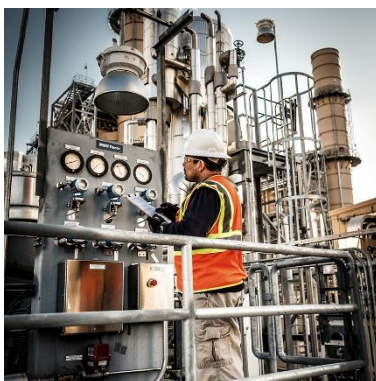




*Pacific Gas and
Electric Company®*

2020 ENERGY EFFICIENCY ANNUAL REPORT



MAY 3, 2021

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Executive Summary

Serving residential, commercial, industrial, agricultural, public, and other customers across the state, Pacific Gas and Electric Company (PG&E) delivers energy efficiency (EE) solutions that empower customers to eliminate unnecessary energy use, reduce their carbon footprint, and save money. In 2020, PG&E continued its role as a leader in EE, delivering a dynamic portfolio of programs structured to meet customers' evolving needs.

2020 saw the continuation of ambitious EE partnerships and successful programs, as PG&E focused on key initiatives to drive deep energy savings and position the state to meet its EE and carbon reduction goals. PG&E works to meet California's energy goals and serves the diverse needs of more than 16 million customers across a 70,000 square-mile service territory. In 2020, PG&E offered over 80 subprograms¹ through 11 different sectors, described in the various chapters of this report.

This report is being filed in compliance with Commission guidance on Energy Efficiency program reporting², which was expanded following approval of the Energy Efficiency Business Plans in Decision (D.)18-05-041. This report focuses on program activities and accomplishments in the year 2020, but also includes discussion of ways in which programs and the overall portfolio are expected to change in 2021 and beyond.

Supporting Customers Through the COVID-19 Pandemic

The COVID-19 pandemic affected customers and communities throughout much of 2020, changing patterns of daily life and presenting economic hardships. PG&E sought to support customers through this time in many ways, including through energy efficiency programs.

To help residential customers manage their energy use during a time when many were at home more often, PG&E expanded eligibility for contactless energy efficiency programs that offer energy usage insights and tools. Programs such as PG&E's Home Energy Reports (HERs) saw a 20% increase in participation from 2019 and reached 1.8 million customers by the end of 2020. A major emphasis was placed on digital outreach in 2020, with more than 200,000 HER customers being added to the email HER program. PG&E also enhanced rebates for residential smart thermostats.

To support small-to-medium businesses and the hospitality sector in making needed energy efficiency upgrades throughout 2020, PG&E also added roughly \$12 million to Commercial programs serving those customers. Recognizing that many non-residential customers, including small and medium businesses, also experienced financial challenges, PG&E allowed customers to defer repayment of on-bill financing loans for energy efficiency projects. Finally, to promote efficiency and support vaccination efforts across PG&E's service territory, PG&E enhanced rebates for efficient ultra-low temperature freezers.

¹ Some individual subprograms are called "programs" in their CEDARS name, but this report refers to them as subprograms.

² Pursuant to Attachment C of ALJ Ruling Adopting Annual Reporting Requirements for Energy Efficiency and Addressing Related Reporting Issues, dated August 8, 2007



Transitioning to a New Energy Efficiency Paradigm

On January 11, 2018, the California Public Utility Commission (Commission or CPUC) issued Decision (D.)18-01-004, which formalized the third-party solicitation process for EE programs and established key milestones in the path to maintaining a predominantly third-party implemented EE portfolio by 2023. PG&E met its first two milestones in 2020, achieving a target of outsourcing 25 percent of its portfolio by June 30, 2020 and a target of outsourcing 40 percent of its portfolio by December 31, 2020.³ These achievements were the result of a comprehensive third party solicitations effort. New programs will launch throughout 2020 and into 2021, and PG&E will continue to progress toward the final milestone of a 60 percent outsourced portfolio by December 2022.

Extending the Reach of Customers' Energy Efficiency Dollars through Financing

PG&E's EE financing subprograms continued to play a critical role in the overall portfolio in 2020, providing no-interest energy efficiency loans that customers pay back on their bills. These loans allow customers to pursue large, comprehensive efficiency retrofit projects that might not have otherwise been financially feasible. The On-Bill Financing (OBF) subprogram issued more than 700 loans worth a total of \$57 million. Most loans went to small and medium businesses and public organizations.

Targeting Industrial Energy Savings through Strategic Energy Management

The industrial sector presents opportunities for major energy savings, and PG&E's Strategic Energy Management (SEM) programs takes a holistic, long-term approach that uses advanced implementation, measurement and verification services and tools to determine energy savings from all subprogram activities at the facility, including capital projects, maintenance and operation improvements, as well as retro-commissioning.

In 2020, PG&E's program implementer successfully completed 2-year engagements at 22 sites. Together, those projects will be expected to save 21 GWh and 1.6MM therms over the life of the equipment and interventions. PG&E also prepared to expand the program to at least 30 additional sites throughout 2021 and 2022.

Supporting California's Clean Energy Goals

PG&E's advocacy and compliance improvement activities extend to virtually all buildings and appliances sold in California and support California's ambitious climate and energy goals. In 2020, PG&E participated in national and statewide efforts to promote more efficient building codes and appliance standards at the state and federal level. PG&E also supported local reach codes, energy efficiency, and electrification ordinances. Over the last two years, PG&E has provided letters of support for all-electric new construction codes or ordinances to 28 cities and counties.

³ D.18-05-041 extended the 25% third-party portfolio implementation deadline to Dec 19, 2019, and the CPUC approved a joint IOU request to extend to June 30, 2020 in November 2019.



Training the Energy Efficiency Workforce of the Future

PG&E continued to offer education and training to architects and other building professionals throughout the pandemic. In response to state and local shelter in place orders due to the pandemic, PG&E cancelled all in-person classes in March 2020. PG&E rapidly expanded online training by assessing which classes could be conducted remotely, expanding the use of best practices and teaching methods for distance learning, supporting students and instructors who had not participated in remote learning previously, and expanding the library of on-demand classes that students can access at their convenience from 33 to 55. By the end of 2020, PG&E's Energy Efficiency Workforce Education & Training programs had formally collaborated with 9 other organizations, trained 19,819 participants, and delivered 460 classes and webinars.

Going forward, PG&E will work to enhance virtual content and utilize distributed training locations to increase the geographic reach of its training and allow access by a broader audience.

Conclusion

PG&E's 2020 Annual Report describes the full set of programs delivering cost-effective energy savings to customers. PG&E will continue to deliver on its commitment to customers and its commitment to California's cost-effective EE and carbon reduction goals through innovative program and pilot strategies, and excellence in program administration.



Annual Report Data

D.17-09-025 established annual energy savings and demand reduction targets for 2020 investor-owned utilities (IOU) resource programs and Codes and Standards Advocacy on a net basis. In 2020, PG&E achieved 1,732 net GWh, which is 181 percent of its electric energy savings goal; 292 net summer peak MW, which is 150 percent of its electric demand reduction goal; and just under 36 million net therms, which is 143 percent of its gas savings goal. In addition to helping customers save energy and money, PG&E's portfolio of EE programs continued to contribute significantly to the state's goal of reducing greenhouse gas (GHG) emissions, with avoided annual emissions of 848,287 tons of carbon dioxide. PG&E's total portfolio was cost-effective, achieving a 2.30 Total Resource Cost (TRC) ratio⁴ and 8.34 Program Administrator Cost (PAC) ratio, including Codes and Standards (C&S) advocacy. Please see Section 4 for more specifics on PG&E's portfolio cost-effectiveness.

The C&S Advocacy program achieved 219 percent of its net electric goal, (1414 net annual GWh), 181 percent of its net electric demand reduction goal (237 net summer peak MW), and 152 percent of its net therm goal (20 million therms).

Total 2020 portfolio net energy savings shown in this report include savings associated with PG&E's deemed savings subprograms, comprised of Database for Energy Efficient Resources (DEER) and final approved work paper values from the 2020 customer energy savings projects; savings associated with custom projects that were installed in 2020; savings associated with behavioral subprograms implemented in 2020; savings for the Bay Area Regional Energy Network (BayREN) and Marin Clean Energy (MCE) as reported in their 2020 Annual Reports; and Energy Savings Assistance Program (ESA) savings.

D.09-09-047 defined and D.12-11-015 clarified the ten percent utility administrative cost cap, the six percent marketing cost cap, the four percent EM&V cost cap and the twenty percent direct implementation non-incentive (DINI) target. The 2020 EM&V budget is four percent of the program portfolio, including BayREN, MCE and statewide Marketing, Education and Outreach (ME&O). Statewide ME&O is excluded from the marketing cap.⁵ PG&E reports its progress against these caps and targets in quarterly reports posted on the CPUC's California Energy Data and Reporting System (CEDARS)⁶ along with PG&E's monthly expenditure and savings reports.

⁴ Includes net C&S. All savings values include 5% market spillover in cost-effectiveness calculations per D.12-11-015 (OP 37) including C&S. Excludes ESA, Bay Area Regional Energy Network (BayREN), Marin Clean Energy (MCE), and Statewide Emerging Technologies program costs and benefits. The Financing Program OBF Loan Pool amounts (loans issued and repaid) of \$8.3M for 2017 are excluded per D.09-09-047, p.288.

⁵ D.13-12-038, p. 82.

⁶ <https://cedars.sound-data.com/>



Program Descriptions and Strategies

In 2020, the PG&E administered a diverse portfolio of EE programs that covered every market sector and customer type, across all technology families. IOUs used a variety of market intervention strategies from upstream rebates – targeted at manufacturers and distributors to buy-down the cost of the product for the end-use customer – to midstream and downstream incentives. These programs supported PG&E’s 2018-2025 Energy Efficiency Business Plan goals to provide customers with a more integrated EE experience, access to information, and greater financing opportunities.

In 2018, PG&E’s Business Plan for 2018-2025 was approved⁷ and work to transition the EE portfolio towards increasing third-party implementation continued throughout 2020. To meet these outsourcing requirements, PG&E began to complete program solicitations, many of which launched throughout 2019 and continued into 2020. Most notable was PG&E’s Local Customer Programs Request for Abstracts (RFA) and Request for Proposals (RFP), which began in Q1 2019 and included Residential, Commercial, Industrial, Agricultural, and Public Sector programs. PG&E also began launching RFPs for local non-resource programs and PG&E-led statewide New Construction programs.

Covering 70,000 square miles in Northern and Central California, and serving approximately 16 million people, or five percent of the U.S. population, PG&E’s territory and customers are diverse. Over 80 languages are spoken throughout PG&E’s territory, covering rural to urban communities, with a diverse residential, commercial, agricultural and industrial base. To serve this diverse group of customers, PG&E leverages local partnerships and third-party programs to serve targeted and niche markets, harder-to-reach segments, and to focus customer groups with specific needs.

PG&E’s solicitations schedule, resources, and updates can be found on PG&E’s website at https://www.pge.com/en_US/for-our-business-partners/energy-efficiency-solicitations/energy-efficiency-solicitations.page.

This section describes PG&E’s successful strategies and accomplishments for the following program sectors in 2020:

1. Statewide
2. Residential
3. Commercial
4. Public
5. Industrial
6. Agricultural
7. Emerging Technologies
8. Codes and Standards
9. Workforce Education and Training
10. Financing
11. Integrated Demand-Side Management

⁷ D.18-05-041

Statewide Program Implementation

Starting in 2016, the Commission directed⁸ the California IOUs to begin transitioning California towards greater statewide program administration and third-party involvement in the proposal, design, implementation, and delivery of energy efficiency programs. IOUs are required to allocate at least 25% of their proposed Business Plan budgets to Statewide Programs⁹ and at least 60% to third-party programs by the end of 2022.¹⁰



The Commission established Statewide Programs and the associated Lead IOU¹¹ in 2018, as described here:

Table 1. Lead Program Administrator for Statewide Programs by Area

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

⁸ D.16-08-019, Decision providing guidance for Initial Energy Efficiency Rolling Portfolio Business Plan Filings.

⁹ D.16-08-019, OP 6.

¹⁰ D.18-01-004, OP 1.

¹¹ D.18-10-041, OP 26.

Table 2. Lead Program Administrator for Statewide Downstream Pilot Programs

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

The Commission also outlined the roles and responsibilities for Statewide program leads¹², noting that they would each have sole responsibility for the following:

- a. Program vision development, design/delivery, and intervention strategies;
- b. Procurement, contract administration, and co-funding management from partner program administrators;
- c. Implementer oversight;
- d. Implementer management, rewards, and any necessary corrective action;
- e. Review of implementer performance and program performance on a quarterly basis;
- f. Meeting savings goals and customer satisfaction levels;
- g. Metrics development; and
- h. Reporting.

The IOUs intended to outsource the proposal, design, implementation, and delivery of Statewide Programs to third parties as part of their third-party solicitations, associated with the implementation of 2018 – 2025 EE Business Plans. Therefore, the budgets for Statewide Programs will count towards both the 25% statewide and 60% third-party outsourcing requirements. Statewide Programs are designed and delivered by one or more statewide implementers, under contract to the Lead IOU.¹³

Lead program administrators collaborate to keep each other informed on Statewide Program progress, enabling coordination on program delivery, and timely updates on Statewide Program budgets. Statewide coordination is intended to keep all program administrators informed of each individual IOU's required allocations toward Statewide Programs for use in portfolio planning, as well as regulatory budget filings. This Statewide coordination aligns with Commission guidance, which confirms that "statewide activities are clearly in support of state policy and actively supervised by, and a priority for the Commission"¹⁴ and helps to avoid a conflict with the scope of a Statewide Program as described in D.18-05-041.¹⁵ Additional compliance reporting on Statewide program administration is detailed in Section 11 of this report.

¹² D.18-05-041, p. 185-186, OP 18.

¹³ D.16-08-019, p. 109, OP 5.

¹⁴ D.18-05-041, p. 81.

¹⁵ D.18-05-041, p. 173, COL 17 which states, "All PAs should have the ability to continue local pilot activities that would otherwise qualify for statewide administration but that are not yet ready for such statewide treatment, provided that such local pilots or programs do not compete with, or otherwise impede the progress or activities of, operational statewide programs."



Statewide Energy Efficiency Programs

Below, PG&E provides a status update on the Statewide programs listed above.¹⁶ A summary narrative has been provided for PG&E-lead Statewide programs that have either already launched or have reached the stage of seeking Commission approval of contracts through the Advice Letter process. For detailed narratives regarding Statewide programs where PG&E is not the lead, please see the Lead IOU's respective 2020 EE Annual Report.¹⁷

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

Lead IOU: PG&E

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 update 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 goals¹⁸, PG&E's Building Code Advocacy subprogram 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. To learn more about Statewide Building Code Advocacy activities in 2020, please see the Codes and Standards program chapter of this report.

State Appliance Standards Advocacy Program

Lead IOU: PG&E

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 goals¹⁹, 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.

¹⁶ Solicitations status is based on the Joint IOU Energy Efficiency Solicitation Schedule, available at <https://www.caeccc.org/third-party-solicitation-process>

¹⁷ <https://www.cpuc.ca.gov/general.aspx?id=6442468251>

¹⁸ D.18-05-041

¹⁹ D.18-05-041



National Codes and Standards Advocacy Program

Lead IOU: PG&E

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 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 goals²⁰, 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. To learn more about Statewide Nations Codes and Standards Advocacy activities in 2020, please see the Codes and Standards program chapter of this report.

Non-Residential New Construction (All-Electric and Mixed-Fuel) Program

Lead IOU: PG&E

In 2020, PG&E began the solicitations process for the All-Electric and Mixed-Fuel Statewide Non-Residential New Construction Programs (NRNC). In February 2021, PG&E completed the solicitation and submitted Advice Letters²¹ seeking Commission approval of the program contracts. The All-Electric and Mixed-Fuel programs will serve the non-residential customer sub-sectors (consisting of commercial, public, industrial, agriculture, and multifamily high-rise) in all California IOU service territories and include integrated QA/QC and M&V throughout program steps, designed by experts in these areas.

Both the All-Electric and Mixed-Fuel programs are designed to be stand-alone programs and are critical to meeting California's aggressive EE and decarbonization goals. The objective is to enroll and influence the non-residential new construction market to deeper energy savings and decarbonization with key activities of outreach and education, real-time energy modeling, verification, and data tracking to inform codes and standards. Program incentives are designed to motivate project teams to deeper energy savings and help overcome financial barriers. The Commission issued approval of the Statewide NRNC program contracts in April 2021, and the programs are expected to launch in Q3 2021.

²⁰ D.18-05-041

²¹ PG&E Advice 4386-G/6094-E, PG&E Advice 4387-G/6095-E

Table 3. Status of Upcoming Statewide Programs²²

Program Category	Lead IOU	Status
Plug Load and Appliance	SDG&E	Contract Negotiations
HVAC (Upstream Residential, Upstream Commercial)	SDG&E	Estimated to Launch Q2 2021
New Construction (Residential)	PG&E	Contract Negotiations
Lighting	SCE	Estimated to Launch Q2 2021
Emerging Technology (Gas)	SoCalGas	Contract Negotiations
Emerging Technology (Electric)	SCE	RFP into Q2 2021
Workforce Education & Training	PG&E	Estimated to Launch Q3 2021
Institutional Partnerships (Higher Education)	SCE	RFP Scheduled to Launch June 2021
Institutional Partnerships (State of California / Department of Corrections)	PG&E	Contract Negotiations
Foodservice Point of Sale	SoCalGas	Launched April 2021
Midstream Commercial Water Heating	SoCalGas	Estimated to Launch May 2021

Table 4. Status of Upcoming Statewide Pilots²³

Program	Lead IOU	Status
HVAC Quality Installation/Quality Maintenance (QI/QM)	SDG&E	RFP Scheduled to Launch Q1 2022
Water/Wastewater Pumping Program	SCE	RFP Scheduled to Launch Q3 2021
Career and Workforce Readiness	PG&E	Estimated to Launch Q2 2021

²² Solicitations status is based on the Joint IOU Energy Efficiency Solicitation Schedule, available at <https://www.caeec.org/third-party-solicitation-process>.

²³ Solicitations status is based on the Joint IOU Energy Efficiency Solicitation Schedule, available at <https://www.caeec.org/third-party-solicitation-process>.

Residential Program

PG&E's vision for the Residential sector is to deliver a diverse portfolio that will achieve energy savings and grid benefits through (1) focused customer engagement, (2) data-driven subprograms that leverage market actors, and (3) strong partnerships.

PG&E's Residential subprograms offer a suite of incentives, services, and tools aimed at helping customers save energy and money, while meeting portfolio goals.

In 2020, subprograms engaged customers and other market actors through the following channels:

- Built environments such as whole home upgrades, Heating, Ventilation and Air Conditioning (HVAC), and new construction,
- Providing customers education and tools to make informed decisions on more energy efficient products and appliances,
- Offering behavioral and home energy management tools and initiatives.

PG&E's Key Residential Program Goals

- Deliver residential EE programs that are leveraged as a grid resource
- Make EE accessible through diverse residential program offerings
- Increase access to and use of energy use data
- Support state policy objectives around residential new construction
- Support customers with Energy Efficiency offerings during the COVID-19 pandemic



PG&E continued to safely serve Residential customers through the unique and challenging circumstances of 2020. PG&E's Residential program prioritized customer safety and support during the ongoing COVID-19 pandemic, by pausing programs with in-person components and extending program availability with modifications. In response to the Shelter-In-Place (SIP) order at the beginning of the pandemic, subprograms requiring access to customer premises paused work to ensure the safety of PG&E's customers and contractors. These programs have gradually resumed in accordance with federal, state, and county safety guidelines.

PG&E extended and expanded many subprograms to ensure continued support with energy usage management to customers affected by the pandemic. One program example is, in October 2020, PG&E expanded the Energy Efficiency smart thermostat rebate for customers who also signed up for the Time of Use (TOU) rate. This additional rebate intended to increase support for residential customers sheltering in place and/or working from home so that they could be better positioned to manage their energy bills and support their TOU rate transition.

Key Initiatives

Supporting Customers During the Pandemic

In addition to taking safety precautions with energy efficiency programs, PG&E supported customers during the COVID-19 Pandemic by enhancing the customer reach of behavioral programs, and expanding eligibility and availability of other programs through the end of 2020



that had originally been slated to sunset earlier in the year. Finally, PG&E developed regular customer communications to drive awareness and understanding of the resources available to help them during this difficult time. These communications highlighted energy efficiency programs, energy saving tips, energy management tools, customer protections, income qualified programs, and alternative payment arrangement options.

Portfolio Outsourcing

PG&E participated in solicitations and negotiations for the Residential sector and smoothly ramped down programs not designed and implemented by third parties. The first new Residential third-party program to be contracted through the solicitations process was approved by the Commission in October 2020 and launched in early 2021. This new program supports the multifamily customer segment. As solicitations continue, PG&E will pursue opportunities to build a dynamic, cost-effective portfolio, and to expand successful programs to serve customers and save energy.

Residential Meter Based Offerings

PG&E continued building on its first residential Normalized Metered Energy Consumption (NMEC) program, the Residential Pay for Performance (P4P) Program. The P4P Program employs energy meter data for customer targeting to deepen energy savings and to ensure the subprogram drives grid benefits. This program aims to achieve PG&E's goals of establishing savings persistence and on-going relationships between PG&E, the third-party program implementers, and our customers. P4P is driving innovative solutions for resource planning by both its use of the CalTRACK Methods,²⁴ a measurement and verification framework used to calculate avoided energy use, and a focus on the locational demand impacts of energy efficiency.

Behavior-based Savings Expansion Through Home Energy Reports

PG&E expanded the Home Energy Reports (HERs) program, reaching a total of 1.8 million customers in 2020. PG&E also incorporated new report enhancements including an Electric Vehicle owner HERs report and new design that helped contribute to savings and a better customer experience.

Opportunities Moving Forward

Throughout 2020, PG&E continued to focus on the solicitations and portfolio balancing process. Opportunities in 2021 will emerge from continued support of customers with Energy Efficiency programs and resources during the pandemic and beyond, including launching the new multifamily program, expanding the behavioral program to include Bill Forecast Alerts and Time of Use Coach reports, and enhancing the single family offerings. PG&E will continue to look for opportunities to expand IDSM and electrification support for its residential customers.

²⁴ <http://www.caltrack.org/>

Residential Subprograms

Residential Energy Advisor Subprogram

The Residential Energy Advisor subprogram uses behavioral outreach initiatives and interactive tools, including the Home Energy Report (HER), Home Energy Checkup (HEC), and PG&E Marketplace, to engage customers and encourage participation in innovative energy initiatives. The suite of products and services enable customers to understand and manage their energy use, and where appropriate, be guided to other energy solutions. PG&E's Marketplace is a tool that helps customers choose efficient products and find eligible rebates. Marketplace presents an Energy Score and other energy related features, such as total cost and lifetime energy costs to add a product's energy efficiency into a buyer's decision making process. PG&E is required²⁵ to report separately on Marketplace program metrics, which are detailed in Section 12 of this report. The HER and HEC components of the Residential Energy Advisor subprogram are described in detail in the Residential Third-Party program section, below.

2020 Strategies and Successes

In 2020, 91,500 customers visited PG&E's Marketplace to research home appliance and consumer electronics. Marketplace also provided backup power equipment options in 2020 to support customers impacted by wildfires and Public Safety Power Shutoff (PSPS) events. The most effective strategy for driving customers to the platform was the delivery of customer emails before major appliance and electronic retail sales events. PG&E's Marketplace is also leveraged to cross-promote other subprograms that offer the customer products and appliances featured on the Marketplace.

Residential Energy Efficiency Subprogram

The Residential Energy Efficiency Program (REEP), previously known as Plug Load and Appliances (PLA), aims to transform the market to achieve sustainable adoption of energy-efficient products so that ongoing intervention would no longer be required. Through REEP, PG&E offers rebates to customers who purchase and install qualifying smart thermostats and electric heat pump water heaters. For the short- to mid-term timeframe where REEP product are still not the market's



default choices, PG&E uses incentives and industry collaboration to increase availability, awareness, and adoption of energy-efficient products. The subprogram's long-term strategy seeks to create on-going demand for energy-efficient products, thus motivating the industry to produce and sell highly energy-efficient REEP products as the market's standard offering.

2020 Strategies and Successes

Throughout 2020, PG&E offered rebates to residential end-use customers to cover a portion of the incremental costs of purchasing energy-efficient smart thermostats and electric heat pump water heaters. In October 2020, PG&E launched an enhanced smart thermostat rebate of up to \$120 for qualified models when customers agreed to sign up for the Time-Of-Use (TOU) rate plan (or were already on the plan). This enhanced rebate was an effort to support customers

²⁵ Assembly Bill (AB) 793 and OP 1c of Resolution E-4820.



trying to manage and reduce their energy bills while sheltering and/or working from home. The purchase of a smart thermostat, combined with a TOU rate plan, aims to reduce energy costs for customers by shifting heating or cooling needs to times when energy demand and rates are lower and the amount of renewable energy is higher. PG&E continued its \$50 rebate for qualified smart thermostats if customers did not want to move to a TOU rate.

The enhanced rebate had an impact on the rate of smart thermostat adoption. By the end of 2020, PG&E received 15,179 smart thermostat applications, with 53% of all applications being submitted after the enhanced rebate was launched. The enhanced rebate represents a significant IDSM initiative that PG&E has made in the past few years and increases PG&E's compliance with AB 793 mandates. Marketing of the rebate programs was conducted on a multi-touch, multi-channel level including tactics such as email, digital advertising, and use of PG&E-owned assets such as PG&E's website, residential digital newsletter, and Home Energy Reports.

PG&E is currently preparing for the launch of the Statewide Plug Loads and Appliances (PLA) program. The REEP subprogram is expected to ramp down and close upon successful completion of the Statewide PLA program solicitation, led by SDG&E.

Multifamily Home Upgrade Subprogram

Implementer: TRC

PG&E's Multifamily Home Upgrade subprogram (MUP) promotes long term energy benefits for affordable and market-rate multifamily housing through comprehensive EE upgrades. Historically, owners and managers of multifamily properties have been less responsive to EE efforts than other residential customers. The MUP Program uses a tiered incentive approach which allows property owners to make informed decisions on energy efficiency measures. In addition, the MUP Program maximizes savings by conducting an energy audit and offers incentives to offset the cost of the assessment and the improvements. All multifamily customers, regardless of property type (e.g., affordable or market-rate), receive subprogram recommendations unique to their property.

2020 Strategies and Successes

In 2020, MUP focused operations on closing out the 2020 pipeline of projects to ensure a smooth ramp down of the program. Noteworthy for 2020 was MUP's achievement in modifying existing policies to better fit the Custom Project Review process. Though initially challenging, the program was able to make adjustments to better fit custom policy while also preserving a positive customer experience. MUP also provided incentives for Bear Creek, a 64-unit property part of Self-Help Enterprises' affordable housing portfolio, where the site received layered incentives from both the Energy Savings Assistance Common Area Measures (ESA CAM) and MUP programs. The measures included: wall, floor and attic insulation; LED upgrades and controls; high efficiency tankless gas water heaters; heating and cooling; and smart thermostats in all units.

As part of PG&E's ongoing portfolio balancing efforts, and due to low cost-effectiveness, the MUP program stopped accepting new applications in December 2019. Following the completion of projects that were already in the program pipeline, MUP was sunset at the end of the 2020 and replaced by the new third-party outsourced Multifamily Energy Savings Program (MESP).



Residential New Construction Subprogram

Implementer: TRC

The Residential New Construction subprogram consists of the California Advanced Homes Program (CAHP) for single family homes, and PG&E's California New Homes Multifamily third-party subprogram. The CAHP and California New Homes Multifamily subprogram (discussed alongside other residential third-party programs below) work to encourage building and related industries to exceed California's Title 24 EE standards through a combination of education, design assistance, and financial support.

2020 Strategies and Successes

The Residential New Construction subprograms updated their subprogram structures and designs to better guide participants towards the 2019 Title 24 updates, moving to use of the energy design rating (EDR) to determine eligibility and base incentive level. The subprogram has also placed an emphasis on advanced building envelope measures by offering cash bonuses for specific measures. These high-performance envelopes ensure the resiliency of the home energy savings for the life of the building.

As part of PG&E's commitment to meet the challenges of extreme weather resulting from climate change, PG&E continued offering increased new construction energy efficiency incentives for customers who lost their homes in Northern California wildfires. These program incentives, known as the Advanced Energy Rebuild (AER) are an enhancement to the existing CAHP and are intended to help homes that were red-tagged by CAL FIRE. PG&E also collaborated with Sonoma Clean Power (SCP) and the Bay Area Air Quality Management District (BAAQMD) to offer a one-stop shop for residential green building incentives for customers in Sonoma and Mendocino counties who lost their homes to wildfires. This has allowed customers to access incentives being offered from three different organizations with a single application. A similar program is also being offered in collaboration with Marin Clean Energy (MCE) and BAAQMD within Napa County.

In 2019, the Commission granted PG&E's requests²⁶ to provide this support to the victims of the 2018 wildfires and to customers who wished to rebuild wildfire-destroyed homes but were unable to do so ahead of the 2019 Title 24 code change, effectively expanding AER offerings to apply to all eligible customers rebuilding a destroyed home or building subject to the 2019 Title 24 code. AER was closed to new applications at the end of 2020 in anticipation of the launch of a Statewide wildfire and natural disaster relief program but will continue to complete projects through the end of 2021.

Residential Energy Fitness Subprogram

Implementer: Richard Heath & Associates, Inc. (RHA)

The Residential Energy Fitness Program (REFP) was selected through a solicitation conducted in 2015. Key components include enhanced methods to target customers and deliver customer education. This direct install subprogram includes energy education, in-home assessment, installation of no cost and low-cost measures, and ongoing education to monitor energy usage after participating in the subprogram. The subprogram was launched in June 2016 and assisted targeted customers with EE upgrades, improving existing heating and air conditioner efficiency through duct sealing, efficient motors and fan controls, EnergyStar certified Smart Thermostats and refrigerant charge adjustment, among others.

²⁶ PG&E Advice 4068-G /5479-E and Advice 4194-G/5719-E



2020 Strategies and Successes

In 2020, REFP conducted early field research into the market potential for smart, communicating heat pump water heaters that can dynamically respond to residential time-of-use (TOU) pricing signals. REFP continued this research until the program was closed in June 2020. The final report is available from PG&E's Demand Response Emerging Technologies program,²⁷ which provided funding for the evaluation into the measure's potential in demand response programs.

California Multifamily New Homes Subprogram

Implementer: TRC

The California Multifamily New Homes (CMFNH) subprogram 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 ET. Through a combination of education, design assistance, and financial support, the California New Homes Multifamily subprogram encourages building and related industries to exceed California's Title 24 standards and prepare builders for future changes to these standards.

2020 Strategies and Successes

In 2020, TRC's implementation team continued to work on completing a robust pipeline of projects that had been recruited and enrolled into the CMFNH program in 2019. The CMFNH program will be ramping down throughout 2021, and will be replaced by a Statewide Non-Residential New Construction program, led by PG&E.

Enhanced Time Delay Relay Subprogram

Implementer: Proctor Engineering

The Enhanced Time Delay Relay subprogram (also known as the Cooling Optimizer subprogram) is a direct install subprogram serving multifamily residential customers in targeted climate zones. To advance awareness in this hard-to-reach segment, this subprogram serves multifamily customers and is designed to address the unique EE challenges presented in property management-owned and tenant-occupied buildings. The subprogram offers property managers a no cost tune-up, fan delay relay installation, high-efficiency BPM fan motor installation, and Smart Thermostat. This focus on maintaining a properly tuned air conditioner, can improve tenant comfort and reduce their energy bills. The subprogram also offered an on-demand recirculation pump control for multifamily buildings with central water heating. Demand-based controls can reduce recirculation pump run time and provide equipment life and maintenance benefits.

2020 Strategies and Successes

In 2020, the program continued to install Energy Star Certified smart thermostats to help customers better manage heating and cooling energy use and the upcoming residential Time-of-Use transition and enable them to participate in the Demand Response programs. The program completed 10,958 projects in 2020. As part of PG&E's ongoing portfolio balancing efforts, the Enhanced Time Delay Relay program was set to close in June 2020. To provide support to the customers affected by the pandemic in reducing their energy bills, the program was extended through December 2020. These multifamily customers will be served by the third-party Multifamily Energy Savings Program, described in the Third-Party program section below.

²⁷ <https://www.dret-ca.com/about-pge/>



Direct Install for Manufactured and Mobile Homes Subprogram

Implementer: Synergy Companies

The Direct Install for Manufactured and Mobile Homes subprogram is a direct install, no-cost-to-the-customer subprogram that serves the hard-to-reach residents of manufactured homes and mobile home parks. It also targets a variety of non-English speaking customers. The subprogram improves the efficiency of air conditioners by providing air conditioning tune-up and refrigerant charge adjustment, fan controls to save energy by running the fan at the end of the compressor cycle, and high-efficiency blower motor upgrades. The subprogram also offers installation of Tier II Smart Power Strips and ENERGY STAR® rated products including lighting, low flow showerheads, and aerators. The program also offers duct test and seal measures to the customers to reduce duct leakage and improve overall efficiency of the heating and cooling systems.

2020 Strategies and Successes

In 2020, the program continued offering Energy Star certified Smart Thermostats. As part of PG&E's ongoing portfolio balancing efforts, and due to low cost-effectiveness, the Manufactured and Mobile Homes subprogram was set to close in June 2020. To provide support to customers affected by the pandemic, the program was extended through December 2020.

Residential Third-party Programs

PG&E's Residential Third-party Programs²⁸ are an integral component of its overall Residential sector strategy to help provide customers with energy-efficient solutions and services.

Residential Pay for Performance (P4P) Subprogram

Implementers: Franklin Energy, ICF, Home Energy Analytics, and Build it Green

PG&E began offering the Residential Pay for Performance (P4P) Pilot subprogram to customers in 2017. The P4P model enables measurement of energy savings at the meter and aims to achieve persistent savings through an ongoing relationship between customers and their contractors. The subprogram uses CalTRACK Methods to track the time and locational demand impacts of EE. By leveraging these methods, the subprogram is operationalizing feedback to drive continuous improvement in program performance. The P4P Program approach limits risk to ratepayers by primarily paying incentives when energy savings are realized at the meter. Using energy meter data, the subprogram opens new possibilities to integrate demand flexibility into resource planning and to transform EE into a reliable grid resource.

In 2020, the ResP4P subprogram comprised three programs, covering PG&E's service territory and offering a slight variation of services focused on behavioral, operational and deep retrofit measures. Having multiple programs helps customers and energy efficiency professionals successfully implement deeper retrofit projects by capturing multiple cost-effective energy savings opportunities throughout the customers' EE journey. The programs are:

1. **HomeIntel, offered by Home Energy Analytics:** In-depth analysis of a home's energy use, customized recommendations and energy coaches to help reduce energy usage. Includes monthly energy efficiency progress report.

²⁸ These programs were launched following the Commission-approved solicitations process and meet the third-party program definition as described in Decision 18-01-004.



2. **Home Energy Rewards, offered by Franklin Energy:** In-depth analysis of a home's energy use, customized recommendations and free energy savings kit (LEDs, water saving devices), and discounted energy efficient products.
3. **Comfortable Home Rebates, offered by Franklin Energy:** Deep retrofit home maintenance and upgrade program focused on air conditioning efficiency and other home comfort upgrades including new heating and cooling equipment, insulation, new ducts, weather stripping and air sealing.

Home Energy Optimization, offered by ICF, was paused by the implementer in 2020 due to COVID-19, and is expected to resume in 2021. The program includes smart thermostat, AC tune-up, AC and hot water monitoring and auto-optimization, lights, and other EE products and services, as well as monthly energy efficiency progress reports.

2020 Strategies and Successes

As ResP4P is a pilot, implementers are continually evolving intervention strategies to provide savings at scale. Similarly, the subprogram is conducted with the expectation that valuable data and lessons learned will be collected and incorporated in any future scaled deployment of P4P models.

While 2020 provided unique challenges for this program, ResP4P expanded its offering to all of PG&E territory in an effort to mitigate the bill impacts of sheltering in place. Specifically, PG&E leveraged those programs that were able to offer remote services such as behavioral tips or mailed-in DIY kits including Smart Thermostats and other smart technologies. This marketing approach resulted in a significant increase in participation in these programs. Despite the challenges brought on by COVID, the ResP4P programs enrolled more than 9,200 residential customers in 2020. This was a significant increase from the previous year, which saw just over 1,600 enrollments.

Residential Energy Advisor: Home Energy Reports and Home Energy Checkup

Implementer: Oracle

The Home Energy Reports (HER) subprogram offers customers customized tips and ideas to help maximize their energy savings. The report shows you how much energy you use month to month in comparison to similar homes, and some reports may also show customers their personal energy data seasonally, by fuel type, by time of use, and by end-use, such as heating, cooling, or EV charging. HERs are received by more than 1.8 million customers, with nearly all customers receiving reports by mail and over 1 million customers also receiving reports by email.

The Home Energy Checkup (HEC) subprogram is an online self-guided online assessment that helps customers understand where they use energy in their homes. It also provides energy-saving tips and suggestions based on the customer's specific responses and generates a simple checklist plan. The checklist plan is saved on the customer's PG&E Your Account website to track progress as they complete the items. In 2020, PG&E made the HEC more accessible to PG&E customers by implementing email campaigns, targeted web banners, and unauthenticated experiences. In 2020, 189,000 customers completed a Home Energy Checkup.



2020 Strategies and Successes

In 2020 the Home Energy Report program generated annual savings of 135,111,352 kWh and 5,569,037 therms. Over the course of the year, PG&E focused on enhancements, expansion, and greater digital outreach. PG&E launched the following enhancements to the program:

- Sending Electric Vehicle HERs to EV owners; these reports show customers how much of their home energy use goes to charging their EV, and it also provides relative tips and insights for EV owners.
- A new pilot design testing the customer satisfaction and savings impact of moving to a re-imagined Neighbor Comparison module – called the Efficiency Zone.
- New modules, including a data module focused on showing customers what time of day they use the most electricity, a series of modules to educate customers on what PG&E was doing to support its customers during COVID, and another series of modules designed to prepare customers for Public Safety Power Shutoff events.

From 2019 to 2020, PG&E grew the HER program from 1,500,000 to 1,800,000 customers. At the end of 2020, PG&E began work to expand the program to 2,040,000 customers, resulting in the addition of 240,000 gas-only customers in February 2021 and reaching not only dual-fuel and electric-only customers, but gas-only customers as well.

A major emphasis was placed on digital outreach in 2020. More than 200,000 HER customers were added to the email HER program, bringing the eHER population to 1.1 million customers. The “Easy Audit”- which securely directs customers straight to the Home Energy Checkup (HEC) without those customers needing to log-in to their PG&E accounts – drove 38,000 HEC completions in 2020 through 4 separate email campaigns. In total, more than 189,000 PG&E customers completed the HEC in 2020, providing customers with home energy usage and personalized savings recommendations.

Multifamily Energy Savings Program (MESP)

Implementer: TRC

The Multifamily Energy Savings Program (MESP) provides property owners energy efficiency upgrade services to multifamily buildings of five units or greater throughout PG&E’s service territory. TRC provides end-to-end program implementation services, including marketing, outreach, engineering, operations, customer service, data management, and reporting. TRC began MESP ramp up activities following CPUC approval of the MESP implementer contract in October 2020 following the completion of the first wave of third-party, multi-sector solicitations. MESP is tailored to serve multifamily customers, inclusive of smaller properties and underserved regions that will most benefit from property upgrades. The program aims to create new energy efficiency opportunities by targeting underserved property stakeholders, while at the same time providing scalability to achieve deeper retrofit opportunities with larger and more modern properties.

2020 Strategies and Successes

TRC worked throughout Q4 of 2020 to prepare the program for launch and to file the MESP Implementation Plan²⁹ by the end of December 2020. In 2021, MESP aims to stand up its program in the market to deliver cost-effective and persistent energy savings for multifamily properties.

²⁹ Available on CEDARS at <https://cedars.sound-data.com/documents/download/1893/main/>

Commercial Programs

PG&E's Commercial EE programs offer commercial customers a suite of approaches, products, and services to help overcome the market barriers to optimize energy management. These programs also target integrated energy management solutions – including EE, DR, and DG – through strategic energy planning support; technical support services such as facility audits and calculation or design assistance; and financial support through rebates, incentives, and financing options.

PG&E's Commercial EE program is moving toward the Commercial Business Plan goal of ramping down the proportion of rebate and incentive funds to drive EE in favor of in-house and publicly available financing options. On-Bill Financing (OBF) offers a strong solution to address 'first cost' barriers which affect project decisions. In 2020, OBF focused on EE savings without deemed or custom measures and, based on site energy savings, allowed a broader adoption of EE strategies across building technologies without the restrictions that paid incentive measures sometimes require. For more details on PG&E's OBF program, see the Financing Program chapter of this Annual Report.



The Commercial Program allows customers to install equipment and systems that are more efficient than they would install without the program. In addition, customer confidence in the persistence of their savings is increased by the program's commitment to installing high-quality, reliable, cost-effective measures.

As stated in the Business Plan, PG&E's vision centers on empowering Large and Small to Medium-sized Business (SMB) customers to better understand, manage, and eliminate unnecessary energy use. After reviewing submitted EE program proposal submittals in 2020, PG&E negotiated and contracted with third-party implementers for both local PG&E programs and as the lead IOU for Statewide non-residential new construction. Prominent among these responses are meter-based approaches which encourage more comprehensive and persistent EE strategies for customers of all sizes and types and the Statewide non-residential new construction program which replaces the long-standing Savings By Design program. The Commercial EE portfolio will be continuously refined to meet the needs of the EE marketplace as PG&E looks forward to helping California achieve future energy savings and climate goals.

Key Initiatives

PG&E focused on transformative strategies in 2020 to position its subprograms to achieve PG&E's vision for the Commercial sector: putting commercial buildings on a path to ZNE by 2030 for all new buildings and half of existing buildings, and to support communities/entities in response to COVID-19.

Key initiatives to achieve these goals included:

- Moving programs away from incentives and rebates to pursue deeper, more comprehensive savings through meter-based strategies and focus on financing offerings

- Promotion of more comprehensive and controls-based project strategies,
- Introduction of meter-based projects, forging a longer-term EE relationship between customers and project developers,
- A promotion, specifically to benefit customers and agencies conducting COVID-19 vaccinations, includes an enhanced rebate for deemed measures for the acquisition of Ultra Low Temperature (ULT) freezers, and
- Increased funding for Commercial programs that provided SMB customers opportunities to reduce electric usage at their business.

Opportunities Moving Forward

Proposals received from the 2018 PG&E third-party solicitations indicate EE market actors and participants recognize and embrace the trend away from reliance on rebates and customized incentives toward meter-based approaches. The EE proposals which advanced to new program contracts included strong data-driven customer targeting to select the most appropriate customer targets which would likely endorse a comprehensive and customer-directed, long term strategy toward EE. Contracted programs are primarily market focused strategies addressing specific needs plus several programs which will serve a broader Commercial customer base. Market specific programs were selected for their high potential for cost effective savings by addressing a limited number of EE measures. Programs serving a broader scope of customers offer wider range of measures and approaches in reflection of the diversity of these customer populations.

Commercial Subprograms

Commercial Calculated Incentives Subprogram

The Calculated subprogram continues to provide financial incentives for non-residential customers to install new equipment or systems which meet or exceed applicable code and/or industry standards in existing buildings. PG&E's Calculated subprogram includes both customized incentives (formerly "Customized Retrofit") and Retro-commissioning (RCx) offerings. RCx represents an important element of PG&E's EE toolkit by reducing energy usage and optimizing the efficiency of mechanical equipment, lighting, and control systems to current standards in existing facilities. PG&E offers financial and technical assistance for customers to undertake RCx projects and implement measures that improve facility operations. RCx projects and implement measures that improve facility operations.

Serving PG&E's Customers

Through its Third-party Program channel, PG&E offers commercial customers a suite of targeted, niche program offerings designed specifically to meet customers on their energy journey.

In 2020, third-party programs targeted small and medium businesses, hospitality, hospitals, grocery stores, and focused on a variety of technologies including HVAC and advanced LEDs. Additional details may be found in the Third-party Programs section of this chapter.

2020 Strategies and Successes

The Commercial Calculated Program, which includes RCx and legacy new construction projects, paid incentives for 45 projects. PG&E has been working to improve its delivery of custom subprograms, leveraging lessons learned and best practices from ex ante review guidance. PG&E developed specific trainings for its engineering teams, program managers, and third-party vendors. These trainings help align the team on policy, baselines, measures, reports, calculation tools, and methods. PG&E also established more rigorous quality control among its technical reviewers, focused specifically on reporting quality and subprogram compliance, and



has also undertaken a process review to ensure continuous improvement in customized workflow.

Throughout 2020, the Commercial Calculated program assisted in the transition of projects from other closing programs as part of the shift to the new third-party implementer model. The role of this program will be reducing in the future, as PG&E's portfolio continues to transition to third party programs.

Commercial Deemed Incentives Subprogram

The Commercial Deemed Incentives (Deemed) subprogram offers prescriptive rebates directly to customers, vendors, or distributors for the installation or sale of energy-efficient equipment. The subprogram offers a select group of measures across technology segments including lighting, HVAC, food service, refrigeration, and water heating. These rebates include promotion of ULT freezers for labs and health care, which has been enhanced to support vaccination efforts in response to the ongoing COVID-19 pandemic.

2020 Strategies and Successes

PG&E began shifting focus and marketing of the Commercial Deemed subprogram in 2018 to non-lighting EE measures, as lighting rebates and incentives levels continue to decline as performance requirements continue to rise. This diversification helped to provide a broader delivery of EE measure types and attracted new contractors and participants to the program. This has supported the continuing trend toward a whole building approach which is evolving traditional product specific strategy into the meter-based strategy which will be the predominant strategy in the future. While lighting savings still comprised the majority of savings in 2020, HVAC controls and food service equipment continued their upward trend in contribution. The Trade Ally Network, an independent group of non-contracted tradespeople and market influencers continue to substantially contribute energy savings with training and support from PG&E staff. Support includes training on how to effectively leverage PG&E rebates, incentives, and programs as well as guidance on the effective use of On Bill Financing. These developments have helped the deemed incentive pathway to remain relevant and cost-effective while providing channel options which best suit customers. E-Rebates platform continues to contribute to the self-service nature of a substantial portion of this program. These developments have helped the deemed incentive pathway to remain relevant and cost-effective while providing channel options which best suit customers. E-Rebates platform continues to contribute to the self-service nature of a substantial portion of this program.

In 2020, increased marketing and focus on food service opportunities and pipe insulation projects helped to drive additional therms savings, while successful engagement of ozone laundry contractors continued to contribute to the therms totals and maintained a strong presence in the program in 2020. The water heater and boiler program, a subprogram of commercial deemed, continues to outperform yearly targets for savings through the mid-stream channel. The water heater and boiler program is expected to be replaced by a Statewide Mid-stream Water Heating program in April 2021.

Commercial Direct Install Subprograms

Throughout 2020 PG&E's Commercial Direct Install (DI) offerings, administered through its Government and Community Partnership program and in collaboration with regional implementers, provided small and medium business customers with the opportunity to have a third-party contractor retrofit existing systems with energy-efficient equipment at low or no cost to the customer. Because many small and medium business customers have short term leases and a split incentive barrier (in which the customer does not own the equipment that they pay



bills for), these subprograms have been an effective way to address the needs of this sector and overcome the barriers of limited capital, expertise, and understanding of EE benefits. At the end of 2020, all but one of these programs was sunset, in order to transition this customer segment to new programs launching in 2021 which include SMB customer strategies. For more details on PG&E's Direct Install programs, see the Public chapter of this Annual Report.

Savings by Design

Savings by Design (SBD) is a statewide non-residential new construction program administered by PG&E, SDG&E, SCE, SoCalGas, and LADWP. SBD encourages energy-efficient building design and construction practices. It promotes the efficient use of energy by offering up-front design assistance, supported by financial incentives based on project performance. SBD uses the applicable California Building Energy Efficiency Standards (Title 24, Part 6) as a reference baseline, and when appropriate, uses other industry standards to determine reference baselines for comparisons.

2020 Strategies and Successes

Due to significant cost-effectiveness challenges, PG&E decided to stop accepting new commercial Savings by Design applications in 2019, but due to contractual obligations, applications were reopened in 2020 for State of California government partnerships only. However, the SBD subprogram has a robust project pipeline that is expected to see activity at least into 2022. SBD is expected to be replaced by two new Statewide Non-residential programs (Mixed-Fuel and All-Electric) in the latter part of 2021, where PG&E is the lead IOU. The third-party implementation contracts were negotiated and signed in Q4 2020 and are awaiting CPUC approval as of April 2021. SBD applications and projects already in the queue for review and payment will be completed under the existing SBD subprogram rules. New project applications will be considered under the new Statewide program rules once the programs are launched.

Commercial HVAC Subprogram

The Commercial HVAC subprogram has delivered a comprehensive set of midstream and upstream strategies that builds on existing subprograms, education, and marketing efforts, and leveraged relationships within the HVAC industry to foster a sustainable, quality-driven market.

The Commercial HVAC subprogram included two elements to enable market transformation, direct energy savings, and demand reductions: Upstream HVAC equipment incentives and midstream Commercial Quality Maintenance (C-QM). The Upstream HVAC subprogram offered incentives to distributors to sell qualifying high-efficiency commercial HVAC equipment and to increase the promotion of this equipment. The Commercial Quality Maintenance (C-QM) focused on commercial maintenance practices to ensure equipment is serviced in accordance with industry standards and sought to transform Commercial HVAC maintenance from a commodity-based industry to a quality-based industry. While this program sunset at the end of 2020, a similar version of this program is expected to be launched on a Statewide basis in 2021, with the intent to leverage many of the same strengths which made the local program successful. San Diego Gas & Electric will be the lead program administrator for Comfortably California, which will serve HVAC customers in non-residential markets.

2020 Strategies and Successes

The ongoing COVID-19 pandemic impacted both segments of the Commercial HVAC program. 2020 began with a strong pipeline of projects which drove strong sales of energy efficient equipment, while volume was reduced by the end of 2020. The C-QM program focused on HVAC maintenance, which was a key to COVID measure reinforcement. While this program sunset at the end of 2020, a Statewide program with similar offerings is expected to be



launched in 2021 as Comfortably California, with the intent to leverage many of the same strengths which made the local program successful. San Diego Gas & Electric will be the lead program administrator for Comfortably California, which will serve HVAC customers in non-residential markets. At the local level, promotion of energy efficient HVAC is now included in the new third-party commercial programs, Cool Save Grocery RCx, and SmartLabs, which launched in December 2020 (as described below).

Energy Smart Grocer Subprogram

Implementer: CLEAResult

The Energy Smart Grocer subprogram provided comprehensive EE services for medium to large grocery stores and supermarkets in the PG&E service territory. The subprogram provided comprehensive energy audits, long-term energy planning, and support for the implementation of efficiency measures. This program sunset in December of 2020. The subprogram provided comprehensive energy audits, long-term energy planning, and support for the implementation of efficiency measures. This program sunset in December of 2020.

2020 Strategies and Successes

The subprogram has successfully partnered with PG&E account representatives to leverage PG&E's OBF program to implement large-scale and complex retrofit projects delivering deeper savings. This program made strong use of On-Bill Financing in this sector, effectively combining refrigeration and HVAC projects with traditional lighting efforts. The Energy Smart Grocery subprogram sunset in December 2020, and customers in this segment are now served by the Cool Save Grocery RCx Program, described below.

Hospitality Subprogram

Implementer: Ecology Action

PG&E's Hospitality subprogram offers a comprehensive list of EE measures and services specifically designed to meet the diverse needs of the hospitality, retail, and commercial real estate markets, offering both custom and deemed measure needs of the hospitality market, offering both custom and deemed measures as well as assisting customers with EE projects from start to finish.

2020 Strategies and Successes

The Hospitality Program continued to build a strong pipeline, despite the market segment impacts of COVID-19. The Hospitality program had originally been slated to close in Q3 2020, but significant budget was added to serve the wide breadth of this sector, including many SMB customers and provide incentives to complete modifications to reduce customer utility costs, an important consideration as this sector adapted to the financial impacts of COVID-19. While the hospitality segment was challenged, some portions of the retail and commercial real estate market used this time of lower occupancy to make EE improvements. The program's practice of identifying the decision makers of chain customers enabled it to build on past success with lighting projects to obtain commitments on other building system EE projects.

This program continued to perform well throughout 2020 and is expected to ramp down in Q3 2021. Customers in this segment will be served by a new third-party program, NetOne, which will begin serving customers in July 2021 with a similar approach and much of the same team that made the program a success over the past program cycle.



Healthcare Energy Efficiency Subprogram

Implementer: Willdan

The Healthcare Energy Efficiency Program (HEEP) provided hospital facilities (medical office buildings and acute care facilities) with a wide range of support services to address barriers to EE. HEEP delivers electric and gas savings through retrofits (deemed and calculated) and RCx services. Prime technologies of focus included HVAC and lighting with a substantial use of On-Bill Financing.

2020 Strategies and Successes

HEEP started 2020 with a strong pipeline of committed projects but was highly impacted by COVID-19, restricting access and limiting focus on EE projects. Despite these challenges, the HEEP program completed the majority of its pipeline by year end. HEEP closed in December 2020. Customers in the Healthcare segment will be served by the Healthcare Energy Fitness Initiative, a new third-party program that launched in April 2021.

School Energy Efficiency Subprogram

Implementer: CLEAResult

The School Energy Efficiency (SEE) subprogram helped K-12 public schools and their contractors identify, evaluate, and implement EE retrofit measures through technical analysis, measure prioritization, and engineering support.

2020 Strategies and Successes

Despite challenges of access to facilities in the first half of 2020, the program was able to complete most of the projects forecast for the program year. The SEE subprogram closed in December 2020 as part of PG&E's portfolio balancing process. Customers previously served by SEE are now able to access the new Government and K-12 program, a third-party program which offers a similar comprehensive approach to energy efficiency. See the new Government and K-12 program in the Third-party Program section of the Public Program chapter of this report for more details.

Commercial Third-party Programs

Commercial third-party subprograms³⁰ offer a turnkey approach that continues to deliver savings, serve customer needs, and remain innovative by adapting to changing market needs. Even as the program cycle changes between 2020 and 2021, the third-party strategy continues to offer market focused strategies which address the current needs of their markets. Incoming third-party programs are a mix of market and technology focused approaches aimed at the most impactful customer improvements, to several more comprehensive scope programs which mirror the breadth of EE opportunities within those segments. Common to these broader scope programs is the larger proportional focus on SMB and HTR customers, in addition to a greater range of technology and engagement options reflective of the diversity of this market.

Commercial third-party programs operating in 2020 continued to serve a wide variety of customers and help PG&E to meet energy savings goals. Each program focused on providing turnkey solutions including audit, project design and development, installation planning, coordination with installing contractors, and incentive and finance assistance. For 2021 and beyond, new third-party programs will fill market gaps, improve commercial portfolio cost-

³⁰ These programs were launched following the Commission-approved solicitations process and meet the third-party program definition as described in D.18-01-004.



effectiveness, and contribute to achieving the goal of 60% outsourcing within the PG&E EE portfolio. New third-party programs have retained the ability to offer basic EE measures, as well as more comprehensive and longer-term strategies to engage customers. For each of the new programs described below, the primary focus of the new offers is the opportunity to build on previous customer upgrade efforts, obtaining their momentum from savings realized at the meter. On-bill and third-party financing also play a larger role in customer choice to move EE planning to actual projects in each program offered.

CoolSave Grocery Comprehensive Retrofit & Commissioning (GRCx)

Implementer: kW Engineering

CoolSave is a comprehensive commissioning and retrofit program which targets the energy intensive supermarket sector. The program optimizes scheduling and controls of commercial refrigeration and HVAC controls, lighting, cooking and packaging with a mix of low or no cost RCx recommendations and capital investment equipment projects. This is a completely meter-based and pay-for-performance program which uses the NMEC approach to calculate savings.

2020 Strategies and Successes

Following successful completion of a third-party solicitation that had launched in 2019, PG&E received CPUC approval to launch the CoolSave GRCx subprogram in October 2020. Program work in Q4 2020 included program set up and internal access, marketing material review, security and safety reviews, and the preparation and public posting of the program's Implementation Plan in December 2020.³¹

Smart Labs

Implementer: kW Engineering

The SmartLabs program specializes in laboratory ventilation system optimization. It offers lab owners with expert technical assessments and the development of a performance management plan which includes an extensive hazard report which establishes the foundation for adjustments to ventilation, fume hoods, and controls, as well as performance-based incentives to drive product completion. This is a completely meter-based and pay-for-performance program which uses the NMEC approach to calculate savings.

2020 Strategies and Successes

Following successful completion of a third-party solicitation that had launched in 2019, PG&E received CPUC approval to launch the Smart Labs subprogram in October 2020. Program work in Q4 2020 included program set up and internal access, marketing material review, security and safety reviews, and the preparation and public posting of the program's Implementation Plan in December 2020. The program officially launched in January 2021.

³¹ The program officially launched in January 2021.

Public Program

Public sector programs include service to both local governments and public institutions in meeting their energy efficiency goals. Local Government Partnerships (LGP) are programs lead by third-party implementers, local governments or entities that have relationships with local governments. Local Government Partnerships are generally focused on promoting EE within local government facilities and helping local governments implement California's energy efficiency objectives. The third-party implementers concentrate on resource acquisition activities that directly procure energy savings, mainly centered around Small and Medium Business customers that are hard-to-reach and/or in disadvantaged communities.

The LGPs offer comprehensive solutions that are innovative reflections of the communities' needs. PG&E's partnerships with local governments and their communities help to shape Energy Efficiency and sustainability at the local, regional, and statewide level by meeting the needs of local governments, as well as educational institutions like K-12 public schools. Each individual program is described in the LGP section below. Public institution programs include those focused on the government entities themselves, such as state and local government buildings, facilities, such as water treatment plants, school districts and charter schools.

The solicitations process to bid program implementation to third-parties, which began in 2019, continued throughout 2020. The programs that had been serving the public sector in 2019 also continued into 2020, with increasing attention focused on achieving cost-effective savings. In 2020, PG&E administered twenty-two Local Government Partnership (LGP) programs, as well as four Institutional Statewide Partnership (ISP) programs with California Community Colleges, University of California/California State University (UC/CSU), the State of California, and the California Department of Corrections and Rehabilitation. Solicitations were successfully completed in June 2020 and eight new, third-party LGP programs, covering 30 counties, were launched shortly after, in July 2020. The public sector added two new offerings in Q4 of 2020, contracting two new local programs focused on wastewater treatment facilities and a comprehensive government and K-12 Schools program. These program offerings are detailed in the Third-Party Public Sector Programs section of this chapter.

Government and Community Partnerships 2020-2023



Key Initiatives

Non-Resource Program Solicitation

For many years, PG&E and Local Governments have partnered together to support local governments in their energy efficiency goals. PG&E is proud of the work these partnerships have accomplished and the passion with which those programs promote sustainability and energy efficiency in local communities.



In 2018, CPUC Decision 16-08-019 required that Investor-Owned Utilities (IOUs) outsource 60% of their customer programs to Third Party (3P) implementers and reaffirmed minimum cost-effectiveness thresholds for IOU program portfolios. As a result, PG&E has been transitioning to an EE portfolio primarily supported by 3P implementers, which includes 3P implementers of Local Government Partnership (LGP) Programs.

Under the new portfolio guidance, PG&E will leverage non-resource LGP Programs to enable and identify energy efficiency opportunities within the local public agencies and/or the Hard-to-Reach (HTR) customers and Disadvantaged Communities (DAC) that they serve. These new, non-resource LGP programs are designed to serve at least one of these objectives:

1. Increasing the opportunities for customers to save energy in local public buildings
2. Increasing the opportunities to save energy for any HTR customers and/or customers in DAC through working with local governments
3. Improving local government staff capacity to conduct activities that will lead to energy efficiency for the local government and/or its communities.

To meet the 60% outsourcing requirement, PG&E hosted multiple competitive solicitations to identify new resource and non-resource 3P programs. The PG&E program team evaluated each proposal and presented their recommendations to the Procurement Review Group for input prior to finalizing contract awards. Independent Evaluators conducted their own review of each proposal and observed each step of the solicitation to provide transparency to the process and ensure the solicitation was conducted fairly.

New Program Launch

In June 2020, LGP efforts shifted focus to launching the 8 new third-party programs that had been selected following the successful completion of the Solicitations process. Following the launch of the new third-party programs, PG&E and the LGP implementers worked throughout July and August 2020 to draft, publicly review, and post final program Implementation Plans. Through the end of the year, new programs focused on creating Marketing Plans, Policy & Procedures Manuals and identifying potential leads for resource programs in order to effectively ramp up and begin the activities outlined in the Implementation Plans.

Legacy Program Sunset

Partnerships that had been operating prior to 2020 continued their roles, providing support to their specific target markets for the first six months of 2020. The smooth ramp down, sunset, and transition process for the partners began at the beginning of Q2 2020 and included the submission of detailed Ramp Down Plans, the completion of a Final Program Report, and close collaboration between PG&E and implementers to wrap up invoicing and ensure the availability of incentive funds to complete in-progress projects.

Institutional Partnership Programs

Institutional Partnership programs, designed across the four California IOUs, serve agencies of the state of California and state educational institutions. The objective of Institutional Partnerships is to reduce energy usage through facility and equipment improvements and share best practices among state institutions. There were four Institutional Partnership programs in 2020.

Through these programs, IOUs and partners encourage strategies that promote investment in EE through comprehensive resource support and internal capacity-building. Although these



existing programs have made progress over the years, energy savings opportunities still exist within state government and higher educational facilities. For example, with California's Executive Order B-18-12 requiring reductions in grid-based electricity purchases and aggressive Zero Net Energy (ZNE) goals (50% of all new and existing facilities by 2020 and 2025 respectively), the State is well positioned to make significant progress towards reducing energy usage and the overall carbon footprint of its facilities and infrastructure.

PG&E's Institutional Partnership portfolio focused on achieving energy savings and supporting Demand-Side Management (DSM) integration and coordination, which includes improving regulatory coordination, establishing integration procedures, and piloting DSM integration programs.

California Community Colleges (CCC)

The California Community Colleges/Investor-Owned Utility (CCC/IOU) Energy Efficiency Partnership advocates, promotes and supports EE in the California Community College system by leveraging resources from the Community College Districts, the Community College Chancellors Office, the four California IOUs, and the State of California. The CCC/IOU Partnership provided extensive outreach and support services to the districts within the California Community College system in support of their efforts to identify, develop, and implement projects funded through Proposition 39. This unique Partnership achieves common goals for energy use reduction, cost savings, and fostering a more sustainable future.

2020 Strategies and Successes

Partnership support has enabled full Prop 39 program participation from all 72 districts, helping to ensure the success of this important statewide initiative. In 2020, the program continued outreach efforts through participation in the CCC IOU Partnership Management team, and through PG&E participation in various workshops and conference presentations directed toward campus facilities staff. The program focused on meeting campus and IOU annual energy savings goals for 2020 project completion and achievement and supported 6 Fellows as part of Strategic Energy Innovation's Bay Area Climate Corp program. These fellows were placed at campuses across PG&E territory to provide support for energy projects and other sustainability efforts.

The CCC partnership program is expected to close in 2022 to transition to a statewide third-party program that will include the California community colleges. This new program will be led by SCE.

University of California and California State Universities (UC/CSU)

The UC/CSU/Utility Energy Efficiency Partnership is a unique, statewide program which includes California's four investor-owned utilities, 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). The program generates energy savings through the identification and implementation of energy efficiency projects. The Partnership consists of three main project types: retrofit, commissioning, and new construction. Since its establishment in 2004, the Partnership has provided approximately 65 MW demand reduction and delivers approximately 470 million kWh per year and 25 million therms per year in energy savings.

The program has a hierarchical management structure to ensure successful implementation. The joint Management Team meets monthly to conduct business at the operational level and the Executive Team meets on an as needed basis to discuss overall program status and policy issues across all participating partners. In addition to representatives from each utility, the



University of California Office of the President and California State University Chancellor's Office each have members on all three program management teams. Inclusion of all Partnership stakeholders at the various management levels provides the UC and CSU campuses with support in their efforts to implement energy efficiency projects. A Program Administrative Manager (PAM) organizes and facilitates team activities, works with individual stakeholders, actively tracks project savings and schedule data in a web-based tracking tool and creates regular reports to show overall status of the program and forecasts relative to goals.

2020 Strategies and Successes

In 2020, the Partnership focused widely on efforts surrounding NMEC in compliance with AB 802. PG&E launched the Performance Based Retrofit Program in 2019 and began developing and implementing NMEC projects at UC Davis and UC San Francisco. In addition to NMEC projects, UC and CSU focused on addressing barriers to energy efficiency, continuing a second phase of UC's Million Lamps Challenge, and beginning work on a CEC Grant to develop a Master Enabling Agreement for energy efficiency at UC and CSU campuses. The Partnership determined several programmatic changes, which took effect in 2020. 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. Additionally, the integration of LADWP into the Partnership and the resulting collaboration between Investor Owned and Public Owned Utilities provides a working model for the Public Sector in California to deliver truly comprehensive energy efficiency programs.

The UC/CSU partnership program is expected to close in 2022 to transition to a statewide third-party program that will include UC/CSU's. This new program will be led by SCE.

State of California Partnership

The State of California Investor-Owned Utility (IOU) Partnership is a Statewide program designed to achieve long-term energy and peak demand savings and establish a permanent framework for sustainable, comprehensive energy management programs at state facilities served by California's IOUs. The IOUs work collaboratively with the Department of General Services (DGS), coordinate with the established pool of Energy Service Companies (ESCOs) to help implementation of comprehensive facility energy efficiency projects, and work with individual state agencies on technology-specific projects. DGS leverages Department of Finance Energy \$mart program, along with the IOU's On Bill Financing, incentives and rebates to provide financing for project opportunities.

The State of California Partnership is a continual and collaborative effort to support DGS to manage projects for Departments without contracting authority. The State/IOU Partnership Program Administration Manager (PAM) continues to coordinate between the IOUs and the DGS through regular meetings to ensure that project documentation is shared as needed, projects are tracked, project momentum is maintained, new project approaches are identified, and customer concerns/support items are addressed in a coherent and sympathetic fashion.

2020 Strategies and Successes

In 2020, the IOUs and DGS closed out a working group to address Savings by Design (SBD) participation barriers for DGS buildings. Working group efforts led to the development of a flow chart to better understand the DGS procurement process. The group finalized DGS contract language, reviewed established incentive structures and defined alternative payment solutions to better align with DGS systems. The Partnership continues to track an SBD project currently in progress to use as a test case for implementing solutions developed by the working group.



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

The IOUs also continued to work with the State to prioritize agencies that may benefit from ESCO work, both for large and pooled small buildings. The Partnership has provided extensive outreach and technical support to Agencies including California Highway Patrol (CHP), Department of Motor Vehicles (DMV), Department of Parks and Recreation (DPR), the Judicial Council of California (JCC), and the Department of Food and Agriculture (DFA). In response to the Public Safety Power Shutoffs, the Partnership coordinated on how to build resiliency for sites in the most critical zones. Outreach to these agencies continued to yield significant energy savings and continues to create a robust pipeline of future projects.

The State of California partnership program is expected to close in 2022 to transition to a statewide third-party program. This new program will be led by SCE.

California Department of Corrections and Rehabilitation

The California Department of Corrections and Rehabilitation/Investor-Owned Utility (CDCR/IOU) partnership is a customized statewide energy efficiency partnership program that accomplishes immediate, long-term peak energy demand savings and establishes a permanent framework for sustainable, long-term comprehensive energy management programs at CDCR institutions served by California's four large IOUs.

This program capitalizes on the vast opportunities for efficiency improvements and utilizes the resources and expertise of CDCR and IOU staff to ensure a successful and cost-effective program that meets all objectives of the CPUC. The program also leverages the existing contractual relationship between CDCR and Energy Service Companies (ESCOs) to develop and implement energy projects in CDCR facilities.

2020 Strategies and Successes

In 2020, CDCR continued implementing retrofit projects and performing Investment Grade Audits. The IOUs and the Program Administration Manager (PAM) supported development of the new projects, ensuring that they reached maximum efficiency and incentive potential. To support more project development, the IOUs performed energy audits of a subset of CDCR's facilities, which CDCR used to prioritize the next wave of projects.

The CDCR partnership program is expected to close in Q3 2021 to transition to a statewide third-party program. This new program will be launched by the end of 2021 and will be led by PG&E.

Local Government Partnership Programs

PG&E's Local Government Partnership programs work with local governments to deliver energy services to city and county facilities and their communities. PG&E had 22 LGPs that remained active in 2020 serving approximately 44 counties. As part of meeting PG&E's 2020 cost-effectiveness goals and to prepare for the new programs resulting from solicitations, administration of the 22 LGPs was streamlined through consolidation under the Local Government Energy Action Resources (LGEAR) program. LGEAR also included administration



of Direct Install programs, which provide low-cost or no-cost energy savings solutions and have traditionally served SMB customers.

Following the successful completion of third-party program solicitations that had begun in 2019, the original 22 LGP programs were sunset and 8 new, third-party LGPs launched in mid-2020. Through the new third-party LGPs, PG&E serves 30 counties through these 8 new LGPs, described in detail below.

The 22 LGPs present at the beginning of 2020 included:

- County of Marin
- San Francisco Department of the Environment
- Redwood Coast Energy Authority
- East Bay Energy Watch
- QUEST Municipal Implementation Team
- Association of Monterey Bay Governments
- San Mateo County
- City of San Jose
- County of Sonoma
- Sierra Business Council
- Solano EDC
- Sustainable Napa County
- Community Development Center of Mendocino County
- North Valley Energy Watch
- Yuba City
- County of Yolo
- City of Fresno
- Fresno Energy Watch
- County of Kern
- Valley Innovative Energy Watch
- San Luis Obispo Energy Watch
- Santa Barbara County Energy Watch

2020 Strategies and Successes

The partnership listed above continued their roles, providing support to their specific target markets for the first six months of 2020. The smooth sunset/transition process for the partners began at the beginning of Q2 2020 and included the following:

1. All partners submitted a Ramp-Down Plan to PG&E detailing their planned communication with subcontractors, trade pros, and customers on program ramp down, explanations of how they expected to transition projects to new implementers, final program deliverables, and how they were planning on satisfying recordkeeping requirements.
2. Implementers were requested to provide a Final Program Report that included a narrative of their history achievements, demonstrated that they had satisfied their contractual obligations and key performance indicator goals, and detailed the kW, kWh, and therm savings during the course of the partnership.
3. PG&E and the implementers worked together to complete final details such as invoicing, verifying unspent program budget funds, and ensuring the availability of incentive funds required to complete projects.



As part of the PG&E goal to outsource 60% of energy savings programs, direct install partner contracts which operated under LGEAR were dependent on the results of the solicitation process, which began in 2019. Solicitations were completed in 2020 and did not produce cost-effective options with the direct install model for 2021 and beyond.

As a result, all but one of the existing direct Install programs were sunset during the 2020 program year. The remaining program, Staples Energy Direct Install, was retained as a bridge program until successfully negotiated replacement commercial programs could be launched and active in 2021. Six direct install resource programs operated in 2020 and contributed 17.8 GWh of savings toward PG&E's goal. The programs which were active in 2020 included: direct install resource programs operated in 2020 and contributed 17.8 GWh of savings toward PG&E's goal. The programs which were active in 2020 included:

- DNV GL East Bay Energy Watch
- Ecology Action Direct Install Program
- Redwood Coast Energy Watch
- San Francisco Energy Watch
- TEAA Energy Watch (The Energy Alliance Association)
- Staples Energy Direct Install Program

Staples Energy Direct Install Program was originally slated to close in Q3 2020, but it was vital to providing financial relief through energy efficiency to Small and Medium Business (SMB) customers impacted by the COVID-19 pandemic. Additional budget was added to the Staples Energy Direct Install program to keep it open to new SMB customer projects through 2020, and the program will continue providing cost-effective energy services to SMB customers in 2021. The remaining five programs listed above sunset in 2020. PG&E worked with the programs to produce a ramp down plan, transition remaining projects, and close out programs in internal systems.

Third-party Local Government Partnership Programs

The new third-party³² LGP programs launched in July 2020. Through LGPs, PG&E and local and regional partners work together to develop and implement subprograms that serve the public sector and the broader community, including SMB and non-profit customers. LGPs are the primary delivery channel supporting cities, counties, and other local agencies seeking energy savings and GHG emission reductions on a 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 PG&E's EE programs. Through LGPs, PG&E leverages the role of local governments to achieve deeper energy savings in both municipal facilities and the broader community as an integral part of other community climate action and sustainability programs.

PG&E LGPs are built around the communities which they serve. While local governments represent most lead local partners (LLP), many LGPs are led by local economic development groups, associations of governments, joint power authorities, and 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

³² These programs were launched following the Commission-approved solicitations process and meet the third-party program definition as described in D.18-01-004.



understand and identify customers within their communities and effectively partner with subprogram implementers to overcome barriers to EE adoption.

Central California Energy Watch (CCEW)

Implementer: San Joaquin Valley Clean Energy Organization

The Central California Energy Watch is a non-resource program covering cities, counties, special districts and K-12 school districts in the counties of Kings, Tulare, Stanislaus, San Joaquin, Merced, Fresno, Kern, Monterey, and Madera. The CCEW is designed to develop energy savings opportunities in Public Sector infrastructure, develop and deliver project leads to one of PG&E's third party direct installers, and develop short, mid-term and long-term energy efficiency project pipelines. The CCEW focuses on helping hard-to-reach (HTR) and Disadvantaged Communities (DAC) access, understand, and participate in energy efficiency through Investor-Owned Utility (IOU) administered, third-party programs. The program builds on existing relationships, data, and experience to align to the PG&E portfolio vision for LGPs.

2020 Strategies and Successes

For 2020, CCEW wrote their Implementation Plan, defined their marketing, outreach, and customer recruitment processes, and determined how the new Resource Acquisition Program would fit with their work. They successfully made progress towards reaching their active contacts, pipeline, audits/reports, and education outreach KPI's for 2020. This included working closely with two major customers, the City of Fresno and the County of Monterey where they benchmarked or confirmed benchmarking over 1,000 meters. The information from this benchmarking exercise will serve as a basis for the Energy Readiness Reports which will include energy efficiency measure recommendations.

Central Coast Leaders in Energy Action Program (CC-LEAP)

Implementer: The Energy Coalition

The Central Coast Leaders in Energy Action Program (CC-LEAP) offers integrated energy efficiency project delivery services within the County of San Luis Obispo and parts of the County of Santa Barbara serviced by PG&E. At no cost to agencies, CC-LEAP provides customized and objective project management, engineering, and financing support services as a "one-stop shop" enabling agencies to achieve energy upgrades at public facilities expeditiously and cost-effectively. CC-LEAP also demonstrates how actions by a broad group of public agencies can drive more cost-effective energy solutions in the public sector and aims to inspire action achieving the following three objectives: to expand the implementation of cost-effective energy efficiency projects, make energy efficiency expertise accessible and available, and integrate energy efficiency as a standard business practice for public agencies.

2020 Strategies and Successes

In 2020, CC-LEAP's focus was ramping up the program. Activities included creating the implementation plan, marketing plan, and process and procedures manual. CC-LEAP set up meetings with local cities and PG&E EE program managers in preparation for presenting EE projects to various cities and municipalities.

Energy Access SF

Implementer: City and County of San Francisco

Energy Access SF is a non-resource LGP between PG&E and the City and County of San Francisco, Department of the Environment (SFE). Energy Access SF support energy saving opportunities for hard-to-reach (HTR) and disadvantaged communities (DAC) customers and building capacity to help save energy community-wide. The partnership aims to increase penetration rates in residential and HTR small and medium businesses (SMBs) by 5% annually.



Energy Access SF also works to influence customers to take EE actions and drive well-qualified leads to third-party, PG&E, and Bay Area Regional Energy Network (BayREN) programs, as well as reduce customer acquisition costs and achieve deeper energy savings for PG&E programs.

2020 Strategies and Successes

In 2020, Energy Access SF focused on launching the new program, creating the Implementation Plan, and developing processes. Energy Access SF also further expanded their Zero Cities database tool, generated interest for potential projects from the San Francisco Ballet and the Port of San Francisco, and further refined data filtering strategies to target for the program customers that qualify as Hard to Reach (HTR).

Marin Energy Watch Partnership

Implementer: County of Marin - Community Development Agency

The Marin Energy Watch Partnership's (MEWP) key objectives are to support public agencies to understand energy use and achieve energy savings and to connect local Hard to Reach (HTR) communities to available energy efficiency programs. MEWP offers three overarching programs: Public Agency Climate Action Plans, Public Agency Energy Efficiency Support and Empowering HTR communities. All three programs serve the broader goals of reducing energy use and GHG emissions locally and statewide.

MEWP's programs support PG&E in achieving its Business Plan goals by acting as a proven trusted advisor to Marin's public sector and HTR Customers. As a non-resource program, MEWP focuses on building trust and relationships with the public sector staff to assist them in identifying opportunities and navigating resource programs and financing opportunities. Through existing networks and established relationships in the community, MEWP provides a means for PG&E, third-party program providers, and vendors to more cost-effectively reach public and HTR sector customers.

2020 Strategies and Successes

2020 was spent ramping up the program by developing Implementation plans, marketing plans and other administrative duties. In addition, MEWP managed to bring the local direct install implementer into the county libraries and update their lighting.

Redwood Coast Energy Watch

Implementer: Redwood Coast Energy Authority

Redwood Coast Energy Watch (RCEW) is non-resource program serving the Humboldt County region. RCEW is intended to overcome the geographic barriers that affect the customers of the region and to lead customers to more comprehensive energy actions. The primary objective is to support cost-effective resource acquisition program services to Public and Commercial Hard-to-Reach customers while growing local capacity of energy efficiency. RCEA leverages a presence in the community to serve public agencies, non-residential HTR customers, and residential HTR customers of Humboldt County, and applies innovative approaches to enroll customers and build trusted relationships with an end goal of fostering enduring participants that are motivated to continue pursuing deeper retrofits into the future. RCEA aims to drive comprehensive public agency energy projects, increase cost-effectiveness for resource programs, increase opportunities for HTR customers to save energy, integrate deep-reaching energy projects with demand side management and build local capacity for energy efficiency through education.



2020 Strategies and Successes

In 2020, RCEA focused on launching the new program, creating the Implementation Plan, and developing processes to manage the program. RCEA exceeded 50% of their annual targets in two KPI categories by generating municipal public leads and public project management. The bulk of the efforts in the second half of 2020 went into developing forms, manuals, tools, training, and processes. RCEA continued to prioritize work with public agencies, serving the cities of Arcata, Eureka, Ferndale, and Trinidad; the Wiyot Tribe; Bear River Rancheria; as well as 20 schools or school districts. Activities included benchmarking of municipalities, engaging the CEC with AB841 to serve schools, procurement, and financial application support.

San Mateo County Energy Watch Program

Implementer: City and County Association of Governments (CCAG)

The San Mateo County Energy Watch Program (SMCEW) is a non-resource LGP program serving the Public and Commercial market sectors across the geographic territory of San Mateo County. Specifically, SMCEW will assist public agencies, K-12 public schools, and small, hard-to-reach businesses in accessing energy efficiency programs, trade professional networks, and financing opportunities. SMCEW will provide coordination, outreach, referrals, and educational resources to help community members pursue energy efficiency projects. SMCEW runs a new public facility quarterly working group to target facility staff and increase their energy efficiency capacity through topics including demand side management. Through the Regionally Integrated Climate Action Planning Suite (RICAPS) initiative, SMCEW assists cities in meeting GHG reduction goals by developing annual community inventories and hosting a monthly working group to support energy efficiency and other measures in climate action planning.

2020 Strategies and Successes

In 2020, CCAG focused on launching the new program, creating the Implementation Plan, and developing processes to manage the program. CCAG launched their Facilities Working group, presenting technical and financial resources to facilities staff, generating referrals from the Belmont Fleet Yard and the County Department of Public Works. CCAG also completed benchmarking reports for Peninsula Sinai, the Congregational Church of San Mateo, La Tijera California Salon, Las Adelitas Restaurant, Ravenwood School District, and the Peninsula school.

Sierra Nevada Energy Watch (SNEW)

Implementer: Sierra Business Council

The Sierra Business Council's Sierra Nevada Energy Watch (SNEW) non-resource program furthers PG&E and CPUC energy efficiency goals through energy efficiency project development activities, planning and policy work, and outreach/education efforts. These program activities motivate public sector leaders and SMBs to increase their capacity for EE action, especially in the rural, Hard-to-Reach (HTR), and Disadvantaged communities (DAC) of Sierra Nevada counties.

2020 Strategies and Successes

Sierra Nevada Energy Watch completed all the necessary steps to close their previous LGP program by the June 2020 deadline. In July 2020, the SNEW began ramping up the 2020-2023 program by completing contractual deliverables, such as the program Implementation Plan. In addition, SNEW worked with local Trade Pros to streamline business processes and is working with several cities and counties on on-bill-financed (OBF) projects.



Sonoma Public Energy

Implementer: County of Sonoma

The Energy and Sustainability Division of Sonoma County developed “Sonoma Public Energy”, a suite of comprehensive services aimed primarily at the reduction of energy usage, reduction of energy cost, and assistance with access to existing and future resources and services. These services are focused on facilitating upgrades to Public Facilities, K-12 Schools, Special Districts, Hard-to-Reach (HTR) and Disadvantaged Community (DAC) customers located within Sonoma County.

2020 Strategies and Successes

County of Sonoma ramped up the program during 2020 by developing their implementation plan, and process and procedures manuals. In addition, County of Sonoma spent time researching potential customers, coordinated with other existing and new EE Programs, and began development of their EE Roadmap.

Third-party Public Sector Programs

Following the successful completion of the solicitations process that began in 2019, two additional third-party resource programs³³ have been added to the public sector program offerings. These public sector programs target publicly funded entities which receive revenue from state and local governments or are the local governments themselves.

RAPIDS Wastewater Treatment Optimization Program

Implementer: AESC

The RAPIDS program targets the wastewater treatment and collection system market offering technical analysis, design assistance, project development support, incentives and financing. While the program does offer capital project solutions, it also focuses on the cascading effects of operational measures on downstream energy, process loads, and operational efficiency. Development of an action plan, including development of an ongoing system monitoring strategy for wastewater customers, contributes to the success of persistent energy savings. The program considers the operation of clarifiers, blowers, pumps, filters and dewatering processes to optimize the complex interaction between systems and flow volumes.

2020 Strategies and Successes

Following successful completion of a third-party solicitation which launched in 2019, PG&E received CPUC approval to launch the RAPIDS Wastewater subprogram in October 2020. Program work in Q4 2020 included administrative and operating system connection, marketing material review, and safety and security procedural completion as well as preparation and public posting of the program’s implementation plan in December 2020. The program officially launched in January 2021.

Government and K-12 Comprehensive Program

Implementer: Willdan Energy

The government and K-12 program includes a broad offering of EE measures to diverse markets of local governments and K-12 public and charter schools. Utilizing all project application channels (deemed, customized, and NMEC) the program offers HVAC and Lighting

³³ These programs were launched following the Commission-approved solicitations process and meet the third-party program definition as described in Decision 18-01-004.



equipment and control system upgrades, retro commissioning recommendations, and behavioral strategies to optimize system efficiencies. The program is designed to cost effectively complete all sizes and scopes of projects and has the goal to engage nearly half of its customers from the HTR and DAC sectors.

2020 Strategies and Successes

Following successful completion of a third-party solicitation which launched in 2019, PG&E received CPUC approval to launch the Government and K-12 Comprehensive subprogram in October 2020. Program work in Q4 included administrative and operating system connection, marketing material review, and safety and security procedural completion as well as preparation and public posting of the program's implementation plan in December 2020. The program officially launched in January 2021.

Industrial Program

California's industrial sector is extremely diverse. In most cases, industrial facilities are heavy energy users. Throughout 2020, PG&E focused on EE solutions for its industrial sector customer base to help reduce energy consumption and GHG emissions while increasing customers' profitability by lowering energy costs. The 2020 Industrial EE program partnered with industry stakeholders to promote a comprehensive list of energy management solutions to end-use customers. This suite of program services not only overcomes the traditional market barriers to EE, but also uses efficiency to advance IDSM opportunities such as DR and DG. Key offerings included rebates and incentives for efficient equipment and systems, technical support such as facility audits and energy savings analysis, zero interest project financing, and strategic energy planning.

The Industrial subprograms targeted and completed projects in various facilities including oil production, printing plants, plastic injection molding, component fabrication, lumber and paper mills, cement and quarries, metals processing, petroleum refineries, chemical industries, assembly plants, and water and wastewater treatment plants.

PG&E marketed and delivered these offerings through several channels, including direct communication with facility personnel, presence at industry events, support for education and research activities, and close partnerships with engineering and installation firms. PG&E's portfolio of offerings also includes specialized third-party subprograms focused on specific technologies, segments, or approaches with specialized requirements.

Key Initiatives

Industrial customers are sophisticated in their understanding of energy usage within their facilities. While these customers understand and appreciate EE, decisions to upgrade to energy-efficient equipment must be balanced with minimizing operational and production risks. PG&E works closely with customers to understand their business needs so that subprograms are thoughtfully designed, and offerings align with customers' requirements.

PG&E depends on a team of EE experts including account representatives, project engineers, contractors, and third-party implementers with deep technical knowledge and understanding of industrial processes to offer industrial customers the right EE solution at the right time—from EE audits and scoping EE projects via its Energy Advisor Program, to financial offerings to install EE projects through its calculated and deemed customer incentive subprograms, or its OBF subprogram.

Serving Our Industrial Customers:

PG&E's industrial customers benefit from segment specific program offerings delivered through its third-party program channel.

PG&E leverages its Industrial third-party subprograms to provide technical expertise relevant to the customer segment, test new and innovative measures, program strategies and design, and provide turn-key/concierge services which help to meet customer needs. In 2020, third-party programs specifically targeted oil fields, refineries, heavy industry, light industry, water/wastewater plants and food processors.





In 2020, PG&E supported and processed projects through the Industrial statewide program. Gas savings are primarily attributed to oil production, while electric savings are primarily credited to improved process modification and controls, and pump and fan retrofits. The various cost savings and the non-energy benefits associated with reduced maintenance of higher efficiency equipment was a successful method of championing EE projects within all industrial sectors.

Opportunities Moving Forward

PG&E is focused on opportunities to support a swiftly evolving marketplace through the solicitation process resulting in two new programs for the industrial segment. PG&E completed contract negotiations and the new third-party industrial programs were signed into contract in Q2 2020, with launch activities occurring in Q3 and Q4 2020. PG&E will be focused on fully supporting the new programs while conducting portfolio balancing reviews to ensure a cost-effective and well-performing set of programs.

Industrial Subprograms

Industrial Calculated Incentives Subprogram

The Industrial Calculated Incentives subprogram provides customized incentives for non-residential EE retrofit and new construction projects involving the installation of high-efficiency equipment or systems. Incentives are paid on the energy savings and permanent peak demand reduction above and beyond baseline energy performance, which include state and federal-mandated codes, industry standard practice, or other baseline energy performance standards. Focus areas included process and non-process loads at various industrial facilities that reduced energy usage associated with process modification and controls, boiler and steam systems, high bay and outdoor lighting measures, and pumps and fans.

2020 Strategies and Successes

In 2020, PG&E focused on preparing for and supporting the ramp down of legacy programs while transitioning to the new programs. The role of this program will be minimized going forward to allow the new third-party programs to operate in this sector.

Industrial Deemed Incentives Subprogram

The Industrial Deemed Incentives subprogram provides rebates for the installation of new EE equipment and measures. Deemed retrofit measures have fixed incentive amounts per unit/measure and are intended for projects that have well-defined energy and demand savings. In many cases, projects are identified through utility EE audits, customer communications with PG&E account representatives, or partnerships with equipment vendors and trade allies.

2020 Strategies and Successes

Due to an increasing need for custom solutions in the Industrial space, this program was not expected to deliver significant savings in 2020 and will not make significant contributions to 2021 savings goals. PG&E expects the newly launched third party programs to be the primary resource for customers looking to take advantage of deemed incentives.



Energy Efficiency Services for Oil and Gas Production

Implementer: CLEAResult

Energy Efficiency Services for Oil and Gas Production is a turnkey custom measure incentive subprogram designed to deliver reliable and persistent electric and gas savings by educating and assisting oil and gas producers and pipeline operators to take advantage of the latest technologies and processes to improve their operations to save energy and improve efficiency.

2020 Strategies and Successes

2020 was a ramp down year for this program, as PG&E prepared for the launch of new third-party programs. The focus was the completion of existing projects in the pipeline and the smooth transition of projects in development. Depending on the stage of development, projects either went to the Industrial Calculated program or were held for the new third-party program. Due to the successful launch of a new third-party program targeting this sector, described below, the Energy Efficiency Services for Oil and Gas Production subprogram closed in December 2020.

Heavy Industry Energy Efficiency (HIEEP) Subprogram

Implementer: TRC

The Heavy Industry Energy Efficiency Program (HIEEP) identifies and facilitates the implementation of major process-oriented and other EE upgrades for large industrial manufacturing customers and recently added Food Processing facilities in the Central Valley.

2020 Strategies and Successes

The TRC HIEEP subprogram and PG&E have worked collaboratively for years to enhance and streamline process and subprogram flow. Through close collaboration with PG&E, HIEEP has enhanced customer service throughout the PG&E service territory by strategically placing field offices closer to the customer. The opening of the Bakersfield, CA office resulted in greatly improved timeliness and responsiveness to PG&E's Central Valley customers while at the same time increased collaboration on a variety of EE projects with both PG&E and the end use customers.

2020 was the beginning of a ramp down period for this program, as PG&E prepared for the launch of new third-party programs. The focus was the completion of existing projects in the pipeline and the smooth transition of projects in development. Depending on the stage of development, projects either went to the Industrial Calculated program or were held for a new third-party program. Due to the size of the project pipeline and long project lifespans, prioritizing fulfilling customer commitments was the driving force behind the decision to allow a longer ramp down period. This program will continue to ramp down throughout 2021, and the customers in these segments will be served by two new Industrial third-party programs.

Industrial Refrigeration Performance Plus Subprogram (IRPP)

Implementer: VaCom Technologies

IRPP targets refrigerated warehouses, food processors, and related cooling operations that operate year-round or seasonally in the food and beverage sector, including processing, storage and distribution operations with industrial refrigeration systems. Under IRPP, existing facilities are retrofitted, emphasizing refrigeration system improvements as well as envelope, pumping, air handling, and related process equipment. Whole-facility simulation is used to quantify savings and economics. Two years of web-based automated performance monitoring and associated operator education is included to provide transparency and permanence of savings. IRPP provides more complex, comprehensive integrated solutions, higher savings levels and



institutes a continuous improvement paradigm delivered through real-time performance monitoring and advisory services.

2020 Strategies and Successes

IRPP was not open to new applications in 2020 but remained active in order to issue legacy incentive payouts on completed projects. IRPP is expected to sunset completely in 2021.

Industrial Retrocommissioning Subprogram

Implementer: Nexant, Inc.

The Industrial Retrocommissioning Program (IRCx) Program is the first of its kind in PG&E's service territory. It serves the industrial manufacturing sector and commercial processing facilities with built-in requirements designed to promote savings persistence. For some implemented measures, the maintenance plan can consist of a computerized maintenance management system, multi-year contract with a preventive maintenance contractor (typically three years) or purchasing equipment to review the operation of the system and training personnel on how to use this equipment.

IRCx targets the heavy industry, manufacturing, bio-tech, high tech, and food processing sectors and generates energy savings by helping PG&E customers optimize their manufacturing processes and process cooling systems by systematically studying low-profile energy losses that commonly occur in these facilities.

2020 Strategies and Successes

Because of the unique nature of each facility, the IRCx Program facilitates the delivery of audits, and if needed, implementation, by subject matter experts in these types of specific disciplines. The subprogram's consultants and service providers allow the subprogram to provide industries with the most comprehensive energy solutions available from their utility.

2020 was the beginning of a ramp down period for this program, as PG&E prepared for the launch of new third-party programs. The focus was the completion of existing projects in the pipeline and the smooth transition of projects in development. Depending on the stage of development, projects either went to the Industrial Calculated program or were held for a new third-party program. Due to timing of the new program launches, prioritizing fulfilling customer commitments was the driving force behind the decision to allow a longer ramp down period. This program will continue to ramp down throughout 2021, and the customers in these segments will be served by new third-party programs once the program is closed.

Water Infrastructure System Efficiency Subprogram

Implementer: Lincus

The Water Infrastructure System Efficiency (WISE) subprogram focuses on the energy optimization of water and wastewater systems in California. The subprogram targets comprehensive system optimization by targeting component improvements first and then optimizing the whole system through measures such as pump sequencing and system optimization through hydraulic modeling.

2020 Strategies and Successes

2020 was the final year of operation for this program. All projects have been completed or transitioned and the program is no longer available. The customers served by this program can take advantage of new third-party local programs and the upcoming Statewide program. In order to prepare for this change, PG&E closed this program in September 2020.



Industrial Strategic Energy Management

SEM is a holistic, long-term, whole facility approach that uses advanced implementation, measurement and verification services and tools to determine energy savings from all subprogram activities at the facility, including capital projects, maintenance and operation improvements, as well as retro-commissioning. The methodology and subprogram requirements were defined through a collaborative effort between the IOUs, CPUC, and external subject matter experts.

SEM Manufacturing

Implementer: Leidos, Inc.

The SEM Manufacturing program combines cohort format, individual site visits and web-based activities to deliver program services to participating Industrial Manufacturing customers. Customers receive frequent communications identifying major opportunities for implementation, and implementers rigorously track energy usage before and after energy efficiency actions are performed to determine effectiveness and persistence.

2020 Strategies and Successes

In 2020, the program completed its 2-year scope consisting of 8 workshops, 11 site specific activities, and energy management assessments for each program participant. At the end of the 2-year cycle, PG&E completed regression analyses and modeling using statistical methodology to identify and report energy savings to program stakeholders and evaluators. During multiple web-based sessions with customers, Leidos evaluated the impacts of energy efficiency on processes and production metrics, dialing directly to customers' Human Machine Interface (HMI) tools and providing recommendations for process improvements. Leidos also conducted customer satisfaction surveys following each workshop.

Since SEM Manufacturing program's inception, Leidos has maintained an average customer satisfaction score of 4.8-5.0, out of maximum of 5.0. The program has expanded customer outreach and now includes 4 participants representing Hi- and Bio-Tech manufacturing facilities, which will serve a new cohort of 9 customers in 2021 and 2022. Simultaneously, the program will continue working with current customers to implement new SEM designs for program cycle years 3 & 4. The new cycle includes introduction to advanced opportunities of Integrated Demand Side Management (IDSMS) and Energy Management Information Systems.

SEM Food Processing

Implementer: CLEAResult

The CLEAResult SEM program specifically targets food processors/producers and is a holistic, whole facility approach that uses NMEC and dynamic baseline model to determine energy savings from all program activity at the facility, including capital projects, custom and deemed calculated retrofits, maintenance and operation, and retro-commissioning projects. The program requires a multi-year customer commitment to participation in multiple cohort-type training workshops, individual or cohort energy analysis, and Measurement and Evaluation (M&V) activities based on information and characteristics of the facility's specific processes.

2020 Strategies and Successes

In 2020, PG&E completed the entire set of activities defined in the California Industrial SEM Guide for the first 24-month program cycle. Long-term customer engagement and the strategic positioning of facility staff as energy efficiency experts became a major goal for the program. Continuous energy improvement and what actions should be taken to complete project action plans were constantly discussed at workshops and during site visits. Upon completion of the first program cycle, PG&E developed and submitted comprehensive reports with extensive

statistical modeling and calculations for all participants. As a result of using the SEM approach and the high quality of services provided, 10 customers signed up for SEM continuation in years 3 & 4. Along with advanced energy efficiency opportunities, customers will be introduced to the fundamentals of IDSM and energy information systems, leading to a more comprehensive approach to each facility's energy management. In addition, the SEM Food Processing program recruited 21 new customers forming 2 cohorts for SEM implementation in 2021 and 2022.

Industrial Third-party Programs

The third-party subprogram³⁴ delivery channel is important for the Industrial sectors. The Industrial third-party programs offer a thoughtful, niche approach that continues to deliver savings, serve customer needs, and stay innovative by adapting to changing market needs.

Industrial Compressed Air System Efficiency Subprogram (ICASE)

Implementer: ALDI

The ICASE subprogram was selected as an innovative subprogram for the IDEEA 365 solicitation process. The subprogram targets industrial customers with large (greater than 100 horsepower) compressed air and vacuum systems and promotes and installs a state-of-the-art control and data monitoring system called iZ. Compressed air and vacuum systems are dynamic systems that are constantly changing and deteriorate quickly when not closely monitored. iZ automation system delivers support and assists customers with keeping efficiencies that have been initially gained by implementing an EE project.

2020 Strategies and Successes

The subprogram developed outreach processes to provide extensive education to local account representatives and engineering staff about advantages, features, and capabilities of the new iZ control system. Staff also conducted parallel comprehensive market research to justify acceptance of the proposed control systems over others existing on the market. ICASE concentrated on targeting compressed systems by providing complete service and optimizing performance aiming compliance or exceeding codes, standards, and industry standard practices. In 2020, PG&E determined this program met the criteria to be counted towards the new third party outsourcing goals. This program will continue to deliver persistent cost effective savings.

Business Energy Performance (BEP) Program

Implementer: CLEAResult

The Business Energy Performance (BEP) Program provides energy efficiency services, technical assistance, and incentives to the industrial sector within PG&E's service territory. BEP targets the Petroleum, Chemical and Minerals subsegments using a downstream market approach and by leveraging the Deemed and Custom savings platforms to deliver cost-effective energy savings. BEP also promotes and leverages on-bill financing (OBF) as a tool to off-set the barrier of capital to fund projects.

2020 Strategies and Successes

Following successful completion of a third-party solicitation that had launched in 2019, PG&E received CPUC approval to launch the BEP program in October 2020. Program work in Q4 2020 included getting the BEP set up in PG&E's internal systems, developing customer facing

³⁴ These programs were launched following the Commission-approved solicitations process and meet the third-party program definition as described in Decision 18-01-004.



program forms and marketing materials, and the preparation and public posting of the program's Implementation Plan in December 2020.

Industrial Systems Optimization Program (ISOP)

Implementer: Cascade

The Industrial Systems Optimization Program (ISOP) targets the industrial manufacturing and food processing market segments throughout PG&E's territory, focusing on training, retro-commissioning, and capital projects with systems-level optimization. ISOP offers technical support to identify and implement projects, energy management coaching, energy management and collaboration software, and ongoing energy coach support to drive projects. ISOP will use Deemed, Custom, and Meter-Based platforms (where applicable) to achieve savings, and supports all relevant measure types, with a focus on complex mechanical systems such as refrigeration, compressed air, pumping, fans, blowers, boiler and steam systems, and the industrial processes they serve.

2020 Strategies and Successes

Following successful completion of a third-party solicitation that had launched in 2019, PG&E received CPUC approval to launch the ISOP in October 2020. Program work in Q4 2020 included getting ISOP set up in PG&E's internal systems, developing customer facing-program forms and marketing materials, and the preparation and public posting of the program's Implementation Plan in December 2020.

Agricultural Program

In 2020, the Agricultural EE program provided a portfolio of offerings to support an industry impacted by fluctuating availability of surface water and increasing government oversight on ground water pumping. The Agricultural program, coupled with DR and DG programs, helped agricultural producers and processors manage energy costs and make informed investments in new equipment. Through three agricultural-focused subprograms, PG&E offered a full suite of tools to position California agricultural customers to eliminate unnecessary energy use. Key offerings included rebates and incentives for efficient equipment and systems, technical support such as facility audits and energy savings analysis, zero interest project financing, and pump efficiency education.



Programs in 2020 targeted the agricultural growers (field crops, fruits and nut trees, vegetables, and vineyards), post-harvest processors, dairies, irrigation districts/agencies, fruit and vegetable processors (canners, dryers and freezers), agricultural service providers, wineries, and other beverage manufacturers.

PG&E marketed and delivered these offerings through a variety of channels, including direct communication with customers, advertising in industry publications, presence at industry events, support for education and research activities, and close partnerships with engineering and installation firms. PG&E complements its statewide EE offerings with concierge EE solutions through its third-party programs focused on specific technologies, segments, or approaches with specialized requirements.

Key Initiatives

Local presence in agricultural communities. PG&E focused on building trust with customers in their own communities by providing information about efficient irrigation equipment and operations via trusted trade professionals, scheduling workshops with partners such as local farm bureaus and the League of Food Processors and collaborating with agricultural universities such as California State University, Fresno and California Polytechnic State University, San Luis Obispo (Cal Poly).

Smooth program transition to outsourced model. PG&E focused on ensuring a smooth transition to the new third party program. This effort included ramping down existing programs and reviewing all projects within the internal and external pipelines to determine the best fit to serve the customer needs.

Opportunities Moving Forward

PG&E is focused on opportunities to support a geographically spread and diverse market through the solicitation process resulting in one new program for the agricultural segment. PG&E completed negotiations and the new program was signed into contract in Q2 2020, with launch activities occurring in Q3 and Q4 2020. PG&E will be focused on fully supporting the new



program while conducting portfolio balancing reviews to ensure a cost-effective and well-performing set of programs.

Agricultural Subprograms

Agricultural Calculated Incentives Subprogram

The Agricultural Calculated Incentives subprogram offers incentives for a wide range of energy-efficient technologies including steam systems, refrigeration equipment, and lighting technologies. PG&E account representatives and engineering experts work closely with customers throughout the design and installation process to evaluate, and help customers implement the most energy-efficient technologies. Customized projects were carefully tracked from audits through project completion, with PG&E EE experts involved at each step.

2020 Strategies and Successes

The Statewide Agricultural Calculated Incentives subprogram assisted in the transition of projects from other closing programs as part of the shift to the new third party implementer model. The role of this program will be diminishing in the future as the portfolio makes room for the new program and any future programs in this sector.

Agricultural Deemed Incentives Subprogram

The Agricultural Deemed Incentives subprogram provides fixed rebates for high volume measures such as VFDs for irrigation pumps or process fans. Projects are typically identified through utility EE audits, customer communications with local PG&E account representatives, or partnerships with equipment vendors and trade allies. Program information was communicated to a customer base of over 33,000 agricultural customers through training events, mass media advertising, and the expertise of PG&E's dedicated agricultural local account representatives and call center representatives.

2020 Strategies and Successes

PG&E continued a rebate offering for VFD equipment for agricultural irrigation pumps, which helped farmers control pumps in response to operational needs. The Deemed Program offers a better use of subprogram administration costs for this high-volume measure, while enabling a simpler customer experience.

Agricultural Energy Advisor Subprogram

In addition to a range of on-site and online energy audit offerings, the Agricultural Energy Advisor subprogram provides pump efficiency services, known as the Advanced Pumping Efficiency Program (APEP). This subprogram offers pump tests and incentives for pump efficiency improvements to agricultural, municipal, and irrigation district customers. Agricultural Energy Advisor subprogram provides customer education and encourages participation in EE, DR, self-generation subprograms and promotes awareness of GHG and water conservation activities. The subprogram provides energy savings opportunities and continuous improvement over time. Aligning integrated improvement opportunities with customers' needs, the Energy Advisor Program helps customers appreciate EE benefits therefore increasing subprogram participation and adoption rates.

2020 Strategies and Successes

To assist businesses and governments, PG&E has allocated substantial funding for pump efficiency tests. These services were communicated through training events, mass media



advertising, and PG&E's ongoing partnership with California State University, Fresno's Center for Irrigation Technology. This program ramped down as part of PG&E's portfolio balancing activities and closed at the end of 2020. However, the pump efficiency testing done through APEP is still a priority for PG&E and will continue through PG&E's Workforce Education and Training (WE&T) program in 2021 and beyond. Customers who would have participated in this program for pump overhauls are now going to be served by the new third party program for this sector, described in the Third Party section below.

Agriculture and Food Processing Wastewater Energy Subprogram (WEP)

Implementer: BASE Energy, Inc.

The Agriculture and Food Processing Wastewater Energy Subprogram (WEP) helps customers in agriculture, food processing, and beverage processing facilities pursue EE and water conservation projects that yield energy savings in wastewater treatment. Through the Wastewater Energy Program, BASE Energy provides economic and engineering feasibility studies for potential projects, assistance in project design and implementation to ensure long-term energy savings, and calculated customer incentives to partially offset capital costs.

2020 Strategies and Successes

2020 was a ramp down year for this program as the portfolio prepared for the new third party programs. The focus was the completion of existing projects in the pipeline and the smooth transition of projects in development. Depending on the stage of development, projects either went to the Industrial Calculated program or held for the new third party program. Following the launch of the Industrial Systems Optimization Program (ISOP), WEP closed in December 2020.

Dairy and Winery Industry Efficiency Solutions Subprogram (DWIES)

Implementer: CLEAResult

The subprogram provides a comprehensive approach to helping dairy, winery, and brewery customers identify and evaluate the energy saving opportunities and facilitating customer action. The objective of the Coordination Activities is to identify all parties that have programs related to the DWIES subprogram and to develop a strategy that minimizes customer confusion, avoids duplication of services or costs, and identifies synergistic opportunities.

2020 Strategies and Successes

DWIES leveraged vendor relationships to coordinate the timing of installation for qualifying high-efficiency ventilation equipment and smart controls to help dairy farmers and their cows beat the summer heat and reduce energy usage and demand. Retrofit projects replaced many small-diameter, inefficient fans with fewer large-diameter, high-efficiency fans, while new load projects successfully moved dairy farmers directly to systems that included highest efficiency, large-diameter fans with variable speed controls. On-Bill Financing (OBF) is promoted and has been well received by this market. Dairy farmers have leveraged OBF as a resource to ensure that projects move forward. The greatest success continued to be the close working relationship between DWIES and PG&E account managers, where customer needs are shared, and strategies are developed jointly to maintain a high level of customer service.

As part of PG&E's portfolio balancing process, the DWIES subprogram ramped down throughout the year and was closed in December 2020. Customers who would have participated in this program are now going to be served by the new third party program for this sector, described below. Customers with active projects after contract end date were transitioned to either the new third party program or the Agricultural Calculated program.



Food Processing Subprogram

Implementer: CLEAResult

The Food Processing Program is a comprehensive subprogram designed to assist food processing customers to identify plant-wide electric and gas energy savings opportunities by providing technical assistance to quantify energy savings and help with the application process to provide cash incentives that encourage implementation of EE projects. CLEAResult's comprehensive subprogram approach encourages deep savings and long-term engagement from many customers, as food processors have diverse operations with multiple opportunities for EE measures.

2020 Strategies and Successes

2020 was a ramp down year for this program, as PG&E finalized local program solicitations and prepared for the launch of new third-party programs. The focus for 2020 was the completion of existing projects in the pipeline and the smooth transition of projects in development. Depending on the stage of development, projects either went to the Industrial Calculated program or were held for the new third-party program, described below. Food Processing program closed in December 2020.

Agricultural Third-party Programs

Third-party agricultural programs³⁵ offers a tailored solution to the specific needs of PG&E's agricultural customers. Through customized solutions and thoughtful program delivery, PG&E's third-party implementers serve the unique energy needs of the diverse Agricultural sector.

Agricultural Energy Savings Action Plan (AESAP) Program

Implementer: TRC

The Agricultural Energy Savings Action Plan (AESAP) Program supports PG&E's vision for the Agricultural Segment to maximize yield while reducing energy consumption using data, technical assistance, analytics, energy efficiency measures and marketing to reduce demand, increase operational efficiency, and broaden customer participation while leveraging the Custom, Deemed, and Meter-Based savings platforms. AESAP also promotes and leverages on-bill financing (OBF) and other private options as a tool to off-set the barrier of capital to fund projects.

2020 Strategies and Successes

Following successful completion of a third-party solicitation that had launched in 2019, PG&E received CPUC approval to launch the AESAP program in October 2020. Program work in Q4 2020 included getting the AESAP set up in PG&E's internal systems, developing customer facing program forms and marketing materials, and the preparation and public posting of the program's Implementation Plan in December 2020.

³⁵ These programs were launched following the Commission-approved solicitations process and meet the third-party program definition as described in D.18-01-004.



Emerging Technologies Program

The Emerging Technologies Program (ETP) is designed to reduce time-to-market for introduction of EE technology solutions aligned with the California Energy Efficiency Strategic Plan (Strategic Plan). ETP's overall goal is to increase the supply of, and market demand for, EE technology solutions, delivered through three core subprograms: Technology Development Support (TDS), Technology Assessment (TA), and Technology Introduction Support (TIS).

Testing Innovative Solutions through the Emerging Technologies Program

PG&E's Emerging Technologies (ET) team actively seeks out new, innovative technology solutions and market approaches, soliciting ideas from both internal and external EE stakeholders to assess potential new technologies for PG&E's EE portfolio in a strategic way. ETP enables PG&E to test and benchmark new and innovative products, services, and market solutions to help bring our customers new and improved opportunities to save energy.

Under the ETP, the TDS subprogram's primary goal was to communicate and collaborate with entrepreneurs and technology providers to increase the supply of EE technology solutions. As part of PG&E's broader portfolio changes, TDS was sunset at the end of 2020. In parallel, the TA subprogram identifies and assesses the performance of emerging EE technology solutions in all sectors that may be offered to customers. Finally, the TIS subprogram seeks to introduce solutions to the market by exposing end users to applications of emerging EE technology solutions in real world settings, and by harnessing third-party projects to deploy such technology solutions on a limited scale in the market.

ETP uses numerous strategies – such as Lab Testing, Field Testing, and Demonstration Showcases – to achieve the objectives of its three subprograms. ETP also enables PG&E to reduce certain market risks by testing and benchmarking new and innovative products, services, and market solution approaches. This helps EE programs understand potential barriers – technical or non-technical – to high adoption rates for new EE technology solutions.

Throughout 2020, PG&E scaled back most ETP activities in preparation for the launch of a Statewide ETP, including the closure of the TDS subprogram at the end of 2020. PG&E continued to collaborate on regional ETP activities with the California IOUs and will continue to ramp down ETP activities in anticipation of the Statewide program launch in 2021.

Emerging Technologies Subprograms

Technology Development Support (TDS) Subprogram

The TDS subprogram was used to assist entrepreneurs, investors, and technology providers to develop new or improved EE technologies and solutions for the marketplace. IOUs are strongly positioned to undertake targeted, cost-effective activities that provide value in support of private industry product development efforts, decreasing innovator uncertainties. Product development constitutes the process of taking an early stage technology or concept (including at the Research and Development (R&D) stage) and transforming it into a product that meets a market need.

Ultimately, the goal of the TDS subprogram was to communicate and collaborate with entrepreneurs and technology providers to increase the supply of EE technology solutions to the

market, including breakthrough technologies and innovations. As part of PG&E's portfolio balancing process, and in preparation for the launch of the Statewide ETP, TDS was closed at the end of 2020.

Technology Assessment (TA) Subprogram

Through the TA element of ETP, energy-efficient technology solutions that are either new to the market or underutilized for a given application are evaluated for performance claims and overall effectiveness – namely cost and end customer attractiveness – in reducing energy consumption and peak demand. Two key objectives of these assessments include 1) the adoption of new measures into PG&E's EE portfolio, and 2) the deeming of specific technology solutions as *not* market ready.

Historically, TAs have been a core strength of ETP and have provided critical support to EE programs. ETP assessments may utilize data and information from different sources to support assessment findings, including in-situ testing (customer or other field sites), laboratory testing, and/or workpaper studies. In addition to other findings and/or information, assessments typically generate some of the data necessary for EE deemed rebate subprograms to construct a workpaper estimating energy and demand savings over the lifetime of the measure. Furthermore, technology solutions that are designated as “not market ready” nonetheless assist technology providers enhance their offerings for the EE marketplace.

Technology Introduction Support (TIS) Subprogram

The TIS subprogram supports the introduction of new technology solutions to the market through several activities. Scaled Field Placement (SFP) projects are the deployment of a technology solution at multiple, participating customer sites as a key step to gain market traction and feedback. Typically, such measures have already undergone a technology assessment or similar evaluation to minimize the risk of failure. Demonstration and Showcase projects are designed to provide key stakeholders the opportunity to thoroughly vet and understand the value of proven technology solutions that advance ZNE, IDSM, and other EE goals.

The overall aim of Demonstration and Showcase projects is to introduce technology solutions to stakeholders from a systems-level, and potentially integrated level, rather than an individual (widget-based) perspective using data gathering and customer feedback in a real-world environment. In addition, the demonstration showcase exposes the technology solution to the public, investors, entrepreneurs and technology professionals, and increases market knowledge for the technology provider. Market and behavioral studies are designed to perform targeted research on customer behavior, decision making, and market behavior to gain a qualitative and quantitative understanding of customer perceptions and acceptance of new technology solutions and business models, as well as market readiness and potential for new EE measures.

2020 Strategies and Successes

Outdoor Lighting Controls Assessment

On behalf of PG&E, the California Lighting Technology Center completed an assessment project that evaluated outdoor lighting controls utilizing motion sensing technology for higher pole heights and detection distances. In the Energy Code, there is a requirement for occupant sensing controls on luminaires mounted at twenty-four feet and below. To understand whether outdoor sensor technologies have emerged that can perform reliably at higher pole heights, unlocking the potential additional lighting energy savings in future programs and code updates,



an assessment was conducted. At this point in the technology emergence pathway, this may be a 2028 Energy Code update measure.

Triple-pane Windows

PG&E embarked on a TIS project to evaluate the market-readiness of triple-pane window technology with thin center panes. This project tests for procurement challenges, cost, and installation issues. It is expected to be completed in 2021.

Indirect-direct Evaporative Cooling

In late 2020, PG&E started a modeling evaluation of an indirect-direct evaporative cooling system that relies solely on evaporating water with no compressors or associated refrigerant, which allows the system to achieve very high efficiencies. This study is due to be completed in late 2021 and is paired with the installation of the indirect-direct evaporative cooling system in one of the Central Valley Research Homes for testing.

Central Valley Research Homes (CVRH) Project

The Central Valley Research Homes (CVRH) project is the product of multiple years of effort by leading energy efficiency researchers and represents a significant investment of funding from the California Energy Commission, California IOUs, and industry. The Energy Commission's Public Interest Energy Research (PIER) program supported the first three years of testing in the four unoccupied homes in Stockton, CA. When PIER funding ended in March 2015, the IOUs provided funding to continue supporting controlled evaluations of two promising but inadequately documented technologies: variable compressor heat pump systems (VCHP) and radiant ceiling panel delivery systems coupled with air-to-water heat pumps.

Testing at three of the four houses has focused on the performance of VCHPs (alternatively called mini-split heat pumps) and the fourth house has focused on radiant panel and air-to-water heat pump (AWHP) performance. Current focuses include testing the performance of legacy VCHPs at two of the research homes to understand if the same control issues exist compared to their mini-split counterparts. One home is evaluating a Sanden HPWH (for space heating and hot water) that uses CO₂ as refrigerant and an indirect-direct evaporative cooling system that uses water as the working fluid, with the purpose of understanding if a low global warming potential (GWP) approach to domestic hot water, space heating and cooling can be achieved. Finally, the fourth house focuses on air-to-water heat pump performance, coupled with radiant ceiling panels, hydronic fan coils, and thermal energy storage.

In 2020, the CVRH project delivered a report documenting the impact of refrigerant charge levels on variable capacity heat pump (VCHP) performance under typical operating conditions. Another project was initiated assessing space conditioning and water heating technologies with very low GWP refrigerant options. A comprehensive Best Practices guide for VCHP design, installation, and field commissioning was also delivered. For the AWHP technology, field testing was completed with hydronic fan coil delivery in both heating and cooling seasons. As a hydronic system, AWHPs are well suited for load-shifting applications to minimize peak load impacts associated with both summer cooling and future winter heating utility peaks. An initial assessment of summer performance was completed in 2020 and posted at the Emerging Technologies Coordinating Council.³⁶ In addition to offering insight into system performance, the CVRH outcomes are used to inform updates to California's Energy Code and the compliance software.

³⁶ Details around PG&E's completed ETP projects are accessible via the ETCC website: <http://www.etcc-ca.com>.



Water Energy Nexus

Advanced Metering Infrastructure (AMI) and Water Savings Study

PG&E continued work on the pilot project launched in 2016 to further understand opportunities for electric utilities and water agencies to collaborate. This pilot focuses on the use of AMI to deliver water savings data. This study measures the value of communicating AMI dependent data (i.e., information collected and conveyed at an hourly temporal resolution at a minimum) to consumers in terms of household water, electricity, and gas consumption. The project will provide information on how behavior-based messaging affects both energy and water savings in the residential sector. This pilot spans multiple years and involves PG&E's water utility partner, East Bay Municipal Utility District (EBMUD), installing over 10,000 new smart water meters and associated infrastructure. In 2019, PG&E began the twelve-month observation period for new AMI installations, and monitored installations through 2020. The final report³⁷ for the Water Energy Nexus AMI Pilot was completed in April 2021.

³⁷ <https://www.etcc-ca.com/reports/water-energy-nexus-ami-pilot-final-report>



Codes and Standards

The Codes and Standards (C&S) Program saves energy on behalf of ratepayers by collaborating with regulatory bodies, such as the California Energy Commission (Energy Commission) and the U.S. Department of Energy (DOE), to strengthen or develop new Energy Efficiency (EE) and greenhouse gas emissions reducing regulations. The C&S Program conducts efforts to increase compliance with regulations to ensure that the State realizes the savings from codes and standards and supports local governments that include reach codes as a climate strategy. PG&E also conducts planning and coordination with other IOUs statewide to optimize collaboration as well as conducting code readiness activities to address data gaps and needs for future C&S activities.

California 2020 C&S Savings³⁸

	Gross Savings			Net Standard Savings			Net Program Savings (with 5% Market Effects)		
	GWh	MW	MMTherm	GWh	MW	MMTherm	GWh	MW	MMTherm
Statewide	13,028	2,144	68.8	6,548	1,176	56.2	4,420	741	41.7
All IOUs	9,322	1,534	68.2	4,685	842	55.6	3,163	530	41.3
PG&E	4,166	685	32.7	2,094	376	26.7	1,414	237	19.8
SCE	3,705	610	-	1,862	335	-	1,257	211	-
SoCalGas	-	-	30.4	-	-	24.8	-	-	18.4
SDG&E	1,451	239	5.1	729	131	4.1	492	82	3.1

Program advocacy and compliance improvement activities extend to virtually all new constructed or renovated buildings and appliances sold in California in support of the California's ambitious climate and energy goals. Through adoption of 2019 Building Energy Efficiency Standards, Title 24, Part 6 (Energy Code), California has achieved the EE Strategic Plan goal that, "New construction will reach 'zero net energy' (ZNE) performance (including clean, onsite Distributed Generation) for all new single and low-rise multi-family homes by 2020"³⁹, and PG&E continues to move California towards non-residential new construction ZNE buildings by 2030 and other major objectives, including: carbon reduction targets in 2020 equivalent to 1990 emissions levels⁴⁰ and 40 percent below 1990 by 2030⁴¹; a cumulative doubling of statewide energy efficiency savings in electricity and natural gas final end-uses by January 1, 2030⁴² to reduce existing building energy usage by 50 percent; near-zero-emission

³⁸ Gross Savings equal potential savings corrected for compliance rate. Net Standards Savings equal Gross Savings after correcting for normally occurring market adoption. Net Program Savings are calculated by applying an attribution factor to Net Standards savings. Savings are based on a combination of data from CPUC ex-post evaluation studies and C&S program forecasts and do not include market effects. Negative gas impacts due to interactive effects were applied to PG&E and SDG&E, but not SoCalGas. While therm savings for "All IOUs" are based on mixed treatment of negative gas impacts, statewide therm savings include negative gas impact for the whole state, so statewide therm savings are lower than those of "All IOUs".

³⁹ California Long Term Energy Efficiency Strategic Plan

⁴⁰ AB 32 (California Global Warming Solutions Act of 2006)

⁴¹ AB 398 and SB 32 (Health and Safety Code Sections 38501(i) and 38566)

⁴² SB 350 (Clean Energy and Pollution Reduction Act of 2015)

building technologies to significantly reduce the emissions of greenhouse gases from buildings.⁴³

Key Initiatives

PG&E's key initiatives for 2020 included:

- Transitioned C&S programs to a new, Statewide program administration model, led by PG&E;
- Advocacy for new or updated sections of California's Energy Code and related American Society of Heating Refrigeration and Air-Conditioning Engineers (ASHRAE) and the International Energy Conservation Code (IECC) activities;⁴⁴
- Advocacy for new or updated sections of California's Title 20 Appliance Efficiency Regulations (Title 20) and DOE appliance standards, and related ENERGY STAR® activities;
- Training, tools, and resources to support compliance with California's existing EE regulations;
- Primary data collection to support DOE and CEC rulemakings, as well as inform CBECC-Res and CBECC-Com;
- Development of new cost-effectiveness studies and other resources to support local government reach codes;
- Planning and coordination activities to guide implementation and optimize work across teams within PG&E and with other California utilities; and
- Code readiness activities aimed at specific industries and technologies for future code cycles.

Opportunities Moving Forward

As the focus on grid harmonization increases, it is necessary for building codes to encourage commercial buildings' electrical systems to be ready for integration with renewables, storage, and respond to signals from the electrical grid. It is likely that integration of on-site generation, storage and efficiency measures will continue into the next several code cycles as greenhouse gas (GHG) reduction milestones and statewide commercial building 2030 ZNE goals and near. As all building types approach ZNE and state zero carbon emissions goals evolve, a greater percentage of C&S program efforts will need to be focused on integrating efficiency measures with distributed energy resources, generally funded in non-EE proceedings. This area of work will be critical to advance in the next decade.

There is still significant room for improvement in the Energy Code and supporting compliance tools, with a specific need to address affordable multifamily buildings, which represent a significant percentage of new housing being constructed to address California's housing needs. This expected increase in construction is an opportunity to build energy efficient dwellings that can contribute to state energy goals. In the 2022 Energy Code cycle, the requirements for multifamily buildings are expected be extracted from the various sections in which they are found and consolidated into a dedicated section that will better serve the needs of this segment of the building industry.

⁴³ SB 1477 (Public Utilities Code 921.1)

⁴⁴ ASHRAE is the American Society of Heating, Refrigerating and Air-Conditioning Engineers. ICC is the International Code Council.



PG&E also sees the opportunity to promote balance between the stringency and accessibility of code, boosting compliance rates. The Compliance Improvement (CI) program will continue to simplify and automate the compliance process through development of dynamic, digital tools that automate and verify compliance for market actors. Throughout 2020, PG&E conducted training to support compliance with the 2019 Energy Code while continuing to develop new training assets. Additionally, PG&E will continue identifying and reaching key market actors in the Title 20 compliance supply chain with whom PG&E may build relationships and pilot new performance solutions.

Interest in the adoption of local reach codes continued in 2020. Through the reach codes subprogram, PG&E supported the creation of multiple topic-specific residential and non-residential cost-effectiveness assessments to support reach code development. These studies were referenced in approximately 43 ordinances adopted by jurisdictions by the close of the year help meet climate action goals.⁴⁵ The majority of the reach codes contain pro-electrification policies, with varying approaches and stringency. Several cities, such as San Francisco and San Jose, adopted all-electric ordinances impacting other parts of the building code in addition to pursuing energy reach codes. These actions sparked significant attention nationwide.

PG&E submitted letters of support to 28 cities over the past two years that requested a public statement as part of their city council approvals process, with the C&S Program serving as a liaison to field requests and deliver letters on time. The subprogram continues to work closely with the local governments, obtaining input along the way to ensure the studies meet jurisdiction needs. Opportunities exist to improve communication resources and develop tools that increase the value of the support the subprogram offers to cities, as well as develop cost-effective packages to offer retrofit ordinance options to begin to affect existing buildings.

DOE is expected to increase its pace on appliance standards and to reverse previous standards or rules⁴⁶ that do not support energy efficiency. This provides PG&E with the opportunity to support the increased focus on energy efficiency through primary data collection and engagement with other stakeholders.

Codes and Standards Subprograms

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 update the California Green Buildings Standards (Title 24, Part 11 or CALGreen). The voluntary energy measures in CALGreen provide foundational elements for local reach codes.

⁴⁵ <https://localenergycodes.com/>

⁴⁶ <https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/20/executive-order-protecting-public-health-and-environment-and-restoring-science-to-tackle-climate-crisis/>



To comply with the Commission's Statewide program and outsourcing goals⁴⁷, PG&E's Building Code Advocacy subprogram 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.

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 state and local 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 email 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.

National Codes and Standards Advocacy

To comply with the Commission's Statewide program and outsourcing goals⁴⁸, 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.

⁴⁷ D.18-05-041.

⁴⁸ D.18-05-041.



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 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.

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 2020.⁴⁹

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.

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,

⁴⁹ Several of the advocacy letters were submitted on the same topic to respond to DOE's ongoing rulemakings.



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.

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 goals⁵⁰, PG&E's Appliances Standards Advocacy subprogram ramped down in 2019 to shift budget and activity to the new Statewide Codes and Standards Advocacy program, which launched in Q1 2020.

2020 Strategies and Successes

In 2020, ASA pursued several specific subprogram efforts. ASA subprogram 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, 2) computers and IOUs supported the adoption of the dedicated purpose pool pump motors and computers standards through advocacy, data analysis and data collection.

Compliance Improvement Subprogram

PG&E supports increased compliance with adopted Title 24, Part 6, Title 20 and federal EE regulations. The C&S Compliance Improvement (CI) subprogram targets market actors throughout the entire compliance chain, providing education, outreach, technical support, and resources to improve compliance with Title 24, Part 6 and Title 20. CI subprogram activities complement other C&S subprogram work by maximizing persistent savings from C&S advocacy activities.

2020 Strategies and Successes

The CI subprogram prepared and began offering an updated, CEC vetted portfolio of training, tools and resources in support of the 2019 building energy code which became effective January 1, 2020. The CI subprogram continued to employ a three-pronged performance improvement approach to enact behavior change by providing 1) training to impart the knowledge and skills necessary to comply, 2) outreach to increase awareness and motivation, and 3) tools and resources to empower people to take the desired action. The work accomplished responds directly to key CI market actor's unique workflow and job tasks and was completed in close collaboration with users and the Energy Commission.

In response to the pandemic, PG&E quickly transitioned all live Standards Essentials courses to the Energy Code Ace virtual training platform. On behalf of the IOUs, PG&E facilitated delivery of more than 159 virtual classes to 3,288 students on top of delivering 20 courses in a traditional classroom setting to 335 students pre-pandemic in PG&E's service area. Overall, Energy Code

⁵⁰ D.18-05-041



Ace achieved a 27% knowledge swing and 97% satisfaction rate on average. Additionally, Energy Code Ace gained more than 11,000 views of the Code and Coffee dynamic form and modeling demonstrations on the program's YouTube channel.

Due to the changes to in-person conferences and trade shows caused by COVID 19, Energy Code Ace increased emphasis on providing targeted online outreach. PG&E strengthened strategic partnerships with key industry organizations such as the American Institute of Architects (AIA) California, California Building Officials (CALBO), California Association of Building Energy Consultants (CABEC), BayREN and US Green Building Council Los Angeles (USGBC-LA) in order to provide their members with the training and resources targeted specifically to their needs. As part of these efforts PG&E:

- Supported AIA California's new Climate Action efforts, contributing resource links and information for its microsite, and developing and providing three webinars
- Supported CALBO in its efforts to increase virtual training for its members by developing and providing two online courses for its CTI training institute
- Supported CEA development with CABEC
- Developed a webinar and provided it in coordination with BayREN
- Developed and provided a webinar for USGBC-LA
- Conducted presentations at approximately 45 online conferences and member meetings.

Along with connecting with market actors during virtual events, PG&E distributed 158 targeted emails to promoting our role-based offerings and classes.

In addition to serving as the gateway to training, tools and resources, the [EnergyCodeAce.com](http://www.energycodeace.com)⁵¹ site also facilitates communication between industry and Energy Code Ace experts. In 2020 alone, PG&E fielded over 1,800 emails, 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.

⁵¹ <http://www.energycodeace.com/>

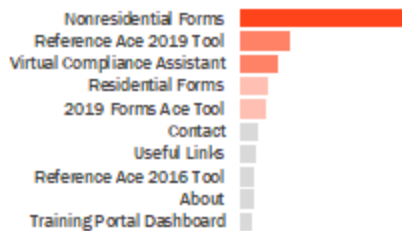


Energy Code Ace Website & User Inquiry Analytics

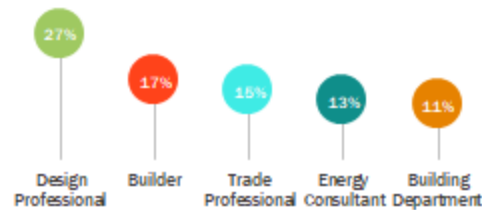
11,556 Total Users
2,322,102 Page Views
1,305,069 Unique Sessions



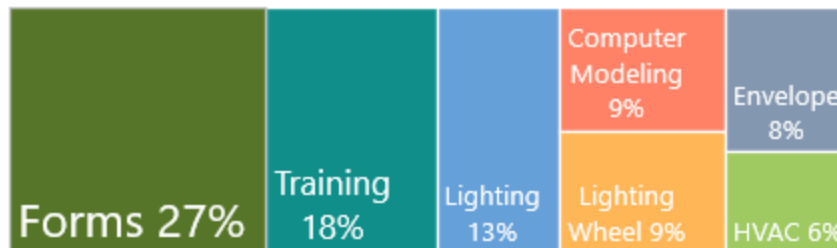
Overall, pages related to documenting compliance were the most popular pages viewed in 2020.



Website user role statistics show engagement spread well across the compliance chain.



The Energy Code Ace Team's most popular queries in 2020 included assistance with **Forms**, **Training**, as well as the popularity of the Nonresidential **Lighting Wheels**.



PG&E conducted a needs assessment through which PG&E gained input from a broad swath of CI market actors regarding all Energy Code Ace offerings. On a macro level, results indicated: user satisfaction with the ECA program overall is high; users love the classes but would like to see more basic level content beside the predominate intermediate offerings; a single resource often addressed multiple needs of multiple audiences providing a force multiply effect to compliance; some users are dissatisfied with their inability to find information on the website when its needed; and architects, energy consultants, plans examiners and building inspectors are well served while builders and installers require more attention. The CI subprogram began acting on the results by enhancing the Energy Code Ace website search function while also determining how the program will use the needs assessment results to guide future work.

The Program also increased its focus on Title 20 compliance. The team began engaging organizations such as state government agencies with the goal of providing procurement guidelines to help them understand Title 20 and influence their purchasing decisions to include

only compliant products. Additionally, the team conducted outreach to prepare industry for new spray sprinkler body standards which became effective in October 2020 and launched a new online pool pump course.

The CI subprogram also supported CABEC's recertification of Certified Energy Analysts (CEAs) for the 2019 building energy code while also helping to establish new CEAs through a new curriculum and mentoring program. Given the favorable results of recent assessments comparing CEA's work with non CEA's, the IOU's new construction incentive programs will begin requiring that CEAs develop modeling and compliance documentation for incentive applicants going forward.

Compliance improvement subject matter experts supported CASE authors and the Title 24, Part 6 advocacy team with 2022 CASE work by providing implementers' point of view.

Finally, the CI subprogram completed adding all nonresidential certificates of compliance to the Energy Code Ace Virtual Compliance Assistant (VCA) which 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. What is more, the Energy Code Ace website now hosts the official CEC compliance forms which helps market actors to realize they have the opportunity to use the VCA and the various helpful resources Energy Code Ace provides to help industry effectively document compliance.

Reach Codes Subprogram

In addition to state and national building codes advocacy, the C&S Reach Codes (RC) Program 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
- Assistance completing and expediting the application process required for approval by the California Energy Commission
- Supporting ordinance implementation once effective

Many local jurisdictions have established goals within their Climate Action Plans to reduce energy use and GHG emissions from buildings 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 reducing GHG emissions reductions as high priority, there is a shift in focus from solely reducing energy use, to targeting energy use reductions associated with carbon emissions. This shift has resulted in an increased level of interest in building electrification, both at the local level, and at the state. The 2019 Energy Code created an all-electric baseline option for low rise residential new construction which allows all-electric designs to readily comply with and exceed the code. 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 of the following ordinance structures, or a combination of the options 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, health and safety code or other municipal code that prohibits new natural gas infrastructure.

- Electric Preferred: requires mixed fuel designs to exceed the code and all-electric designs to comply only.
- Electric-ready: requires mixed fuel designs to install conduit and or/wiring to enable future conversion to electric equipment,

Some jurisdictions are pursuing measure-based reach codes, such as requiring sustainable or cool roofs or 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 installing electric vehicle infrastructure in new buildings.

2020 Strategies and Successes

When the 2019 Energy Code 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 program. Achieving early approval resulted in the effective dates for the reach code aligning with the rest of the building code. Jurisdictions with adopted ordinances include:

Jurisdictions with Adopted Ordinances		
Albany	Los Gatos	San Francisco
Berkeley	Marin County	San Jose
Brisbane	Menlo Park	San Luis Obispo
Burlingame	Millbrae	San Mateo
Campbell	Mill Valley	San Mateo County
Carlsbad	Milpitas	San Rafael
Chula Vista	Morgan Hill	Santa Cruz
Cupertino	Mountain View	Santa Monica
Davis	Oakland	Santa Rosa
East Palo Alto	Ojai	Saratoga
Hayward	Pacifica	Sunnyvale
Healdsburg	Palo Alto	West Hollywood
Los Altos	Redwood City	Windsor (rescinded)
Los Altos Hills	Richmond	
Los Angeles County	San Anselmo	

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

RC Program activities fall into two main categories:

- Direct technical support - including cost-effectiveness studies, model language, and implementation resources, and the Cost-effectiveness Explorer Tool, and
- Resources, Communications and Events - including web site refresh, News Briefs, Frontrunners, conferences, and webinars.

Direct Technical Support

Cost-effectiveness Studies

In addition to sharing the three cost-effectiveness studies completed in 2019, the IOUs circulated resources to complete the Mid-rise Multifamily New Construction study, and

began work on several additional studies: High-rise Multifamily New Construction, Detached ADUs, Residential Retrofits and Electrification, Large Offices, Hotel Laundry and Restaurants (including Commercial Kitchen Equipment), Nonresidential Retrofits and Electrification, Replacing space or water heating with heat pump when purchasing PV system, and Battery Storage. In addition, the Program completed analyses for several individual jurisdictions documenting the results using the local utility rates, including Piedmont, SMUD, San Jose, Truckee, Palo Alto, Los Angeles, and Alameda.

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](https://www.localenergycodes.com)⁵² and Energy Commission websites⁵³.

Supporting Documents

In addition to developing new cost-effectiveness reports, the RC program, 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 include:

- Model Ordinance Language
- Compliance Checklists
- Reach Codes training
- CEC Cover Letters
- Reach Code Options and a
- Reach Codes Primer

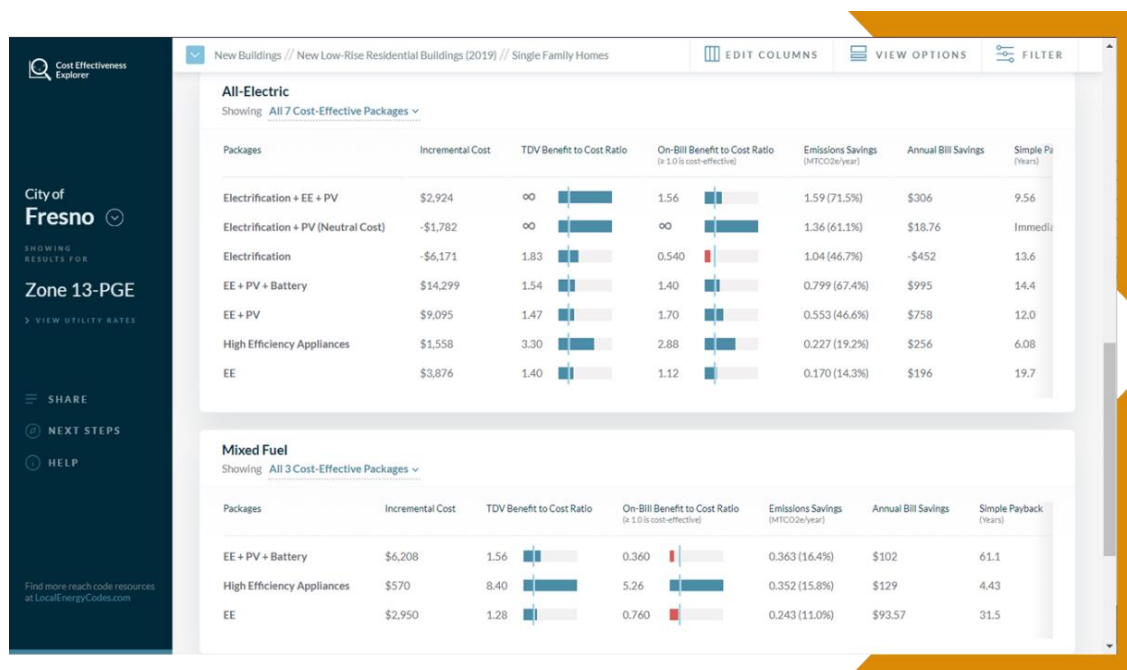
PG&E continued partnering with BayREN, Building Decarbonization Coalition, and CCAs to support jurisdictions through events, resources and training while being cautious to avoid overlapping efforts. In the process of providing letters of support to jurisdictions who requested them, coordination with regional CCAs improved outreach and provided an efficient request pipeline.

Cost-Effectiveness Explorer

The Energy Code is complex and many people responsible for adopting reach codes do not work with the code regularly. In addition, there are many components to both the economic and technical analyses that can be difficult to understand for a layperson. Although the cost-effectiveness studies are required and provide all data sorted by climate zone, it can still be challenging to identify the appropriate data for an individual jurisdiction. The Cost-Effectiveness 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 Explorer launched in October 2020 and allows users to easily access results for their jurisdiction, and format, share or download a report documenting the results. Below is an example of the C/E Explorer:

⁵² <https://www.localenergycodes.com/downloads/2019-adopted-reach-codes.pdf>

⁵³ Approved local ordinances can be found at <https://www.energy.ca.gov/programs-and-topics/programs/building-energy-efficiency-standards/2019-building-energy-efficiency-3>



Resources, Communications and Events

LocalEnergyCodes.com Website Refresh

Local interest in reach codes has 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 looked to a more diverse community for information. To support improved outreach efforts to remain a trusted resource in this growing area, the Reach Codes Program completed a refresh of the program web site. Throughout the year, 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 CA that allows users to search geographically or by Reach Code Path. At the individual jurisdiction level, the map provides a brief summary of the ordinance scope and requirements, and users may download the ordinance and the staff report 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, with 900 downloads June through December. 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 maintaining stakeholder engagement through the website, PG&E 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, 39% of the emails were opened with a click-through rate of 12%.



PG&E 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 web site's home page carousel of images, and together, were downloaded more than 4,000 times in 2020.

PG&E presented and participated in several conferences and held two technical webinars in 2020 including:

- 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
- Residential Retrofits Cost-effectiveness Study Webinar

Planning and Coordination Subprogram

The planning element of this subprogram includes long-term planning and scenario analyses, modeling of impacts from potential C&S program activities relative to California policy goals and incentive programs, development of business and implementation plans, responses to CPUC and other data requests, updating the incremental measure costs for C&S measures, and maintenance of a C&S savings database consistent with evaluation protocols.

The coordination element includes internal and external harmonization with other groups. Internal activities have traditionally included collaboration with several departments: a) incentive, workforce education and training, clean energy transportation and DR programs; b) decarbonization strategies, policy, regulatory, and corporate affairs; and c) emerging technology and product teams. More recently, as building codes have begun to incorporate DG and energy storage, coordination has expanded to strategy integration, DG programs, and others involved in grid management.

Since codes and standards impact the entire state and almost all building types, occupancy categories, and related technologies, external harmonization activities encompass: 1) California Public Utilities Commission, California Energy Commission, Air Resources Board, 2) other IOUs, municipal utilities, and utilities in other states, 3) national advocates such as the Appliance Standards Awareness Project (ASAP), Natural Resources Defense Council (NRDC), Northwest Energy Efficiency Alliance (NEEA), Sierra Club, American Council for and Energy-Efficient Economy (ACEEE), National Consumer Law Center, Consumer Federation of America, 4) representatives of various manufacturing companies and industry groups such as the Association of Home Appliance Manufacturers (AHAM), Consumer Technology Association (CTA), NEMA, Air-Conditioning, Heating and Refrigeration Institute (AHRI), American Gas Association (AGA), and 5) water utilities and local governments, and 6) other parts of the compliance improvement supply chain: building inspectors, Title 24 consultants, Contractor State Licensing Board (CSLB), and others.

2020 Strategies and Successes

In late 2020, CARB and Energy Division approached the statewide codes and standards program IOU members and requested support for the development of proposals to update the electric vehicle infrastructure (EVSE) requirements in CALGreen (Title 24, Part 11) using the CASE report methodology, including cost / benefit analysis. Coordinating with clean energy

transportation team members within PG&E, and with staff from SCE and SDG&E, cost models and supporting information on expanding requirements for EVSE in non-residential new construction scenarios for light, medium and heavy duty vehicles was in development at the close of the year. This project will be completed with the CALGreen adoption by the Building Standards Commission within the next year.

Code Readiness Subprogram

The primary purpose of the Code Readiness (CR) subprogram is to accelerate achievement of state policy goals related to energy efficiency, decarbonization, and grid harmonization through C&S and long-term tactical planning, data acquisition, and industry outreach. Technologies and disruptive systems are tested and demonstrated with the aim of collecting high-quality information and data needed to support improvement to C&S; specifically, test procedure representativeness, as well as measure cost-effectiveness, feasibility, and compliance efficacy.

Retail Appliance Accelerator (RAA)

In 2020 the RAA was added to the Code Readiness Subprogram. The RAA is the mechanism for PG&E's participation the National ENERGY STAR Retail Products Platform (ESRPP). The RAA subprogram provides advocacy support by promoting the adoption of higher efficiency appliances through the use of inducements to retailers for qualifying energy efficient appliance sales, as well as providing data to support advocacy and positive engagement with manufacturers. RAA now supports test procedure development on several appliance categories while also providing sales data for the following:

- Residential Clothes Dryers (RAA sales data and test procedure development)
- Residential Refrigeration (RAA sales data and test procedure development)
- Residential Room Air Conditioning (RAA sales data)
- Residential Clothes Washers (RAA sales data)

Plans for expanding on this list of appliance categories is underway for the 2021 program year.

Non-Residential field Research

Non-Residential field research activities continued in 2020, with the completion of five field assessment projects while recruitment efforts continued for the second wave of project sites for additional field monitoring assessment of existing DOAS and VRF installations. The following are notable successes:

- Code Readiness DOAS Field Assessment efforts and the Davis Rifle Range draft report were leveraged to provide support to the CASE 2022 Nonresidential HVAC Controls report. The preliminary site information was helpful to demonstrate how this technology is being built and operated and was energy codes could enhance basic efficiency requirements.
- Code Readiness DOAS Field Assessment data was used by Federal standards advocacy efforts for DX-DOAS products. Select sites with these products had valuable operational information able to help the CA IOU team develop their advocacy report.
- Code Readiness DOAS Field Assessment sites were able to be used by Federal Standards advocacy team looking to monitoring VRF in more depth and provided clients who were willing to participate in a more advanced effort. This overall saved on time and effort in finding technology installations.
- Code Readiness DOAS Field Assessment sites with VRF monitoring helped the staff at NEEP who are developing a cold climate VRF research plan to understand

lessons learned on building monitoring and data gathering best practices with these types of systems.

- Research teams at New Buildings Institute codes and standards teams are interested in understanding how DOAS code enhancements to inform larger US code advocacy for low energy buildings and were able to use the Draft CASE 2022 report which built on Code Readiness DOAS efforts.
- Code Readiness DOAS Field Assessment site data helped to identify Energy-Savings and Performance Improvement Controls Opportunities at client sites:
 - Oakland – Code Readiness Team’s observation of a decrease in exhaust fan power through our submeter trends led to the identification of loose belt on exhaust fan resulting in airflow not meeting design requirements.
- Martinez – Code Readiness Team’s trend observations alerted Martinez site that VRF system was operating unintentionally during unoccupied hours resulting, which they fixed.
- PG&E also continued roof-top unit (RTU) economizer research and field study intended to improve code baseline assumptions. Recruiting challenges have not changed, but progress will allow for testing of nearly 30 locations with an expected study completion date for this research project mid-2021.
- Portable Battery testing to determine product performance and develop a test procedure. This work supports building code efforts to include batteries in residential buildings.

Multifamily Research Projects

In 2020, the CR subprogram continued with a multifamily new construction research project where the application of heat pump water heaters (HPWH) in a central water heating configuration will assess the performance of certain grid-interactive HPWH control strategies. The following are examples of two CR projects that progressed in 2020:

- Creekside project:
 - Successfully installed, commissioned, and connected all necessary data collection equipment and identified and resolved issues related to the location of the HPWHs before seasonal changes could cause significant operational problems.
 - The project site was at near full occupancy by the end of 2020. 37/40 monitored units.
 - Collected and analyzed seasonal data trends; identified electrical load and consumption issues related to high-use occupants and seasonal changes
 - Developed computer simulation of the water heaters as configured at the site; calibrated the model based on site data.
- MF Air Infiltration:
 - Identified data gaps (including energy savings) that contributed to the failure to adopt MF Compartmentalization to become a mandatory requirement in 2019 T24 update; developed mid-rise MF model and quantified energy savings for that measure and support future CASE initiatives.
 - Identified key limitations in the modeling capabilities of CBECC-Com, which will likely need to be addressed to support new code requirements for MF compartmentalization.

Workforce Education & Training

PG&E's Workforce Education and Training (WE&T) Program provides people who design, build, operate, and maintain buildings and building systems the relevant skills needed to eliminate unnecessary energy use. WE&T teaches the energy workforce the best practices to save energy in support of PG&E's and the California's energy efficiency and carbon-reduction goals.



PG&E continued to demonstrate leadership in the local, state, and national EE workforce arenas in 2020. While administering the WE&T subprograms—Integrated Energy Education & Training (IET) and Connections—PG&E collaborated with and provided technical advice to local workforce development organizations, educational institutions, and building trades training programs. PG&E also presented at local and national workforce development and technical conferences and served as technical advisors to PG&E resource programs and to external industry groups.

Key Initiatives

Virtual Training

In early 2020, COVID-19 shelter in place orders across PG&E's territory presented new challenges and opportunities for WE&T. In response to a need for safe, remote learning starting in March 2020, PG&E cancelled all in-person classes and rapidly expanded online training by assessing which classes could be conducted remotely, expanding the use of best practices and teaching methods for distance learning, supporting students and instructors who hadn't participated in remote learning previously, and expanding the library of on-demand classes that students can access at their convenience from 33 to 55.

Supporting the Energy Savings Assistance (ESA) Program

PG&E continued to support the Energy Savings Assistance (ESA) Program by offering a blended learning experience comprised of on-demand, webinar, and in-person training for the Energy Specialist, Weatherization Specialist, Duct Test and Seal and Natural Gas Appliance Testing technician roles. Due to shelter-in-place orders, modifications made in 2020 allowed PG&E to deliver training safely through webinars, thus optimizing the time and travel costs associated with ESA contractor training.

Expanding Program Reach through Collaborations

For several decades, PG&E has collaborated with professional, trade, and workforce development organizations that share common workforce goals, including safety, energy efficiency, and a highly skilled energy workforce. In 2020, PG&E collaborated with various organizations to reach additional and new members of the energy workforce. Nine of those collaborations resulted in formal Statements of Collaborations in support of PG&E's WE&T Business Plan metrics. Those formal collaborations included,

- 1) Leading a statewide IOU collaboration with Stanford University's Center for Professional Development to enhance the Energy Innovation and Emerging Technologies certificate program and make it more accessible to energy professionals in California;
- 2) Providing instruction and energy efficiency training modules for San Francisco's Stationary Engineers Local 39 to incorporate into their training program;
- 3) Reviewing, expanding, and updating the energy efficiency content of the Illuminating Engineering Society's (IES) Intermediate Quality Energy Efficient Lighting Course;
- 4) Upskilling un- and under-employed workers to complete an 8-day Building Operator Certification course and providing career support services;
- 5) Supporting faculty and staff at four higher educational institutions with training resources for energy efficiency training and energy projects support;
- 6) Supporting students at higher educational institutions with energy efficiency training, internships, fellowships, and sustainability outreach campaigns; and
- 7) Working with New School of Architecture and Design on the Architecture at Zero competition for a new library in Hollister, CA. Architecture at Zero is a competition where participating teams of design students or design professionals create detailed, specified submissions fulfilling requirements of the host site plans for a future facility.

In 2020, PG&E continued several successful collaborations from 2019, and expanded the number of collaborations from 6 to 9. In 2021, PG&E will continue some of the successful collaborations and seek new opportunities to collaborate with other organizations with a goal of at least 8 collaborations including new and on-going collaborations.

Strategies and Successes

2020 was a year of tremendous change and adaptation for PG&E's customers. PG&E responded to customers' rapidly-evolving needs, as well as a dynamic and diverse set of carbon reduction goals across PG&E's territory. PG&E rose to these challenges by focusing on delivering training over the Internet and developing classes to address rapidly-changing technologies. WE&T continued to deliver educational programs, technical advice, and energy measurement tools to a diverse set of building professionals who have the potential to design, build, and operate in ways that will save energy in the short and long term.



WE&T programs continued to refine and enhance marketing efforts with an increased emphasis on multiple marketing channels including email promotions, quarterly newsletters, partner organizations, social media advertising, and two new marketing campaigns—New Events and Continuing Education Units. Marketing efforts contributed to approximately 47 percent increase in total class attendance from 2019.

The WE&T organization leveraged training development and delivery expertise (Training-as-a-Service) in select projects benefitting the PG&E program workforce or customers. These projects are separate from Integrated Energy Education and Training (IEET) which is focused on PG&E customers that design, build, maintain and operate buildings and building systems. In 2020, WE&T programs completed three projects benefitting the PG&E Energy Efficiency programs, including a refreshed training for project developers utilizing On Bill Financing, a new

training for project developers, program managers and technical reviewers highlighting key concepts in the recently released PG&E Resource Savings Rulebook V1.0, and an intermediate level training for PG&E program managers on energy efficiency cost effectiveness. The cost-effectiveness training is the second part of a series first introduced in 2019 and will be made available both to energy efficiency program implementers and the general public by mid-2021.

As dozens of California municipalities instituted new or continued existing local electrification and decarbonization ordinances in 2020, the topics of electrification and decarbonization became increasingly important and relevant to the WE&T audience. PG&E developed, updated, and delivered over 30 classes on electrification and decarbonization on topics including heat pump water heaters, induction cooking, heat pump space conditioning, battery storage, and grid integration. In 2021, with input from other internal stakeholders, WE&T will continue to offer such classes and develop new ones to address the rapidly-changing landscape and the customers' need for information on how to decarbonize buildings and cities.

Opportunities Moving Forward

In support of WE&T Business Plan goals and strategies, PG&E released two RFAs and subsequent RFPs in 2020, covering two statewide Third-Party WE&T solicitations: Career Connections (CC) and Career & Workforce Readiness (CWR). Career Connections will support K-12 teachers, K-12 students, and organizations training future generations of the energy workforce. Career & Workforce Readiness will support and train disadvantaged workers to enter the energy workforce and place program participants into jobs where they can use the skills they acquired. Both programs are expected to launch in late 2021.

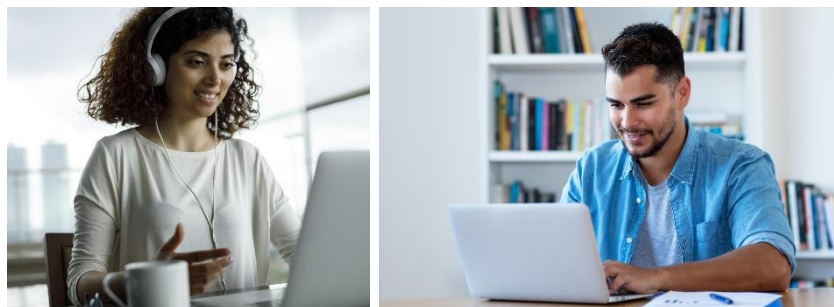
PG&E also recognizes that there are opportunities to increase the participation of disadvantaged workers⁵⁴ in available trainings. PG&E will increase the focus on collaboration with organizations that reach disadvantaged workers and will develop targeted marketing efforts to reach these students.

In 2020, WE&T began to manage the Advanced Pumping Efficiency Program (APEP) run by the Fresno State Center for Irrigation Technology. APEP provided pump retrofit incentives to agricultural customers along with subsidized pump tests, educational seminars, and technical assistance to farmers through PG&E's Industrial, Agricultural, and Water (IAW) resource program. Incentives are no longer offered through APEP and the remaining program activities were transferred to WE&T. WE&T conducted the contracting necessary to authorize 2021 services and began to transition the educational components of the program to be consistent with WE&T formats and standards. Through APEP's educational and technical assistance services, PG&E farm and agriculture customers will learn how to implement best practices for energy and water efficiency to reduce their operating costs and carbon footprints.

⁵⁴ D.18-10-008 defines a disadvantaged worker as "an individual that meets at least one of the following criteria: lives in a household where total income is below 50 percent of Area Median Income; is a recipient of public assistance; lacks a high school diploma or GED; has previous history of incarceration lasting one year or more following a conviction under the criminal justice system; is a custodial single parent; is chronically unemployed; has been aged out or emancipated from the foster care system; has limited English proficiency; or lives in a high unemployment ZIP code that is in the top 25 percent of only the unemployment indicator of the CalEnviroScreen Tool."

WE&T Subprograms

In 2020, PG&E implemented two WE&T subprograms: Integrated Energy Education & Training (IEET) and Connections. IEET's audience includes the incumbent energy efficiency workforce and people who are about to enter the workforce. The Connections audience consists of K-12 students, K-12 teachers, and organizations training future generations of the energy workforce.



Integrated Energy Education & Training (IEET)

The Integrated Energy Education & Training (IEET) subprogram targets the incumbent energy efficiency workforce—people who design, build, maintain or operate buildings and building systems—across several market segments, including agriculture, foodservice, commercial, industrial, and residential. While in-person activities were restricted in 2020 due to COVID protocols, IEET typically provides in-person and web-based education and training programs, technical advice, outreach events, and energy measurement tool loans.

2020 WE&T Accomplishments

Metric / Deliverable	Quantity
Formal Collaborations with other organizations*	9
Total Class Attendance*	19,819
Class participants as a percent of eligible target population*	3.6%
Percent of participants meeting the definition of Disadvantaged Worker*	44.4%
Number of Classes	460
Tool Lending Library (TLL) Transactions**	161
Tool Lending Library Tools Loaned **	2200
Tool Lending Library Projects Supported **	127

*Formal WE&T Business Plan Metric

**To comply with COVID-19 safety and health guidelines, the TLL temporarily suspended tool loans to the public in mid-March 2020

2020 Strategies and Successes

In 2020, PG&E focused on delivering high-quality and industry-relevant classes, outreach events and tool loans that prepare California's building industry to meet the state's energy and climate goals. PG&E undertook continuous improvement initiatives to improve student records processes and to decrease the average cost per student.

In 2020, PG&E launched a new online learning management system (LMS) capable of facilitating account registration, course enrollment and learning activity tracking for three primary

modalities: live in-person events, live online webinars, and self-paced online coursework. Previously, participants had to use three different platforms, one for each modality.

The four IOU WE&T teams collaborated to share on-line resources as a way of improving cost efficiency and addressing the need to immediately modify operations with the suspension of in-person training due to COVID. Building on the 2019 piloting of shared simulcasts, the IOUs quickly pivoted to cross-promoting online classes. In addition to collaborating between IOUs, the PG&E WE&T programs also collaborated with 3C-REN, Marin Clean Energy and BayREN under Joint Cooperation Memos (JCMs). The intent of the JCMs is to share existing training resources, to increase attendance, and to avoid duplicative efforts in developing new training.

The Climate Corps program partners with higher education institutions and state agencies to recruit and place Fellows in jobs where they assist Energy Manager or Facilities & Maintenance staff while earning a stipend, college credit, and/or a professional certificate. Climate Corps Fellowships focus on a range of topics, including energy efficiency, conservation, sustainability, climate action planning, transportation, recycling, renewables, and water-energy nexus. In 2020, Climate Corps placed Fellows at Fresno State, UC Hastings, Department of Transportation, Oakland Unified School District, CSU Sacramento, and CalRecycle. Climate Corps Fellowship training and projects kicked off at the end of 2020 and in progress in 2021.

Responding to the increasing percentage of students who chose to attend events online and propelled suspension of in-person training during COVID, PG&E decided to close the Pacific Energy Center in early 2021, after 30 years in San Francisco. Moving forward, WE&T program will be focused on reaching even more customers through online classes, the Energy Training Center in Stockton, and local training partners across PG&E's territory. PG&E will also continue offering customers a no-cost Tool Lending Library from the San Ramon Valley Conference Center.

Connections

The Connections subprogram develops, inspires, and trains future generations of the energy workforce. Connections provides teaching and career information resources to kindergarten through postsecondary teachers and students to educate and inspire students on topics such as energy, EE and sustainability education, green career awareness and experiences. Connections also informs students about career and education pathways in the energy sector and provides students with career exploration opportunities. In 2021, PG&E will sunset Connections as the work for the K-12 sector will be replaced by the statewide Career Connections third-party solicitation described above. Connections activities serving the post-secondary sector will continue as part of the Integrated Energy Education & Training (IEET) WE&T subprogram.



2020 Strategies and Successes

In response to COVID-19 and school closures in 2020, Connections programs responded to meet the rapidly changing needs of educators and families with distance learning resources that not only were adapted to online, learning, but ensured disadvantaged students at home without access to technology were served.



PEAK Student Energy Actions (PEAK) teaches K-8 students how to manage energy use at their homes and schools and inspires students to pursue green careers. The K-8th grade PEAK Student Energy Actions program highlights include actively promoted the PEAK program through virtual platforms and interactions, remotely launching new partnerships, and Facilitating a three-part Educator Professional Development Webinar Series to provide educators information and tools better to utilize Google Education tools for their virtual classroom. Training to the 113 registered attendees included learning how to connect PEAK lessons directly to the Google Classroom and tips and tools to organize and set up a classroom. Examples tips and tools included using Google meet to enhance student engagement and keep track of attendance, use of Google Slides, Forms, and Sheets within Google Classroom or during a virtual class, creating an interactive website for students to add assignments and written work, and how to use Google Draw to customize classrooms and assignment materials.

Energize Schools provides teacher training and prepares 9th – 12th grade students for energy careers and higher education programs through project-based sustainability curriculum and student-led action projects.

In 2020, Energize Schools adapted curriculum, Green Career Conferences, and a student energy competition to the virtual learning environment. Highlights included providing hands-on distance learning opportunities for students remotely while ensuring support for disadvantaged students by creating curricula activities adaptable with, or without internet access, for Energy Auditing, Climate Change, Renewable Energy, and Air Quality curricula. Hands-on distance learning projects required easily-accessible materials at home.

Energize Schools also launched an Energy Challenge, a month-long online competition that featured weekly hands-on activities that were adaptable for distance, hybrid, or in-person learning and garnered the participation of 430 high school students across the statewide IOU territories. Challenge activities, such as home energy audits and conservation action planning, encouraged students to explore their own energy use and determine ways to reduce their consumption. The Challenge integrates an energy conservation campaign to motivate students to educate their school community using online tools, such as social media. To increase accessibility, the Energy Challenge resources are bilingual in English and Spanish.

Connections Subprogram	Grades Served	Total # of Students	Total # of Schools	% Title 1 of > 40% FRPM ⁵⁵
PEAK	K-8	7,044	18	78%
Energize Schools	9-12	11,618	70	66%
Total		18,605	88	69%

WE&T Summary

PG&E is looking forward to launching new programs in 2021 as a result of the statewide third-party solicitations and will continue to focus on continuous improvements and increased remote, on-demand learning to provide the right training to the right audience through the WE&T program.

⁵⁵ Connections targets Title 1 schools, or, schools where more than 40% of its students are on the Free & Reduced Meal Pricing (FRPM) plan. The definition for FRPM includes “those who are directly certified for meals at no cost, on the basis of their participation in CalFresh, CalWORKs, the Food Distribution Program on Indian Reservations, and Medi-Cal free, and the extension of these benefits go to students within the same household. Also included are students certified as homeless, migrant, foster, runaway, or participating in the Head Start program.”

Financing Program

PG&E's EE Financing program is designed to help customers finance the up-front cost of EE projects. The statewide financing program is offered in conjunction with other PG&E EE programs to stimulate and enable higher levels of customer participation.

Key Initiatives

On-Bill Financing Program Expansion

In 2020 the OBF program continued to be a popular program, with 708 loans issued for a total value of \$57 million. This is broadly in line with the prior year. OBF loans are issued primarily directly to the customer through industry trade professionals, though many PG&E contracted programs also incorporate OBF into their offering.

COVID-19 Relief

In recognition of the COVID-19 pandemic's impact on customer financial well-being, PG&E sought and received Commission approval to offer six-month OBF loan repayment deferrals in April 2020. With over 200 customers participating in the loan deferral offer in 2020, these loan repayment deferrals offered economic relief to PG&E customers with minimal ratepayer impact. Due to the ongoing nature of the COVID-19 pandemic, PG&E sought Commission approval in March 2021 to extend the loan deferral offering to customers through December 2021.⁵⁶ The Commission issued approval of this financial relief effort in late March 2021, and extended OBF loan deferrals will be made available to customers in early April 2021.⁵⁷

Strategies and Successes

PG&E's EE Financing subprograms facilitate portfolio energy savings by allowing customers to pursue large, comprehensive efficiency retrofit projects that might not have been financially feasible otherwise. PG&E also offers OBF in combination with all other non-residential programs, in order to support customers across PG&E's non-residential sectors by reduce first-cost project barriers. In 2020, the OBF Program maintained a similar level of financing to the prior year despite the impact of COVID-19 and the transition to OBF loans being issued primarily without incentives. PG&E has also continued collaborative efforts with the statewide IOUs and CAEATFA, to develop financing pilots that will offer more flexible terms to a broader array of customers.

PG&E's OBF Program Continues Popularity

In 2020, PG&E maintained the success of the OBF program while making significant investments to improve processing time and scalability for the future.

OBF delivered \$57 million in loans across the agricultural, commercial, institutional, industrial, and multifamily sectors in 2020.



⁵⁶ PG&E Advice Letter 4397-G/6110-E.

⁵⁷ Commission Disposition approving PG&E Advice Letter 4397-G/6110-E.



Financing Subprograms

On-Bill Financing

OFB is a key enabler of energy savings across customer classes, providing zero percent financing for qualifying EE retrofits, with loan payments appearing as fixed monthly charges on the customer's PG&E bill. OFB helps customers, who would otherwise have difficulty qualifying for commercial credit, get over the first cost hurdle to EE investment, unlocking broader and deeper cost savings while supporting PG&E's energy savings targets.

2020 Strategies and Successes

In 2020, the OFB Program issued more than \$57 million in new loans to 708 customers. Following the Commission's approval to offer six-month OFB loan repayment deferrals, PG&E also granted temporary repayment deferrals to over 200 customers in 2020. PG&E will continue offering loan repayment deferrals through December 2021. Following the approval of PG&E's request to modify the OFB offering, the Commission requires PG&E to provide additional reporting on the OFB program as part of the Energy Efficiency Annual Reports.⁵⁸ PG&E is required to report on "default rates, energy savings, status of efforts to replace incentives with loans, and the degree of free ridership, if any, associated with energy efficiency projects financed through the OFB program."⁵⁹ Energy Division, in collaboration with the PG&E Financing team, completed the evaluation of free ridership in the OFB program in August 2020, with study results highlighting minimal free ridership in the OFB program (Net-to-Gross = 0.94).⁶⁰

In 2020, the OFB program did not record any loan write offs. However, this was in large part due to PG&E's company-wide suspension of collection activities, in support of customers impacted by COVID-19. Once collection activities around customer accounts is reinstated in 2021, PG&E anticipates that loan defaults relating to customers that went into arrears in 2020 will result in an increased default rate reported for 2021. A higher default rate is not expected to materially impact OFB program operations. Loans issued without accompanying measure incentives in 2020 represented a total of 27 GWh in energy savings. PG&E continued to see growth in the use of OFB without incentives in 2020, with 87% of OFB loans issued without incentives, compared to 60% in 2019. PG&E anticipates that, in 2021, the overwhelming majority of OFB loans will continue to be issued without incentives. To continue encouraging customers to pursue financing in lieu of incentives, PG&E has worked to make the OFB application and program participation process as user friendly as possible.

Financing Pilot Subprograms

The IOUs have supported CAEATFA in the development of a set of statewide Financing pilot subprograms designed to encourage private lenders to offer financing products specifically for EE projects by offering both credit enhancements in the form of loan loss reserves, and the option of loan collection by the utility on behalf of the lender (On-Bill Repayment or OBR). The pilots include ratepayer-supported credit enhancements (CE) for residential properties and small businesses. The CEs are expected to provide additional security to third-party lenders and private capital, intended to extend or improve credit terms for EE projects.

⁵⁸ D.19-03-001, OP 4

⁵⁹ Ibid.

⁶⁰ Evaluation of the On-Bill Financing - Alternative Pathway, PY2018-2019, CADMUS, (August 2020). The report is publicly available at http://www.calmac.org/publications/OBF-AP_PY18-19_Process_Evaluation_Final.pdf

Integrated Demand-Side Management

The California Long-Term Energy Efficiency Strategic Plan (Strategic Plan) was originally established in 2009, and recognized the integration of DSM options, including EE, DR, and DG, as fundamental to achieving California's strategic energy goals.⁶¹ To support that initiative, the IOUs identified Integrated Demand-side Management (IDSM) as an important strategic DSM policy priority and engaged in a series of activities, pilots and other subprograms in response to the Strategic Plan DSM Coordination and Integration Strategy.

While previously oriented towards the Strategic Plan goals and directives, 2019 saw the conclusion of work and reporting driven by the 2009 Strategic Plan goals, and a shift towards pursuing PG&E's Business Plan goals and objectives as approved by the Commission in 2018.⁶² In PG&E's 2020 Annual Budget Advice Letter (ABAL)⁶³, PG&E signaled that, to further align with CPUC goals for program integration, IDSM activities would be embedded within the residential and commercial sector resource programs. Embedding integrated activities into existing resource programs in this way enables increased adoption of IDSM solutions across the portfolio.

In 2020, PG&E coordinated on the following statewide IDSM initiatives:

- 1) Development of a proposed method to measure cost-effectiveness for integrated projects and programs including quantification and attribution methods that includes GHG and water reductions benefits and the potential long-term economic and electric/gas hedging benefits.
- 2) Development of proposed measurement and evaluation protocols for IDSM subprograms and projects.
- 3) Review of IDSM-enabling emerging technologies for potential inclusion in integrated programs.
- 4) Development of cross-utility standardized integrated audit tools using PG&E's developed audits as a starting point.
- 5) Tracking of integration pilot programs to estimate energy savings and lessons learned and develop standard integration best practices that can be applied to all IOU programs

Achieving IDSM Objectives

PG&E continues to work towards taking a holistic approach to customers' needs when offering potential solutions to customers. Collaboration is a focus amongst many different internal departments including EE, DR, rates, customer support, emerging technology, electric vehicles, net metering, energy assistance and others to develop the offer the right solutions, to the right customer, at the right time. PG&E continues to emphasize the importance of this approach as IDSM becomes embedded through the EE portfolio.



⁶¹ D.09-09-047

⁶² D.18-05-041

⁶³ PG&E Advice 4136-G-A/5627-E-A, filed November 15, 2019.



based on pilot program evaluations and the results of additional integration promoting activities (e.g., EM&V and cost-benefit results).

- 6) Development of regular reports on progress and recommendations to the CPUC.
- 7) Organizing and overseeing internal utility IDSM strategies by establishing internal Integration Teams with staff from EE, DR, DG, marketing, and delivery channels.
- 8) Providing feedback and recommendations for the utilities' integrated marketing campaigns, including how the working group will ensure that DR marketing programs approved as Category 9 programs are coordinated with EE integrated marketing efforts.

Strategies and Successes

PG&E's 2020 IDSM efforts focused on launching embedded IDSM opportunities that support PG&E Business Plan goals, with a focus on the following program offerings within PG&E's EE portfolio:

- **Pay for Performance Pilot Programs** – These third-party residential sector programs provided targeted interventions to high energy use customers in 2020. These sub-programs included performance payments to the programs' third-party implementers for incremental peak energy savings (kWh) during the summer (June-September) peak periods of 4-9pm. Through measure based, behavioral, and operational interventions, the program implementers were able to assist participating customers in reducing peak energy use during the above times. To learn more about Pay for Performance programs, please see the Residential Program chapter of this report.
- **Demand Response Emerging Technologies** - In 2020, PG&E completed a demand response emerging technology (DRET) funded study on grid-connected heat pump water heaters. The study focused on understanding the modes and mechanisms for sending load-shifting signals to these units and receiving performance data in return. Detailed results are available in a separate DRET evaluation report.
- **Residential Energy Efficiency** - To provide increased energy management assistance to our residential customers during the shelter-in-place and stay-at-home orders resulting from the COVID-19 pandemic, PG&E increased the EnergyStar smart thermostat rebate for eligible electric customers on or willing to adopt PG&E's E-TOU-C (4-9pm peak pricing) electric rate. This enhancement increased the rebate on qualified products from \$50 up to \$120 per eligible customer and utilized IDSM funds for this \$70 rebate increase. To learn more about the Residential Energy Efficiency program, please see the Residential Program chapter of this report.
- **Commercial Calculated Incentives** – This program continued the enrollment strategy that began in 2019, which offers increased customer incentives for projects dual enrolled in the PG&E Automated Demand Response program. 2020 approved projects are expected to complete work by mid-2021.



Opportunities Moving Forward

Third Party Solicitations

In 2020, PG&E worked closely with its Independent Evaluators (IE) and the Procurement Review Group (PRG) to complete the Request for Abstracts (RFA) process and continue work on the Request for Proposals (RFP) for PG&E's all-sector solicitation. In addition, PG&E initiated a solicitation for non-resource Local Government Partner programs and completed a solicitation for Statewide Codes and Standards Advocacy. As a result, PG&E signed new third-party contracts utilizing IDSM funding in the Residential, Commercial, Agriculture, and Public sectors throughout the portfolio. These contracts and implementation plans have been approved by the Commission and the resultant programs are launching in Q1 and Q2 2021.

Industrial Strategic Energy Management

In late 2020 and early 2021, PG&E also expanded IDSM into manufacturing and food processing through the Industrial SEM subprogram. Within SEM, IDSM will provide certain implementer performance payments and customer incentives for reaching project milestones and deliverables as well as measured energy savings when the specific projects adhere to IDSM guidelines. IDSM focused work will begin in Q2 2021. To learn more about SEM programs, please see the Industrial Program chapter of this report.



Tables and Appendices

Section 1 Energy Savings

Table 1

Electricity and Natural Gas Savings and Demand Reduction (Net)

Annual Results	2020 Installed Savings	CPUC 2020 Adopted Goals (D.17-09-025)	% of Goals (2020)
2020 Energy Savings (GWh) – Annual	1,732.3	955	181%
2020 Energy Savings (GWh) – Lifecycle	22,597		
2020 Natural Gas Savings (MMth) – Annual	35.8	25	143%
2020 Natural Gas Savings (MMth) – Lifecycle	395		
2020 Peak Demand savings (MW)	291.9	195	150%

(1) All energy savings numbers are on a net basis, with 5% market spillover. Energy savings are based on the actual accomplishments recorded in 2020.

(2) Installed savings for PG&E includes Codes and Standards (C&S), Bay Area Regional Energy Network (BayREN) as reported in their April 2, 2021 email to PG&E, Marin Clean Energy (MCE) as reported in their April 2, 2021 email to PG&E, and Tri-County Regional Energy Network (3C-REN) as reported in their April 7, 2021 email to PG&E.

(3) CPUC Adopted Goals and installed savings excludes Energy Savings Assistance (ESA) Program.

Section 2 Emission Reductions

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
2020 Portfolio Targets	N/A	N/A	N/A	N/A	N/A	N/A
PG&E	848,287	8,489,144	194	2,311	26	347
2020 Total	848,287	8,489,144	194	2,311	26	347

(1) All Environmental Impacts are net with 5% market spillover.

(2) Excludes Energy Savings Assistance (ESA) Program, BayREN, MCE, and 3C-REN.



Section 3 Expenditures

Table 3

All expenditure data can be found in the “PGE.AnnualExcel.2020.1.xlsx” spreadsheet, under Tab “T-3 Expenses”. The spreadsheet can be accessed on the CPUC Energy Efficiency Reporting website at <https://www.cpuc.ca.gov/general.aspx?id=6442468251>.

Section 4 Cost-Effectiveness

Table 4

Cost Effectiveness (Net)

Annual Results	Total Benefits (TRC/PAC)	Total TRC Cost (3)	Net TRC Benefits (3)	TRC Ratio (4)	Total PAC Cost (3)	Net PAC Benefits (3)	PAC Ratio (4)
PG&E 2020	\$1,727,961,432	\$749,799,527	\$978,161,905	2.30	\$207,236,886	\$1,520,724,547	8.34
PG&E TOTAL	\$1,727,961,432	\$749,799,527	\$978,161,905	2.30	\$207,236,886	\$1,520,724,547	8.34
	PAC Cost per kW Saved (\$/kW) (1)	PAC Cost per kWh Saved (\$/kWh) (2)	PAC Cost per therm Saved (\$/therm) (2)				
PG&E 2020		0.10	0.96				
PG&E TOTAL	\$-	0.10	0.96				

(1) The adopted avoided cost methodology does not provide information to provide a meaningful value for PAC Cost per kW.

The adopted avoided cost methodology created kWh costs values that vary for each hour of the year that includes kW generation.

(2) PAC cost per kWh or per therm is (PAC Cost x (Electric Benefits/Total Benefits)/net kWh) or (PAC Cost x (Gas Benefits/Total Benefits)/net therm) respectively per CET based definition provided by CPUC to PG&E via e-mail on April 8, 2016.

(3) The cost-effectiveness calculations are based on the actual accomplishments recorded in 2020.

Includes:

- ESPI payment of \$15.3M recorded in 2020 per Final Resolution E-5062, Table 2: Approved ESPI Awards per Component

- Codes and Standards costs and benefits

Excludes:

- Installed savings for Energy Savings Assistance (ESA) Program

- ESA, Bay Area Regional Energy Network (BayREN), Marin Clean Energy (MCE), and Tri-County Regional Energy Network (3C-REN)

Program costs and benefits

- Statewide Emerging Technologies Program costs per D.12-11-015 (p.52)

- The Financing Program OBF Loan Pool amounts (loans issued and repaid) of \$27.7M for 2020 are excluded per D.09-09-047 (p.288).

(4) All savings values include 5% market spillover in cost-effectiveness calculations per D.12-11-015 (OP 37) including Codes and Standards.



Section 5 Bill Impacts

Table 5

*Ratepayer Impacts**

2020	Electric Average Rate (Res and Non-Res) \$/kwh	Gas Average Rate (Core and Non-Core) \$/therm	Average First Year Bill Savings (\$)	Average Lifecycle Bill Savings (\$)
PG&E Average	\$0.22	\$1.69	\$445,554,979	\$5,690,441,598

*Based on net energy savings claims.

Notes: (Consistent with SPM TRC/PAC/RIM tests, all savings used from actuals and forecasts in this table are net not gross)

(1) Average first year electric bill savings is calculated by multiplying an average electric rate (as of 10/1/20) with first year net kWh energy savings.

(2) Average first year gas bill savings is calculated by multiplying an average gas rate (as of 12/31/20) with first year net therm energy savings.

(3) Total average first year bill savings is the sum of Notes 1 and 2.

(4) Average lifecycle electric bill savings is calculated by multiplying an average electric rate with lifecycle net kWh energy savings.

(5) Average lifecycle gas bill savings is calculated by multiplying an average gas rate with lifecycle net therm energy savings.

(6) Total average lifecycle bill savings is the sum of Notes 4 and 5.

(7) Total Average Bill Savings by Year and Lifecycle Bill Savings include C&S net savings and net lifecycle savings respectively; and includes BayREN, MCE, and 3C-REN savings; excludes ESA Program.



Section 6 Savings by End Use

Table 6

Annual Savings By Use Category 2020

Use Category	GWH	% of Total	MW	% of Total	MMTh	% of Total
Appliance or Plug Load	112.82	6.51%	17.52	6.00%	0.03	0.09%
Building Envelope	21.85	1.26%	7.88	2.70%	1.96	5.47%
Compressed Air	6.35	0.37%	0.54	0.18%	0.00	0.00%
Commercial Refrigeration	46.75	2.70%	5.65	1.94%	0.02	0.05%
Codes & Standards	58.77	3.39%	9.30	3.19%	0.00	-0.01%
Food Service	11.28	0.65%	0.70	0.24%	1.27	3.55%
HVAC	102.86	5.94%	41.06	14.06%	5.49	15.34%
Irrigation	6.76	0.39%	3.80	1.30%	0.00	0.00%
Lighting	1035.53	59.78%	120.45	41.26%	-2.07	-5.78%
Non-Savings Measure	0.00	0.00%	0.00	0.00%	0.00	0.00%
Process Distribution	13.89	0.80%	1.32	0.45%	0.53	1.49%
Process Drying	0.00	0.00%	-	0.00%	0.00	0.00%
Process Heat	1.81	0.10%	0.19	0.07%	1.67	4.67%
Process Refrigeration	1.07	0.06%	0.15	0.05%	0.00	0.00%
Recreation	14.71	0.85%	3.11	1.07%	0.05	0.14%
Service	9.56	0.55%	1.09	0.37%	0.28	0.77%
Service and Domestic Hot Water	12.03	0.69%	1.61	0.55%	14.06	39.30%
Whole Building	276.22	15.95%	77.55	26.56%	12.49	34.92%
ANNUAL PORTFOLIO SAVINGS	1,732.3	100%	291.9	100%	35.8	100%

(1) All energy savings numbers are net with 5% market spillover.

(2) Includes savings for BayREN, MCE, and 3C-REN as mentioned in T-1, Note #2.

(3) Codes and Standards savings are assigned to a more specific use category where possible.

(4) ESA Program savings are excluded.

Section 7 Commitments

Table 7

Commitments ⁽¹⁾

Commitments Made in the Past with Expected Implementation after December 2010-2012				
	Committed Funds	Expected Energy Savings		
2010-2012	\$	GWH	MW	MMth
Resource	N/A	N/A	N/A	N/A
Non-Resource	N/A	N/A	N/A	N/A
Codes & Standards	N/A	N/A	N/A	N/A
PG&E Total	N/A	N/A	N/A	N/A
Commitments Made in the Past Year with Expected Implementation after December 2015				
	Committed Funds	Expected Energy Savings		
2013-2015	\$	GWH	MW	MMth
Resource	N/A	N/A	N/A	N/A
Non-Resource	N/A	N/A	N/A	N/A
Codes & Standards	N/A	N/A	N/A	N/A
PG&E Total	N/A	N/A	N/A	N/A
Commitments Made in the Past Year with Expected Implementation after December 2016				
	Committed Funds	Expected Energy Savings		
2016	\$	GWH	MW	MMth
Resource	N/A	N/A	N/A	N/A
Non-Resource	N/A	N/A	N/A	N/A
Codes & Standards	N/A	N/A	N/A	N/A
PG&E Total	N/A	N/A	N/A	N/A
Commitments Made in the Past Year with Expected Implementation after December 2017				
	Committed Funds	Expected Energy Savings		
2017	\$	GWH	MW	MMth
Resource	N/A	N/A	N/A	N/A
Non-Resource	N/A	N/A	N/A	N/A
Codes & Standards	N/A	N/A	N/A	N/A
PG&E Total	N/A	N/A	N/A	N/A



Commitments Made in the Past Year with Expected Implementation after December 2018				
	Committed Funds	Expected Energy Savings		
2018	\$	GWH	MW	MMth
Resource	N/A	N/A	N/A	N/A
Non-Resource	N/A	N/A	N/A	N/A
Codes & Standards	N/A	N/A	N/A	N/A
PG&E Total	N/A	N/A	N/A	N/A
Commitments Made in the Past Year with Expected Implementation after December 2019				
	Committed Funds	Expected Energy Savings		
2019	\$	GWH	MW	MMth
Resource	N/A	N/A	N/A	N/A
Non-Resource	N/A	N/A	N/A	N/A
Codes & Standards	N/A	N/A	N/A	N/A
PG&E Total	N/A	N/A	N/A	N/A
Commitments Made in the Past Year with Expected Implementation after December 2020				
	Committed Funds (2)	Expected Energy Savings		
2020	\$	GWH	MW	MMth
Resource	29,871,868.88	72.60	74.87	7.28
Non-Resource	N/A	N/A	N/A	N/A
Codes & Standards	N/A	N/A	N/A	N/A
PG&E Total	29,871,868.88	72.60	74.87	7.28

(1) All energy savings numbers are on a net basis.

(2) Committed Funds for 2020 include incentives related to PG&E EE projects committed in prior year(s) but not yet completed as of December 2020.

Section 8 Shareholder Performance Incentives

All Efficiency Savings and Performance Incentive (ESPI) data can be found in the “PGE.AnnualExcel.2020.1.xlsx” spreadsheet, under Tab “T-8 ShareldrPerfInc'ves”. The spreadsheet can be accessed on the CPUC Energy Efficiency Reporting website at <https://www.cpuc.ca.gov/general.aspx?id=6442468251>.



Section 9 Metrics

All metrics data can be found in the “PGE.AnnualExcel.2020.1.xlsx” spreadsheet, under Tab “T-9 BP Metrics”. The spreadsheet can be accessed on the CPUC Energy Efficiency Reporting website at <https://www.cpuc.ca.gov/general.aspx?id=6442468251>.

Section 10 Cap and Target Expenditures

The 2020 Energy Efficiency Cap and Target Expenditure Report can be found in the “PGE.AnnualExcel.2020.1.xlsx” spreadsheet, under Tab “T-10 Cap & Target”. The spreadsheet can be accessed on the CPUC Energy Efficiency Reporting website at <https://www.cpuc.ca.gov/general.aspx?id=6442468251>.

Section 11 Third-Party and Statewide Calculations

Reporting on Local Program Third-Party Budgets, Statewide Programs Third-Party Budgets, Assembly Bill 841 Budget, Annual Budgets, Third-Party Outsourcing Compliance, and Statewide Budget Compliance can be found in the “PGE.AnnualExcel.2020.1.xlsx” spreadsheet, under Tab “T-11 3P Calculation”. The spreadsheet can be accessed on the CPUC Energy Efficiency Reporting website at <https://www.cpuc.ca.gov/general.aspx?id=6442468251>.

Section 12 PG&E’s Marketplace Metrics

On December 21, 2017, as directed in ordering paragraph (OP) 1c of Resolution E-4820, PG&E proposed to the Energy Division a format and schedule for reporting the targets for Energy Management Technology (EMT) related activities. PG&E proposed metrics for the Marketplace program that focus on the relevant sections of the platform for Assembly Bill 793 (AB 793) and EMTs. These are standard marketing industry accepted website metrics.

All Marketplace reporting data can be found in the “PGE.AnnualExcel.2020.1.xlsx” spreadsheet, under Tab “T-12(PG&E) Marketplace Metrics”. The spreadsheet can be accessed on the CPUC Energy Efficiency Reporting website at <https://www.cpuc.ca.gov/general.aspx?id=6442468251>.



Appendix A

PG&E Program ID Numbers

Program ID	Program Name
PGE_Ag_001	Agriculture Energy Savings Action Plan (AESAP)
PGE_Com_001	CoolSave; Grocery Comprehensive Retrofit & Commissioning (GCRx)
PGE_Com_002	Smart Labs
PGE_Ind_001a	Industrial Strategic Energy Management - Food Processing
PGE_Ind_001b	Industrial Strategic Energy Management - Manufacturing
PGE_Ind_002	Business Energy Performance (BEP) Program
PGE_Ind_003	Industrial Systems Optimization Program (ISOP)
PGE_Pub_001	Central Coast Leaders in Energy Action Program (CC-LEAP)
PGE_Pub_002	Marin Energy Watch Partnership
PGE_Pub_003	Redwood Coast Energy Watch
PGE_Pub_004	Central California Energy Watch (CCEW)
PGE_Pub_005	San Mateo County Energy Watch Program
PGE_Pub_006	Energy Access SF
PGE_Pub_007	Sierra Nevada Energy Watch (SNEW)
PGE_Pub_008	Sonoma Public Energy
PGE_Pub_009	Government & K-12 Comprehensive Program
PGE_Pub_010	RAPIDS Wastewater Treatment Optimization Program
PGE_Res_001a	Pay for Performance - Comfortable Home Rebates
PGE_Res_001b	Pay for Performance - Home Intel
PGE_Res_001c	Pay for Performance - Home Energy Rewards
PGE_Res_001d	Home Energy Optimization
PGE_Res_002a	Home Energy Check-up
PGE_Res_002b	Marketplace
PGE_Res_002c	Home Energy Reports
PGE_Res_003	Multifamily Energy Savings Program (MESP)
PGE_SW_CSA_Bldg	Statewide: State Building Codes Advocacy
PGE_SW_CSA_Appl	Statewide: State Appliance Standards Advocacy
PGE_SW_CSA_Natl	Statewide: National Codes & Standards Advocacy
PGE210011	Residential Energy Fitness program
PGE21002	Residential Energy Efficiency (Plug Loads and Appliances)
PGE21003	Multifamily Energy Efficiency
PGE21005	Residential New Construction and Advanced Energy Rebuild
PGE21007	California New Homes Multifamily
PGE21008	Enhance Time Delay Relay
PGE21009	Direct Install for Manufactured and Mobile Homes
PGE21011	Commercial Calculated Incentives
PGE210112	School Energy Efficiency
PGE21012	Commercial Deemed Incentives
PGE210123	Healthcare Energy Efficiency Program
PGE210135	Water Infrastructure and System Efficiency
PGE21014	Commercial Energy Advisor
PGE210143	Hospitality Program
PGE21015	Commercial HVAC



Program ID	Program Name
PGE21018	EnergySmart Grocer
PGE21021	Industrial Calculated Incentives
PGE210210	Industrial Recommissioning Program
PGE210212	Compressed Air and Vacuum Optimization Program
PGE21022	Industrial Deemed Incentives
PGE21024	Industrial Energy Advisor
PGE21026	Energy Efficiency Services for Oil Production
PGE21027	Heavy Industry Energy Efficiency Program
PGE21031	Agricultural Calculated Incentives
PGE210311	Process Wastewater Treatment EM Program for Ag Food Processing
PGE210312	Dairy and Winery Industry Efficiency Solutions
PGE21032	Agricultural Deemed Incentives
PGE21034	Agricultural Energy Advisor
PGE21036	Industrial Refrigeration Performance Plus
PGE21039	Comprehensive Food Process Audit & Resource Efficiency Program
PGE21053	Compliance Improvement
PGE21054	Reach Codes
PGE21055	Planning and Coordination
PGE21056	Code Readiness
PGE21061	Technology Development Support
PGE21062	Technology Assessments
PGE21063	Technology Introduction Support
PGE21071	Integrated Energy Education and Training
PGE21072	Connections
PGE21076	Career and Workforce Readiness
PGE21091	On-Bill Financing (excluding Loan Pool)
PGE210911	On-Bill Financing Alternative Pathway
PGE_LoanPool	Financing Loan Pool Addition
PGE21092	Third-Party Financing
PGE21093	New Financing Offerings
PGE2110011	California Community Colleges
PGE2110012	University of California/California State University
PGE2110013	State of California
PGE2110014	Department of Corrections and Rehabilitation
PGE2110051	Local Government Energy Action Resources (LGEAR)
PGE2110052	Strategic Energy Resources
PGE211025	Savings by Design (SBD)

Appendix B

Regulatory Decisions, Rulings, and Advice Letters

EE Rulemaking Phase I

In 2014, the Commission completed Phase I of the *Order Instituting Rulemaking Concerning Energy Efficiency Rolling Portfolios, Policies, Programs, Evaluation and Related Issues* (R.13-11-005) that was issued on November 21, 2013. Phase I focused on approving EE funding and portfolios for 2015. PG&E filed its *Energy Efficiency 2015 Funding Proposal* on March 26, 2014. On October 24, 2014, the Commission issued approved D.14-10-046: *Decision Establishing Energy Efficiency Savings Goals and Approving 2015 Energy Efficiency Programs and Budgets*.

The Phase I Decision, as corrected by D.15-01-002 and D.15-01-023, approved PG&E's total 2015 EE portfolio budget of \$430.1 million, including \$379.3 million for PG&E's program budget, \$16.8 million for EM&V, \$12.8 million for BayREN's EE programs, and \$1.2 million for MCE's EE programs. The Phase I Decision also approved PG&E's request for \$3.3 million for 2015 DR funding for IDSM.

The Phase I Decision (pp. 30-32) determined that 2015 is the third year of a 2013-2015 portfolio cycle, allowing the IOUs and RENs to use unspent 2013-2014 funds in 2015, to count savings from 2013-2014 towards 2015 goals and cost effectiveness, and to calculate regulatory caps and targets. The Commission directed Staff to undertake EM&V activities for 2013-2014 and 2015 combined.

The Phase I Decision (OP 21 and pp. 31-32) leaves the 2015 programs and funding in place until the earlier of when the Commission provides superseding direction, or 2025.

The Phase I Decision (OP 16) required the IOUs and MCE to file Tier 2 advice letters within 60 days to reflect the budget adjustments adopted in the decision, including recalculated TRC and PAC test results exceeding a 1.0 threshold for 2015. PG&E filed this advice letter on December 15, 2014, with superseding supplemental advice letters in 2015, as detailed below. The Phase I Decision also required several other advice letters to be filed in 2015.

EE Rulemaking Phase IIa

On February 24, 2015, the Commission issued the Scoping Memorandum for Phase II of this proceeding. Based on prehearing conference statements from the parties involved, the Commission identified three broad categories of items to address in Phase II: (1) developing "Rolling Portfolio" review processes; (2) providing guidance on changes for 2016 portfolios; and (3) updating various portfolio metrics (e.g., Database for Energy Efficiency Resources (DEER) values) to keep portfolios on course through 2016 and beyond.

On October 28, 2015, the Commission issued D.15-10-028: *Decision Re Energy Efficiency Goals for 2016 and Beyond and Energy Efficiency Rolling Portfolio Mechanics*. (Phase IIa Decision). In this decision, the Commission adopted energy savings goals for EE portfolios from 2016 to 2024; established a "Rolling Portfolio" process for reviewing and revising portfolios; and updated various EE program portfolio metrics, including Database of Energy Efficient Resources values.



EE Rulemaking Phase IIb

On August 25, 2016, the Commission issued D.16-08-019: *Decision Providing Guidance for Initial Energy Efficiency Rolling Portfolio Business Plan Filings*. (Phase IIb Decision). In this Decision, the Commission set forth policy guidance on several issues related to the filing of EE business plans, as previously contemplated in D.15-10-028. The Decision also addressed next steps for regional energy networks, the appropriate baselines to be used to measure energy savings for specific programs and measures, transition for statewide and third-party programs, and changes to the evaluation and shareholder incentive frameworks.

The Commission issued a Scoping Memo on April 14, 2017 to evaluate the reasonableness of the IOU, REN, and CCA proposals for EE business plans, filed in January 2017. The Scoping Memo identified the scope of issues to be evaluated in the proceeding and established the schedule for 2017 activities, which included requests for supplemental information, revised metrics, and comprehensive solicitation plans. The Commission issued the Proposed Decision Addressing Third-party Solicitation Process for Energy Efficiency on November 13, 2017. The Proposed Decision was subsequently finalized as D.18-01-004 in January 2018, and established solicitation oversight mechanisms, directed the IOUs to develop standard contract terms, and set the schedule for transitioning to the third-party model.

On October 2, 2017, the Commission issued D. 17-09-025: *Decision Adopting Energy Efficiency Goals for 2018-2030*. In this Decision, the Commission adopted energy savings goals for EE portfolios from 2018 to 2030.

EE Rulemaking Phase III

On November 2, 2016, the Commission issued the Scoping Memorandum for Phase III of this proceeding. The Commission acknowledged that this proceeding was already well underway when Senate Bill (SB) 350 (2015) and Assembly Bill (AB) 802 (2015) both became law, creating a significant impact on the Commission's oversight of EE programs and policy. The key provisions of SB 350 for EE to include a goal of doubling the amount of EE savings in California by 2030, with emphasis on market transformation and pay-for-performance approaches, among other things. AB 802's provisions primarily affect the way baselines are set for measuring energy savings towards goals. This broad set of topics were covered, to some degree, in D.16-08-019. However, two specific areas warrant additional policy development in Phase III: (1) market transformation, as discussed in SB 350 and (2) custom projects, particularly in the industrial sector, as discussed in D.16-08-019.

D. 19-08-009: *Decision Modifying the Energy Efficiency Three-prong Test Related to Fuel Substitution*, was issued on August 5, 2019, modified and clarified the formulation of the three-prong test. On August 23, 2019, the Commission issued D.19-08-034: *Decision Adopting Energy Efficiency Goals for 2020 – 2030*, adopted energy savings goals for ratepayer-funded energy efficiency program portfolios for 2020 to 2030. D. 19-12-021: *Decision Regarding Frameworks for Energy Efficiency Regional Energy Networks and Market Transformation*, issued on December 12, 2019 adopted frameworks for two areas of energy efficiency policy: regional energy networks (RENs) and market transformation initiatives (MTIs).

On March 20, 2019, under A. 08-07-021, the Commission issued D. 19-03-001: *Decision Granting Petition for Modification of Decision 09-09-047 Concerning On-bill Financing*, granted PG&E petition for modification and allowed PG&E to expand its on-bill financing program. On November 11, 2020, the Commission issued D. 20-11-013: *Decision Imposing Moratorium on*



Efficiency Savings and Performance Incentive Program, which imposes a moratorium on award payments under the ESPI mechanism beginning with 2021 program year advice letter earnings claims to remain in effect pending subsequent Commission.

This proceeding is still the ongoing venue for any policymaking related to EE. The ongoing policy issues identified including: updates to DEER and EE potential and goals; updates to the EE Strategic Plan; updates to the EM&V framework; the role of the California Technical Forum; updates to the ESPI mechanism; updates to the cost-effectiveness framework for EE, in coordination with the integrated distributed energy resource (IDER) rulemaking (R.14-10-003) and with the decarbonization rulemaking (R.19-11-011); coordination with statewide marketing, education, and outreach efforts; approached for evaluations using normalized metered energy consumption (NMEC) and/or dynamic baselines; and Industry Standard Practice determinations.

Business Plan Application

Application (A.)17-01-013, et.al, established the process for reviewing, submitting, approving, and implementing program administration business plans for the rolling portfolio years 2018-2025.

On January 11, 2018, the Commission issued D.18-01-004: *Decision Addressing Third-Party Solicitation Process for Energy Efficiency Programs*, which formalized the third-party solicitation process for EE programs. In this Decision, the Commission set timelines for the EE portfolio's transition to predominantly third-party program implementation, with December 31, 2018 marking the first milestone with a minimum of 25 percent third-party program administration. 40 percent of programs should be third-party administered by the end of 2020, with the ultimate vision of reaching 60 percent third-party administration in the EE portfolio by the end of 2022.

On May 31, 2018, the Commission issued D. 18-05-041: *Decision Addressing Energy Efficiency Business Plans*. In this Decision, the Commission approved the 2018-2015 Business Plans, formalized the statewide program governance structure, and established the annual Joint Cooperation Memo (JCM) filings between program administrators with overlapping territories. This Application is ongoing for any policymaking related to solicitations and Business Plan updates and implementation.

On August 9, 2019, the Commission issued D.19-08-006: *Decision Adopting Standard Contract for Energy Efficiency Local Government Partnerships*, which adopted a standard contract for energy efficiency local government implementers, and associated implementation details.

On December 20, 2019, PG&E's 2020 Annual Budget Advice Letter was rejected via nonstandard disposition and PG&E was instructed to file a revised Business Plan Application by September 1, 2020. On July 3, 2020, an *Amended Scoping Ruling Addressing the Impacts of COVID-19* was issued, postponing the deadline for PG&E's revised Business Plan Application to September 1, 2021. On December 21, 2020, PG&E's 2021 Annual Budget Advice Letter was rejected via nonstandard disposition. PG&E was required to hold a workshop to explain the portfolio's failure to meet cost-effectiveness requirements, how funding determinations were made for different programs, the methodology for establishing portfolio cost-effectiveness estimates, and why PG&E did not choose to provide additional funding to programs with high TRC. PG&E was also asked to provide updates on portfolio performance to date as impacted by COVID-19, and an update on the third-party solicitation process. The workshop was held on March 16, 2021.



Advice Letters

PG&E filed the following advice letters related to EE in 2020.

- 1) Advice Letter Summarizing PG&E's 2020 Energy Efficiency Budget Recovery Request for San Francisco Bay Area Regional Energy Network, Tri-County Regional Energy Network, and Marin Clean Energy in Compliance with the Requirements of the Non-Standard Disposition of PG&E's 2020 Energy Efficiency Annual Budget Advice Letter, filed January 23, 2020.
https://www.pge.com/tariffs/assets/pdf/adviceletter/GAS_4207-G.pdf
- 2) Modifications to Pacific Gas and Electric Company's On-Bill Financing (OBF) Program, filed May 9, 2020.
https://www.pge.com/tariffs/assets/pdf/adviceletter/GAS_4236-G.pdf
- 3) BayREN and PG&E's 2020 Joint Cooperation Memo in Compliance with Decision 18-05-041, Ordering Paragraph 38, filed June 15, 2020.
https://www.pge.com/tariffs/assets/pdf/adviceletter/GAS_4260-G.pdf
- 4) 2021 Joint Cooperation Memorandum (JCM) of 3C-REN, SoCalGas, SCE, and PG&E Pursuant to Decision (D.) 18-05-041, filed June 15, 2020.
https://www.pge.com/tariffs/assets/pdf/adviceletter/GAS_4258-G.pdf
- 5) Marin Clean Energy and Pacific Gas and Electric Company Annual Joint Cooperation Memorandum for Energy Efficiency Programs for Program Year 2021, filed June 15, 2020.
https://www.pge.com/tariffs/assets/pdf/adviceletter/GAS_4259-G.pdf
- 6) PG&E's Annual Advanced Energy Rebuild Advice Letter in Compliance with Commission Disposition, filed June 30, 2020.
https://www.pge.com/tariffs/assets/pdf/adviceletter/GAS_4270-G.pdf
- 7) Advice Letter Submittal of Pacific Gas and Electric Company's Third-Party Solicitations resulting from its Local Multi-Sector Request for Proposal ("RFP") Multifamily Energy Savings Program (MESP) program executed between TRC Solutions, Inc and PG&E, filed July 29, 2020.
https://www.pge.com/tariffs/assets/pdf/adviceletter/GAS_4285-G.pdf
- 8) Advice Letter Submittal of Pacific Gas and Electric Company's Third Party Solicitations resulting from its Local Multi-Sector Request for Proposal ("RFP") Smart Labs program, executed between kW Engineering, Inc and PG&E, filed July 29, 2020.
https://www.pge.com/tariffs/assets/pdf/adviceletter/GAS_4282-G.pdf
- 9) Advice Letter Submittal of Pacific Gas and Electric Company's Third-Party Solicitations resulting from its Local Multi-Sector Request for Proposal ("RFP") Grocery Comprehensive Retrofit and Commissioning (GCRCx) program, executed between kW Engineering, Inc and PG&E, filed July 29, 2020.
https://www.pge.com/tariffs/assets/pdf/adviceletter/GAS_4281-G.pdf
- 10) Advice Letter Submittal of Pacific Gas and Electric Company's Third-Party Solicitations resulting from its Local Multi-Sector Request for Proposal ("RFP") Agriculture Energy Savings Action Plan (AESAP) program executed between TRC Solutions, Inc and PG&E, filed July 29, 2020.
https://www.pge.com/tariffs/assets/pdf/adviceletter/GAS_4278-G.pdf



- 11) Advice Letter Submittal of Pacific Gas and Electric Company's Third-Party Solicitations resulting from its Local Multi-Sector Request for Proposal ("RFP") executed between Alternative Energy Systems Consulting and PG&E, filed July 30, 2020.
https://www.pge.com/tariffs/assets/pdf/adviceletter/GAS_4284-G.pdf
- 12) Advice Letter Filing of Pacific Gas and Electric Company's Third-Party Solicitations resulting from its Local Multi-Sector Request for Proposal ("RFP") Government and K-12 Program executed between Willdan Energy Solutions and PG&E, filed July 30, 2020.
https://www.pge.com/tariffs/assets/pdf/adviceletter/GAS_4283-G.pdf
- 13) Advice Letter Submittal of Pacific Gas and Electric Company's Third-Party Solicitations resulting from its Local Multi-Sector Request for Proposal ("RFP") Industrial Systems Optimization Program (ISOP) executed between Cascade Energy Inc and PG&E, filed July 30, 2020.
https://www.pge.com/tariffs/assets/pdf/adviceletter/GAS_4280-G.pdf
- 14) Advice Letter Submittal of Pacific Gas and Electric Company's Third-Party Solicitations resulting from its Local Multi-Sector Request for Proposal ("RFP") Business Energy Performance (BEP) program executed between CLEAResult Consulting Inc and PG&E, filed July 30, 2020.
https://www.pge.com/tariffs/assets/pdf/adviceletter/GAS_4279-G.pdf
- 15) Southern California Edison Company, Pacific Gas and Electric Company, San Diego Gas & Electric Company, and Southern California Gas Company's 2019 Energy Efficiency Incentive Award Earnings Rates and Award Caps, filed August 3, 2020.
https://www.pge.com/tariffs/assets/pdf/adviceletter/GAS_4286-G.pdf
- 16) Advice Letter Summarizing PG&E's Remaining 2019 Unspent and Uncommitted Funds for Return to Ratepayers in 2021 Rate Filings, filed August 24, 2020.
https://www.pge.com/tariffs/assets/pdf/adviceletter/GAS_4298-G.pdf
- 17) Request of Pacific Gas and Electric Company for 2018 and 2019 Energy Efficiency Incentive Award, filed September 1, 2020.
https://www.pge.com/tariffs/assets/pdf/adviceletter/GAS_4304-G.pdf
- 18) PG&E's 2021 Energy Efficiency Annual Budget Advice Letter in Compliance with Decisions 15-10-028 and 18-05-041, filed September 1, 2020.
https://www.pge.com/tariffs/assets/pdf/adviceletter/GAS_4303-G.pdf
- 19) Advice Letter Submittal of Pacific Gas and Electric Company's Third-Party Solicitations Contract Changes to Programs resulting from its Local Multi-Sector Request for Proposal ("RFP"), filed December 4, 2020.
https://www.pge.com/tariffs/assets/pdf/adviceletter/GAS_4339-G.pdf
- 20) Supplemental: PG&E's 2021 Energy Efficiency Annual Budget Advice Letter in Compliance with Decisions 15-10-028 and 18-05-041, filed December 8, 2020.
https://www.pge.com/tariffs/assets/pdf/adviceletter/GAS_4303-G-A.pdf