 – Appendix B – Technical Appendices – Table 3.**

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

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

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[117] 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.

[118] Proposal Evaluation and Proposal Management Application.

Section 4: Cost-Effectiveness

Table 4. Cost-Effectiveness (Net) [119]

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)
2020 SCE [2,3]	406,051,876	1,577,717,306	1,171,665,430	3.89	122,914,774	12.84	N/A	0.002	N/A

[1] The adopted avoided cost methodology does not provide information to provide a meaningful value for PAC Cost per kW saved. The adopted avoided cost methodology created kWh costs values that vary for each hour of the year that includes kW generation capacity costs. The current PAC Cost per kWh saved includes all ratepayer financial costs incurred in producing electric savings. The same costs would have to be reallocated if a PAC Cost per kW saved were presented. Additionally, the current approved CET Calculator does not have the capability to calculate discounted kW, nor is it clear whether an annualized cost per kW saved or total cost per kW saved is more useful.
[2] Does not include costs and benefits associated with the Energy Savings Assistance Program or Grandfathered Street Lights per December 6, 2018 memo from E. Randolph .
[3] Includes Codes & Standards Program savings and expenditures, as well as expenditures for Statewide ME&O, ESPI, and Pension & Benefits.

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

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

Total TRC Costs shown in the tables include the sum of the total administrative costs and the incremental measure or participant cost. The TRC costs also represent the changes to the TRC test made in Decision 07-09-043.[120]

- 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).

[119] *Id.*
[120] D.07-09-043, *Interim Opinion on Phase 1 Issues: Shareholder Risk/Reward Incentive Mechanism for Energy Efficiency Programs*. Link provided in *Appendix I,* below.

- 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:

4. The cost-effectiveness tables provided in this report reflect a summary of the cost-effectiveness calculations developed for SCE's 2020 programs. These tables provide energy savings and program costs associated with activity in 2020.

5. Pursuant to Policy Rule IV.11, to the extent possible, the assumptions that are used to estimate load impacts (for example, kWh and kW savings per unit, program net-to-gross ratios, incremental measure costs, and useful lives) in the calculation of the TRC and PAC tests are taken from the Remote Ex-Ante Database Interface (READI) v.2.5.1, which houses the Databases for Energy Efficient Resources (DEER).

   For measures where the required load impacts for cost-effectiveness test inputs were not available in READI v.2.5.1, SCE has developed Work Papers that were approved in the process outlined in D.11-07-030.[121]

Units (Number and Definition)

Unit counts of each measure are displayed in the program tracking databases during 2020. 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 2020 programs. The measure-level savings information used to calculate the 2020 program results is based upon estimates contained in READI v.2.5.1. If READI v.2.5.1 does not contain an estimate, SCE's energy and capacity savings are documented in SCE's Work Papers that are approved in the process outlined in D.11-07-030.

The gross amounts of the annual energy and capacity savings are reduced by appropriate net-to-gross ratios for the particular measure or end use and extended through

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

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.[122] All energy savings results are a total of the savings across all time periods.

Net-to-Gross (NTG) Ratio

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

Each NTG ratio utilized in the report is taken from READI v.2.5.1, as required by the Commission.

Effective Useful Life (EUL)

The EUL is the length of time (in years) for which the load impacts of an EE measure are expected to persist. Each of the EUL periods utilized in the report are taken from READI v.2.5.1, as required by the Commission.

Incremental Measure Cost (Per Unit and Total)

These costs generally represent the incremental costs of EE measures over standard replacement measures. The gross amounts of these costs are reduced by appropriate net-to-gross ratios for the particular measure or end use. SCE relies upon READI v.2.5.1 for *ex ante* incremental measure cost values, as required by the Commission. If READI v.2.5.1 does not contain an estimate, SCE's incremental measure costs are typically derived from a recent measure cost study and documented in SCE's Work Papers that are approved in the process outlined in D.11-07-030.

Program Incentive Cost (Per Unit and Total)

Incentive costs are the amount of incentives paid to customers during 2020. The incentive cost totals are based on per-unit incentive costs paid to the customer, multiplied by the total number of units.

[122] D.06-06-063, *Interim Opinion: 2006 Update of Avoided Costs and Related Issues Pertaining to Energy Efficiency Resources*. Link provided in *Appendix I,* below.

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 2020 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 Impacts [123]

Table 5
Ratepayer Impacts

2020	Electric Average Rate (Res and Non-Res) $/kwh [1]	Gas Average Rate (Core and Non-Core) $/therm	Average First Year Bill Savings ($)	Average Lifecylce Bill Savings ($)
SCE	$0.165	$0.000	$39,742,127	232,945,366

[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] 2020 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 2020, SCE was authorized to collect approximately $46.02 million[124] in rates to implement approved EE programs. Customer bills included the authorized collection on January 1, 2020, 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 2020.

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 2020 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.

[123] 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.

[124] AL-4145-E, *Southern California Edison Company's 2020 Energy Efficiency and Demand Response Integrated Demand Side Management Revenue Requirement in Accordance with Decision 18-05-041 and Advice 4068-E and 4068-E-A*. Link provided in *Appendix I, below*.

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

Section 6: Savings by End-Use

Table 6: Annual Savings By End-Use[125]

Table 6
Annual Savings By End Use

Use Category	GWH	% of Total	MW	% of Total	MMTh	% of Total
Appliance or Plug Load	99.9	7%	15.6	6%		
Building Envelope	19.3	1%	6.9	3%		
Codes & Standards	52.3	3%	8.3	3%		
Compressed Air	2.0	0%	-	0%		
Commercial Refrigeration	39.4	3%	4.7	2%		
Food Service	0.5	0%	0.1	0%		
HVAC	139.3	9%	37.3	15%		
Irrigation	1.4	0%	0.7	0%		
Lighting	878.9	58%	102.7	42%		
Process Distribution	4.4	0%	0.4	0%		
Process Heat	0.1	0%	-	0%		
Process Refrigeration	-	0%	-	0%		
Recreation	12.9	1%	2.8	1%		
Service	129.7	9%	22.0	9%		
Service and Domestic Hot Water	11.2	1%	1.4	1%		
Whole Building	132.8	9%	44.5	18%		
Grand Total	**1,524.0**	**100%**	**247.2**	**100%**		

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

The Commission's EE reporting requirements mandate that SCE submit regular reports to the Commission quantifying the accomplishments of the portfolio. One such requirement, reporting portfolio performance of energy savings and demand reduction by end use, as shown in the table above, is reported on a regular basis as part of SCE's monthly report. The table above illustrates the 2020 results, by end use, of SCE's portfolio of EE programs.

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[125] The data shown in this Annual Report is based on SCE's *ex ante* savings, adjusted for actual installations, consistent with the ex ante values and processes adopted by the CPUC in D.11-07-030 (link provided in *Appendix I,* below).

Section 7: Commitments

Table 7: Commitments [126]

Table 7
Commitments

Commitments Made in 2013-2015 with Expected Implementation after December 2015, excludes REN					
	Committed Funds[2]	Expected Net Energy Savings			
2013-2015[2]	$	GWH	MW	MMth	
- Resource	$ 2,284,524	6.27	0.99		
- Non-Resource	$ 351,118				
- Codes & Standards					
SCE Total	$ 2,635,642	6.27	0.99		

Commitments Made in 2016 with Expected Implementation after December 2016, excludes REN					
	Committed Funds [3]	Expected Net Energy Savings			
2016[3]	$	GWH	MW	MMth	
- Resource	$ 3,514,405	17.82	3.83		
- Non-Resource	$ 233,317				
- Codes & Standards					
SCE Total	$ 3,747,722	17.82	3.83		

Commitments Made in 2017 with Expected Implementation after December 2017, excludes REN					
	Committed Funds [3]	Expected Net Energy Savings			
2017[3]	$	GWH	MW	MMth	
- Resource	$ 3,295,871	10.77	1.01		
- Non-Resource	$ 1,582,916				
- Codes & Standards					
SCE Total	$ 4,878,786	10.77	1.01		

Table continues on the next page

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126 *Id.*

(Table 7, continued)

Commitments Made in 2018 with Expected Implementation after December 2018, excludes LCE, 3CREN and SCalREN				
2018[3]	Committed Funds[3] $	Expected Net Energy Savings GWH	MW	MMth
- Resource	$ 1,588,386	4.66	0.39	
- Non-Resource	$ 2,087,392			
- Codes & Standards	$ -			
SCE Total	$ 3,675,778	4.66	0.39	

Commitments Made in 2019 with Expected Implementation after December 2019, excludes LCE, 3CREN and SCalREN				
2019[3]	Committed Funds[3] $	Expected Net Energy Savings GWH	MW	MMth
- Resource	$ 3,415,373	9.77	1.68	
- Non-Resource	$ 3,513,607			
- Codes & Standards	$ 199,718			
SCE Total	$ 7,128,698	9.77	1.68	

Commitments Made in 2020 with Expected Implementation after December 2020, excludes LCE, 3CREN and SCalREN				
2020[3]	Committed Funds[3] $	Expected Net Energy Savings GWH	MW	MMth
- Resource	$ 15,519,693	47.42	5.73	
- Non-Resource	$ 1,759,023			
- Codes & Standards	$ 695,490			
SCE Total	$ 17,974,207	47.42	5.73	

[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.

[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).

[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).

Section 8: Shareholder Performance Incentives

Table 8: Shareholder Incentives (ESPI)

Table 8 Shareholder Incentives (ESPI)

Program Year	2018 [1]	2019 [2,3]	2020 [3]
Forecast	$17,600,000	$14,200,000	$8,000,000
Actual	$10,093,919	$5,014,211	$0

	ESPI RESOLUTIONS	
Program Year	Part 1	Part 2
2018 [1]	$5,479,346	$4,614,573
2019 [2,3]	$5,014,211	N/A
2020 [3]	N/A	N/A

Notes:
[1] Resolution E-5062 and E-5108
[2] Resolution E-5108
[3] Decision 20-11-013 placed a moratorium on award payments on future ESPI Advice Letter (AL) earning claims, beginning with 2021 program year (PY) (which was to be filed Sept. 1, 2021).

This table reflects a 2020 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 2021. 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 2020 program year. Resolution E-5062[127] awarded $5,479,346 to SCE for the "first part" of 2018. Resolution E-5108[128] approved $4,614,573 for the "second part" of SCE's 2018 earnings claim and $5,014,211 for the "first part" of SCE's 2019 earnings claim. This resolution also approved delaying recovery of the incentives until 2022.

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-5108 in its TRC calculations. Any decrease to SCE's ESPI award will only increase SCE's TRC value.

[127] Resolution E-5062, *Approves, with adjustments, Efficiency Savings and Performance Incentive awards for three major California investor-owned utilities for program years 2017 and 2018..* Link provided in *Appendix I,* below.

[128] Resolution E-5108, *Approves, with adjustments, Efficiency Savings and Performance Incentive awards for three major California investor-owned utilities for program years (PY) 2018 and 2019, and delays the recovery of the incentives until 2022..* Link provided in *Appendix I,* below.

Appendix C.
Southern California Edison Programs for 2020

Appendix C contains the list of programs included in SCE's 2020 EE Portfolio, and the dates the programs were added or removed, where applicable.

Table: Programs Included in SCE's 2020 EE Portfolio [129]

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	12/31/2020
SCE-13-SW-001C	Multifamily Energy Efficiency Rebate Program	1/1/2013	12/31/2020
SCE-13-SW-001D	Energy Upgrade California	1/1/2013	8/31/2018
SCE-13-SW-001E	Residential HVAC Program	1/1/2013	12/31/2018
SCE-13-SW-001F	Residential New Construction Program	1/1/2013	12/31/2020
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	12/31/2020
SCE-13-SW-002D	Commercial Direct Install Program	1/1/2013	12/31/2019
SCE-13-SW-002E	Commercial Continuous Energy Improvement Program	1/1/2013	12/31/2018
SCE-13-SW-002F	Nonresidential HVAC Program	1/1/2013	12/31/2020
SCE-13-SW-002G	Savings By Design Program	1/1/2013	12/31/2020
SCE-13-SW-002H	Midstream Point Of Purchase Program	1/1/2017	12/31/2020
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	12/31/2020
SCE-13-SW-003C	Industrial Deemed Energy Efficiency Program	1/1/2013	12/31/2020
SCE-13-SW-003D	Industrial Continuous Energy Improvement Program	1/1/2013	12/31/2018
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	12/31/2020
SCE-13-SW-004B	**Agriculture Calculated Energy Efficiency Program**	**1/1/2013**	**N/A**

[129] SCE discovered discrepancies in the reporting of program dates in its previous annual report. This table reflects the corrected dates to address those discrepancies.

CPUC ID	Program Name	Date Added	Date Removed
SCE-13-SW-004C	Agriculture Deemed Energy Efficiency Program	1/1/2013	12/31/2020
SCE-13-SW-004D	Agriculture Continuous Energy Improvement Program	1/1/2013	12/31/2018
SCE-13-SW-005	Lighting Program	1/1/2013	12/31/2019
SCE-13-SW-005A	Lighting Market Transformation Program, Subprogram of Statewide Lighting Program	1/1/2013	12/31/2018
SCE-13-SW-005B	Lighting Innovation Program, Subprogram of Statewide Lighting Program	1/1/2013	12/31/2018
SCE-13-SW-005C	Primary Lighting Program, Subprogram of Statewide Lighting Program	1/1/2013	12/31/2019
SCE-13-SW-006	Integrated Demand Side Management Program	1/1/2013	12/31/2018
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**
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	12/31/2018
SCE-13-L-001	Integrated Demand Side Management Pilot for Food Processing	1/1/2013	12/31/2016
SCE-13-L-002 (Rollup)	Energy Leader Partnership Program	10/1/2009	12/31/2018
SCE-13-L-002A	City of Beaumont Energy Leader Partnership	1/1/2010	12/31/2015
SCE-13-L-002B	**City of Long Beach Energy Leader Partnership**	**1/1/2010**	**N/A**
SCE-13-L-002C	City of Redlands Energy Leader Partnership	1/1/2010	12/31/2016 Merged with SBREP

CPUC ID	Program Name	Date Added	Date Removed
SCE-13-L-002D	City of Santa Ana Energy Leader Partnership	11/1/2007	12/31/2016 Merged with OCC
SCE-13-L-002E	City of Simi Valley Energy Leader Partnership	1/1/2010	12/31/2015 Merged with Ventura
SCE-13-L-002F	**Gateway Cities Energy Leader Partnership**	**1/1/2010**	**N/A**
SCE-13-L-002G	Community Energy Leader Partnership	1/1/2009	6/30/2017 Merged with various partnerships
SCE-13-L-002H	**Eastern Sierra Energy Leader Partnership**	**1/1/2010**	**N/A**
SCE-13-L-002I	Energy Leader Partnership Strategic Support	1/1/2013	12/31/2020
SCE-13-L-002J	**Desert Cities Energy Leader Partnership**	**1/1/2010**	**N/A**
SCE-13-L-002K	**Kern County Energy Leader Partnership**	**1/1/2010**	**N/A**
SCE-13-L-002L	**Orange County Cities Energy Leader Partnership**	**1/1/2010**	**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**	**1/1/2010**	**N/A**
SCE-13-L-002O	**South Bay Energy Leader Partnership**	**1/1/2010**	**N/A**
SCE-13-L-002P	**South Santa Barbara County Energy Leader Partnership**	**1/1/2009**	**N/A**
SCE-13-L-002Q	**Ventura County Energy Leader Partnership**	**1/16/2009**	**N/A**
SCE-13-L-002R	**Western Riverside Energy Leader Partnership**	**1/1/2010**	**N/A**
SCE-13-L-002S	**High Desert Regional Energy Leader Partnership (formerly City of Adelanto Energy Leader Partnership)**	**1/1/2010**	**N/A**
SCE-13-L-002T	**West Side Community Energy Leader Partnership**	**11/1/2011**	**N/A**
SCE-13-L-002U	Local Government Strategic Planning Pilot Program	1/1/2011	12/31/2019
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**	**1/1/2010**	**N/A**
SCE-13-L-003A	**California Community Colleges Energy Efficiency Partnership**	**1/1/2010**	**N/A**
SCE-13-L-003B	**California Dept. of Corrections and Rehabilitation EE Partnership**	**1/1/2010**	**N/A**
SCE-13-L-003C	**County of Los Angeles Energy Efficiency Partnership**	**1/1/2010**	**N/A**
SCE-13-L-003D	**County of Riverside Energy Efficiency Partnership**	**1/1/2010**	**N/A**
SCE-13-L-003E	**County of San Bernardino Energy Efficiency Partnership**	**1/1/2010**	**N/A**
SCE-13-L-003F	**State of California Energy Efficiency Partnership**	**1/1/2010**	**N/A**
SCE-13-L-003G	**UC/CSU Energy Efficiency Partnership**	**1/1/2010**	**N/A**

CPUC ID	Program Name	Date Added	Date Removed
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
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	12/31/2020
SCE-13-TP-008	Nonmetallic Minerals and Products Program	1/1/2013	12/31/2020
SCE-13-TP-009	Comprehensive Chemical Products Program	1/1/2013	12/31/2019
SCE-13-TP-010	Comprehensive Petroleum Refining Program	1/1/2013	12/31/2020
SCE-13-TP-011	Oil Production Program	1/1/2013	12/31/2018
SCE-13-TP-012	Refinery Energy Efficiency Program	1/1/2013	1/1/2015
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	1/1/2015
SCE-13-TP-018	School Energy Efficiency Program	1/1/2013	12/31/2019
SCE-13-TP-019	Sustainable Communities Program	1/1/2013	12/31/2018
SCE-13-TP-020	IDEEA365 Program	1/1/2013	12/31/2018
SCE-13-TP-021	Enhanced Retrocommissioning Program	1/1/2013	12/31/2019
SCE-13-TP-022	Water Infrastructure Systems EE Program (WISE)	1/1/2017	12/31/2019
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**

Appendix D.
SCE's Final December Monthly Report for 2020

To obtain a copy of SCE's December 2020 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 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[130] 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,[131] 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 2020

SCE quickly adjusted strategies and operations as a result of the unanticipated COVID-19 pandemic. As safer-at-home and pandemic restrictions ensued, SCE swiftly transitioned traditional operations to remote and/or virtual settings, including conducting interactions with various water associations, managing pilots, and conducting outreach and educational activities to promote and recommend EE solutions that meet customer needs to save water, save energy, and save money.

SCE's Engineering Services team continued to pursue water-energy savings opportunities with emerging technologies research, water-energy grid strategies, and integration of data analytics. These efforts were supported by field demonstrations and evaluations with industry stakeholders to further water reuse and recycling technologies and efficiencies in pumping and process design optimization.

Cooling Towers: Water-Energy Savings Opportunities

During 2020, SCE Engineering Services researched opportunities to assess the efficacy of Vortex Process Technology (VPT), an innovative low-energy-use physical water

[130] Executive Order B-29-15, *State of Emergency Due to Severe Drought Conditions*. Link provided in *Appendix I,* below.

[131] D.12-05-015, *Guidance on 2013-2014 Energy Efficiency Portfolios*, p. 287. Link provided in *Appendix I,* below.

treatment technology, 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 SCE Emerging Products and Technologies Team completed three project evaluations of the VPT technology through field demonstrations and testing. The projects' results and performance findings were used to create a new customized energy efficiency incentive measure in the Customized Retrofit Offering Program. The measure will support customer efforts in their pursuit of water and energy efficiencies.

The 26th Annual Water Conference

On November 4, 2020, SCE hosted over 220 attendees at the Annual Water Conference, which because of the COVID-19 pandemic was transformed from an in-person event to a virtual experience for our Northern and Southern California customers and partners. The Annual Water Conference provides 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 are shared.

This year's event featured a keynote presentation on *Water and Energy Resiliency*. SCE presentations from the Emerging Technologies Program and Pump Test and Hydraulic Services were also showcased. We ended the program with a Sustainable Ground Water Management Act panel discussion that provided an overview of new groundwater regulations in California, the current status of regulations, and potential impacts to water in California.

Water Savings and the EE Portfolio

CPUC Decision (D.) 16-12-047 [132] 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 2020 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:

[132] D.16-12-047, *Decision Updating the Water Energy Nexus Cost Calculator, Proposing Further Inquiry, and Next Steps*, issued December 15, 2016. Link provided in *Appendix I,* below.

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 2020, projects (including only deemed measure) saw water savings of 900K gallons, resulting in energy savings of about 2K . All the water savings came from Deemed measures, including super-efficient commercial ice machines and connectionless steam cookers, which saved about 900K of potable water, equivalent to more than 2K kWh when annual embedded kWh[133] (according to the WEN calculator) within the South Coast hydrologic zone.[134] These measures all came from SCE's Midstream Point-of-Purchase (MPOP) Program, targeting food service measures via a midstream channel.

[133] 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 OPs 2-4 of D.16-12-047.

[134] The WEN calculator (available at http: //www.cpuc.ca.gov/nexus_calculator/) uses the South Coast hydrologic zones and indoor water consumption.

Appendix F. 2020 List of EE Program Third-Party Implementers

Program ID	Program Name	Primary Sector (Market Segment)	Sector (Sub-segment/ Type of Customer)	Delivery Channel	Vendor	Size of Customer [135, 136, 137]	Length	[redacted]	Account Services Opt-in (Y/N, or N/A) [138]
SCE-13-TP-001	Comprehensive Mobile Home Program	Residential	Residential	Downstream	Synergy Companies	N/A	12 years, 11 months, 30 days	[redacted]	N/A
SCE-13-TP-021	Enhanced Retro-commissioning (RCx)	Commercial	Commercial	Downstream	Nexant, Inc.	Mid-size, Large	10 years, 8 months, 26 days		N/A
SCE-13-TP-005	The Lodging Energy Efficiency Program (LEEP)	Commercial	Commercial	Downstream	Willdan Energy Solutions	Small, Mid-Size, Large	9 years, 2 months, 30 days		N/A
SCE-13-TP-004	Data Centers EE Program	Commercial	Commercial	Downstream	Willdan Energy Solutions	Small, Mid-Size, Large	9 years, 2 months, 30 days		N/A
SCE-13-TP-003	Healthcare Energy Efficiency Program (HEEP)	Industrial	Industrial	Downstream	Willdan Energy Solutions	Small, Mid-Size, Large	9 years, 2 months, 30 days		N/A
SCE-13-TP-008	Industrial Energy Efficiency Program for Non-metallic Mineral Product	Industrial	Industrial	Downstream	Onsite Energy Corporation (OEC)	Mid-Size, Large	10 years, 2 months, 30 days		N/A
SCE-13-TP-008	Industrial Energy Efficiency Program for Non-metallic Mineral Product	Industrial	Industrial	Downstream	Willdan Energy Solutions (fka. Intergy Corp.)	Mid-Size, Large	11 years, 2 months, 30 days		N/A
SCE-13-TP-022	Water Infrastructure System Efficiency Program (WISE)	Cross-Cutting	Commercial	Downstream	Lincus, Inc.	Mid-size, Large	8 years, 10 months, 6 days		N/A
SCE-13-TP-023	Medium Size Industrial Customer EE Pilot Program	Industrial	Industrial	Downstream	Onsite Energy Corporation (OEC)	Mid-Size	8 years, 25 days		N/A
SCE-13-SW-010B	Workforce Education and Training 9-12 Program	Residential	Residential	Downstream	Strategic Energy Innovations	N/A	5 years, 28 days		N/A
SCE-13-SW-010B	Workforce Education and Training K-8 Program	Residential	Residential	Downstream	The Energy Coalition	N/A	6 months, 12 days		N/A
SCE-13-SW-001G	Residential Direct Installation Services	Residential	Residential	Downstream	Synergy Companies	N/A	7 years, 5 months, 9 days		N/A
SCE-13-TP-010	Comprehensive Petroleum Refining Energy Efficiency Program	Industrial	Industrial	Downstream	CLEAResult Consulting, Inc.	Small, Mid-Size, Large	7 years, 2 months, 30 days		N/A
SCE-13-TP-009	Comprehensive Chemical Products and Transportation Equipment	Industrial	Industrial	Downstream	CLEAResult Consulting, Inc.	Small, Mid-Size, Large	6 years, 2 months, 30 days		N/A
SCE-13-TP-011	Energy Efficiency Services for Oil and Gas Extraction	Industrial	Industrial	Downstream	CLEAResult Consulting, Inc.	Small, Mid-Size, Large	5 years, 2 months, 30 days		N/A

135 *SCE Amended Energy Efficiency Rolling Portfolio Business Plan for 2018-2025*, Table 1 -23, p. 89: "SCE Commercial Sector Segmentation for Energy Efficiency." A.17-01-013 (U 338-E), filed 2/10/2017. Link provided in *Appendix I,* below.
136 *Id*., at pp. 41-43.
137 "Size of Customer" applies to nonresidential categories only.
138 Per OP 17 of Decision D. 18-05-041, *Addressing EE Business Plans* (link provided in *Appendix I,* below): "The investor owned utilities must track the number and proportion of third parties that forego the option of using utility account representatives. The utilities must include this information in their annual reports." This requirement applies to new third party programs only.

Program ID	Program Name	Primary Sector (Market Segment)	Sector (Sub-segment/ Type of Customer)	Delivery Channel	Vendor	Size of Customer [135, 136, 137]	Length	[redacted]	Account Services Opt-in (Y/N, or N/A) [138]
SCE-13-TP-006	Food Manufacturers and Plastics and Rubber Product Manufacturers	Industrial	Industrial	Downstream	Lockheed Martin Corporation	Small, Mid-Size	4 years, 11 months, 12 days	[redacted]	N/A
SCE-13-TP-006	Food Manufacturers and Plastics and Rubber Product Manufacturers	Industrial	Industrial	Downstream	TRC Solutions, Inc	Small, Mid-Size	1 year, 9 months, 1 day	[redacted]	N/A
SCE-13-TP-007	Primary Metals, Fabricated Metal and Computer and Electronic Products	Industrial	Industrial	Downstream	Lockheed Martin Corporation	Small, Mid-Size, Large	5 years, 11 months, 12 days	[redacted]	N/A
SCE-13-TP-007	Primary and Fabricated Metal, Computer, and Electronic Product Manufacturing	Industrial	Industrial	Downstream	TRC Solutions, Inc	Small, Mid-Size, Large	6 years, 11 months, 12 days	[redacted]	N/A
SCE-13-SW-002F	HVAC Technology Commercialization Program	Commercial	Commercial	Upstream	Cohen Ventures, Inc.	Small, Mid-Size, Large	1 year, 1 month, 5 days	[redacted]	N/A
SCE-13-SW-002D	Non-Residential Direct Install Program	Commercial	Commercial	Downstream	California Retrofit, Inc.	Very Small, Small	7 years, 2 months, 30 days	[redacted]	N/A
SCE-13-SW-002D	Non-Residential Direct Install Program	Commercial	Commercial	Downstream	FESS Energy Inc.	Very Small, Small	7 years, 2 months, 30 days	[redacted]	N/A
SCE-13-SW-002D	Non-Residential Direct Install Program	Commercial	Commercial	Downstream	FCI Management Consultants	Very Small, Small	7 years, 2 months, 30 days	[redacted]	N/A
SCE-13-SW-001C	Multi Family Rebate Programs	Residential	Residential	Downstream	Coast to Coast Lighting Inc.	N/A	8 years, 9 months, 24 days	[redacted]	N/A
SCE-13-SW-001C	Multi Family Rebate Programs	Residential	Residential	Downstream	Monterey Energy Inc.	N/A	8 years, 9 months, 24 days	[redacted]	N/A
SCE-13-SW-001C	Multi Family Rebate Programs	Residential	Residential	Downstream	Optima Energy Inc.	N/A	8 years, 9 months, 24 days	[redacted]	N/A
SCE-13-SW-001C	Multi Family Rebate Programs	Residential	Residential	Downstream	Utility Incentive Corp.	N/A	8 years, 9 months, 24 days	[redacted]	N/A
SCE-13-SW-001C	Multi Family EE Rebate Programs	Residential	Residential	Downstream	American Power Solutions	N/A	8 years, 9 months, 24 days	[redacted]	N/A
SCE-13-TP-018	School Energy Efficiency Program	Commercial	Commercial	Downstream	Willdan Energy Solutions (fka. Intergy Corp.)	Small	6 years, 5 months, 24 days	[redacted]	N/A
SCE-13-SW-003D	Strategic Energy Management (SEM) Program	Industrial	Industrial	N/A	Cascade Energy	Large	5 years, 11 months, 26 days	[redacted]	N/A
SCE-13-TP-024	Energy Advocate Program	Commercial	Commercial	N/A	Power TakeOff, Inc.	Small, Midsize	2 years, 10 months, 27 days	[redacted]	N/A
SCE-13-TP-024	HomeIntel Program	Residential	Residential	Downstream	Home Energy Analytics, Inc.	N/A	5 years, 10 months, 27 days	[redacted]	N/A
SCE_SW_UL	Statewide Lighting Energy Efficiency Program	Commercial, Industrial	Commercial, Industrial	Midstream	TRC Solutions, Inc	Small, Mid-Size, Large	3 years	[redacted]	N

Appendix G.
Statewide Third-Party Programs

In Decision (D.) 16-08-019, the California Public Utilities Commission (CPUC or Commission) provided direction to Investor Owned Utility (IOU) Program Administrators (PAs) on business plan filings and established the requirement that programs be considered "statewide"[139] and "third-party"[140] programs. Additionally, the Commission set the requirement that statewide programs should comprise at least 25 percent of the total program portfolio budget of each utility PA.[141] These directives set forth a new direction for PAs in administering programs.

Subsequently, in D.18-01-004,[142] the Commission established the process for third-party solicitations for EE rolling portfolio programs overseen by the IOU PAs. In that decision, the Commission adopted a requirement that the IOUs use a two-stage process to solicit third party-designed and -implemented programs for the energy efficiency portfolio, and refined budget targets, to foster a smooth transition from a portfolio designed by the IOUs to one where a majority of programs are designed and delivered by third parties.

In order to provide for a smooth and sustainable transition from current portfolios, in D.18-01-004, the Commission also established a phased-in approach to allow the IOUs to transition to third-party design and implementation over a period of years. In D.18-05-041, the Commission approved SCE's Business Plan and partially modified the compliance deadlines, such that at least 25 percent of SCE's EE portfolio budget was required to be under contract to third parties by December 19, 2019, 40 percent by December 31, 2020, and 60 percent by December 31, 2022. The Energy Division subsequently extended the deadline for the 25% requirement to September 30, 2020.[143] At the conclusion of 2020, SCE entered into contracts with third-party implementers for more than 40 percent of its EE budget and met both of the 2020 deadlines.

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

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139 D.16-08-019, *Decision Providing Guidance for Initial Energy Efficiency Rolling Portfolio Business Plan Filings,* OP 5. Link provided in *Appendix I,* below.

140 *Id.*, OP 10.

141 *Id.*, OP 6.

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

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

Statewide Third-Party Program Coordination

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

Statewide Third-Party Programs Budget

On November 15, 2018, San Diego Gas & Electric Company (SDG&E), Southern California Gas Company (SoCalGas), Pacific Gas & Electric Company (PG&E), and SCE filed a Joint Supplemental Advice Letter regarding the IOUs' proposed mechanism for shared funding of statewide programs pursuant to OP 24 of D.18-05-041[144]. The IOUs proposed to submit annual true-up reports with the IOUs' annual EE reports submitted on May 1 of the following calendar year.[145]

*See **Table 1, Statewide Programs Third-Party Projected Expenditures,** on the next page.*

In D.18-05-041, the Commission also directed the IOUs to include a summary of key findings from the annual report in their respective annual energy efficiency portfolio reports to the Commission. Specifically, the summary of key findings details proportional funding amounts for each statewide program area, and highlights any IOU cost-sharing discrepancies, with a focus on the requirement for proportional budget contributions.[146] Contracted statewide third-party EE programs were not signed and approved until the latter half of 2020, with the exception of PG&E's State Appliance Standards Advocacy Program and National Codes and Standards Advocacy Programs. Thus, implementation is not slated to begin on these contracts until 2021, and reporting of statewide third-party budgets will be included in SCE's EE Annual Report for the 2021 program year, to be filed on May 1, 2022.

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144 Joint Supplemental Advice Letter (SDG&E AL 3268-E-A/2701-G-A; SoCalGas AL 5346-G-A; SCE AL 3861-E-A; and PG&E AL 5373-E-A/4009-G-A). Link provided in *Appendix I,* below.

145 *Id.* Joint Supplemental AL, p. 3.

146 D.18-05-041, *Addressing EE Business Plans*, pp. 86-87. Link provided in *Appendix I,* below.

Table 1. Statewide Programs Third-Party Projected Expenditures

2. Statewide Programs Third-Party Projected Expenditures

Name of Program	Counterparty Name	Lead IOU	Date Contract Signed	Date Contract Expires	Length (months)	Market Segment	Sub-Segment	Market Size	Types of Customers Addressed	Total Contract Amount ($)	IDSM Portion of Contract ($)	EE Portion of Contracts ($)	Projected Expenditures					Pro Rata Share (%)	IOU Share of Projected Expenditures					Total
													2021	2022	2023	2024	2025		2021	2022	2023	2024	2025	
Non-Residential, All-Electric - California New Construction3,4	Willdan Energy Solutions	PG&E	11/30/2020	12/31/2025	54	Agricultural, Multifamily High-Rise, Industrial, Public, Commercial	Agricultural, Mu	S/M/L	Agricultural, Mul	30,714,296	-	30,714,296	2,843,916	6,825,399	6,825,399	6,825,399	6,825,399	32%	912,328	2,189,588	2,189,588	2,189,588	2,189,588	9,670,680
Non-Residential, Mixed Fuel - California New Construction3,4	Willdan Energy Solutions	PG&E	11/30/2020	12/31/2025	54	Agricultural, Multifamily High-Rise, Industrial, Public, Commercial	Agricultural, Mu	S/M/L	Agricultural, Mul	50,697,244	-	50,697,244	4,694,189	11,266,054	11,266,054	11,266,054	11,266,054	32%	1,505,896	3,614,150	3,614,150	3,614,150	3,614,150	15,962,497
SW C&S Appliance Standards Advocacy	Cohen Ventures Inc	PG&E	2/5/2020	12/31/2022	35	Cross-Cutting	Cross-Cutting	S/M/L	Cross-Cutting	[redacted]	-	[redacted]	[redacted]				-	[redacted]	[redacted]					[redacted]
SW C&S Appliance Standards Advocacy	Cohen Ventures Inc	PG&E	3/12/2020	12/31/2022	34	Cross-Cutting	Cross-Cutting	S/M/L	Cross-Cutting		-						-							
SW C&S Appliance Standards Advocacy	2050 Partners	PG&E	2/11/2020	12/31/2022	35	Cross-Cutting	Cross-Cutting	S/M/L	Cross-Cutting		-						-							
SW C&S Building Codes Advocacy	Evergreen Economics Inc[1]	PG&E	8/20/2019	12/31/2020	17	Cross-Cutting	Cross-Cutting	S/M/L	Cross-Cutting		-						-							
SW C&S Building Codes Advocacy	Cohen Ventures Inc[1]	PG&E	6/2/2020	12/31/2020	7	Cross-Cutting	Cross-Cutting	S/M/L	Cross-Cutting		-						-							
SW C&S Building Codes Advocacy	Frontier Energy Inc[2]	PG&E	5/7/2020	12/31/2021	20	Cross-Cutting	Cross-Cutting	S/M/L	Cross-Cutting		-						-							
SW C&S Building Codes Advocacy	McHugh Energy Consultants Inc[2]	PG&E	12/4/2019	1/31/2021	14	Cross-Cutting	Cross-Cutting	S/M/L	Cross-Cutting		-						-							
SW C&S Building Codes Advocacy	Cohen Ventures Inc	PG&E	7/11/2018	3/31/2022	45	Cross-Cutting	Cross-Cutting	S/M/L	Cross-Cutting		-						-							
SW C&S Building Codes Advocacy	Cohen Ventures Inc	PG&E	6/18/2020	12/31/2021	19	Cross-Cutting	Cross-Cutting	S/M/L	Cross-Cutting		-						-							
SW C&S Building Codes Advocacy	TRC Solutions Inc	PG&E	6/18/2020	12/15/2021	18	Cross-Cutting	Cross-Cutting	S/M/L	Cross-Cutting		-						-							
SW C&S Building Codes Advocacy	Cohen Ventures Inc	PG&E	10/26/2020	12/20/2021	14	Cross-Cutting	Cross-Cutting	S/M/L	Cross-Cutting		-						-							
SW C&S Building Codes Advocacy	Frontier Energy Inc	PG&E	12/7/2020	12/31/2021	13	Cross-Cutting	Cross-Cutting	S/M/L	Cross-Cutting		-						-							
SW C&S Building Codes Advocacy	UC Regents[1]	PG&E	10/18/2019	12/15/2020	14	Cross-Cutting	Cross-Cutting	S/M/L	Cross-Cutting		-						-							
SW C&S Building Codes Advocacy	UC Regents	PG&E	8/14/2019	1/15/2021	18	Cross-Cutting	Cross-Cutting	S/M/L	Cross-Cutting		-						-							
SW C&S Building Codes Advocacy	TRC Solutions Inc	PG&E	9/10/2020	3/31/2022	19	Cross-Cutting	Cross-Cutting	S/M/L	Cross-Cutting		-						-							
SW C&S Building Codes Advocacy	Cohen Ventures Inc	PG&E	9/2/2020	12/31/2021	16	Cross-Cutting	Cross-Cutting	S/M/L	Cross-Cutting		-						-							
SW C&S Building Codes Advocacy	Cohen Ventures Inc	PG&E	9/2/2020	12/31/2021	16	Cross-Cutting	Cross-Cutting	S/M/L	Cross-Cutting		-						-							
SW C&S National Advocacy	Cohen Ventures Inc	PG&E	1/29/2020	12/31/2022	36	Cross-Cutting	Cross-Cutting	S/M/L	Cross-Cutting		-						-							
SW C&S National Advocacy	Cohen Ventures Inc	PG&E	3/12/2020	12/31/2022	34	Cross-Cutting	Cross-Cutting	S/M/L	Cross-Cutting		-						-							
SW C&S National Advocacy	2050 Partners	PG&E	2/11/2020	12/31/2022	35	Cross-Cutting	Cross-Cutting	S/M/L	Cross-Cutting		-						-							
CA Statewide Lighting Program	TRC Solutions, Inc	SCE	9/1/2020	12/31/2024	35	Commercial	Commercial	S/M/L	Commercial		-													
Statewide Upstream and Midstream HVAC Program	CLEAResult Consulting, Inc.	SDG&E	10/14/2020	12/31/2023	39	Commercial & Residential	Commercial & R	S/M/L	Commercial & Re	36,974,313	-	36,974,313	10,195,516	13,097,047	13,681,749	-	-	32%	3,270,722	4,201,533	4,389,105	-	-	11,861,359
California Foodservice Instant Rebate Program	Energy Solutions	SoCalGas	12/9/2020	6/30/2024	42	Commercial	Commercial	S/M/L	Commercial	[redacted]	-	[redacted]	[redacted]				-	[redacted]	[redacted]					[redacted]
Statewide Midstream Water Heating Program	DNV GL Energy Services USA Inc.	SoCalGas	12/4/2020	6/30/2024	42	Commercial	Commercial	S/M/L	Commercial		-						-							
																		Total						

Footnote (1): PG&E included these SW 3P-qualified contracts as part of its compliance calculation towards the 25% milestone because they were under contract at the time of the June 30, 2020 compliance deadline. Applicable budgets are included in 2021 budget column O, however they were 2020 budgets and contracts expired at end of 2020

Footnote (2): PG&E included these SW 3P-qualified contracts as part of its compliance calculation towards the 25% milestone because they were under contract at the time of the June 30, 2020 compliance deadline. Applicable budgets are included in 2021 budget column O, however they were 2020 budgets and the contracts were replaced or discontinued at the end of 2020

Footnote (3): The "Date Contract Signed" are not the Effective Dates for the contracts. Effective Dates are determined by CPUC approval of the Advice Letters.

Footnote (4): Durations in "Length (months)" column align with program durations in contracts and do not align with the "Date Contract Signed" and "Date Contract Expires".

Go on to the next page

Statewide Programs

Southern California Edison (SCE)

The following lists SCE's statewide third-party implementer contracts:

California (CA) Statewide Lighting Program

The California Statewide Lighting Program (SWL Program) serves all eligible electric customers in the service areas of the participating IOUs — Southern California Edison (SCE), San Diego Gas & Electric (SDG&E), and Pacific Gas & Electric (PG&E) — with the goal of promoting the sale and installation of high-efficiency lighting products through midstream channels.

For more details, please see the **California Statewide Lighting Program** section in ***Chapter 12, Third-Party Programs*****,** above.

Active Solicitations

SCE has several active solicitations as of the date of this report, including for Statewide Electric Emerging Technologies, Local Public Sector, Local Agricultural Sector, Statewide Higher Education, and Statewide Water/Wastewater.

Statewide Higher Education Program

SCE solicitations for the Statewide Higher Education programs are underway and will continue in 2021.

Water / Wastewater Pumping Program

SCE solicitations for the Water / Wastewater Pumping program are underway and will continue in 2021.

Electric Emerging Technologies Program

SCE solicitations for the Electric Emerging Technologies program are underway and will continue in 2021.

Pacific Gas & Electric (PG&E)

Codes and Standards

State Appliance Standards Advocacy Subprogram

The Statewide Appliance Standards Advocacy (ASA) subprogram targets improvements to Title 20 by the California Energy Commission. Advocacy activities include developing Title 20 code enhancement proposals and participating in the California Energy

Commission public rulemaking process. Additionally, the subprogram monitors state and federal legislation and intervenes, as appropriate.

To comply with the Commission's Statewide program and outsourcing goals,[147] PG&E's Appliances Standards Advocacy subprogram ramped down in 2019 to shift budget and activity to the new statewide State Appliance Standards Advocacy program, which launched in Q1 2020.

2020 Strategies and Successes

In 2020, the ASA pursued several specific subprogram efforts. The ASA program staff participated in several Energy Commission webinars and workshops and advocacy for the Energy Commission rulemakings on a couple of products: (1) dedicated purpose pool pump motors, and (2) computers. IOUs supported the adoption of the dedicated purpose pool pump motors and computers standards though advocacy, data analysis and data collection.

State Building Codes Advocacy: Title 24, Part 6 & Part 11

The Statewide Building Codes Advocacy subprogram supports the California Energy Commission's triennial update to the Energy Code (Title 24, Part 6) to include new EE regulations or to strengthen existing regulations for various technologies or measures. Advocacy activities include the development of Codes and Standards Enhancement (CASE) proposals, research to provide the data needed to advance EE regulations, and participation in the public rulemaking processes. The subprogram also supports the Energy Commission in preparing recommendations to the Building Standards Commission to updates the California Green Buildings Standards (Title 24, Part 11 or CALGreen). The voluntary energy measures in CALGreen provide foundational elements for local reach codes.

To comply with the Commission's Statewide program and outsourcing goals, PG&E's Building Code Advocacy subprogram prepared transitioned to a Statewide Codes and Standards Advocacy program, which commenced in early 2020. Activities completed to support this included the introduction of a statewide balancing account, budget sharing negotiation, 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.

2020 Strategies and Successes

PG&E has been a participant in the code-setting process since the Energy Code was first developed in the 1970s. PG&E is also part of the statewide IOU team that supports the development of the Energy Code. In 2020, Sacramento Municipal Utility Department (SMUD) and Los Angeles Department of Water and Power (LADWP) contributed support for the 2022 Energy Code rulemaking cycle and are listed as part of the statewide team on public documents.

[147] D.18-05-041., *Addressing EE Business Plans*. Link provided in *Appendix I,* below.

In 2020, the Statewide Utility Codes and Standards Program supported the Energy Commission's 2022 rulemaking by completing 24 Codes and Standards Enhancement (CASE) reports that support 86 building code measure proposals. The focus for the 2022 cycle is on multifamily and non-residential buildings. Single family CASE reports proposed measures for alterations and additions, as well as compliance options that will prepare for prescriptive or mandatory measures in the 2025 and 2028 cycles. Final CASE reports were submitted to the Energy Commission for review in the third quarter of 2020. A list of measures and the final CASE reports are available at Title24Stakeholders.com. This public website was redesigned for the 2022 rulemaking cycle to increase and encourage stakeholder participation in the process. From March 2020 to March 2021, the website received over 490,000 visits from 31,000 unique visitors — more than twice the traffic of the previous period.

In 2020, from March 3 to May 7, the Statewide CASE team hosted 11 online events in ten weeks to engage with stakeholders that may be impacted by the proposed code changes. In spite of hosting these at the start of the COVID-19 crisis, the online convenings were well attended. Online meeting attendance in this second round of utility-sponsored stakeholder meetings increased after the March 19th stay-at-home orders were issued. The 2020 stakeholder meetings included 1,101 total attendees, 559 unique individuals representing 312 unique companies. There was a 33 percent increase in unique attendees during the second round of meetings. The outreach efforts led to 1101 total attendees for all 11 meetings, including 187 new individuals and 155 new organizations. The meetings had 65% average attendance rate, which is well above the industry average of 40-50%. 28 e-mail campaigns to share information about the 2022 code cycle led to an open rate of 25 percent and a click-through rate of 14 percent, which is aligned with industry averages.

At the start of 2021, the expected energy savings from the total proposal package across non-residential, multifamily and single-family buildings is 1,186 GWh in Electricity Savings, 182 MW in Peak Demand Reduction, 17 MMTherms in Natural Gas Savings, and 377,958 metric tons CO_2e in GHG reductions. Notable measure updates for this cycle include:

Multifamily:

- Unification of MF requirements in one section of code, which addresses compliance challenges and establish a framework that will allow for code requirements to be appropriately tailored for MF buildings in future code cycles.
- Supported move to all electric baselines.
- Maintained commitment to maintaining indoor air quality.

Single Family:

- Focus on recommendations for additions and alterations, which is an important step as we turn attention to how to achieve savings from existing buildings.

Nonresidential:

- Covered Processes: The CEC pursued more covered process measures this cycle than they typically pursue. The covered process measures represent a significant savings opportunity, but they also require more advocacy support as many are expanding the scope of Title 24. Measures include controlled environment horticulture (290 GWh — the most of all measures), compressed air, steam trap monitoring, and refrigeration system opportunities.
- Energy Efficiency: Pursued cost-effective efficiency improvements including requirements for envelope, lighting, HVAC and water heating. For lighting, cleaning up the lighting power density requirements will complete the transition to using LEDs as the baseline in all newly constructed buildings.
- Controls: Pursued control requirements that will enable load management, heat recovery, ventilation controls, and savings during unoccupied periods. Establishing requirements for dedicated outdoor air systems (DOAS) was an important step to set a minimum requirement for a technology that is gaining market share particularly in all electric buildings.

The adoption of the 2022 Energy Code is expected by August 2021. Savings expectations will be recalculated based on the final code language. The Statewide CASE Team will support the measure package and the Energy Commission through adoption, then turn to assisting with the compliance manuals and other supporting elements necessary for implementation. The Statewide CASE Team is also supporting the Energy Commission's CALGreen (Title 24, Part 11) voluntary measure package development with several options for cities seeking to adopt reach codes to help meet local decarbonization goals. This package is expected to be submitted to the Energy Commission in the second quarter of 2021. Planning for the 2025 Energy Code cycle begins in 2021.

National Codes and Standards Advocacy

National Codes & Standards: DOE, ASHRAE 90.1 and 189.1, IECC, Energy Star

PG&E advocates for national building codes and appliance standards that support California by encouraging adoption of transformative technologies and construction processes. Alignment between national and state codes also helps reduce barriers to compliance by harmonizing the requirements across state borders. Organizations that work across multiple states, including California, can establish business practices that would result in less customization for the California market. Participation in the DOE, Environmental Protection Agency (EPA), Federal Trade Commission (FTC), ASHRAE and International Energy Conservation Code (IECC) code and standard update proceedings in support of increasing requirements is important to minimize gaps, when regionally appropriate, between the California's EE regulations and the EE regulations that other states adopt.

To comply with the Commission's Statewide program and outsourcing goals,[148] PG&E's National Code Advocacy subprogram shifted budgets and activity to the new Statewide model in early 2020 with the completion of the implementer bidding process and establishment of statewide balancing accounts to share proportional costs amongst IOUs.

2020 Strategies and Successes

PG&E responded to the DOE rulemakings and supported our positions with data. PG&E collaborated with stakeholders and shared any data collected with DOE and their consultants. This collaboration supports rooftop HVAC (heating, ventilation and air conditioning) units, DX dedicated outdoor air systems, residential refrigerator, commercial and industrial boilers and variable speed HVAC test procedures. PG&E also completed the test plan for TV test procedures.

Additionally, this program advocated for changes to federal appliance standards through multiple efforts. Program staff researched and responded to specific issues related to federal rulemaking and specification processes conducted by the DOE and EPA ENERGY STAR® and participated in stakeholder meetings during rulemakings and specifications processes, resulting in 32 rulemaking advocacy letters issued in 2020.[149]

The program supported implementer participation in the Mechanical Subcommittee (MSC) of ASHRAE SSPC 90.1 and attended all meetings of the full committee as a non-voting member. Also, the implementer attends meetings of the Envelope Subcommittee of SSPC 90.1. Work on significant addendums that are nearing completion include:

- Significantly reduced fan power consumption by increasing the scope and stringency of the Fan Power Limits in Section 6.5.3.1.
- Increased minimum efficiency of high-capacity water heaters in large buildings from 90 percent to 92 percent thermal efficiency.
- Served as a member of the SSPC 90.1 Energy Credits Working Group, which creates additional requirements through a flexible path for prescriptive measures beyond those found in the standard's chapters.
- Provided direction for building modeling support of the Mechanical (MSC) and Lighting (LSC) Subcommittees addenda, and provided guidance on the creation and cost justification for significant addenda based on already-existing Title 24, Part 6 CASE studies. Examples of this work include support for adjustments to the requirements for compressor systems, updates to lighting controls requirements and lighting power density values, and providing support for proposals to reduce exceptions and expand the scope of alterations to which controls and lighting power requirements apply.

[148] D.18-05-041..
[149] Several of the advocacy letters were submitted on the same topic to respond to DOE's ongoing rulemakings.

In addition, implementer efforts to advance Standard 189.1-2020 resulted in reductions to the general lighting power allowance to approximately 10% below those of the ASHRAE / ANSI / IES 90.1 allowances, adding high-rise multifamily dwelling unit lighting control requirements, multi-zone occupancy sensing controls for large office lighting, and limiting SHGC derating based on window orientation. The implementer also supported expansion of distributed energy resources by increasing the prescriptive and performance renewable energy requirements to approximately 50% of the total energy consumption. The team participated in the development for source energy factors and carbon emission factors that mirrored efforts for the 2022 Energy Code development, including treating renewables as having no source energy and using the 20 year GWPs for short-lived climate pollutants such as methane.

San Diego Gas & Electric (SDG&E)

Statewide Upstream Heating, Ventilation, Air Conditioning (HVAC) Program

SDG&E is the lead administrator for the Statewide Upstream HVAC program, an upstream and midstream program that will offer HVAC measures including high-efficiency commercial unitary air conditioners, commercial heat pumps, commercial chillers, commercial space heating boilers, residential air conditioners, residential heat pumps, residential gas furnaces and residential gravity wall furnaces. The Program captures savings through the movement of incentivized deemed measures. The Statewide Upstream HVAC Program was contracted on 10/14/2020 with CLEAResult for $36.9M over a three-year contract period. SDG&E filed the Advice Letter (3648-E) on 11/12/2020 and it was approved on 12/11/2020. The program is expected to launch in Q2 of 2021.

Statewide Plug Load and Appliance Program

SDG&E is the lead administrator for the Statewide Plug Load and Appliance program. The RFP for the solicitation was released on 1/27/2020. The solicitation is currently ongoing and it's anticipated that contracting will be completed in Q2 2021.

Southern California Gas Company (SCG)

SoCalGas is the program administrator for three statewide programs in the Statewide Food Service Point of Sale (SW FS POS), the Statewide Mid-Stream Water Heating (SW MS WH), and the Statewide Gas Emerging Technologies (SW GET) sectors.

Advice Letters for SW FS POS and SW MS WH programs were filed with the Commission on December 15, 2020, and December 4, 2020, respectively. The SW FS POS Advice Letter was approved January 14, 2021. The SW MS WH Advice Letter, following two protests by stakeholders, was suspended on December 30, 2020, and was approved on March 18, 2021. The SW GET program was put out for bid in December 2020.

Statewide Food Service Point of Sale (SE FS POS)

The program for SW FS POS is called the California Foodservice Instant Rebates Program. The program works with midstream market actors to offer POS rebates to California IOU end use customers. All customers with a commercial rate structure served by one of the four IOUs are eligible for POS rebates. Foodservice equipment dealers, manufacturers, contractors, distributors who make sales directly to end use customers are eligible to enroll in the Program.

Statewide Midstream Water Heating (SW MS WH)

The program for the SW MS WH sector is the Statewide Water Heating Program (SW WH). It is a distributor-centric model design, which will collaborate with a network of distributors that specialize in the sale of efficient electric and natural gas measures. Point-of-sale discounts and incentives will be paid at the midstream level to distributors based on transactions and sales to contractors. All customers with commercial rate structures served by one of California's four IOUs are eligible for program participation.

Statewide Gas Emerging Technologies (SW GET) -

There is not yet an identified program for SW GET, as the solicitation for the program went out for bid in December 2020.

Appendix H. Metrics

A copy of SCE's Metrics is available on the PEPMA[150] home page at:

https://pepma-ca.com/Public/Default.aspx

1. On the **Resources** section of the PEPMA home page, click the **More** link on the lower right of the page.
2. The **More** link takes you to a "Quick Links" list of key EE documents, including the IOUs' EE annual reports.
3. Scroll to locate the Excel file titled **SCE.AnnualExcel.2020.xlsx**

In D.18-05-041,[151] the Commission directed Program Administrators to:

- *Report progress toward all metrics and indicators*[152] 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.[153]

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 2020 EE Annual Report utilize the definitions for disadvantaged communities (DAC) and hard-to-reach (HTR). As defined in Resolution G-3497,[154] 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.

Applying this definition, the 2020 reported metric for HTR declined in 2020 when compared to 2019 measures. HTR participant count measured by SA (service accounts)

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150 Proposal Evaluation and Proposal Management Application.
151 D.18-05-041 *Addressing EE Business Plans*. Link provided in *Appendix I,* below.
152 *Id*., OP 9.
153 *Id*., OP 11.
154 Resolution G-3497, *Pacific Gas and Electric Company (PG&E), San Diego Gas and Electric Company (SDG&E), and Southern California Gas Company (SoCalGas) requesting approval of program year 2012 and partial 2013 energy efficiency incentive awards*. Link provided in *Appendix I,* below.

decreased to 3,778 from 7,918 the prior year. SCE will continue to monitor this metric and its progress toward its 2021 HTR targets.

SCE's EE portfolio also made significant progress on its environmental impact goals in 2020. The EE portfolio realized nearly 555,000 annual tons of CO_2 avoided compared to the 2020 EE portfolio goal of 88,231 annual tons of CO_2 avoided. This equates to over 5 million lifecycle tons of CO_2 avoided versus a goal of over 883,000 lifecycle tons of CO_2 avoided.

In 2020, SCE temporarily suspended on-site customer contacts for some energy efficiency programs pursuant to the COVID-19 pandemic and the subsequent California stay-at-home order. There were significant impacts to the portfolio, specifically to Home Energy Advisor Program Home Energy Reports and the Residential Direct Install, Comprehensive Manufactured Homes (CMH), and Midstream Point of Purchase (MPOP) programs. For example, even for Home Energy Reports, which provided the largest savings comparative to other EE programs in 2020, the savings were less than anticipated. SCE's custom and deemed non-residential programs also had reduced activity as small- and medium-size business customers delayed equipment upgrades due to budget constraints, while contractors could not complete installations during the lockdown. When and where possible, SCE began to offer virtual inspections across many programs, both in the residential and nonresidential markets, to expedite projects.

Appendix I. Citation Links

Documents Cited in the EE Annual Report 2021

Document	Link Available at:
A.12-08-007, A.12-08-008, A.12-08-009, A12-08-010. *Administrative Law Judge's Ruling Consolidating Applications and Setting Preliminary Schedule.*	https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M031/K723/31723390.PDF
A.17-01-013. *Southern California Edison Company's Amended Energy Efficiency Rolling Portfolio Business Plan For 2018-2025.*	https://docs.cpuc.ca.gov/SearchRes.aspx?DocFormat=ALL&DocID=179246867
A.19-08-013. *Test Year 2021 General Rate Case Application of Southern California Edison Company (U338-E).*	https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M311/K582/311582915.PDF
AB 32 *Air pollution: greenhouse gases: California Global Warming Solutions Act of 2006.*	https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=200520060AB32
AB 398 *California Global Warming Solutions Act of 2006: market-based compliance mechanisms: fire prevention fees: sales and use tax manufacturing exemption.*	http://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201720180AB398
AB 793 *Energy efficiency.*	https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160AB793
AB 802 *Energy efficiency.*	https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201520160AB802
AB 1103 *Energy: commercial buildings: consumption.*	https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=200720080AB1103
AB 1150. *Self-Generation Incentive Program*	https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201120120AB1150
Active Efficiency in Action.	https://activeefficiency.org/project/strategic-energy-management-at-bonduelle-fresh-americas/
Advice Letter (AL) 3460-E-A. *Supplemental Filing to Advice 3460-E: Submission of High Opportunity Projects and Programs Proposal: Public Sector Performance-Based Retrofit Program*	https://cpucadviceletters.org/documents/2661/view/
Advice Letter (AL) 3859-E. *Southern California Edison Company's 2019 Energy Efficiency Program and Portfolio Annual Budget Advice Letter*	https://library.sce.com/content/dam/sce-doclib/public/regulatory/filings/approved/electric/ELECTRIC_3859-E.pdf

Document	Link Available at:
Advice Letter (AL) 3859-E-A. *Supplement to AL 3859-E*	https://library.sce.com/content/dam/sce-doclib/public/regulatory/filings/approved/electric/ELECTRIC_3859-E-A.pdf
Advice Letter (AL) 3992-E. *Southern California Edison Company's Request for Approval of Market-Based Incentive Pilot.*	https://library.sce.com/content/dam/sce-doclib/public/regulatory/filings/pending/electric/ELECTRIC_3992-E.pdf
Advice Letter (AL) 4051-E. *Request for Approval to Increase Loan Caps for Southern California Edison Company's On Bill Financing Program*.	https://cpucadviceletters.org/documents/5267/view/
Advice Letter (AL) 4068-E. *SCE 2020 Annual Budget Advice Letter*	https://library.sce.com/content/dam/sce-doclib/public/regulatory/filings/rejected/electric/ELECTRIC_4068-E.pdf
Advice Letter (AL) 4145-E. *Southern California Edison Company's 2020 Energy Efficiency and Demand Response Integrated Demand Side Management Revenue Requirement in Accordance with Decision 18-05-041 and Advice 4068-E and 4068-E-A.*	https://library.sce.com/content/dam/sce-doclib/public/regulatory/filings/pending/electric/ELECTRIC_4145-E.pdf
Advice Letter (AL) 4230-E. *2021 Joint Cooperation Memorandum (JCM) of 3C-REN, SoCalGas, SCE and PG&E Pursuant to Decision (D.) 18-05-041*	https://library.sce.com/content/dam/sce-doclib/public/regulatory/filings/approved/electric/ELECTRIC_4230-E.pdf
Advice Letter (AL) 4232-E. *SoCalREN, SCE, and SoCalGas' 2021 Joint Cooperation Memorandum Pursuant to Decision 18-05-041*	https://library.sce.com/content/dam/sce-doclib/public/regulatory/filings/approved/electric/ELECTRIC_4232-E.pdf
Advice Letter (AL) 4285-E. *Southern California Edison Company's Energy Efficiency Program and Portfolio Annual Budget Advice Letter for Program Year 2021*	https://library.sce.com/content/dam/sce-doclib/public/regulatory/filings/rejected/electric/ELECTRIC_4285-E.pdf
Advice Letter (AL) 4356-E. *Advice Letter for Approval of Statewide Lighting Energy Efficiency Third Party Contract for CA Statewide Lighting Program*	https://library.sce.com/content/dam/sce-doclib/public/regulatory/filings/approved/electric/ELECTRIC_4356-E.pdf
ASHRAE Standard 180. *Standard Practice for Inspection and Maintenance of Commercial Building HVAC Systems.*	https://www.ashrae.org/File%20Library/Technical%20Resources/Bookstore/previews_2016639_pre.pdf
ASHRAE Standard 189.1. *Standard for the Design of High-Performance Green Buildings.*	https://www.techstreet.com/ashrae/standards/ashrae-189-1-2020?product_id=2202993

Document	Link Available at:
California 2019 Appliance Efficiency Standards, effective 1/1/2020 (California Code of Regulations, Title 20, Public Utilities and Energy, Chapter 4, Energy Conservation, Article 4, Appliance Efficiency Regulations).	• https://www.energy.ca.gov/rules-and-regulations/appliance-efficiency-regulations-title-20 (CEC website) • https://govt.westlaw.com/calregs/Browse/Home/California/CaliforniaCodeofRegulations?guid=I8F8F3BC0D44E11DEA95CA4428EC25FA0&originationContext=documenttoc&transitionType=Default&contextData=(sc.Default)
California 2019 Building Energy Efficiency Standards, effective 1/1/2020 (California Code of Regulations, Title 24)	• https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards (CEC website) • https://ww2.energy.ca.gov/2018publications/CEC-400-2018-020/CEC-400-2018-020-CMF.pdf
California 2019 Building Energy Efficiency Standards, effective 1/1/2020 (Title 24, §110.2(a), Table 110.2-D; §140.4 (j)	https://ww2.energy.ca.gov/2018publications/CEC-400-2018-020/CEC-400-2018-020-CMF.pdf
California Energy Efficiency Strategic Plan (CEESP)	https://www.cpuc.ca.gov/WorkAreaDownloadAsset.aspx?id=5303
California Industrial SEM Design Guide	ftp://ftp.cpuc.ca.gov/gopher-data/energy_division/EnergyEfficiency/RollingPortfolioPgmGuidance/CA_Ind_SEM_Design_Guide.pdf
California Industrial SEM Measurement & Verification (M&V) Guide	ftp://ftp.cpuc.ca.gov/gopher-data/energy_division/EnergyEfficiency/RollingPortfolioPgmGuidance/CA_Industrial_SEM_MV_Guide.pdf
California Public Resources Code 25402.10 (Chapter 5, Energy Resources Conservation)	https://leginfo.legislature.ca.gov/faces/codes_displaySection.xhtml?lawCode=PRC&sectionNum=25402.10
D.06-06-063. *Interim Opinion: 2006 Update of Avoided Costs and Related Issues Pertaining to Energy Efficiency Resources.*	https://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/57756.PDF
D.07-09-043. *Interim Opinion on Phase 1 Issues: Shareholder Risk/Reward Incentive Mechanism for Energy Efficiency Programs.*	https://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/73172.PDF
D.09-09-047. *Decision Approving 2010 to 2012 Energy Efficiency Portfolios and Budgets.*	https://docs.cpuc.ca.gov/PublishedDocs/PUBLISHED/GRAPHICS/107829.PDF

Document	Link Available at:
D.11-07-030. *Third Decision Addressing Petition for Modification of Decision 09-09-047.*	https://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/139858.PDF
D.12-05-015. *Decision Providing Guidance on 2013-2014 Energy Efficiency Portfolios and 2012 Marketing, Education, and Outreach.*	https://docs.cpuc.ca.gov/PublishedDocs/WORD_PDF/FINAL_DECISION/166830.PDF
D.13-09-044. *Decision Implementing 2013-2014 Energy Efficiency Financing Pilot Programs.*	https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M077/K182/77182202.pdf
D.14-05-016. *Decision Adopting Rules to Provide Access to Energy Usage and Usage-Related Data While Protecting Privacy of Personal Data*	https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M090/K845/90845985.pdf
D.16-03-029. *Decision on Phase 3 Issues: Post-2016 Statewide Marketing, Education, and Outreach Activities*, dated March 17, 2016	https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M159/K638/159638474.PDF
D.16-09-020. *Decision Approving Implementer for the 2017-2019 Statewide Marketing, Education, and Outreach Program and Providing Guidance for 2017 Activities*	https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M167/K254/167254012.PDF
D.16-12-047. *Decision Updating the Water Energy Nexus Cost Calculator, Proposing Further Inquiry, and Next Steps.*	https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M171/K495/171495551.PDF
D.18-01-004. *Decision Addressing Third Party Solicitation Process for Energy Efficiency Programs*	https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M205/K560/205560586.PDF
D.18-05-041. *Decision Addressing Energy Efficiency Business Plans.*	https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M215/K706/215706139.PDF
D.19-01-005. *Decision Authorizing Renewal of the Contract with the Current Implementer of the Energy Upgrade California Program, to Extend Through the End of 2021.*	https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M260/K336/260336279.PDF
D.19-03-001. *Decision Granting Petition for Modification of Decision 09-09-047 Concerning On-Bill Financing.*	https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M275/K318/275318613.PDF
D.19-08-034, *Decision Adopting Energy Efficiency Goals for 2020–2030.*	https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M311/K540/311540642.PDF
D.19-12-021. *Decision Regarding Frameworks for Energy Efficiency Regional Energy Networks and Market Transformation.*	https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M321/K507/321507615.PDF
Executive Order B-18-12, *State of California Green Buildings*	https://www.green.ca.gov/buildings/resources/executiveorder/

Document	Link Available at:
Executive Order B-29-15, *State of Emergency Due to Severe Drought Conditions*	https://www.ca.gov/archive/gov39/wp-content/uploads/2017/09/4.1.15_Executive_Order.pdf
Executive Order B-55-18, *To Achieve Carbon Neutrality*	https://www.ca.gov/archive/gov39/wp-content/uploads/2018/09/9.10.18-Executive-Order.pdf
Green Building Action Plan for Implementation of B-18-12	https://dot.ca.gov/-/media/dot-media/programs/design/documents/grn-build-actn-pln-b-18-12-a11y.pdf
Joint Supplemental Advice Letter: • SDG&E Advice Letter (AL) 3268-E-A/2701-G-A • SoCalGas Advice Letter (AL) 5346-G-A • SCE Advice Letter (AL) 3861-E-A; and • PG&E Advice Letter (AL) 5373-E-A/4009-G-A. *Supplemental Advice Letter - San Diego Gas and Electric Company, Southern California Gas Company, Southern California Edison Company and Pacific Gas and Electric Company's Shared Funding Mechanism Proposal Pursuant to Decision 18-05-041.*	https://library.sce.com/content/dam/sce-doclib/public/regulatory/filings/approved/electric/ELECTRIC_3861-E-A.pdf
Pacific Gas and Electric Company ID U 39, Advice Letter (AL) 3770-G / 4939-E. *SW ME&O 2017-2019 Contract and Budget.*	https://www.pge.com/tariffs/tm2/pdf/GAS_3770-G.pdf
Proposition (Prop) 39, California Clean Energy Jobs Act K-12 Program (SB 73.	http://www.leginfo.ca.gov/pub/13-14/bill/sen/sb_0051-0100/sb_73_bill_20130627_chaptered.pdf
Resolution E-4818. *Measure level baseline assignment and preponderance of evidence guidance to establish eligibility for an accelerated replacement baseline treatment.*	https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M179/K264/179264220.PDF
Resolution E-4820. *Request for Approval of PG&E, SDG&E, SCE and SoCalGas' Assembly Bill 793 (AB 793) Advice Letters (ALs).*	https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M183/K573/183573610.PDF
Resolution E-5022. *Modifies and approves AL 3992-E which proposes a pilot program utilizing a modified energy efficiency custom projects application process for industrial and large commercial customers.*	https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M321/K645/321645741.PDF
Resolution E-5062. *Approves, with adjustments, Efficiency Savings and Performance Incentive awards for three major California investor-owned utilities for program years 2017 and 2018.*	https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M328/K459/328459059.PDF

Document	Link Available at:
Resolution E-5072. *Disposition of the Residential Energy Efficiency Assistance Loan Program (REEL) Pursuant to Decision 17-03-026.*	https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M333/ K594/333594988.PDF
Resolution E-5082. *Approval of the Database for Energy-Efficiency Resources Updates for Program Year 2022 and Revised Version for Program Years 2021 and 2020*	https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/ M346/K161/346161639.PDF
Resolution E-5108. *Approves, with adjustments, Efficiency Savings and Performance Incentive awards for three major California investor-owned utilities for program years (PY) 2018 and 2019, and delays the recovery of the incentives until 2022.*	https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M365/K494/365494969.PDF
Resolution G-3497. *Pacific Gas and Electric Company (PG&E), San Diego Gas and Electric Company (SDG&E), and Southern California Gas Company (SoCalGas) requesting approval of program year 2012 and partial 2013 energy efficiency incentive awards.*	https://docs.cpuc.ca.gov/PublishedDocs/Published/G000/M143/K668/143668957.PDF
Rulemaking (R.) 14-10-003. *Order Instituting Rulemaking to Create a Consistent Regulatory Framework for the Guidance, Planning and Evaluation of Integrated Distributed Energy Resources*	https://apps.cpuc.ca.gov/apex/f?p=401:56:0::NO:RP,57,RIR:P5_PROCEEDING_SELECT:R1410003
SB 32 California Global Warming Solutions Act of 2006: emissions limit.	https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201520160SB32
SB 350 Clean Energy and Pollution Reduction Act of 2015.	http://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201520160SB350
SB 1477 Low-emissions buildings and sources of heat energy.	https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201720180SB1477
SCE's Pathway 2045 Whitepaper	https://download.newsroom.edison.com/create_memory_file/?f_id=5dc0be0b2cfac24b300fe4ca&content_verified=True
Workforce Issues and Energy Efficiency Programs, A Plan for California's Utilities. Donald Vial Center on Employment in the Green Economy, Institute for Research on Labor and Employment, University of California, Berkeley, 2014	http://laborcenter.berkeley.edu/pdf/2014/WET-Plan14.pdf.

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

ANNA VALDBERG
ANGELA WHATLEY

Attorneys for
SOUTHERN CALIFORNIA EDISON COMPANY

2244 Walnut Grove Avenue
Post Office Box 800
Rosemead, California 91770
Telephone: (626) 302-3618
E-mail: Angela.Whatley@sce.com

Dated: **May 03, 2021**

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 Proposal Evaluation & Proposal Management Application (PEPMA) website:

SCE's 2020 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 2020
- Appendix D –SCE's Final December Monthly Report for 2020
- Appendix E – Water Energy Nexus Activity
- Appendix F – 2020 List of EE Program Third Party Implementers

- Appendix G – Statewide Third Party Program Budgets
- Appendix H – Metrics
- Appendix I – Citation Links

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 2020 is included in SCE's 2020 EE Annual Report.

Respectfully submitted,

ANNA VALDBERG
ANGELA WHATLEY

/s/ Angela Whatley
By: Angela Whatley

Attorneys for
SOUTHERN CALIFORNIA EDISON COMPANY

2244 Walnut Grove Avenue
Post Office Box 800
Rosemead, California 91770
Telephone: (626) 302-3618
E-mail: Angela.Whatley@sce.com

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