

Pacific Gas and Electric Company

Implementation Plan

Continuous Energy Feedback Program

**Prepared by Oracle Corp. on behalf of Pacific Gas and
Electric Company**

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1. Program Budget and Savings Information

1. Program and/or Sub-Program Name

Continuous Energy Feedback Program (CEFP)

2. Program and/or Sub-Program ID Number

PGE_Res_002d

3. Program and/or Sub-Program Budget Table

3-Year Continuous Energy Feedback Program					
Admin	Marketing	Direct Implementation	Incentives	EM&V	Total Budget
\$1,350,000		\$45,976,436			\$47,326,436

4. Program and/or Sub-Program Gross Impacts Table

3-Year Continuous Energy Feedback Program Gross Savings Forecast		
kWh	kW	Therms
586,900,000	158,000	20,912,200

5. Program and/or Sub-Program Cost-Effectiveness (TRC)

2021 CEFP TRC
1.83

6. Program and/or Sub-Program Cost-Effectiveness (PAC)

2021 CEFP PAC
1.83

7. Type of Program and/or Sub-Program Implementer

Program Implementer	
PA-delivered	<input type="checkbox"/>
Third Party-Delivered	<input checked="" type="checkbox"/>

Program Implementer	
Partnership	<input type="checkbox"/>

8. **Market Sector**

PG&E Business Plan Sector	Yes
Residential	<input checked="" type="checkbox"/>
Commercial	<input type="checkbox"/>
Industrial	<input type="checkbox"/>
Agricultural	<input type="checkbox"/>
Public	<input type="checkbox"/>
Cross-Cutting	<input type="checkbox"/>

9. **Program and/or Sub-Program Type**

Program Type	
Resource	<input checked="" type="checkbox"/>
Non-Resource	<input type="checkbox"/>

10. **Market Channels and Intervention Strategies:**

Market Channels	
Upstream	<input type="checkbox"/>
Midstream	<input type="checkbox"/>
Downstream	<input checked="" type="checkbox"/>
Intervention Strategies	
Direct Install	<input type="checkbox"/>
Incentive	<input type="checkbox"/>
Finance	<input type="checkbox"/>
Audit	<input type="checkbox"/>
Technical Assistance	<input type="checkbox"/>

Market Channels	
Other: Behavior	<input checked="" type="checkbox"/>

Campaign Goals and Timeline:

2. Implementation Plan Narrative

1. Program Description

The CEFP will run from September 2021 through the end of August 2024. It uses multiple behavior-based energy efficiency strategies to support customers in understanding and empowering them to manage and lower their household electricity and gas consumption. This program uses information and customer engagement strategies to prompt non-rebated behavior change that can be measured using Randomized Controlled Trials (RCT) to validate savings and demonstrate attribution. As a result of their changed behaviors, customers can better manage their energy use and energy behaviors, make more efficient purchasing decisions, and take better energy related actions in order to lower their energy bills and energy footprint.

2. Program Delivery and Customer Services

Describe how the energy efficiency (EE) program will deliver offerings (including program strategies/tactics, market channel, and targeted market/customer group); how it will reach customers, including those in CPUC-defined hard-to-reach and/or disadvantaged communities (if applicable), and any services that the program will provide. Describe all services and tools that are provided.

All components of CEFP are implemented using a RCT. RCT is a type of experimental design in which members of an eligible population are randomly assigned to either a treatment group or a control group. The program interventions (HER, BFA, TOU Coach) are then provided only to the treatment group. Savings are estimated by calculating the difference in usage between the two groups using lagged dependent variable methodology (See the: Evaluation, Measurement, and Verification (EM&V) section for additional details on RCT).

Program participants are automatically enrolled in CEFP via an “opt-out” methodology, so the marketing and outreach plan defines the Program design for communicating with those selected customers with the explicit goal of driving energy savings and increasing customer engagement. CEFP will reach more than half of PG&E’s residential customers and puts particular emphasis on engaging those customers with a high propensity to save. Customers enrolled in HER, BFA, and TOU Coach will primarily be selected from average and above average electric and gas usage tiers in order to maximize savings opportunities. The Program reaches customers across all geographies and demographics and will include relevant and tailored messaging based on various attributes.

Since the CEFP is implemented on an opt-out basis, the program will uniquely include large numbers of limited income and hard-to-reach (HTR) customers, in compliance with CPUC Decision D.16-11-022,

which requires no less than 15% of CARE customers to receive HERs. Additionally, messaging can be tailored for HTR and CARE customers.

Once target customer groups and experiences are chosen, Oracle will collaborate with PG&E to make individual customer experiences consistent across platforms and channels, and to verify the marketing of the right Products at the right times across channels. Oracle's targeted marketing modules, personalized data modules, and personalized tips will act as triggers that, when delivered at the right times using Oracle's data analytics and machine learning capabilities, will either motivate consumers to take action or provide the tools to take action. Different triggers can encourage different actions, but all are aimed at changing consumer energy behavior.

Communications can bring customers directly to PG&E's online resources (e.g., deep links in emails take customers directly to specific tools online). At the direction of PG&E, these digital channels also promote energy-saving products and can link customers directly to pge.com, related microsites, and PG&E's online EE Marketplace to streamline the buying process and take advantage of PG&E rebates and programs. CEFP can also focus on targeted geographies and hundreds of other customer attributes to market these Products.

Below is a description of each of the components/services provided within CEFP:

Home Energy Reports (HERs)

HERs are user-friendly print, e-mail, and video communications that provide personalized information to customers about their energy use. HERs include a neighbor comparison, energy history information, tips, and marketing modules. The goals of this Product are to give customers actionable insights about their energy and motivate them to lower their electricity and/or gas usage.

Existing HER Modules are updated at least monthly and new Modules are continuously added, which PG&E will be notified of in Product release notes and also by the Oracle delivery team. Similarly, tips are regularly updated to reflect new energy efficiency learning and trends, and entirely new tips are often added to the Program. Tips are tailored for the customer based upon characteristics of each customer's home and usage. Tip savings estimates are also personalized for each customer based on their energy usage. Updates to tips are highlighted in Product release notes and by the Oracle delivery team. PG&E can also make changes to tip content through Tip Manager, which is located in Oracle-provided business intelligence tool ("Inside Opower"). HERs include the following features:

- **Comparative Energy Use:** HERs will show customers how their energy use compares to that of nearby homes with similar characteristics such as home size, number of bedrooms, cooling and heating sources, and dwelling type.
- **Personal Tracker:** The Personal Tracker provides charts that display a historical view of the customer's usage-to-date with the goal of comparing the current year to the previous year.
- **Daily Peak:** The Daily Peak module displays a customer's average daily peak usage for the last month, so that customers can see which hours of the day they are using the most energy. The module includes one graph that shows peak use on the weekdays and another that shows use on the weekends. The messaging indicates if the customer has one peak, two peaks, or no peaks. If customers receive a monthly bill, the month covers the entire billing period. If customers receive bills on a bi-monthly or quarterly basis, then the last 30 days of the billing period is considered the last month. If customers have access to the Energy Efficiency Web Portal, a message and URL are included to drive them to the web.

- **Pre-Audit Home Profile:** The Pre-Audit Home Profile can be included in HERs for a customer who has not yet completed the Home Energy Checkup (HEC). It is designed to show customers which of their home attributes are unknown, and to encourage them to provide these attributes to receive a more personalized report.
- **Neighbor Trend:** The Neighbor Trend compares the customer (“You”) to two groups: “Efficient Neighbors” and “Average Neighbors.” The module displays data from up to a maximum of six historical bills on a line graph, with one line each for “You,” “Efficient Neighbors,” and “Average Neighbors.” An evaluative statement compares the customer to one of the other neighbor groups for the period displayed in the chart. If the customer does not have any cost data for the period covered by the module, the normative message focuses on differences in usage instead of cost.
- **Heating Analysis Pie Chart:** The Heating Analysis Pie Chart displays the customer's estimated heating-related energy consumption from last season as a percentage of their total energy consumption. It is paired with a brief message that indicates their estimated heating costs. The goal of this module is to help customers better understand how they use energy during the hearing season.
- **Cooling Analysis Pie Chart:** The Cooling Analysis Pie Chart displays the customer's estimated cooling usage last season as a percentage of their total energy consumption. Its purpose is to help customers better understand how they use energy during the cooling season. A brief message indicates their estimated cooling costs.
- **Customized Tips:** Actionable energy saving tips that are easy to follow and lead to energy saving actions or behaviors. The tips are comprised of an illustration, a small section of text describing a recommendation or action a customer can take to save energy and the amount a customer can save if they complete the tip.
- **Marketing and Program Related Messaging:** Information and links to PG&E Demand Side Management (DSM) Programs, customer rebates and other messages designed to support customers energy reduction needs.

Bill Forecast Alerts

BFAs are messages designed to help residential advanced metering infrastructure (“AMI”) customers save energy and money when they are likely to use more energy than usual for a billing period. Customers can then use the tips provided in the alert to reduce their consumption before the billing period ends. Alerts can be sent through email, text message, or voice message.

Email BFA

Email BFAs are digital messages sent through the email channel to inform customers when they are on track for a high bill or high use for the current period. Email BFAs contain the following modules:

- **Bill Forecast Module:** The Bill Forecast module provides a projection of how much the customer could spend on their utility bill if they continue their spending behavior through the end of the billing period. The module also includes personalized threshold information and enables customers to access and update their threshold.
- **Electric and Gas Comparison Module:** The Electric and Gas Comparison module is included for customers who have both gas and electric service. The module includes two bar graphs. Each graph compares projected use to use from the same billing period of the previous year. One graph shows electricity use and the other shows gas use. If a customer has the cost view, a dollar amount is displayed above each graph bar. If the customer has the usage view, usage is displayed above each graph bar.
- **Time of Day Module:** The Time of Day module identifies the time of day in which the customer tends to use the most energy and expresses this as a percentage, so that the customer knows when

to focus on being more energy efficient. The usage value represents usage-to-date within the current bill period. The six-hour time period with the most usage is highlighted, while the other three time periods display in a faded color.

- **Weather Insights Module:** The Weather Insight module educates customers on how changes in temperature can affect their energy use. It also provides a comparison between the current month's average temperature and the average temperature from the same month of the previous year. For example, "On average, this month was 13°F hotter than the same time last year."
- **Ways to Save Module:** The Ways to Save module provides energy and water saving tips to encourage customers to take action to lower their bill before the end of the billing period. The module can display up to three tips. Customer can click **See More Ways to Save** to view more tips in the Oracle Utilities web portal.
- **Easy Audit Module:** The Easy Audit module enables customers to easily access the HEC feature from their email communication without needing to sign-in to their utility account. Removing this sign-in barrier increases engagement and customer satisfaction and improves product functionality and the overall customer experience.

SMS BFA

SMS BFAs are text messages sent through the mobile channel to inform customers when they are on track for a high bill. SMS alerts are only delivered if the SMS alert type is turned on in a customer's account settings, and if the customer meets the minimum eligibility criteria to receive the SMS alert type. A dual fuel customer receives a single, combined fuel text message.

IVR BFA

Interactive Voice Response (IVR) BFAs are digital voice messages sent through the telephone channel to inform customers when they are on track for a high bill. Voice alerts are only delivered if the voice alert type is turned on in a customer's account settings, and if the customer meets the minimum eligibility criteria to receive the voice alert type. While listening to a voice alert, a customer can press appropriate numbers on their phone to repeat the message or to unsubscribe from the messages.

TOU Coach

TOU Coach provides multiple features that facilitate peak hour energy and demand reduction and educate customers about electric plans with Time of Use ("TOU") or demand rates. These features deliver TOU Coach insights to customers via up to weekly email communications that educate about how they are using electricity and provide them with recommendations on how to shift or reduce their electric use in order to save money. By educating customers about their plans, these insights help customers reduce their spending and lower their monthly bills. Customers who participate in the TOU Coach email program receive one of the following email types each week:

- Introduction emails
- Weekly Coach emails
- Peak Usage Summary emails

Introduction Emails

The Introduction email is the first weekly email customers receive as part of the program. This email is designed to welcome customers to the program, provide peak hour energy use insights, and offer tips on how to reduce energy use during peak hours. The email also encourages customers to use less during peak hours by including information about the average savings of other utility customers who have shifted their use to off-peak hours.

The Introduction email contains these modules:

- **Welcome Message Module:** This module appears below the header and introduces customers to the program. This module is only included in the Introduction email, not in subsequent emails.
- **TOU 101 Module:** This module educates customers about when electricity is most expensive based on their TOU rate plan. The module provides customers with the following information: 1) Whether electricity prices differ on weekdays and weekends; 2) How much more expensive peak prices are than off-peak prices; 3) The hours during which electricity is most expensive; 4) A visual timeline that displays off-peak, partial-peak, and peak hours
- **Hourly Usage Module:** This module educates customers about how much electricity they use during peak hours and encourages them to shift tasks to off-peak hours to save money. The module supports partial-peak periods, multiple peak periods in a day, and weekday and weekend breakdowns.
- **Big Appliances Module:** This module educates customers about which appliances use the most electricity, and which are low-usage appliances. This information enables customers to understand how they can shift the usage of their appliances to save money during peak hours.
- **Easy Audit Module** (see above)

Weekly Coach Emails

The Weekly Coach email is delivered to customers at the end of each week. It provides peak hour energy use insights as well as a comparison between peak hour electricity spending during the current week and the previous week. Customers participating in the program begin receiving the Weekly Coach email after they receive their Introduction email, and do not receive the Weekly Coach email in weeks when they receive the Peak Usage Summary email.

The Weekly Coach emails contain these modules:

- **Season Transition Module:** The Season Transition module notifies customers when their peak to off-peak price ratios or peak hours are changing. This module is sent one week before the transition date, and again one week after the transition date, along with the regular cadence of the TOU Coach emails. This module can be included in the Weekly Coach email or the Peak Usage Summary email, depending on the timing of the change.
- **Weekly Comparison Module:** This module compares the customer's electricity costs during peak hours in the current week to their spending during peak hours in the previous week, and provides varying feedback based on how the customer's costs in the week compare to those of the previous week.
- **TOU 101 Module** (see above)
- **Hourly Usage Module** (see above)
- **Tips Module:** This module delivers energy savings tips to customers using dynamic personalized tips that are relevant to a customer's unique needs. The tips are automatically selected and prioritized based on each customer's attributes, continually refreshed with new information, and designed to cover a wide variety of energy-saving and financial investment categories. A TOU Coach tip library has been created with tips that help customers shift usage from peak to off-peak hours and reduce peak consumption.
- **Easy Audit Module** (see above)

Peak Usage Summary Emails

The Peak Usage Summary email is delivered every four weeks to customers participating in the program. It includes details about how the customer's electricity costs during peak hours changed throughout the month. It also lists the week during which peak hour electricity costs were lowest and highlights the cost difference between this week and the week during which peak hour electricity costs were highest.

The Peak Usage Summary emails contain these modules:

- **Season Transition Module** (see above)
- **Peak Summary Module:** This module educates customers about how their electricity costs during peak hours changed throughout the month. The module highlights the difference between the lowest peak usage week and the highest peak usage week over the previous four weeks. The module provides customers with a view of how they've progressed in changing their peak usage over the past four weeks, and displays data in dollar amounts, illustrating cost savings over time.
- **TOU 101 Module** (see above)
- **Hourly Usage Module** (see above)
- **Tips Module** (see above)
- **Easy Audit Module** (see above)

3. Program Design and Best Practices

Describe the program strategies/tactics that will be used to reduce the identified market barriers for the targeted customer group and/or market actor(s). Describe why the program approach constitutes "best practices" or reflects "lessons learned." Include descriptions of key software tools that are significant to program strategy and implementation, including audit tools. Provide references where available

Program Design and Customer Selection

The CEFP builds upon the effectiveness of Oracle's existing two million forty thousand (2,040,000) household HER program with PG&E while introducing new Products such as BFA and TOU Coach that help to improve program reach and savings performance. New experiences include advanced disaggregation and detection Modules, audit capabilities, and additional experiences targeted for specific customer groups, such as electric vehicle or TOU-enrolled customers. CEFP introduces these new experiences while increasing the number of customers reached and energy savings generated. To optimize cost-effective savings, CEFP provides a coordinated set of multi-channel communications to as many as 2.9 million (2,900,000) residential PG&E customers, engaging and educating customers about how to reduce and shift their usage.

Below is a summary of the total number of customers being treated with each element of CEFP in the RCT. To make-up for naturally occurring program attrition and to allow for CEFP to reach, on average, the total number of customers highlighted below, there may be a ten percent (10%) or smaller increase in the total number of customers treated by any component of CEFP at any given moment in time.

- HER – 2.9 million customers
- BFA – 1.45 million customers
- TOU Coach – 150,000 customers in Year 1 (up to 2 million customers in Years 2 and 3)

Customers in CEFPP are automatically enrolled into the program and are chosen based on a myriad of characteristics, including overall energy use, dwelling type, and geography. The program will be deployed in “Waves” which consist of a treatment group and a statistically similar control group.

Each wave will have its own unique program design in which the following factors vary:

- Delivery schedules for Printed HERs (either 2, 4, or 6 Printed HERs per year).
- Channels through which a customer is treated with HERs. Some customers will receive only HERs delivered via U.S. Mail (Paper HERs), others Paper HERs and HERs delivered through electronic mail (eHERs).
- Number of CEFPP elements a customer is treated with. All treatment customers will receive HERs. Some customers will also receive BFAs and/or TOU Coach.
- Campaigns within waves to provide different experience to customers within a wave.
- Customized energy efficiency recommendations for each delivery period.
- Information on available DSM programs, rebates or other utilities messaging.

Learnings from Oracle’s existing HER program are being applied to maximize for cost effective savings. For example, treatment customers for whom PG&E can treat with CEFPP’s email elements like eHER, BFA, and/or TOU Coach will receive less Paper HERs per year, either 2 or 4. This allows for the program to maintain high savings while also managing for cost effectiveness. On the other hand, high usage customers for whom PG&E does not have an email address will receive 6 Paper HERs per year. Since these customers cannot be treated with email CEFPP elements like eHER, BFA, and/or TOU Coach, this is the optimal way to maximize for both savings and cost effectiveness. Additionally, because electric-only and gas-only customers will only generate savings from a single fuel source, these customers will also only receive either 2 or 4 Print HERs per year. This reduced volume of paper in addition to the layering of any email elements of CEFPP for customers with an email address is the most efficient way to optimize for program savings and cost effectiveness.

Measurement and Reporting of outcomes

Once CEFPP communications have started going out to customers, there are a number of metrics which are measured and reported on a regular basis. Some of the KPIs reported pertain to energy savings – kWh and kW, number of reports sent – print and email, email engagement – opens and clicks, web engagement and customer satisfaction. See section 5 for more information on Quantitative Targets.

Other Best Practices

Understanding that logging into the web is also a major barrier to getting any sort of web commitment from a customer, including visiting online energy management tools like HEC, PG&E recently implemented the “Easy Audit”. The “Easy Audit” is an email module that contains a personalized URL that takes a customer straight to the HEC. The token in this URL automatically identifies the customer so there is no need for the customer to input their account information. This elimination of the log-in barrier contributed to a 25% uplift in audit completions in 2020 and will be leveraged across HER, BFA, and TOU Coach emails in CEFPP.

4. Innovation

CEFPP will leverage innovations in **Advanced Detection and Disaggregation** across its component elements. Oracle will automatically incorporate all available usage data into each customer’s profile to

provide a disaggregation model. The model will dynamically leverage billed usage, weather, HEC answers, smart meter data, and customer home profile data—when available—to continually curate the most accurate disaggregation model for each customer. The model will leverage advanced machine learning capabilities, like machine deep learning—the application of large neural networks—and will be trained on the largest utility data set in the world, including a data warehouse that currently hosts over 1.6 trillion meter reads. Insights generated from this model will be surfaced across CEFP communications, giving PG&E new tools to drive behavioral energy efficiency.

In addition to Advanced Detection and Disaggregation, CEFP will coincide with Oracle’s third generation of Home Energy Reports: HER 3.0. With HER 3.0 Oracle has re-architected how HERs are created in an effort to make new layouts and new modules easier to read and understand for customers. With HER 3.0, each report will have a different layout selected specifically for its ability to tell the story the report is trying to convey, giving PG&E’s customers an experience that never feels stale. The new report will have a bold new design, including more color, bold type font, fewer words, and new ways of displaying energy related recommendations. The purpose of the new report will be to influence millions of smart energy actions, making it easy for residential customers to interact with PG&E digitally and engage in the programs PG&E has to offer. Below is a description of CEFP’s three primary areas of innovation:

A. More annual energy savings

- **Bill Forecast Alerts.** An Opt-out Behavioral Approach with BFAs removes the sign-up barrier by automatically enrolling millions of customers in email, SMS, and/or IVR alerts. BFAs are messages designed to help residential AMI customers save energy and money when they are likely to use more energy than usual for a billing period. The alerts can be sent through the email, text message, and voice message.
- **Online audit secure links.** Oracle has been using emailed reports to promote online audits for years. An “Easy Audit” can be included in eHERs for customers who have not yet completed HEC. It is designed to show customers which of their home attributes are unknown, and to encourage them to provide these attributes by completing the audit to receive a more personalized eHER. The “Easy Audit” module can also now be used in BFA and TOU Coach email communications.
- **New digital energy insights.** Previously, eHERs consisted of a neighbor comparison, insights, and tips. Today, they include over a dozen new energy insight modules to engage customers in saving energy every month. eHERs now include heating and cooling comparisons, heating and cooling disaggregation, whole-home appliance-level disaggregation, personalized audit promotions, personal usage tracking, daily usage peaks, and series of target efficiency rank modules that gamify the experience.
- **Weekly Energy Update Emails.** PG&E may elect to enroll customers into receiving Weekly Energy Update Emails, which are email reports sent to customers every week to inform them of their energy usage patterns, trends, and projected energy costs. With these emails, customers can better understand how their actions correspond to their utility bills, get a preview of their bills, and get helpful insights on how to adjust their energy usage.
- **HER 3.0.** HER 3.0 provides a new, modernized experience with bold colors, a varied layout, and data-driven insights targeted to specific customer attributes. This includes concepts such as:
 - **Disaggregation-Powered Marketing.** The “Disaggregation Promotion” Module leverages Advanced Detection and Disaggregation insights to provide the customer with

a deeper understanding of their home energy use, and how they can benefit from taking advantage of specific programs or devices.

- **Adaptive Intelligent Recommendations.** The “Ways to Save” Module provides a set of automatically selected energy savings tips that are prioritized based on each customer's unique attributes. This Module ensures that each tip is relevant to a customer's unique needs. The tips are continually refreshed with new information and are designed to cover a wide variety of energy-saving and financial investment categories
- **Personalized Tip Savings.** The “Context-Aware Tips” Module helps a customer understand why they are being presented with a specific tip on their report. The Module includes a personalized tip insight that explains why the customer is presented with a specific tip based on their report data. The tip content provides actionable and relevant information about the best ways for the customer to save energy.
- **Promotion Report:** The Promotion Report offers customers personalized insights about specific end-uses in their home in order to motivate them to take advantage of a utility-offered promotion. This report type leverages Oracle’s Advanced Detection and Disaggregation capabilities to facilitate customer adoption of more efficient devices, appliances, and deep home retrofits. The Promotion Report experience is determined by the report state and promotion type selected by PG&E. Oracle works with PG&E to select the promotion they wish to run based on available disaggregation insights.
- **Announcement Report:** The Announcement Report makes a custom statement or announcement that has an impact on the customer’s energy use and relates to the insights presented in the rest of the report. For example, it could be used to make limited-moderate income customers aware of bill assistance programs or to prepare customers for fire season. The report front is fully customizable and requires utilities to include customized context alongside the existing insights and predefined content in order to frame the report in the context to what the customer is experiencing.
- **Disaggregation Main Insight:** The Disaggregation Main Insight module uses personalized information about an end use in the customer's home to motivate them to take advantage of a utility promotion. The goal of this module is to help customers understand their use in a specific end-use category where they are using more than the regional average so that they may feel motivated to uptake the promotion and subsequently reduce their energy use in that end-use category. The module can be used to promote the customer's largest end use category, or the utility may select a preferred end use category to reinforce the report promotion. Oracle Utilities Opower works closely with the utility to create marketing modules that enhance the report experience.
- **Efficiency Zone:** The Efficiency Zone module is designed to motivate customers to save energy based on how they see themselves in relation to similar homes. It reframes the Efficient Homes concept from the Neighbor Comparison to improve customer satisfaction without heavily compromising energy efficiency. The module is comprised of a bar graph that compares customer and similar homes usage against an Efficiency Zone, and insights that place the customer's usage in context. Usage below or up to the threshold is considered in the "efficiency zone." The Efficiency Zone threshold is the average use of the most efficient 20th percentile of similar homes during that bill period and will change with each report.
- **Energy Use Benchmark:** The Energy Use Benchmark provides a dynamic and personalized, at-a-glance interpretation of the customer’s energy use. Energy use is broken down into the three sections of a gauge: Fair, Good, and Great. The customer's status on

that gauge is determined by their performance relative to both comparison points in the normative comparison. The Benchmark is typically used in context with the Efficiency Zone or Neighbor Comparison modules.

- **Explainer Module:** The Explainer module tells the customer what data is used to calculate the Efficiency Zone or Neighbor Comparison module and provides ways to improve or correct the module by completing or updating the Digital Self Service - Energy Management Home Energy Analysis. The module includes a brief explanation of how the comparison is calculated, as well as URL and QR code options to go from their paper report to the Home Energy Analysis. The goal of this module is to reduce negative customer sentiment by providing transparency around the similar home comparison and offering a simple and quick way for customers to update their information if it is not accurate.
- **User feedback module:** CEFP will periodically include a user feedback Module to solicit feedback from customers on the usefulness of their HER, BFA, or TOU Coach email.

B. Engaging Emerging customer segments

- **Electric Vehicle (“EV”) HERs.** A HER experience for EV owners who need help understanding their home energy use that is distinct from their EV charging use. The electric vehicle breakout Module provides customers with a more detailed look at how their electric vehicle charging impacts their energy as single bar-chart. The chart explains and visualizes how a customer’s electric vehicle charging impacts their overall energy use and encourages them to save energy.
- **Opt-in Bill Forecast Alerts.** Opt-in BFAs are made available to customers in all segments and can help customers manage their energy usage and related bills. These customers can choose to be notified of their higher than normal energy usage via email, SMS, and/or IVR alerts. BFAs are messages designed to help residential customers save energy and money through proactive alerting that is triggered midway through a billing cycle so that customers can make behavioral changes to their consumption patterns before a billing period ends. PG&E is able to market the BFA to its customer base to drive enrollment in the opt-in BFA Product. Savings generated from opt-in BFAs are neither forecasted nor tracked as these customers are not part of the Randomized Control Tr
- **Solar HERs:** A HER experience for customers with solar panels. The main objective of the experience for solar customers is to motivate them to reduce their energy use and form energy-saving habits, with normative comparison being the key insight to drive this behavior change. The normative comparison graph compares the customer’s energy use to that of other, similar homes with solar.
- **Video HERs.** An HER experience that is designed to reach customers through a new media channel. One million customers will receive a Video HER up to 3 distinct times over the lifetime of CEFP. PG&E and Oracle will collaborate on the design of each of the 3 videos, though core elements of the HER experience – like normative comparisons, personalized energy insights, and tips – will be a part of each video.

C. Energy savings when and where they are needed most

- **TOU Coach - Leveraging the TOU Rollout:** CEFP includes up to weekly and monthly personalized analyses of hourly energy usage patterns that are delivered to customers by default. These emails enable PG&E to deliver superior service and engagement with customers on time of

use rate plans by providing features that facilitate peak demand reduction. These features deliver insights to customers that educate them about their peak energy usage and encourage them to shift their use to off-peak hours to help them reduce their peak spending and lower their monthly energy bills. The deployment of TOU Coach will evolve the load shape of the behavioral program by consolidating savings in the hours of greatest value, resulting in a more cost-effective program.

5. Metrics

The CEFP program is a resource program, and the primary metrics are energy savings, measured in kilowatt hours (kWh), therms, and peak demand reduction (kW). The following metrics will be reported monthly:

- **kWh savings:** Measured continuously through the RCTs and on a monthly basis.
- **kW savings:** Measured once annually at the end of the peak season, following the definition of peak kW savings contained in Database for Energy Efficiency Resources (DEER).
- **Therm savings:** Measured continuously through the RCTs and on a monthly basis.
- **Program Total Resource Cost (TRC):** The TRC is a measurement of the cost effectiveness of the program. TRC will be run periodically.

In addition to energy savings metrics, Oracle will also report out on several important KPIs on a quarterly basis. These KPIs include:

- **Customer Satisfaction (CSAT):** A digital Customer Engagement Tracker survey will be delivered to a subset of treatment and control customers on a quarterly basis. It will contain questions asking customers about key CSAT metrics, to be decided on in collaboration with PG&E before surveys are sent to customers.
- **Savings Forecast Accuracy:** A comparison of Oracle-reported ex ante energy savings achieved (kWh, Therms) to Oracle-provided savings forecasts.

6. For Programs Claiming To-Code Savings

Claiming To-Code savings is not applicable to the CEFP Program

7. Pilots

A pilot program of 150,000 customers will be initiated for the TOU Coach component of CEFP in 2021. PG&E then has the option to go full-scale and serve up to 2 million customers with TOU Coach in 2022. The HER and BFA components of CEFP will not have pilots.

8. Workforce Education & Training (WE&T)¹

WE&T is not applicable to the CEFP Program

¹ D.18-05-041, Page 20-21 and Ordering Paragraph 7.

9. Workforce Standards²

Workforce Standards are not applicable to the CEFPP Program.

10. Disadvantaged Worker Plan³

The Disadvantaged Worker Plan is not applicable to the CEFPP Program.

11. Additional Information

Include here additional information as required by CPUC decision or ruling, as applicable. Indicate decision or ruling and page numbers.

3. Supporting Documents

Attach all the following documents as PDF-format files to this file:

1. Program Manuals and Program Rules

All programs must have manuals⁴ uploaded in CEDARS to clarify the eligibility requirements and rules of the program for implementers and customers. Program rules must comply with CPUC policies and rules. Table templates are available at CEDARS. At minimum, these manuals should include:

#	Information Required	Short Description
1	Eligible Measures or measure eligibility, if applicable	Provide requirements for measure eligibility or a list of eligible measures
2	Customer Eligibility Requirements	Provide requirements for program participation (for example, annual energy use or peak kW demand)
3	Contractor Eligibility Requirements	List of any contractor (and/or developer, manufacturer, retailer or other "participant") or sub-contractor eligibility requirements. (For example: specific required trainings, specific contractor accreditations, and/or specific technician certifications required.)
4	Participating Contractors, Manufacturers, Retailers, Distributors, and Partners	<ul style="list-style-type: none">For upstream or midstream incentives and/or buy-down programs indicate these, if applicable.
5	Additional Services	Briefly describe any additional sub-program delivery and measure installation and/or marketing & outreach, training, and/or other services provided, if not yet described above.
6	Audits	Indicate whether: <ul style="list-style-type: none">Pre- and post-audits are requiredFunding or incentive levels have been set for audits

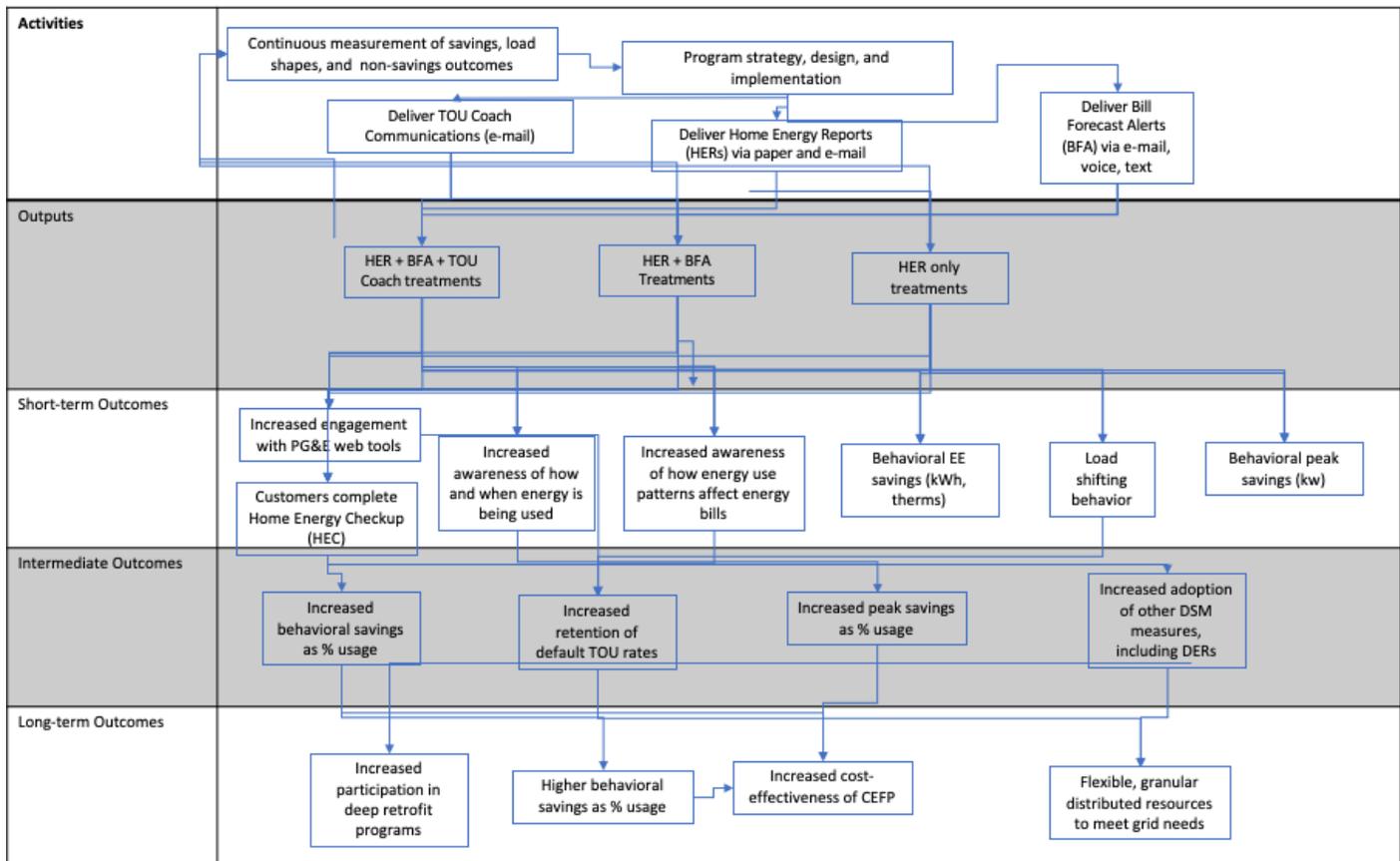
² D.18-10-008, Ordering Paragraph 1-2 and Attachment B, Section A-B, Page B-1.

³ D.18-10-008, Attachment B, Section D, page B-9.

⁴ "Manuals" are defined as materials given to implementers and customers, not internal process documents.

#	Information Required	Short Description
		<ul style="list-style-type: none"> • Eligibility requirements for audit incentives • Which demand-side resources will be included within the audit's scope, and • Who will perform the audit.
7	Sub-Program Quality Assurance Provisions	Please list quality assurance and quality control requirements, including accreditations and/or certification or other credentials.
8	Other Program Metrics	List all documentation and data used to calculate Program Metrics. This includes but is not limited to data in support of sector-level and portfolio-level metrics.

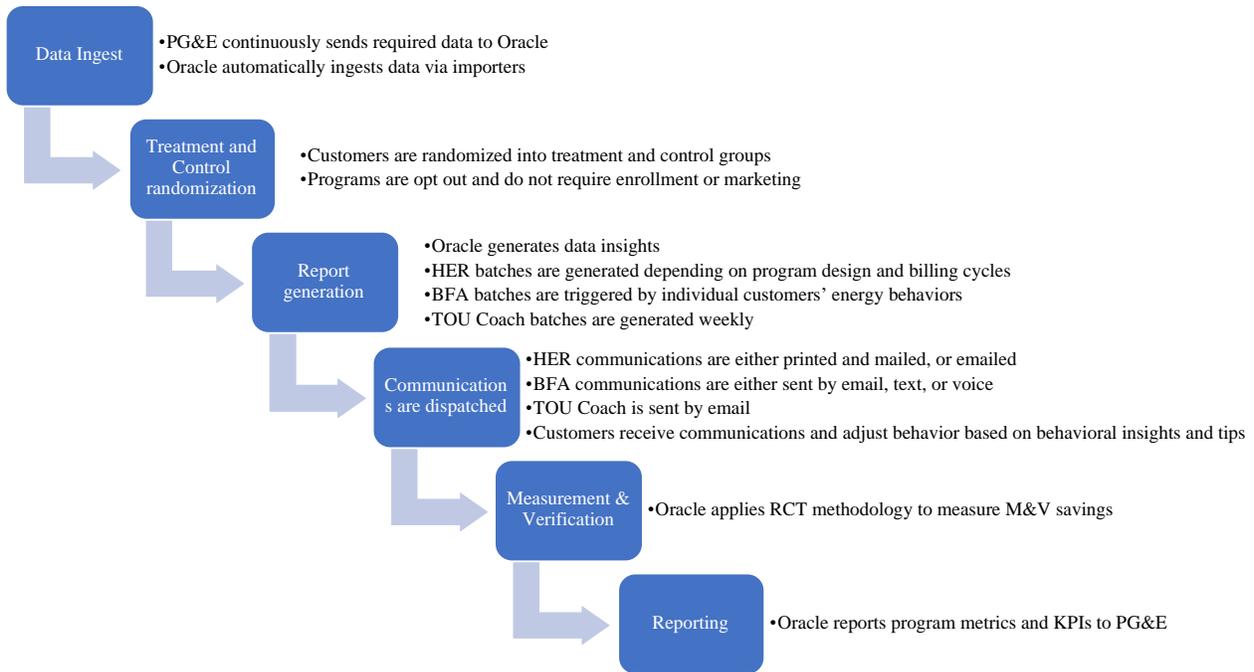
2. Program Theory⁵ and Program Logic Model⁶



⁵ The expected causal relationships between program goals and program activities in a way that allows the reader to understand why the proposed program activities are expected to result in the accomplishment of the program goals. A well-developed program theory can (and should) also describe the barriers that will be overcome in order to accomplish the goals and clearly describe how the program activities are expected to overcome those barriers. *California Evaluation Framework*, June 2004.

⁶ The graphical representation of the program theory showing the flow between activities, their outputs, and subsequent short-term, intermediate, and long-term outcomes. *California Evaluation Framework*, June 2004.

3. Process Flow Chart



4. Incentive Tables, Workpapers, Software Tools⁷

#	Workpaper Name	Short Description	URL link or location name
1	SWWB004-02	Home Energy Reports	http://www.deeresources.net/

5. Quantitative Program Targets

3-Year Continuous Energy Feedback Program Gross Savings Forecast		
kWh	kW	Therms
586,900,000	158,000	20,912,200

6. Diagram of Program

Please provide a one-page diagram of the program including subprograms. This should visually illustrate the program/sub-program linkages to areas such as:

- Statewide and individual IOU marketing and outreach

⁷ Per D.19-08-009, for fuel substitution measures where the incentive exceeds the Incremental Measure Cost (IMC), the CPUC requires submission of a workpaper addendum using a separate template. Third-party implementers can request the template from their Contract Manager. PG&E Program Managers should refer to the E-PPICs Smart Sheet.

- *Workforce Education and Training (WE&T) programs*
- *Emerging Technologies (ET) and Codes and Standards (C&S), and*
- *Integrated efforts across Demand Side Management (DSM) programs.*

The CEFPP does not have subprograms.

7. **Evaluation, Measurement, and Verification (EM&V):**

Randomized Control Trials

All components of CEFPP are implemented using a Randomized Control Trial (RCT). An RCT is a type of experimental design in which members of an eligible population are randomly assigned to either a treatment group or a control group. A program intervention is then provided only to the treatment group. The outcomes for these two groups are compared, resulting in unbiased program energy savings estimates. Conducting an RCT provides confidence in the program’s energy savings results. It is widely recommended given that the results of an RCT can be reproduced and verified by third parties.

CEFP will measure savings in accordance with workpaper SWWB004-02 (Home Energy Reports), which details the RCT methodology as follows:

Impacts of comparative energy usage programs can be assessed using experimental design whereby a target group of similar households is randomly assigned to receive the reports (“treatment”) or not (“control”). The random assignment ensures that the treatment and control groups are equivalent from a statistical standpoint such that the experimental design establishes whether the desired effects are more likely to occur in the intervention (or treatment) group due to the program. Households in the treatment and control groups are treated in the same fashion with respect to utility interactions outside of this intervention (such as exposure to marketing programs and recruitment to demand response programs).

The impacts of HER and BFA have been tested in several jurisdictions across the nation by independent evaluators. These evaluation findings are based on the results of randomized controlled trial (RCT) experiments which are considered as the most effective way to establish causality between a treatment and its effect. This experimental design isolates the unique impact of the comparative usage. To reduce sampling error and thereby improve the representativeness of the sample of each of these experiments, each IOU utilizes stratified sample frames.

Savings from CEFPP result from a myriad of actions that vary from household to household. They may be divided into three types of actions:

1. Behavioral changes or practices that affect equipment use (e.g., switching off lights, unplugging unused appliances, and adjusting thermostat settings to limit heating and cooling);
2. Behavioral changes in the purchase and installation of primarily low-cost equipment not rebated by IOU energy efficiency incentives programs (e.g., timers, replacement lamps, low-flow faucet aerators); and
3. Behavioral changes in the purchase and installation of energy efficient equipment rebated by IOU energy efficiency incentive programs (e.g., smart thermostats).

Since households exhibit large variations in energy usage and program savings are small when expressed as the average reduction in participants’ annual energy usage (between 1.0% and 3.0% for electricity and between 0.5% and 1.5% for natural gas), large treatment and control groups are necessary to produce an unbiased savings estimate with a high level of statistical precision. Because the composition of household characteristics for each experiment is homogeneous and assignment to

treatment and control conditions is made randomly, savings is calculated on an ex-post basis using billing analysis and a demand response impact assessment. Regression models are based on the “difference-of-differences” (DID) approach, whereby the average change in energy consumption between pre- and post-periods among the treatment group is subtracted from the average change in energy consumption between the pre- and post-periods among the control group. The difference between these two pre/post differences yield the impact of the program.

8. Normalized Metered Energy Consumption (NMEC):

NMEC does not apply to the CEFPP program.

APPENDIX. List of Acronyms and Abbreviations

Term	Definition
C&S	Codes & Standards
BFA	Bill Forecast Alert
CALCTP	California Advanced Lighting Controls Training Program
CEDARS	California Energy Data and Reporting System
CEFP	Continuous Energy Feedback Program
CPUC	California Public Utilities Commission
DAC	Disadvantaged Communities
DEER	Database for Energy Efficient Resources
DER	Distributed Energy Resources
DID	Difference-of-Differences
DSM	Demand-Side Management
EE	Energy Efficiency
EE PRG	Energy Efficiency Procurement Review Group
E-HER	Email Home Energy Report
EM&V	Evaluation, Measurement & Verification
ET	Emerging Technologies
EUL	Effective Useful Life
EV	Electric Vehicle
FSU	Fractional Savings Uncertainty
HEC	Home Energy Checkup
HER	Home Energy Report
HTR	Hard-to-Reach
HVAC	Heating, Ventilation, & Air Conditioning
IOU	Investor-Owned Utility

Term	Definition
IP	Implementation Plan
kW	Kilowatts
kWh	Kilowatt-hours
M&V	Measurement & Verification (or, sometimes, Validation)
NMEC	Normalized Metered Energy Consumption
PA	Program Administrator
PAC	Program Administrator Cost
RCT	Randomized Control Trial
RFA	Request for Abstract
RFP	Request for Proposal
TOU	Time-of-Use
TRC	Total Resource Cost
WE&T	Workforce Education & Training