



Business Energy Report (BER) Program

Implementation Plan

March 21, 2024

Program Overview

The Business Energy Report (BER) Program is an opt-out program that offers timely, insightful alerts for small business (<=20kW) customers to encourage behavioral changes that lead to energy savings. These reports are both paper and digital to maximize savings. Note: Medium (21 kW-199 kW) Business customers may be considered as needed and agreed upon by San Diego Gas & Electric Company (SDG&E) and Bidgely.

Program Budget and Savings

Table 1: Program Summary

Program and/or Sub-Program Name:	Business Energy Report (BER) Program
Program / Sub-Program ID number:	SDGE4184
Program / Sub-program Budget Table	See below - Table 2: Program Budget
Program / Sub-program Gross Impacts Table	See below - Table 3: Energy Saving Goals
Program / Sub-Program Cost Effectiveness (TRC)	See below - Table 4: Cost-Effectiveness Goals
Program / Sub-Program Cost Effectiveness (PAC)	N/A
Type of Program / Sub-Program Implementer (PA-delivered, third party-delivered or Partnership):	Third-party Delivered
Market Sector(s) (i.e., residential, commercial, industrial, agricultural, public):	Commercial
Program / Sub-program Type (i.e., Non-resource, Resource)	Resource Acquisition
Market channel(s) (i.e., downstream, midstream, and/or upstream) and Intervention Strategies (e.g., direct install, incentive, finance, audit, technical assistance, etc.), campaign goals, and timeline.	Behavioral, Randomized Control Trial (RCT)

Table 2: Program Budget

Cost Category Description	2024 Program Budget (\$) Start-Up	2024 Program Budget (\$)	2025 Program Budget (\$)	2026 Program Budget (\$)	2027 Program Budget (\$)	Total Program Budget (\$)	Percent of Total
Administrative		\$39,017	\$33,640	\$41,717	\$35,864	\$150,239	4%

Marketing & Outreach¹							
Direct Implementation - Incentives²							
DI-Non-Incentive	\$200,000	\$828,033	\$713,917	\$885,337	\$761,129	\$3,388,417	96%
Total EE Budget	\$200,000	\$867,050	\$747,558	\$927,055	\$796,994	\$3,538,656	100%

Table 3: Energy Savings Goals

Program Goals	2024 Program Year Totals	2025 Program Year Totals	2026 Program Year Totals	2027 Program Year Totals	Total
Net Energy Savings (kWh)	6,287,528	10,573,657	11,824,677	12,414,238	41,100,100
Net Energy Savings Therms	0	0	0	0	0
Net Coincident Demand Reduction (kW)	718	1,207	1,207	1,417	4,692
Total System Benefits	\$755,715	\$1,300,861	\$1,502,459	\$1,592,723	\$5,151,758

Table 4: Cost-Effectiveness Goals

Program Goals	2024 Program Year Totals	2025 Program Year Totals	2026 Program Year Totals	2027 Program Year Totals
Total Resource Cost (TRC)	0.68	1.74	1.62	2.0

¹ Since this is an 'opt-out' program, there are no marketing and outreach costs

² There are no incentives offered through this program

Implementation Plan Narrative

Program Description

Bigdely's Business Energy Report (BER) Program will maximize savings through personalized, dynamic communications that will serve Small ($\leq 20\text{kW}$) Businesses (SBs). Note: Medium (21 kW-199 kW) Business customers may be considered as needed and agreed upon by Bigdely and SDG&E. The solution will enable the treatment of SB customers, to capitalize on their best opportunities to save. This is an opt-out program.

Given the BER Program's focus on SBs, it will address the unique needs of Hard-to-Reach (HTR) customers and businesses in Disadvantaged Communities (DAC) by including them as a strata for treatment inclusion as long as identifiers are provided.

The goal of this program is for small business customers to modify usage-based and equipment-based behaviors in ways that reduce energy use. The program encourages demand shifting and peak conservation. The mechanisms for changing these behaviors are increasing customer awareness and understanding of their energy use while providing relevant tips and program solutions.

Program Delivery and Customer Services

The program will provide BER customers with paper, digital and web options. The program will also provide the following:

- Artificial Intelligence-powered, Disaggregation-based Hyper-Personalization – Hyper-personalization applied to small and medium (as applicable) business customers' needs. The Implementer will leverage appliance identification technologies, bring a new generation of meaningful engagements and insights to the small and medium (as applicable) business customer base. This allows customers to understand where they need to focus their efforts to maximize savings and SDG&E to overcome challenges related to gaining participation in this historically hard-to-serve market sector.
- Smarter Program Design and Monitoring – Individualized insights into customers' load enable information on which customers are saving the most, like those with highest HVAC use. The treatment group customers will be selected in a way to maximize savings from each business.
- Delivering Savings and Customer Satisfaction – Capitalizing on customers' increased satisfaction with their utility and the sustained relationship that results from it, our

program will be a key resource in increasing participation in SDG&E’s existing and future energy efficiency programs.

The Table 5: below outlines the communication channels, customer portal, and customer support tool that will be included as part of the program:

Table 5: Program Features

Program Features	Cadence/Frequency
Paper HER	Approximately 4x per year paper reports sent to the customer’s address on file detailing: detailed energy usage and personalized savings tips.
Digital HER	A similar business comparison email sent midway through the billing cycle. This email will also include appliance itemization and tips based on the last month’s usage.
Web portal	<p>A utility-branded, mobile-responsive web portal that contains a broad set of features to serve customer needs:</p> <ul style="list-style-type: none"> • Web Dashboard • Appliance Itemization, Recommendations, Self-Service Online Survey, Similar business Comparison. • Facility Profile Survey • Preferences Page
CARE - CSR Portal	<p>A call center solution that includes:</p> <ul style="list-style-type: none"> • Alerts Enrollment • Co-browsing • Engagement View
Metrics Dashboard	<ul style="list-style-type: none"> • Metric Dashboard provides online access to relevant metrics generated by Web Browser

Program Design and Best Practices

Table 6: Program Design outlines key aspects of the program design, encompassing customer demographics, report layouts, selection criteria, communication channels, evaluation methodologies, reporting mechanisms, and data integration requirements.

Table 6: Program Design

#	Area	Scope
1	No. of Customers	Approximately 55,597 treatment customers, on average per year Customers opting out will be replaced by new treatment customers.
2	Report Layouts and Frequency	Monthly Paper HER Reports that include information about the last billing cycle's consumption can be provided approximately 4x annually to all eligible customers Monthly Digital HER Alerts will be provided to eligible customers focusing on Peer Comparison and usage insights.
3	Customer Selection	Small (<20kW) business customers: dual fuel-electric or electric only. Note: Medium (21-199kW) Business customers may be considered as needed and agreed upon by Company and Implementer. Program participants will be chosen in compliance with the EM&V Plan and approved CPUC requirements
4	Channel	Paper reports to all designated treatment paper wave customers in addition to email reports for those same customers with registered email addresses available.
5	EM&V	Monthly and annual savings estimates for kWh, kW and Total System Benefits (TSB) (starting in 2024) and SDG&E will validate savings numbers independently at the conclusion of each contracted year. SDG&E and Bidgely will work collaboratively on EM&V methodologies to possibly claim energy savings for the Universal Audit Tool (UAT) and other ways to claim additional savings in measure package developments.
6	Reporting	Bidgely will provide information as outlined below in the metrics section and the attached M&V plan.
7	Data Integration	Customer enrollment data - This includes data such as customer information, meter information, and service information Historical and daily raw data (15 / 30 / 60 min) - This AMI usage data for each eligible customer for the last 12 months and daily incremental data Billing data - This includes invoice details such as total cost, total consumption, bill cycle information.

Innovation

Bigdely will track the efficacy of the innovations listed below in Table 7 (including open rates, click rates, and savings rates of high and low HVAC consumers, etc.) and incremental savings rates of sub-experimental groups (A/B testing, for example) to inform program and product enhancements.

Table 7: Innovative Program Features

Innovation	Historical Approach	Approach
AI-driven appliance level usage breakdown	Static, non-specific whole-business usage	Load disaggregation and AI will be utilized to produce machine learning algorithms that extract the defining features of energy usage at SMB sites. An estimated 5 usage categories can be detected for these customers: Always On, Cooling, Heating, Hours of Operation, and Operating Load.
Personalized Recommendations, based on Explainable AI	Static non-business specific recommendations	Solution details on how usage affected the bill and a personalized behavioral tip by business type will be provided. Program or product promotion (or a utility-promoted CTA) along with insights driven by Explainable AI will be presented, all to prompt user action.
Smarter Treatment Groups	Higher consumption quartile selection only	Optimization of treatment groups using customers' energy appliance profiles to ensure they are built to maximize savings or inclusion of mid to low users in cost-effective email only waves.
Business-Type Peer Comparison	Self-comparison, non-relevant peer comparison	Comparison of energy usage to peers powered by SDG&E-provided NAICs codes
Lazy Login Web	Multi-step log-in	Personalized mobile-responsive web pages accessible securely without PII from a single click from the emails.
Multi-Premise Approach	Separate logins for web per account premise	Business focused solution with multi-premise drop down for easy navigation across accounts
Paper-to-digital conversion	No seamless mechanism to switch to digital	Frictionless mechanism using QR codes, drives engagement and savings.

Metrics

Bigdely will track various metrics to assess program performance accurately, including Total System Benefit (TSB), Compliance/Program Performance Reporting Accuracy, Marketing Open Rate, and Customer Satisfaction Survey Scoring.

- **Total System Benefit (TSB):**
 - Measures energy, capacity, and GHG benefits in dollar terms for 2024.
 - Percentage achieved of the total TSB dollar value under the Agreement, split evenly on a pro rata basis.
- **Program Performance**
 - Evaluates the average percentage variance between forecasted and actual gross program activity figures for energy savings, expenditures, and accruals.
 - Bidgely will share a quarterly report with SDG&E for program performance.
- **Marketing**
 - Monitors the percentage of customers opening digital Behavioral Energy Reports (BERs) over total delivered BERs.
 - Bidgely will monitor these numbers on a monthly basis.
- **Customer Satisfaction**
 - Assesses average thumbs-up rate feedback received based on Implementer-provided feedback surveys, defined by the percentage of thumbs up over all votes.
 - Bidgely will share these numbers with SDG&E quarterly.

For Programs claiming to-code savings

This is not applicable for this program.

Pilots

No pilots will be performed in conjunction with this program.

Workforce Education and Training

This is not applicable for this program.

Workforce Standards

Since there are installations as part of this program, Workforce Standards Policies do not apply.

Disadvantaged Workers Plan

Since there are installations as part of this program, Disadvantaged Workers Policies do not apply for this program.

Supporting Documents

DRAFT

Program Manual

The Behavioral Program does not have a manual because it does not require eligibility to participate or to claim savings. See Program design excerpts.

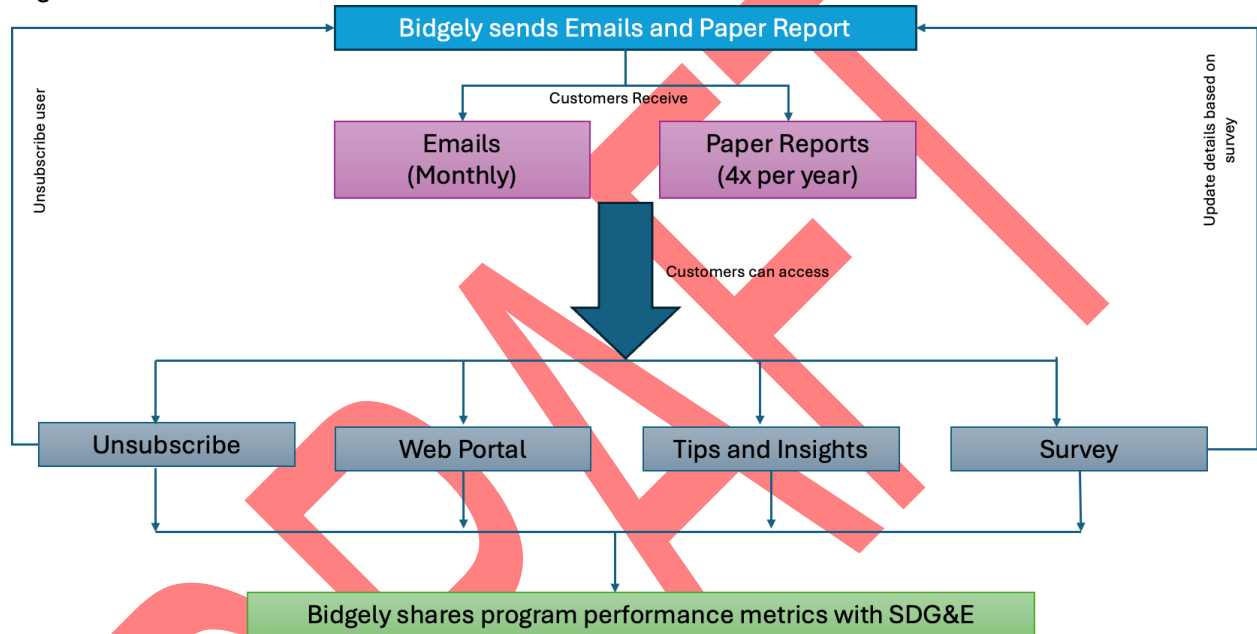
Program Logic Model



Process Flow Chart

Figure 1 outlines the process flow for the Business Energy Program. Participants who have been selected in the treatment group will receive monthly emails and paper reports (4 reports per year). These customers will be able to access web portal, tips, and insights. Participants will also have access to update their facility survey. Bidgely will update reports based on the answers in the survey. Participants will also have the ability to unsubscribe and opt-out from the program. Bidgely will send

Figure 1: Process flow



Incentive Tables, Workspaces, Software Tools

#	Component	Description
1	Data Analytics Platform	The data analytics platform leverages the consumption and billing metadata to develop key data elements such as appliance itemization, similar business comparison, and personalized recommendations used for the reports
2	Email Alerts Engine	This module is responsible for delivering the email alerts
3	Web Engine	This module is responsible for hosting all the web pages relevant to the program including the participant facing portal, the preferences portal as well as the utility console

Quantitative Program Targets

Energy Savings Goals

Program Goals	2024 Program Year Totals	2025 Program Year Totals	2026 Program Year Totals	2027 Program Year Totals	Total
Net Energy Savings (kWh)	6,287,528	10,573,657	11,824,677	12,414,238	41,100,100
Net Energy Savings Therms	0	0	0	0	0
Net Coincident Demand Reduction (kW)	718	1,207	1,207	1,417	4,692
Total System Benefits	\$755,715	\$1,300,861	\$1,502,459	\$1,592,723	\$5,151,758

Cost-Effectiveness Goals

Program Goals	2024 Program Year Totals	2025 Program Year Totals	2026 Program Year Totals	2027 Program Year Totals
Total Resource Cost (TRC)	0.68	1.74	1.62	2

Design of Program - N/A

Evaluation, Measurement & Verification (EM&V)

Energy savings will be measured through a Randomized Control Trial (RCT) Experimental Design. The RCT approach randomly assigns similar characteristic customers (e.g., high-consumption businesses) to a treatment and control group and then measures savings by

comparing the energy consumption of the treatment group to the control group over time. This is the industry standard for measuring behavioral energy savings, as outlined by the Department of Energy and the National Renewable Energy Laboratory in the Uniform Methods Project.

The savings estimates developed for this project are based on experience delivering similar programs around the country and informed by historic program results, as well as industry averages and results from other comparative programs. There is no approved CPUC measure package for Business Energy Reports, and no previous evaluation exists for this new program.

Creating the Treatment and Control Groups

Once data is obtained, the proposed program design will be reconstructed, by obtaining stakeholder feedback and making any changes needed to the design. We generally observe the following practices:

- Collaboratively identify strategic goals of the program and design
- Obtain the latest set of potential treatment and control customers (active SMB (<20kW) customers with electric service, including business type (NAICs code) and HTR/DAC designation)
- Determine the number of treatment group users required based on savings targets
- At a high level, determine if there are enough customers to meet the savings targets across the program period, and if not, discuss strategies for a refill
- Build contingencies to allow for dropouts from either treatment or control groups while meeting the savings targets.

To arrive at the treatment and control groups, the following filters (new waves only, if applicable) are typically applied:

- Not on net metering plans
- With an average bill cycle length between 10-90 days and consumption not in an outlier range
- Users with dispensable energy loads, like heating and cooling – to select customers who have high heating and cooling loads specifically in peak hours.

This pool of customers is considered eligible for randomization into treatment and control for the proposed BER program. To ensure equivalency and access in the program, for SMBs an additional step of including business type and HTR/DAC status as strata for randomization, discussed further below is also included. Finally, a statistical equivalence check between treatment and control groups is performed to ensure that the projected savings will meet program goals and maintain statistical robustness over time.

Working with Utility Program Evaluators

Will work with SDG&E and SDG&E's selected EM&V provider to identify and finalize the EE savings methodologies for the BER program. This process will include agreement on regression equation methodology, identifying when a treatment user is counted towards savings, and determination of applicable units (kWh, kW), etc). Working with SDG&E's chosen EM&V vendor

(or internal team) to identify the evaluation data requirements needed upfront. A standardized data extract to transfer data for EM&V purposes will be reviewed with all key stakeholders.

Bigdely's standard methodologies are outlined below:

1. Monthly reports:
 - a. Checks/ filters to arrive at the eligible user base for which the equations outlined below runs will be completed:
 - i. Removal for those without sufficient data: Check if the user has 12 months of data, users with less than 12 month's data are excluded
 - ii. Outlier removal: From monthly consumption, derive average daily consumption (ADC) and calculate the median consumption of the user base. Remove users with less than 10% or more than 10x normal usage as outliers
 - iii. Opt-outs post-12 months from opt-out (unsubscribes): Due to persistence, claim savings for 1 year for users that have opted out (but previously received treatment).
 - iv. Removal of Move-outs: Claim savings up to the move-out date for users who move out
 - b. Savings are measured on a monthly basis to estimate that month's savings. Utilize a Post Program Regression (PPR) model and as a second level check, a linear fixed effects regression (LFER) model to measure savings achieved. The PPR equation is included below:

$$ADC_{kt} = \beta_1 Treatment_{tk} + \sum_j \beta_{2j} Month_{jt} + \sum_j \beta_{3j} Month_{jt} \cdot ADClag_{kt} + \varepsilon_{kt}$$

where,

- ADC_{kt} = Average daily use in energy for customer k during billing cycle t.
- $Treatment_{tk}$ = Binary variable indicating whether customer k is in the treatment group (taking a value of 1) or in the control group (taking a value of 0)
- $Month_{jt}$ = Set of binary variables taking a value of 1 if the observation of billing cycle t is in month j and 0 otherwise
- $ADClag_{kt}$ = Customer k's energy use in the same calendar month of the pre-program year as the calendar month of month t
- ε_{kt} = Cluster-robust error term for customer k during billing cycle t. Cluster-robust errors account for heteroscedasticity and autocorrelation at the customer level

The LFER equation is included below:

$$ADC_{kt} = \alpha_{0k} + \alpha_1 Post_t + \alpha_2 Treatment_k \cdot Post_t + \varepsilon_{kt}$$

where,

- $ADCK_t$ = Average daily use in kWh for customer k during billing cycle t. This is the dependent variable in the model
- α_0k = Customer-specific fixed effect (constant term) for business k, which controls for all customer-specific effects on energy usage that do not change over time
- α_1 = Regression parameter capturing the average effect among business of being in the control group in the post-treatment period
- $Post_t$ = Binary variable indicating whether bill cycle t is in the post-program period (taking a value of 1) or in the pre-program period (taking a value of 0)
- $Treatment_k$ = Binary variable indicating whether customer k is in the treatment group (taking a value of 1) or in the control group (taking a value of 0)
- ϵ_{kt} = Cluster-robust error term for customer k during billing cycle t. Cluster-robust errors account for heteroscedasticity and autocorrelation at the customer level
- Average daily savings due to the program are indicated by the parameter α_2 .

- c. Once the savings rate (β_1) is determined from PPR the equation then monthly savings are calculated as follows: Savings = (Savings rate)*(average monthly consumption)*Total applicable treatment user count
 - d. Monthly savings reports will be provided to SDG&E and will include the latest month as well as the prior month's savings data.
2. Annual/Program Year-end reports:
- a. the same checks and user filtration as outlined in item 1.a. above will be completed.
 - b. The LFER outlined above on the users determined in 1.a above for the program year (12 months) to obtain the monthly savings rate will be applied.
 - c. Once the savings rate (β_1) are determined from the PPR equation then monthly savings are calculated as follows: Savings = (Savings rate)*(average monthly consumption)*Total applicable treatment user count and summed across the applicable 12 months.
 - d. Annual/Program Year-end savings reports will be provided to SDG&E outlining the final savings for the program year.

Normalized Metered Energy Consumption (NMEC)

Not applicable for this program.