



Local Governments Empowering Our Communities

San Francisco Bay Area Regional Energy Network (BayREN)

BayRENXX: Commercial Sector Program

Implementation Plan

DRAFT

Revised 10 September 2018

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Introduction

The 2019 Bay Area Regional Energy Network (BayREN) Commercial Sector Implementation Plan (IP) sets into real-life motion the “Intervention Strategies” and “Tactics” described in the 2018-2025 BayREN Plan¹ to achieve the Sector Plan objectives:

- 1) Increase customer, contractor and building owners’ knowledge, comfort and understanding of the benefits of energy efficiency (EE) upgrades.
- 2) Reduce the remaining upfront cost barriers and increase participation in partner and regional commercial EE programs.
- 3) Expand use of Properties Assessed Clean Energy (PACE) financing to reduce up-front costs and barriers to comprehensive, multi-measures upgrades.
- 4) Enable long-term energy savings in the Small & Medium Businesses (SMBs)
- 5) Increase participation and scale of efforts to includes creating effective paths to Zero Net Energy (ZNE) for SMBs.

Overall, the plan to achieve the objectives include two (2) simple but impactful strategies: to provide wraparound services, support and test and demonstrate innovative deployment methods. Finally, the resultant tactics, or means, to achieve the objectives comprise of the three (3) BayREN Commercial Sector Subprograms: 1) BayREN Commercial Pay-for-Performance (P4P), 2) BayREN Microloan for SMB (Microloan Subprogram) and 3) BayREN Commercial PACE (C-PACE Subprogram). This Implementation Plan (IP) details the theories, descriptions, budgets and methods the three (3) subprograms will deploy to achieve our goals.

Table 1. Approved Funding Levels for BayREN 2018-2025 Business Plan, in Thousands

Year	Budget Amount (in thousands)
2018	\$1,692
2019	\$2,772
2020	\$3,326
2021	\$3,581
2022	\$4,005
2023	\$4,539
2024	\$4,842
2025	\$5,240

¹ BayREN, 2018-2025 BayREN Business Plan, Commercial Sector, P. 93

Subprogram Name
BayREN P4P Subprogram

Subprogram ID Number
 BayRENXX

Subprogram Budget Table

Table 2: Total Projected Subprogram Budget²

Activity	2018	2019	2020	2021	2022	2023	2024	2025
Program Admin	40,000	40,000	40,000	40,000	40,000	40,000	40,000	40,000
Implementation	272,500	1,098,480	1,090,555	1,220,718	1,529,095	1,758,285	1,882,515	2,045,695
Marketing & Outreach	0	134,508	139,815	122,072	111,885	128,655	137,745	149,685
Incentives	0	950,640	1,486,898	1,700,311	2,064,178	2,388,391	2,394,848	2,658,687
Unspent	0	58,168	79,027	8,694	24,342	13,169	176,392	135,433
Subtotal	312,500	2,223,627	2,757,268	3,083,101	3,745,158	4,315,331	4,455,108	4,894,067

Subprogram Gross Impacts Table

Table 3: 2019 Total Projected Subprogram Savings

	Total Units
kWh Reduced	2,017,616
Therms Reduced	22,680

Subprogram Total Cost Effectiveness (TRC)

0.29³

Subprogram Program Administration Cost Effectiveness (PAC)

0.32

² From ABAL Budget numbers BayREN filed on 04 September 2018

³ Cost-effectiveness was calculated using the Cost Effectiveness Tool (CET), identifying expected projects and estimated savings by climate zones.

Type of Subprogram Implementer (Core, Third Party or Partnership)

Core

Market Sectors

a. Commercial

NAICS Codes:

- 23 Construction
- 42 Wholesale Trade
- 44-45 Retail Trade
- 48-49 Transportation & Warehousing
- 51 Information
- 52 Finance and Insurance
- 53 Real Estate Rental & Leasing
- 54 Professional, Scientific & Technical Services
- 61 Educational Services
- 56 Administrative & Support/Waste Management & Remediation Services
- 62 Health Care & Social Assistance
- 71 Arts, Entertainment & Recreation
- 72 Accommodation & Food Services
- 81 Other Services (except Public Administration)

Sub-program Type

- Resource Acquisition

Intervention Strategies

- Downstream

Implementation Plan Narrative

1. Subprogram Description

“Local Governments Empowering Our Communities” is the core specification of the BayREN P4P Subprogram, which seeks to empower the Small and Medium Businesses (SMBs) in the Bay Area communities by removing barriers to installing EE upgrades, thereby reducing businesses expenses, while improving equipment reliability, productivity, and customer services, all to ensure continued growth and prosperity. Moreover, the Subprogram, when deployed alone or layered with other EE programs and financing, will empower the Participant to do something the Participant wouldn’t do otherwise: Choose EE as an investment into the business. **Thus, the objective is to increase the number of comprehensive SMB upgrades in BayREN territory, particularly in Advanced Lighting and Lighting Controls, Heating, Ventilation and Air-Conditioning (HVAC), Refrigeration, Building Weatherization measures, by using an innovative and barrier-busting incentive program.**

The Subprogram will achieve this by implementing a cutting-edge incentive program that combines the best aspects of traditional energy savings prediction methodologies (deemed, calculated, and modeled), with a meter-based savings component. Under this hybrid incentive structure, a program-eligible Participant, based on approved savings calculations, will receive 50 percent of the incentive upfront, after project completion (Year 0). This infusion of cash reduces the project’s upfront cost and is critical

to the SMB sector's unique financial needs. Post-installation, the Subprogram will then disburse the balance of the incentive after Year 1's metered performance is measured and verified using CalTRACK 2.0 methods; the final incentive disbursement will follow after Year 2. By truing up a substantive portion of incentive payments with realized performance, ratepayers will be shielded from paying for non-existent energy savings. This realigned approach also serves to foster long-term relationships between the Subprogram, its implementation partners ("Allies") and Participants that will support longer term energy management and savings persistence.

The Subprogram defines P4P as a prorated incentive paid to a contracted Participant using measured and verified metered energy usage data pre- and post-Subprogram intervention. While new to California Ee program implementation, P4P incentive programs have been deployed in various forms for over twenty-five (25) years.⁴ Energy Services Companies (ESCOs), traditionally working in the large commercial and industrial sectors, have gained many mutual-benefits from meter-based, shared-savings contracts. However, with the improvement and expansion of Advanced Metering Infrastructure (AMI) since 2006⁵, energy benchmarking requirements, and other supportive legislation such as Assembly Bill 802, the conditions are prime for EE programs pivot from deemed and calculated savings estimation to include meter-based savings, and to also expand into the underserved SMB sector, consisting of 22 percent of Pacific Gas & Electricity (PG&E) 2016 revenue.⁶

Additionally, the Subprogram will deploy a metering approach with normalization to measure performance, enabling the filtering out of less predictable projects while delivering consistent, transparent and reliable savings estimates across a statistically significant project portfolio. As illustrated later, the quantity of projects reduces under-performance risk to not only the market-actors, but also the Subprogram and ratepayers.

Moreover, the Subprogram plans to request cooperation from PG&E to develop high-impact program targeting using AMI data to pre-screen potential Participants. Almost all existing EE-programs deploy some form of targeting, focusing their marketing and outreach tactics on a focus-group who has high savings potential. Some EE-programs further refine their targets by estimating their propensity to act. Now, with AMI data and PG&E's extensive research on the opportunity to analyze the data to determine savings-potential, future EE-programs will deploy more effective, customized marketing efforts and precise messages, converting more prospects to leads, then to Participants. As a result, AMI data targeting support EE-programs leading to more energy savings and most importantly, improved cost-effectiveness. According to PG&E's research, "*We estimate that well-executed targeting can improve per-customer average savings by a factor of 2-3X by pre-screening potential participants using data-driven targeting methods described here and focusing recruitment efforts on the most attractive 25-50% of potential customers.*"⁷

⁴ Vermont Energy Investment Corporation for the National Resources Defense Council (NRDC), *Put Your Money Where Your Meter Is, A Study of Pay-for-Performance Energy Efficiency Programs in the United States* (NRDC, 2017), P.8

⁵ Laurain, Bao, Zawadzki & Johnson, *Better Understanding Customers: Developing SMB DNA to Improve Customer Interactions and Catalyze Positive Behavior Changes* (ACEEE, 2016), P.8-2
Company, 2011), P.8-1

⁶ Laurain, Bao, Zawadzki & Johnson, *Better Understanding Customers: Developing SMB DNA to Improve Customer Interactions and Catalyze Positive Behavior Changes* (ACEEE, 2016), P.8-2
Company, 2011), P.8-2

⁷ Scheer, Kasman, Geraci & Dahlquist, *Energy Efficiency Program Targeting: Using AMI data analysis to improve at-the-meter savings for small and medium businesses* (Convergence Data Analytics, 2018), P.5

Subprogram Eligibility Requirements:

1. Project site must be located in the in the BayREN service territory, consisting of the nine (9) Bay Area counties, and;
2. No non-routine events (see “Section 4, M&V”) within prior twelve (12) months including participating in another Normalized Energy Metering Consumption (NMEC) incentive program, and;
3. Commercial sites with no more than 50,000 square feet (sq-ft) of conditioned space, or;
4. Mixed-used sites are eligible if non-residential space represent at least 50% of conditioned space, or;
5. Annual energy usage <500,000 kWh or <250,000 Therms

Subprogram Allies and Partners⁸:

Table 4: Allies & Partners

<i>Subprogram Allies</i>
Energy Services Companies (ESCOs)

<i>Subprogram Partners</i>	
Building Owners & Managers Associations (BOMA)	Energy Data Aggregators & Experts
Building Operators Companies	Energy Raters
Chambers of Commerce	Equipment Distributors
City and County of San Francisco	Professional Architects
Contractors	Professional Engineers
County of Alameda	International Facilities Management Association (IFMA)
County of Contra Costa	Marin Clean Energy (MCE) Authority
County of Marin	Merchant District Associations
County of Napa	Pacific Gas & Electricity (PG&E) & its Program Partners
County of Santa Clara	Property Managers
County of San Mateo	Property Owners
County of Solano	Third Party EE Program Implementers
County of Sonoma	Trade Unions & Associations
County Building Inspection Depts	Other Industry Associations
County Tax Assessor Offices	Other Public Agencies

⁸ The tables are for illustration only, and are not meant to be exhaustive. Subject to revision.

Subprogram Strategies

1. Make it easy for Subprogram Allies, Partners and SMB Participants to enroll.
2. Provide customized, technical assistance, to businesses and sites, especially those located in Disadvantaged Communities (DACs) and/or may be qualified Hard-to-Reach (HTR).
3. Provide a low-cost, multiple-measure incentive that leverages both traditional (calculated, deemed and/or modeled) and approved NMEC-methods to calculate and report savings.
4. Support participation in a wide range of complementary incentive, rebate, and financing programs, such as PG&E On-Bill Financing (OBF), BayREN Lender Referral Services (LRS), and other private capital (program layering).
5. Make accurate and timely referrals to other EE-programs.

Subprogram Tactics

1. **Offer Dual Pathways to Participation.** Leverage the expertise of private-sector Allies to deliver energy services, access private capital, and manage performance risks. Also offer in-house, in-kind needs assessment and limited technical assistance services as an alternative for those Participants who perceive the need to acquire energy consultant services as a barrier to enrollment.
 - **Rationale:** Some Participants may find the transaction costs of recruiting and hiring an energy / engineering consultant to be an unacceptable barrier to participation, especially if they are unsure of their potential to save energy and money.
2. **Deliver Subprogram through Preferred Allies.** Select a short list of “Allies” through a non-competitive Request for Proposals (RFP). Subprogram Allies bring their own client lists, marketing capabilities, and technical expertise to assess customer needs for EE improvements and provide full-service technical assistance. Selected Allies will be expected to commit to meeting specified participation and energy savings performance targets, for which they will be allocated an incentive budget reservation.
 - **Rationale:** Delivering the Subprogram through Allies reduces customer acquisition costs, limits technical assistance costs, and offers the customer more flexible solutions. This improves cost-effectiveness.
3. **Recruit Partners with Risk Management Capabilities.** Give preference to prospective Allies who can absorb some or all the project performance risk on the customer’s behalf. Recruit full-service Energy Service Companies (ESCOs), and similar energy and engineering consultants willing to take on the performance risk for the incentivized portion of project costs.
 - **Rationale:** Ally risk management achieves the twin goals of (a) shielding ratepayers from performance risks, and (b) reducing or removing performance risk as a market barrier to customer participation.
4. **Layer Incentives and Financing from Multiple Sources.** Provide referrals, eligibility verification, and financial planning assistance to customers to bundle multiple sources of financial assistance. Incorporate program rules for claiming savings to avoid double-dipping.
 - **Rationale:** Bundled financial assistance enables the Subprogram to catalyze more comprehensive upgrade work scopes on a relatively lean incentive budget.

5. **Offer Assessment Incentives.** Pay assessment incentives to Allies who conduct a customer assessment/feasibility study, when those services are not provided directly by the Subprogram.
 - **Rationale:** The financial costs of conducting an assessment and developing a scope of work poses a market barrier to many potential SMB Participants, since the scope of EE opportunities and project closing potential is unknown at that stage. Offering a financial incentive enables Allies to provide lower cost design assistance that will be comparable to Subprogram-funded in-kind assessment assistance.

6. **Tie Assessment Incentive Eligibility to Allies' "Close" Rates.** "Close rates" will be calculated as the ratio of the number of upgrades (committed and completed) divided by the number of incentivized assessments. The subprogram will designate a Close Rate threshold for Allies that must be met to remain eligible for assessment incentives.
 - **Rationale:** This mechanism rewards Allies for targeting assessments to those customers that offer good prospects for moving forward with an upgrade without requiring Allies to shoulder 100 percent of the risk for assessments that do not move forward.

7. **Structure Installation Incentives as Hybrid Payments.** 50 percent of eligible incentive will be paid upon project completion, based on ex-ante (forecasted) calculated, deemed and/or modeled savings estimates. The remaining 50 percent of incentive will be held back and then paid out based on Allies' portfolio metered savings after two (2) years of cumulative M&V; this second payment serves as a true-up mechanism, in that:
Ex Ante Incentive + Meter-based Incentive = Energy Savings Price x Total Metered Savings
 - **Rationale:** Ex-ante (upfront) Subprogram incentives will continue to mitigate first-cost barriers and motivate SMB customer actions when their value can be calculated with confidence at the planning stage and become available during or shortly after installation. And, by linking a substantive portion of incentive to metered results, the Subprogram will encourage quality installation, improved operations and maintenance, and overall savings persistence, while shielding ratepayers from paying for expected savings that fail to materialize.

Figure 1: Basic Design Attributes

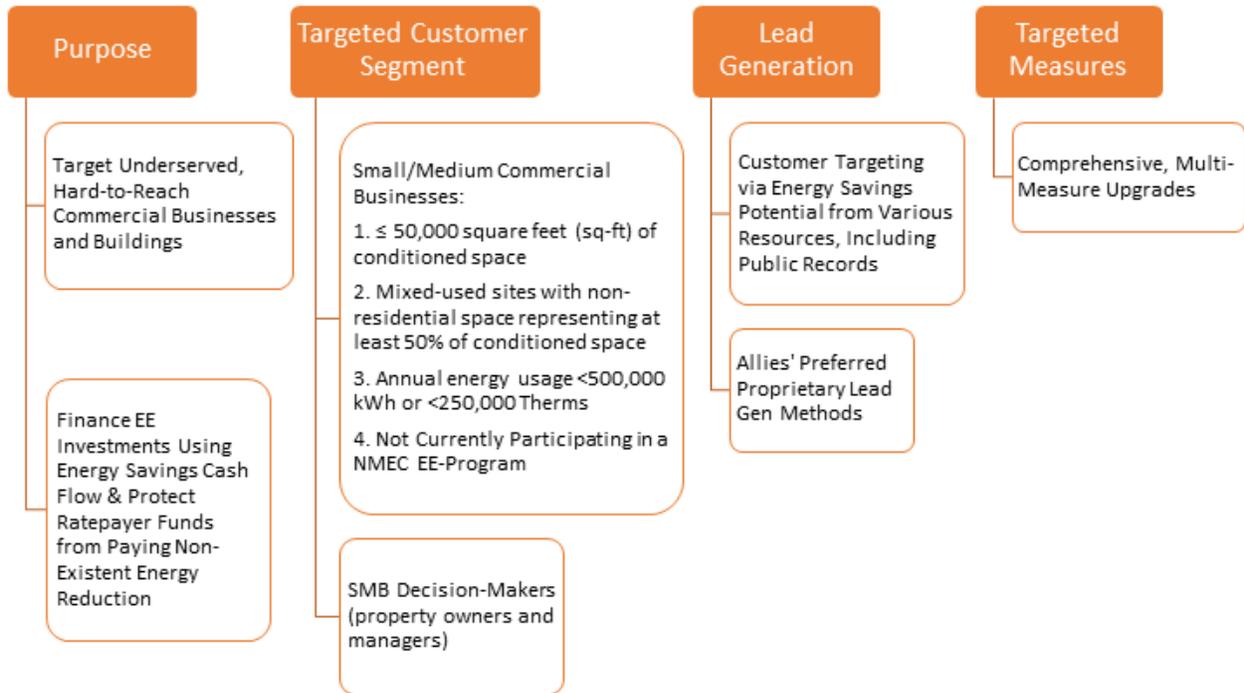


Figure 2: How Performance is Measured

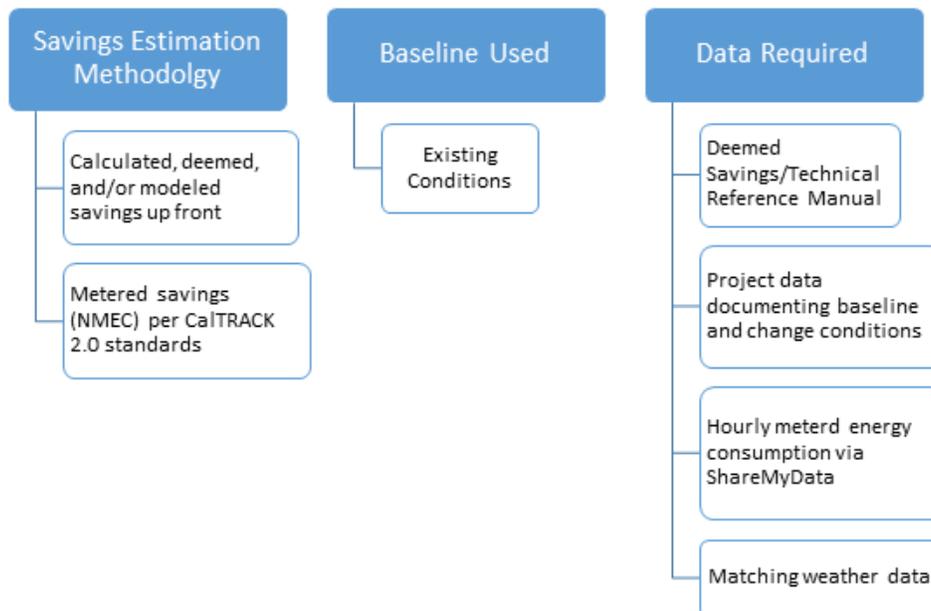


Figure 3: Payment Structure Attributes



Ally Recruitment and Enrollment

As mentioned before, through a RFP, the Subprogram will negotiate with a list of pre-qualified Allies. They will be engaged through a multi-step process:

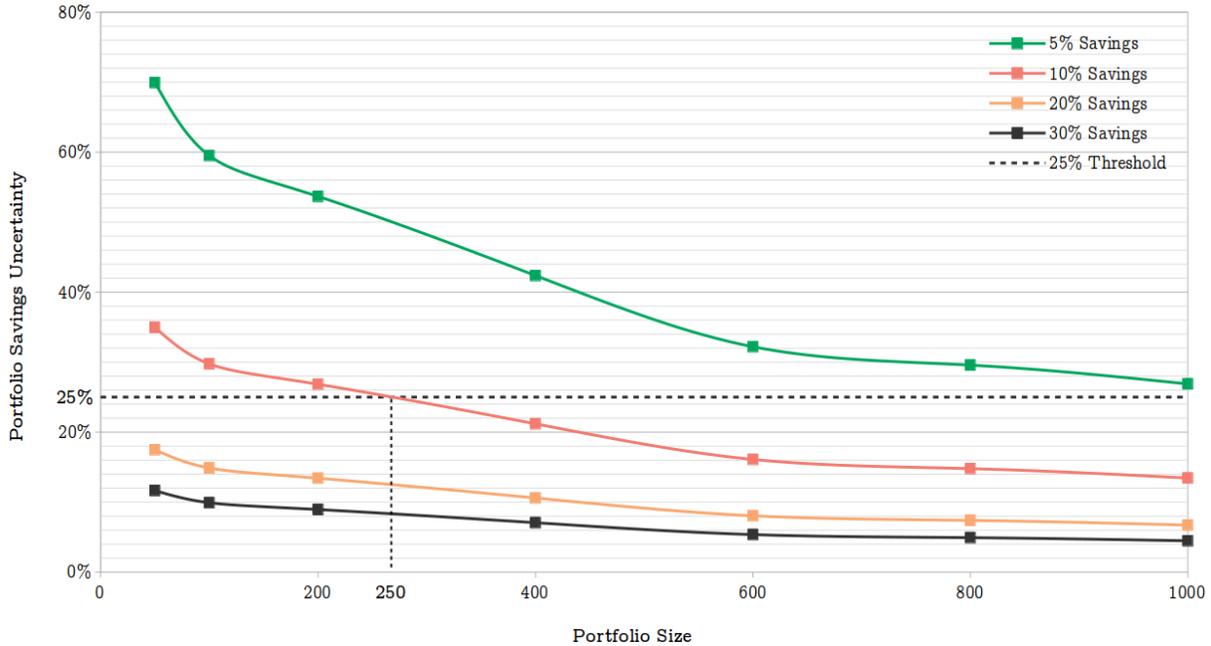
1. Prior to the RFP, the Subprogram Lead Agency will host a pre-solicitation workshop to invite industry input on the draft final “Program Manual,” and incorporate this feedback into the final program rule set.
2. BayREN will solicit Allies participation in the Subprogram via an initial RFP, and subsequent, regularly-intervaled RFPs.
3. BayREN will provide ongoing training and marketing support to pre-qualified Allies.

As part of the RFP, prospective Allies (Bidders) will be asked to document their references, technical assistance, sales and financial capabilities. Preference and priority will be given to those entities who can demonstrate the ability to provide turn-key energy assessments, design assistance, and installation oversight, combined with performance-based financing options for customers (e.g., energy services agreements) and risk management capabilities.

As a pre-condition for program participation, Bidders will be asked to present a realistic plan for customer acquisition and demonstrate their capabilities to execute the plan. Additionally, they will be asked to propose participation and energy savings goals.

Furthermore, Bidders will need to demonstrate their ability to deliver a portfolio of SMB projects with a Fractional Savings Uncertainty (FSU) less than 25 percent. The Subprogram will rely on Open Energy Efficiency (OEE) analysis of FSU, which demonstrates the relationships between portfolio size, savings percentage, and FSU, as shown in Figure 4. For planning purposes, Bidders must commit to meet the FSU threshold one of two ways: (1) deliver a portfolio of projects with average savings greater than 20 percent of baseline; or (2) deliver a portfolio of at least 250 projects with average savings greater than 10 percent of baseline.

Figure 4: Fraction Savings Uncertainty (FSU) as a Function of Portfolio Size & % Savings



For each selected Ally, the Subprogram will reserve a portion of the incentive budget for the committed project savings goal. The budget reservation also serves as a built-in mechanism for effective project pipeline management. Reservation remains as long as the Ally is reaching its milestones, delivering high-quality projects to the Subprogram. With advance notice, the Program Administrator reserves the right to shift funds from underperforming Allies to support high-performing one.

Other Implementation Details

Table 5: 2019 Milestones and Timeline

Milestone	Date
Allies Workshop / Webinar for Local Government Partnerships	10/2018
RFP Processes (for Allies, 3rd Party Implementer & M&V)	11/2018 - 02/2019
Targeted Local & Regional Outreach for Project Recruitment Start	01/2019 - Rolling
2019 Project Open Enrollment	03/17/2019
2019 Project Installation Completion	<10/31/2019

Table 6: Operative Geographic Regions

Geographic Region	Subprogram	Geographic Region	Subprogram
CEC Climate Zone 1		CEC Climate Zone 9	
CEC Climate Zone 2	X	CEC Climate Zone 10	
CEC Climate Zone 3	X	CEC Climate Zone 11	
CEC Climate Zone 4	X	CEC Climate Zone 12	X
CEC Climate Zone 5		CEC Climate Zone 13	
CEC Climate Zone 6		CEC Climate Zone 14	
CEC Climate Zone 7		CEC Climate Zone 15	
CEC Climate Zone 8		CEC Climate Zone 16	

3. Subprogram Delivery and Customer Services

Primarily via Allies, the Subprogram will deliver services via downstream interventions to SMB Decision-makers (building owners, managers) and Partners (installation contractors & energy / engineering consultants), and occasionally, to the tenants.

The Subprogram services can generally be grouped into the following categories:

1. Dual Participation Tracks Facilitation
2. Targeted Outreach to High-potential Sectors and their Decision-makers
3. County-level Targeted Outreach to DACs and HTRs
4. Customized Technical Assistance
5. Hybrid Installation Incentives - Combination of Bundled Energy Conservation Measures (ECM) Incentive (using calculated, deemed and/or computer-model), and P4P (meter measured and verified savings) incentive
6. Quality Assurance (QA) & Quality Control (QC)

Services are delivered using “Dual Participation Tracks” to provide maximum flexibility for SMB participation.

Overview

Track 1 (“Ally Delivery”) is the preferred enrollment option. Track 1 leverages private-sector capabilities to the maximum extent to engage and enroll Participants; conduct feasibility assessments; design and install upgrades; provide project financing; and manage performance risks. The Subprogram’s role in this track is limited to providing marketing support, financial incentives, and quality assurance and M&V oversight.

In this scenario, a participating Ally will provide technical assistance and financial analysis to the Participant. The Subprogram will pay an assessment incentive, combined with installation incentives. Allies will provide project management and assume performance risk for the NMEC portion of the installation incentive on behalf of the customer. The Allies will also provide wrap-around services to PG&E’s OBF and other private capital financing.

Track 2 (“In-house Delivery”) represents the TA-provider of last resort. It serves Participants who may be responding to outreach campaigns (P4P, Microloans, C-PACE) and targeted HTR/DAC marketing and/or for whom entering into a business relationship with an Ally may pose a barrier. Typically, such Participants lack the technical capabilities to manage an EE project, lack access to qualified energy consultants, and are reluctant to move forward without knowing that cost-effective energy savings are feasible. They may also be located in Disadvantaged Communities and/or qualify as HTR. For these Participants, the Subprogram’s Building Performance Advisor (BPA) will provide preliminary technical assistance and assessment, in lieu of assessment incentives. Track 2 has an off-ramp to connect committed Participants with Allies, transitioning them to Track 1 processes whenever possible.

In this scenario, a Subprogram-designated BPA will be the technical assistance provider of last resort. The BPA will provide full-service technical assistance, including financial analysis and on-site assessment, and finally, approve installation incentives (as in Track 1). Although the BPA will certainly assist Participants with financing options, Participants must access financing (for required co-pays) or pay out-of-pocket. Alternately, Participants may transition to Track 1 to enter into contract with an Ally for installation and NMEC services.

Table 7: Roles and Responsibilities by Participation Track

Program Function	Track 1: Ally Delivery	Track 2: In-House Delivery
Marketing and Outreach (joint)	Allies	BPA
Technical Assistance Tasks		
Historical AMI Data Analysis		BPA
Preliminary Needs Assessment / Pre-qual		
Financial planning assistance		
ASHRAE Level 1 Assessment		
Energy Model / Simulation		
Portfolio Manager Benchmarking		
Energy Management Plan (Off-ramp from Track 2 to Track 1)		
Construction Management Services		Allies

Project Close-out Tasks	
Installation	Contractor
Incentive Processing	BPA
Quality Assurance / Quality Control	BPA
Meter-based Advanced M&V	BPA

Track 1. Allies Delivery

Marketing and Outreach to Subprogram Allies & Participants

Track 1 will emphasize the Allies' responsibility in acquiring their own Participants. The Subprogram will support their marketing efforts through at least the following activities:

1. Introduce Allies to local governments, business district associations, chambers of commerce and similar prospective outreach partners.
2. Negotiate with local government partners for access to data that may inform Allies' customer targeting efforts.
3. Conduct marketing campaigns to build customer awareness and generate leads.
4. To the extent feasible, partner with PG&E to provide historical analysis of metered energy savings from prior participants in similar programs as an aid in assessing project performance risks.
5. Authorize participating Allies to co-brand services to confer their marketing claim credibility.
6. Provide referrals to Participants who seek help in identifying qualified ESCOs and energy consultants.

Technical Assistance

Track 1 Participants will receive technical assistance from a pre-qualified Ally. While Allies have the discretion to determine the optimal investment in technical assistance, it will generally encompass the following activities:

- **Analysis of Historical AMI Data & Benchmarking** - Prospective Participants will be expected to access their PG&E AMI data via Share My Data per protocols jointly developed by BayREN and PG&E.
- **Preliminary Needs Assessment / Prequalification** - Before going on-site, Ally will review AMI meter data and other site-specific information (such as building vintage and physical characteristics) to confirm the potential for significant energy savings suitable for whole-building M&V. Specifically, AMI data will be used to screen customers per the following criteria:
 - Potential energy savings exceeds ten percent of baseline consumption
 - Minimum 12 months of baseline energy consumption data
 - Complete data for all meters serving the site
 - Baseline normalization model meets goodness-of-fit criteria
 - No non-routine events within the prior 12 months, including installation of onsite renewable generation or Electric Vehicle (EV) charging capabilities; participation in ratepayer funded energy efficiency program; change in the facility conditioned floor area, space type, or tenancy

- Customers with low energy savings potential or disqualifications based on baseline data may be referred to programs that claim deemed or calculated savings.
- **ASHRAE Level 1 Assessment** - Allies will conduct a site assessment to confirm energy savings opportunities and develop a financial proposal for building upgrades.
- **Financial Planning Assistance** - The BPA will be available to assist Allies in identifying complementary energy efficiency programs and incentives to maximize savings and financial benefit for the customer, including those implemented by PG&E, MCE and municipal utilities (where applicable), and include relevant financing options as appropriate.
- **Energy Modeling** - Allies may include predicted savings using deemed savings values or approved calculation methods in the energy model.
- **Benchmarking** - Allies or BPA will offer technical assistance to help customer benchmark building energy performance in Portfolio Manager.
- **Energy Management Plan** - Allies will create an “Energy Management Plan” (EMP) to submit to the customer. The EMP is a five-year roadmap that details the eligible energy efficiency retrofit recommendations; estimated savings; associated incentives and financing options under different scenarios (e.g. BayREN Microloan or Commercial PACE, PG&E OBF) including simple payback and other financial metrics; budgetary construction costs; and program enrollment details. Most importantly, the EMP contains “Next Steps” for the Customer to immediately act upon. Ally will submit the EMP to BayREN to claim an assessment incentive.
- **Bid Specifications; Bid Reviews** - Participant may enlist assistance from Allies to translate EMP recommendations into bid specifications and review contractor bids.
- **Construction Management and/or Installation Services** - Participant may enlist Allies’ assistance to manage construction activities or perform the upgrade work.
- **Project Close-out** - Participant may enlist Allies assistance to inspect upgrades and confirm that work was properly performed per contract.

Track 2: In-house Delivery

Subprogram Outreach Directly to Participants

The Subprogram will conduct direct outreach to potential Participants, both to support Allies in Track 1, and to enroll Participants who, for various reasons, prefer enrollment via Track 2. Marketing activities will be performed by BPA, with cooperation from PG&E, local Community Choice Aggregation (CCAs), and support from BayREN member agency staff and other partners. The Subprogram will devote dedicated resources to affirmatively recruit HTR businesses, especially those located in DACs, that would otherwise be underrepresented and underserved. In Track 2, these Participants will receive in-house technical assistance at the start and will be diverted to Track 1 upon completion of the EMP in order to contract with installation services and to participate in the NMEC portion.

The Subprogram will deploy both data and physics-based targeting techniques to achieve high-impact results. As aforementioned, BayREN will seek cooperation from PG&E to collect and analyze AMI-data to target potential participants in the region. At the same time, working with individual Counties, the BPA will mine market data to identify potentially eligible buildings to direct marketing activities towards their owners, managers and contractors. At a minimum, customer targeting data will be derived from building permit records and tax assessor files and cross-referenced with CalEnviroScreen 3.0 data. The BPA will also have the benefit of experience and data developed in the course of the US DOE-funded BayREN Integrated Commercial Retrofits (BRICR) project. In this BayREN project, and at the time of writing, the Lawrence Berkeley Laboratory and the National Renewable Energy Laboratory have developed open-source software which enables energy programs staff, like the BPA, to perform mass building-scale energy simulation modeling based on public permits and GIS records, for the purposes of energy

program customer targeting, assessment of building-level efficiency potential, and capacity to improve models based on energy program staff observations.

Concurrently, BayREN will explore with PG&E the feasibility of leveraging AMI data to better target customers with high energy savings potential, as described in the white paper *Energy Efficiency Program Targeting: Using AMI data analysis to improve at-the-meter savings for small and medium businesses*.⁹ The BPA will use a mix of targeting filters to identify both HVAC and baseload (i.e. lighting and domestic hot water) savings opportunities. Metrics that measure relative savings potential rather than absolute savings potential will be emphasized to avoid screening out the smaller customers that are the intended focus of this subprogram.

The Subprogram will also deploy more traditional recruitment tactics, including but are not limited to: personalized, custom emails; social media touches; workshop recruitment; direct mail with local government seals; and face-to-face appointments.

Technical Assistance

Track 2 Participants will receive technical assistance from the BPA. The scope of technical assistance will generally encompass the following activities:

- **Access and Analysis of Historical AMI Data** - The BPA will assist prospective participants will to access their energy use data via “Share My Data,” per protocols jointly developed by BayREN and PG&E. Next, the BPA will conduct an analysis to determine if the historical energy consumption pattern is a “good-fit” for the Subprogram requirements.
- **Preliminary Needs Assessment / Prequalification** - Before going on-site, BPA will review AMI meter data and other site-specific information (such as building vintage and physical characteristics) to confirm the potential for significant energy savings suitable for whole-building M&V. Specifically, AMI data will be used to screen customers per the following criteria:
 - Minimum 12 months of baseline energy consumption data
 - Complete data for all meters serving the site
 - Baseline normalization model meets goodness-of-fit criteria
 - No non-routine events within the prior 12 months, including installation of onsite renewable generation or EV charging capabilities; participation in ratepayer funded energy efficiency program; change in the facility conditioned floor area, space type, or tenancy
 - Potential energy savings exceeds ten percent of baseline consumption
 - Customers with low energy savings potential or disqualifications based on baseline data may be referred to programs that claim deemed savings.
- **ASHRAE Level 1 Assessment** - The BPA will conduct a site assessment to confirm energy savings opportunities and develop a financial proposal for building upgrades.
- **Financial Planning Assistance** - The BPA will identify any complementary energy efficiency programs to maximize savings and financial benefit for the customer, including those implemented by PG&E, MCE and municipal utilities (where applicable), and include relevant financing options as appropriate.
- **Benchmarking** - The BPA will offer technical assistance to help customer benchmark building energy performance in Portfolio Manager

⁹ Borgeson, Sam; Adam Scheer, Robert Kasman, Megan Geraci, Francis Dahlquist (2018). CALMAC Study ID PGE0421.01

- **Energy Modeling** - The BPA will calculate predicted savings using deemed savings values or approved calculation methods.
- **Energy Management Plan** - The BPA will create and submit an EMP to submit to the Participant. The BPA will offer counsel to the Participant, and once committed, the Participant will be transitioned to an Ally to complete the “Journey,” using Track 1.
- **Transition to Track 1** - The BPA will work with the Participant to select a Track 1 Ally, best suited to the project scope and needs. Once selected, the BPA will transfer the Participant and all project records to the Ally to complete project and enrollment process. The Ally will assist the Participant in implementing the EMP’s recommendations and applying for an incentive.

Incentive Levels

As aforementioned, the Subprogram will pay out improvement incentives in three (3) progress payments at Year 0 (i.e., at project completion), Year 1, and Year 2. The Year 0 progress payment will be calculated for individual projects using traditional CPUC-approved savings-prediction methodologies and paid either to the Participant or the Ally. Payments will be calculated at 50 percent of the total negotiated price., The Year 0 progress payment will be considered “non-recourse,” meaning that the Subprogram will not seek a refund in the event Year 1 and Year 2 metered savings prove insufficient to cover the progress payment (i.e., metered savings less than 50 percent of predicted savings). This mechanism gives project sponsors the assurance they need to include the Year 0 progress payment in the project financing plan. Note that projects are free to include measures that lack a CPUC-approved savings prediction methodology. These measures will not be included in the Year 0 progress payment but their benefits will show up in the form of higher Year 1 and Year 2 progress payments.

Year 1 and Year 2 progress payments will be calculated based on metered savings at the Ally portfolio level and paid to the Ally. The Ally’s contractual relationship with the customer will determine if and how Year 1 and Year 2 progress payments flow through to finance improvements.

What Happens If a Project-Portfolio Underperforms? Ally portfolios will receive ongoing monitoring by the M&V provider. Large anomalies, such as those listed under “Non-Routine Adjustments” will be immediately flagged for investigation and possible baseline adjustments. If the portfolio underperforms relative to predicted savings, then the corresponding P4P-incentive will be devalued relative to predicted Ally revenue. Ally portfolio savings must exceed 50 percent of predicted savings before the Ally becomes eligible for a Year 1 or Year 2 progress payment. Individual projects within the portfolio may vary, as long as those producing less than 50 percent of predicted savings are more than balanced by those that exceed the 50 percent threshold. The good news here is that State Ratepayers are largely shielded from paying for non-existent savings. They still bear some residual risk for Ally portfolios that fail to deliver at least 50 percent of predicted savings but this risk should be small, given the other quality controls and safeguards that will be in place.

What Happens If a Project-Portfolio Overperforms? “Congratulations, you, the BayREN P4P Ally, are getting a bigger performance incentive.” Allies may deliver measured and verified savings that exceed their portfolio goals, either by delivering project savings that exceed total predicted savings or by delivering a greater number of projects. The Subprogram will pay for the increased performance up to a certain percentage of goal (tentatively 200 percent). For Ally portfolio savings in excess of 100 percent of goal, BayREN will pay for savings at a discounted price that declines as a function of over-performance. This mechanism limits BayREN’s liability for savings that exceed the incentive budget.

Table 8: Incentive Pricing

Assessment	\$ XX per _____
Fuel Price	\$ XX per MMBTU ¹⁰ Reduced

Table 9: Incentive Calculations

Milestone	Electricity / Natural Gas¹¹
Total Price	\$XX / MMBTU
Year 0: Project Completion, Based on ex-ante Calculated Savings Prediction	(=50% of Total Price)
Year 1: Based on ex-post Metered Energy Savings	=75% of Total Price x metered savings – Year 0 payment
Year 2: Based on ex-post Metered Energy Savings	=100% of Total Price x metered savings – (Year 0 payment + Year 1 payment)

1. **Assessment Incentive** - Allies who submit a qualifying EMP for Subprogram review will be eligible for an Assessment Incentive of a specified amount to be determined after the “Allies Workshop.” It will be priced to cover most, if not all of the cost for a routine ASHRAE 1 assessment, energy model, & benchmarking. Assessment Incentive should more or less match BPA’s per-unit cost in providing in-kind services.

Allies will need to maintain a minimum “close” rate to remain eligible for assessment incentives. Close rate will be calculated as the ratio of the number of upgrades (committed and completed) divided by the number of incentivized assessments.

¹⁰ This unit will be converted to the appropriate fuel-source, electricity and natural gas, for tracking & reporting.

¹¹ MMBTUs calculated on a source savings basis: 1 kWh = 7,328 BTU_h, which is PG&E 12-month forward market heat rate per CPUC D.07-09-040 and Res. E-4246, as published on Aug. 1, 2018

2. **Calculated Incentive (Year 0 progress payment)** - It will be priced at 50 percent of total incentive price and would be calculated based on ex-ante (forecasted) savings estimated, using any combination of California Public Utilities Commission (CPUC) approved methods, such as deemed, calculated, and computer-modeled values. The calculated incentive price per MMBTU is set at 50 percent of the total target price to act as a hedge against future under-performance. The calculated incentive will be disbursed upon project completion if the project demonstrates at least 10% modeled annual energy reduction, and at least three (3) ECMs are installed, with at least one (1) ECM being a HVAC or refrigeration ECMs. **Any ECMs that receive ratepayer-funded incentives through non-BayREN P4P sources will be excluded from the calculated incentive.**

Projects that do not meet these criteria will not be eligible for calculated incentives but may be included in the Ally's portfolio for meter-based incentives. Project sponsors are not required to refund this payment if their realization rate (metered savings divided by predicted savings) falls below the 50 percent threshold, so its value can be incorporated into the project's financing plan.

3. **Meter-based Incentives** (using Commission-approved NMEC methods) - Ally portfolios will undergo a portfolio-level Measurement and Verification (M&V) for at least 24 months, with a performance-based progress payment at month 12, and a final payment at month 24. These payments will be calculated as true-up payments:
 - a. **Year 1 progress payment** = $\$## / \text{MMBTU} \times \text{Ally portfolio's first year metered savings} - \text{Year 0 payment}$
 - b. **Year 2 final payment** = $\$## / \text{MMBTU} \times \text{Ally portfolio's first and second year metered savings} - (\text{Year 0 payment} + \text{Year 1 payment})$

Prices shown are based on a target levelized cost of $\$\$$ per MMBTUh at 10 years aggregate portfolio-level EUL and a discount rate of 7 percent. Actual Ally prices will be adjusted for EUL as follows:

Equation 1:

$$\text{Adjusted price} = \text{Price} \times \frac{\text{Present Value of savings at actual EUL}}{\text{Present Value of savings at 10 year EUL}}$$

Prices shown are based on a minimum portfolio-level savings confidence threshold of 25 percent FSU.¹² As shown in Figure 4, FSU is a declining function of portfolio size and average percentage improvement over baseline consumption. Allies who assemble larger portfolios and achieve deeper average energy savings per projects will produce better (i.e., lower) FSU scores.

Equation 2:

$$FSU = \frac{\Delta \text{ savings}}{\text{Savings}}$$

In cases where an Ally's portfolio produces an FSU greater than 25 percent, payment will be calculated on a discounted savings value, calculated as:

¹² See CalTRACK Documentation, Release 2.0, for detailed formula for calculating FSU. <https://media.readthedocs.org/pdf/caltrack-technical-documentation/latest/caltrack-technical-documentation.pdf>

Equation 3:

$$\text{Discounted savings} = \frac{0.25 \times \text{Savings}}{\Delta \text{savings}}$$

Program Referral & Double-Count Prevention

Allies and BPA will refer projects to the appropriate utility programs, where applicable. The “Joint Cooperation Memo” (JCM)” referral tree diagram shows likely program pathways that Participants may take, based on trigger events for making improvements, and the level of investment in partial or comprehensive upgrades.

As mentioned, projects can enter the pipeline via multiple channels, primarily through Track 1, but also Track 2. At the start, the BPA in Track 2 will pre-qualify the Participant, primarily checking the Participant’s AMI-data and ensuring the resulting statistical model is a good fit for baselining. If not, the Participant will be referred to other EE programs. Projects will be referred to the appropriate program(s) based on their eligibility and scope. Via the Joint Cooperation Memo (JCM), PG&E and BayREN will maintain a consistent set of program eligibility criteria so that it is clear to interested Participants what their choices are for EE-program participation when accessing utility ratepayer incentives.

BPA and Allies will co-implement rigorous double-dipping prevention. As mentioned, a Subprogram eligibility requirement is no concurrent participation in a NMEC EE-program. Should a Participant decide to enroll in other programs, such as PG&E’s Direct Install Program and / or Custom Program, the resulting net energy savings captured through the programs will be subtracted and adjusted following “Non-Routine Adjustments” procedure outlined in this IP. Finally, all projects will be checked for double-dipping by the Subprogram Implementer who fully complies with current PG&E Data Security Protocols.

Quality Assurance / Quality Control

QA/QC are essential functions that enable the Subprogram to pre-qualify a Participant and to verify the quality of installed ECMs, both for purposes of consumer protection and to safeguard ratepayer investments. QA activities will ensure a great customer experience, ensuring a successful process. QC activities will identify and remediate all defects, especially in energy savings predictions, bid specifications and installation, and post-installation energy-use monitoring.

Every Participant must take part in the QA/QC Program, which includes field quality control (FQC) inspections and ongoing remote monitoring. The quality assurance and quality control efforts will provide feedback to BayREN and Participants and may inform ongoing Subprogram changes and improvements.

Desktop Review of Job Submissions

The intent of the desktop review is to evaluate the validity of the submittals, such as the EPM. The scope of work will be manually compared to the predicted savings calculations to confirm consistency. “Incentive Applications” and savings calculations may be returned for revision if (1) data values are out of range of expected values, based on the building equipment vintage and scope of work; (2) ex ante claimed ECMs and energy savings are inconsistent with the scope of work. Baseline NMEC models will also be validated to confirm:

- Potential energy savings exceeds ten percent of baseline consumption
- Minimum 12 months of baseline energy consumption data
- Complete data for all meters serving the site
- Baseline normalization model meets goodness-of-fit criteria

- No non-routine events within the prior 12 months, including installation of onsite renewable generation or EV charging capabilities; participation in ratepayer funded energy efficiency program; change in the facility conditioned floor area, space type, or tenancy

The Subprogram uses the documents, forms, and agreements listed below. All document templates will be available online after launch.

- Improvement Incentive Application:** The Application must be completed fully and correctly and signed by the appropriate parties for every eligible project. It includes granting access to the site energy usage via PG&E’s Share My Data portal.
- Site Access Agreement:** All Participants in the Program must complete a Site Access Agreement. It allows sufficient access by Subprogram Staff and its contractors to perform assessments and verify program eligibility for ECMs. The Site Access Agreement also releases BayREN, Counties agencies having jurisdiction from any liability associated with projects run through the Subprogram.
- Installation Verification Form:** This form documents in-service / installation dates (to begin the post-ante measurement).

As Participants complete projects and enroll them into the Subprogram, they will submit an “Installation Verification Form,” “Improvement Incentive Application,” and “Improvement Report” for each project, composed of the following documentation:

- Summary of Existing Conditions
- Itemized List of ECMs to be Installed (based on changes during the installation)
- Calculated Energy Savings using CPUC-approved calculation methods
- Invoices Documenting ECM Installation
- ECM Data (as specified in the Program Manual)
- Documentation of Compliance (including Building Permits, as required)

Field Quality Control (FQC) Inspection

FQC inspections focus on verifying proper installation of improvements. On a sampling basis and/or as directed, the participating energy consultant shall contact the BPA to schedule an inspection to coincide with project completion. Projects selected for FQC must pass the FQC inspection in order for the improvement incentive to be processed for payment. FQC inspection failure(s) will trigger corrective action(s) to the job. Initially, the BPA will inspect an Ally’s first five (5) projects, and then one (1) out of seven (7) subsequent projects. Sampling rates may be increased, or other penalties introduced if inspections produce unsatisfactory results.

The BPA will conduct quality assurance inspections at fifty percent (50%) and at total completion, and assure all systems are properly commissioned prior to placement in service. Upon project completion, the BPA will document post-installation conditions.

Incentives may be reassigned from one party to the other, with prior knowledge and agreement.

Ongoing Monitoring

Metered energy performance will be monitored on an ongoing basis for all enrolled projects to detect outliers that may be symptomatic of performance issues or non-routine events and determine true-up payments to Allies. Realization rates, defined as the ratio of metered to predicted energy savings, will be recalculated for all participating projects on a quarterly basis. At a minimum, the highest and lowest one percent (1%) of projects will be flagged for further investigation, including possible follow-up site visits. The Program Administrator may establish a higher sampling threshold as needed.

3. Subprogram Design and Best Practices

According to the U.S Energy Information Administration, the small commercial target market comprises 95% of all buildings and represents 47% of all energy use by non-mall commercial space. Despite their prominence, small commercial spaces “have received little attention in the growing energy efficiency marketplace compared to larger and institutionally owned counterparts, in part because of the market’s vast scale, physical diversity, and the disparate interests of its stakeholders”.¹³ Yet, despite the challenges, the opportunities for gas and electric savings are significant. Preservation Green Lab has found that cost-effective energy savings are possible; for example, in food service, between 27%-45% cost-effective savings, and in lodging, between 20%- 30% cost-effective savings.¹⁴

The California Energy Commission’s *Existing Buildings Energy Efficiency Action Plan*, published in 2015, describes an array of market barriers facing commercial-sector decision-makers, many of which are specific to the SMB segment.¹⁵

Due to barriers inherent to the sector, Bay Area SMBs are currently underserved by existing EE programs. As mentioned in the “2018 - 2025 BayREN Business Plan,” over 23% of all businesses in the region are considered small & medium businesses¹⁶, but only 2% participated in PG&E EE Programs in 2015¹⁷. Barriers to program participation include “split-incentives, lack of time, money and expertise to address energy efficiency improvements,” and “complexity and costs of programs and projects¹⁸.” With increased Commission focus on this sector and BayREN’s charter to “fill gaps, pilot new activities, and serve HTR communities¹⁹,” the subprogram seeks to increase EE activities in the SMB sector by deploying an innovative incentive program which combines traditional EE prediction methodologies with metered-based savings measurements.

To overcome the complexity and lack of time barriers, traditional SMB programs use the deemed savings prediction methodology, which relies on a “Deemed Measure List” consisting of pre-determined, validated estimates of energy and peak demand electric and natural gas savings, attributable to ECMs, for specific building type, sector and application. It attempts to estimate the typical energy-savings that ECMs will yield so its primary advantage is simplicity. For simple ECMs such as screw-in lighting and limited types of HVAC and refrigeration equipment, the deemed methodology is fairly accurate. However, its usefulness and accuracy diminish as equipment and projects become more complex and operational conditions vary. As a result of the variability, the custom savings prediction methodology was developed.

The custom savings prediction methodology relies on calculations and measurements of actual field conditions, and the required data collection and calculations are onerous and prohibitively expensive, especially for the SMB sector, because of their time-consuming and esoteric nature. Also, savings calculations may deviate from actual savings as some custom savings claims fail to account for variations in actual installed system performance (vs. rated equipment performance) and other unforeseen events.

¹³ http://www.preservationnation.org/information-center/sustainable-communities/green-lab/small-buildings/130604_NTHP_report_sm.pdf, page 23.

¹⁴ http://www.preservationnation.org/information-center/sustainable-communities/green-lab/small-buildings/130604_NTHP_report_sm.pdf, page 27.

¹⁵ <http://www.energy.ca.gov/ab758/>

¹⁶ BayREN, *2018-2025 BayREN Business Plan, Commercial Sector*, P. 3.11

¹⁷ BayREN, *2018-2025 BayREN Business Plan, Commercial Sector*, P. 3.18

¹⁸ BayREN, *2018-2025 BayREN Business Plan, Commercial Sector*, P. 3.16

¹⁹ CPUC Decision #D.12-11-015

More specifically, these predictions rely on equipment ratings, or other assumptions, rather than measurements to establish baseline and proposed efficiency values. Pre-install data collection is not only another layer of expense, but also a cause to protracting the project timeline and decreasing the likelihood for success.

As mentioned, progress and deployment of AMI infrastructure and dramatic improvement in data aggregation and statistical analysis have enabled meter-based, energy-savings programs. Given known SMB barriers, and taking the best of deemed and custom approaches, the Subprogram offers a new, hybrid approach. Using computer-modeling software, with both deemed and calculated savings inputs, when applicable, 50% of the eligible incentive will be payable to the Program Participant upon project installation, while the remaining incentive amount will be incrementally disbursed to the Participant after Year 1 and Year 2 of metered-data are verified by the Subprogram M&V provider. Thus, the Subprogram seeks to remove SMB barriers by injecting cash into a comprehensive SMB projects upfront but protects Ratepayer funds by tying investments to metered savings on the backend.

Table 10: SMB Market Barriers & Subprogram Solutions

Market Barriers	Solutions
<p>Lack of Good Data: Energy consumption and the value of associated efficiency savings can be difficult to measure due to imperfect metering and data availability for tenants and owners, as well as uncertainty about future energy prices.</p>	<p>Subprogram will require and facilitate customer access to AMI meter data for benchmarking and M&V purposes. Subprogram technical assistance will help customers translate data into actionable information.</p>
<p>Lack of Awareness:</p> <ul style="list-style-type: none"> ● Owners of small and medium-size buildings and real estate brokers have limited awareness of energy savings opportunities and the benefits of green buildings. ● Most tenants do not consider operating costs (such as utility bills) when negotiating a lease and tend to base decisions on lease cost alone. 	<p>Subprogram marketing and outreach messages will emphasize the full array of non-energy benefits that can accrue to business owners from energy-efficient building operations.</p>
<p>Misplaced/Misaligned Incentives (insufficient return on investment):</p> <ul style="list-style-type: none"> ● Lack of perceived value of energy efficiency in building operating costs results in suboptimal investment in efficiency improvements. Other investments are valued higher by tenants or required by law and have higher priority. ● Split incentive problem: The split incentive refers to the divergent needs of a landlord 	<ul style="list-style-type: none"> ● Subprogram encourages ESCO business models to shield business owners from the inherent risks in valuing future energy efficiency benefits that leads them to discount future benefits and under-invest. ● ESCO business model supports energy savings agreements, which can be structured to bridge split incentives between landlords and tenants.

<p>and tenant: the decision-maker for efficiency investment does not pay the energy bills and has little incentive to reduce them. When the tenant pays utilities, the owner’s incentive to make improvements is limited because upgrades may not lead to increased rents. Tenants must have the owner’s permission to upgrade leased space. When the owner pays the utilities, they generally wait until a space is vacant to make improvements.</p> <ul style="list-style-type: none"> ● Short payback time frames - Small and medium- size businesses typically require 6 to 18 months for payback on efficiency improvements and large businesses 2 to 3 years, resulting in less uptake of deeper and more expensive improvements. 	<ul style="list-style-type: none"> ● Energy savings agreements shift ROI and payback risks from the business owner to the ESCO.
<p>Market Structure Challenges:</p> <ul style="list-style-type: none"> ● Owners of small and medium-size businesses may not have the credit needed for capital-intensive system upgrades. Owners need proof that savings will outweigh costs. ● Owners of small and medium-size businesses are harder to reach than owners of larger businesses. ● In more diverse communities, efficiency service providers and programs may have difficulty reaching owners of small and medium-size businesses. ● Owners of small and medium businesses are less likely to know where to find reliable efficiency- focused contractors. ● Access to capital or qualifying for financing is not enough on its own to inspire energy improvements. Management priorities for debt, working capital, and payback time frames all influence appetite for investment in a building. ● Buildings that are not professionally managed may face a variety of informational obstacles and debt constraints. The owners of these buildings often lack the technical resources and knowledge to carry out effective ECMs. 	<ul style="list-style-type: none"> ● Subprogram will provide access to low-cost or no-cost project assessments via assessment incentives and in-kind technical assistance. Assessments will quantify project savings opportunities before business owners are asked to invest resources. ● BayREN will leverage local government relationships with local business improvement districts, business community leaders, and other trusted messengers to connect with hard-to-reach customers. ● Subprogram will compile a directory of qualified Allies through a non-competitive RFP process. ● Subprogram will help business owners layer multiple funding sources to minimize upfront investment requirements. ● Subprograms will give business owners access to turn-key technical assistance through qualified Allies and the program BPA.
<p>Integrating Energy Efficiency Into the Property Valuation Process:</p>	

<ul style="list-style-type: none"> ● Existing loan underwriting practices provide no incentive for building owners to make their buildings more energy-efficient, and typically underwriting does not account for risks associated with the level or volatility of the energy costs of a commercial building. ● Energy service companies (ESCOs) typically serve government and larger commercial operations with integrated energy efficiency solutions, including financing improvements, within in one establishment and do not offer the same level of services to small and medium-size businesses. ● Property condition assessments (PCAs) used to underwrite commercial mortgages often have minimal consideration of energy efficiency and are not standardized; therefore, lenders cannot translate the PCAs into useable ECMs of the expected level and volatility of the energy consumption of a building. This means that efficient buildings and inefficient buildings are offered the same mortgage terms, despite having different investment risks. 	<ul style="list-style-type: none"> ● Energy savings agreements provided by ESCOs link debt repayments to project performance rather than building asset value, thereby circumventing barriers tied to traditional real estate and personal credit underwriting practices. ● Subprogram will foster and encourage ESCOs to enroll as Allies and extend their performance-based business models to the SMB sector.
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4. Measurement & Verification (M&V)

The Subprogram Measurement & Verification (M&V) Plan is adapted from the Investor Confidence Project’s (ICP) M&V Plan Template: *Option C - Measurement and Verification, IPMVP Option C, Whole Facility*. This approach is applicable to projects involving multiple ECMs, usually with interactivity, in which the predicted energy savings are greater than 10 percent of the building’s total energy use. Option C was selected because the Subprogram promotes upgrade projects that encompass multiple ECMs and will have interactive effects.

The energy utilities’ revenue meters will be used to determine savings for both natural gas and electricity consumption. These meters account for all energy use of the facility. If the facility is served by more than one meter, then all ECMs must be properly attributed to the meter that associated load.

Baseline Period Energy and Conditions

Eligible projects must have at least twelve (12) months of baseline energy consumption data. The baseline period selected involves the twelve (12) months immediately before the decision to implement the ECMs.

Basis for Adjustment

Savings are to be reported as “cost avoidance,” under reporting period conditions. Baseline period energy will be adjusted to reporting period conditions, using the following IPMVP equation:

Equation 4:

Avoided Energy Use (or Savings) = Baseline Energy (+/- Routine Adjustments to reporting-period conditions +/- Non-Routine Adjustments to reporting-period conditions) - Report Period Energy

Analysis Procedures

The energy and demand relationships with Heating Degree Days (HDDs) will be examined for the heating season, and Cooling Degree Days (CDDs) for the cooling season, on all utility accounts using regression analysis. For gas and electrical consumption, the base temperatures selected for counting HDDs and CDDs will be determined for each upgrade project, based on the outdoor temperatures which yield the best R-squared in the regression analysis.

Data Quality Control

Data quality procedures will conform to CalTRACK²⁰ 2.0 Compliance Specifications, as published at <https://media.readthedocs.org/pdf/caltrack-technical-documentation/latest/caltrack-technical-documentation.pdf>.

At a minimum, compliance protocols shall address:

- Data Constraints
- Data Quality
- Matching Sites to Weather Stations
- Balance Points
- Fit Candidate Models
- Computing Derived Quantities

Non-Routine Adjustments

The basic formula used to quantify verified energy savings using an Option C approach is:

Equation 5:

Savings = (Baseline Period Use - Reporting Period Use) +/- Adjustments

The “adjustments” term is commonly used to restate the baseline energy use in terms of the reporting period conditions. Routine adjustments (most commonly weather) that are expected to change routinely can be accounted for (through regressions or other techniques) to adjust both the baseline and reporting periods to the same set of conditions. This allows for accurate comparison between the two periods, providing an “apples-to-apples” comparison. Non-routine adjustments are factors that were not expected to change, but that will affect the building’s energy use, not as a result of the energy conservation measures installed as part of the retrofit.

The Subprogram M&V Contractor will monitor metered energy performance on an ongoing basis for all participating projects to detect outliers that may be symptomatic of performance issues or non-routine events. Realization rates, defined as the ratio of metered to predicted energy savings, will be recalculated for all participating projects on a quarterly basis. At a minimum, the highest and lowest one percent of projects will be flagged for further investigation, including possible follow-up site visits. The Program Administrator may establish a higher sampling threshold as needed.

²⁰ CalTRACK is a set of open-source, empirically validated and replicable methods for calculating energy savings by comparing weather normalized pre-and post-retrofit energy use for a given customer or portfolio of customers.

Non-routine events that are categorically eligible for adjustment include:

- Addition of Onsite Renewable Energy Generation
- Addition of Electric Vehicle (EV) Charging Capabilities
- Change in Facility Size - Expansion or Contraction of 10 Percent of Conditioned Floor Area
- Change in Space Type and/or Use
- Change in Tenancy
- Installation of Concurrent ECMs which Constitute Double-Counting of Savings (if left unadjusted)

Categorical non-routine events may be identified by the Program Administrator via energy performance monitoring or third-party information sources (e.g., building permit data, utility account information) or they may be requested by the implementer, aggregator, or customer. In addition, the Program Administrator may identify and adjust for the following non-routine events by investigating energy performance outliers.

- Change in Operating Hours or Equipment Operation - unrelated to ECM performance
- Added Loads (i.e. new IT center, additional plug loads)
- Change in Zone Temperature Set-points - unrelated to ECM performance
- Change in Production Volume

The Program Administrator, at its sole discretion, will choose the appropriate adjustment mechanism. The choice will reflect the relative costs and benefits of the adjustment; i.e., the improvement in savings prediction versus the cost of supplementary data collection and analysis.

The default adjustment mechanism for projects that subsequently add onsite renewable generation shall be as follows:

- Estimate annual Photo-Voltaic (PV) production using the latest version of California Energy Commission's CECPV Calculator (http://www.gosolarcalifornia.ca.gov/tools/nshpcalculator/download_calculator.php)
- Adjusted Annual Savings = Max(Annual Savings - Annual PV Production, 0)

The default adjustment mechanism for projects that install concurrent ECMs that layer additional ratepayer-funded incentives shall be as follows:

- Calculate expected annual net savings from ECMs using CPUC-approved deemed savings values, calculation methods, or work papers.
- Adjusted Annual Savings = Max(Annual Savings – Concurrent ECM Net Savings, 0)

The default adjustment mechanism for all other non-routine events shall be as follows:

- For projects with less than one year of post ante performance metering prior to the non-routine event, set savings to zero (i.e., exclude from payment calculations)
- For projects with more than one year of post ante performance metering prior to the non-routine event, calculate first-year NMEC savings and deem it to be the savings value for the second year in the performance period.

Alternatively, the Program Administrator may apply adjustment methods as detailed in Appendix B of the Program Manual.

5. Pilots

Not applicable.

6. Additional information

The Subprogram will participate in all California Public Utilities Commission (CPUC) directed Evaluations, Measurements & Verification (EM&V) activities and receive feedback for continuously improving the program offering. The Subprogram, in close consultation with CPUC's Energy Division, will submit a detailed plan for process evaluation. The evaluation efforts will advance the Subprogram's management of key issues including those identified in the description of the Subprogram's objective, strategies and tactic as stated above.

The Subprogram Staff will participate in any CPUC meetings to report on program progress in cooperation with all Commission staffers and other program administrators. The feedback and outcomes from the meetings will inform future program revisions. Subprogram Staff will be prepared to provide project-level and programmatic data regular reporting and upon request from the EM&V team.

Supporting Documents

1. Program Manuals and Program Rules: Appendix A

2. Program Logic Models – see next (2) pages.

BayREN Commercial Pay-for-Performance (P4P) Subprogram Logic Model

Situation: Bay Area small and medium businesses (SMB's) have been underserved by traditional energy efficiency (EE) program offerings, which have not been responsive to SMB needs and have been based on misaligned incentives. Leveraging private sector innovation, financing, and risk management practices with performance-based incentives will help to unlock this difficult market segment.

Inputs (What we invest)	Outputs (What we do and who we do it to)		Outcomes – Impact (The incremental events/changes that occur as a result of the outputs)		
	Activities	Participation	Short (2019)	Medium (2020-22)	Long (2023-25)
<ul style="list-style-type: none"> P4P incentives Assessment incentives for Ally project opportunities Qualified subprogram Allies with financing, engineering, sales expertise Building Performance Advisor (BPA) – technical assistance provider of last resort BayREN and non-BayREN services, third-party QA/QC for all projects SMB sector screening and segmentation via public records, and energy usage data (TBD) Local government as “trusted messengers” that promote the subprogram by reaching out to Hard-to-Reach small business and/or in DAC's (per CalEnviroScreen 2.0) in BayREN territory Clear referral process between BayREN and other PA EE subprograms (per Joint Cooperation Memo) 	<ul style="list-style-type: none"> Qualify and contract with EE Implementers to deliver subprogram Allies Bldg. Performance Advisor (BPA) Offer technical and financial resources, training Promote subprogram through outreach and targeted marketing, partnering with all BayREN program partners (Allies, BPA, MAF, C-PACE) Support participation in complementary incentive, rebates and financing subprograms when appropriate Identify challenges, barriers, make improvements (continuous improvement) to subprogram, with input from Allies 	<ul style="list-style-type: none"> Commercial SMB's and building owners and managers; small business tenants Allies BPA SMB contractors EE lenders Local government staff and elected officials Complementary PA EE subprograms 	<ul style="list-style-type: none"> Local government ME&O plan finalized and initiated early 2019 Launch P4P Subprogram Spring 2019 Bay Area small and medium commercial businesses increase participation in comprehensive EE retrofits BayREN learns from early experience and improves coordination with Allies, BPA, SMB contractors, and other subprogram stakeholders. BayREN meets or exceeds first year projections for energy savings 	<ul style="list-style-type: none"> Local government continues outreach with a focus on HTR businesses Bay Area small and medium commercial businesses increase participation in comprehensive EE retrofits BayREN Commercial P4P subprogram process becomes more streamlined, and successfully integrates P4P incentives/Allies, SMB contractors, and all financing options BayREN meets or exceeds projected annual energy savings. Identify challenges, barriers, make improvements 	<ul style="list-style-type: none"> BayREN meets or exceeds projected annual energy savings. Bay Area small and medium commercial businesses continue participation in comprehensive EE retrofits Identify challenges, barriers, make improvements
<p>Subprogram evaluation would assess (thru data analysis, metrics evaluation, interviews, etc.) the effectiveness of these inputs in helping to accomplish the long-term goal. For example:</p> <ul style="list-style-type: none"> Did the dual participation tracks meet the needs of all subprogram participants? What was the response rate from local government outreach? 	<p>Subprogram evaluation would assess the effectiveness of these outputs in helping to accomplish the long-term goal. For example:</p> <ul style="list-style-type: none"> Was the outreach to small businesses effective in promoting subprogram? Did participants take advantage of financial resources? 	<p>Subprogram evaluation would assess participation levels and related metrics in helping to accomplish the long term goal. For example:</p> <ul style="list-style-type: none"> Did the subprogram target the right participants? Were the messages and communications effective? Did stakeholders/ advocates fulfill their roles? 			
<p>BayREN subprogram tracking data can serve as indicators.</p>	<p>BayREN subprogram tracking data can serve as indicators.</p>	<p>BayREN subprogram tracking data, plus surveys and interviews, can serve as indicators.</p>			

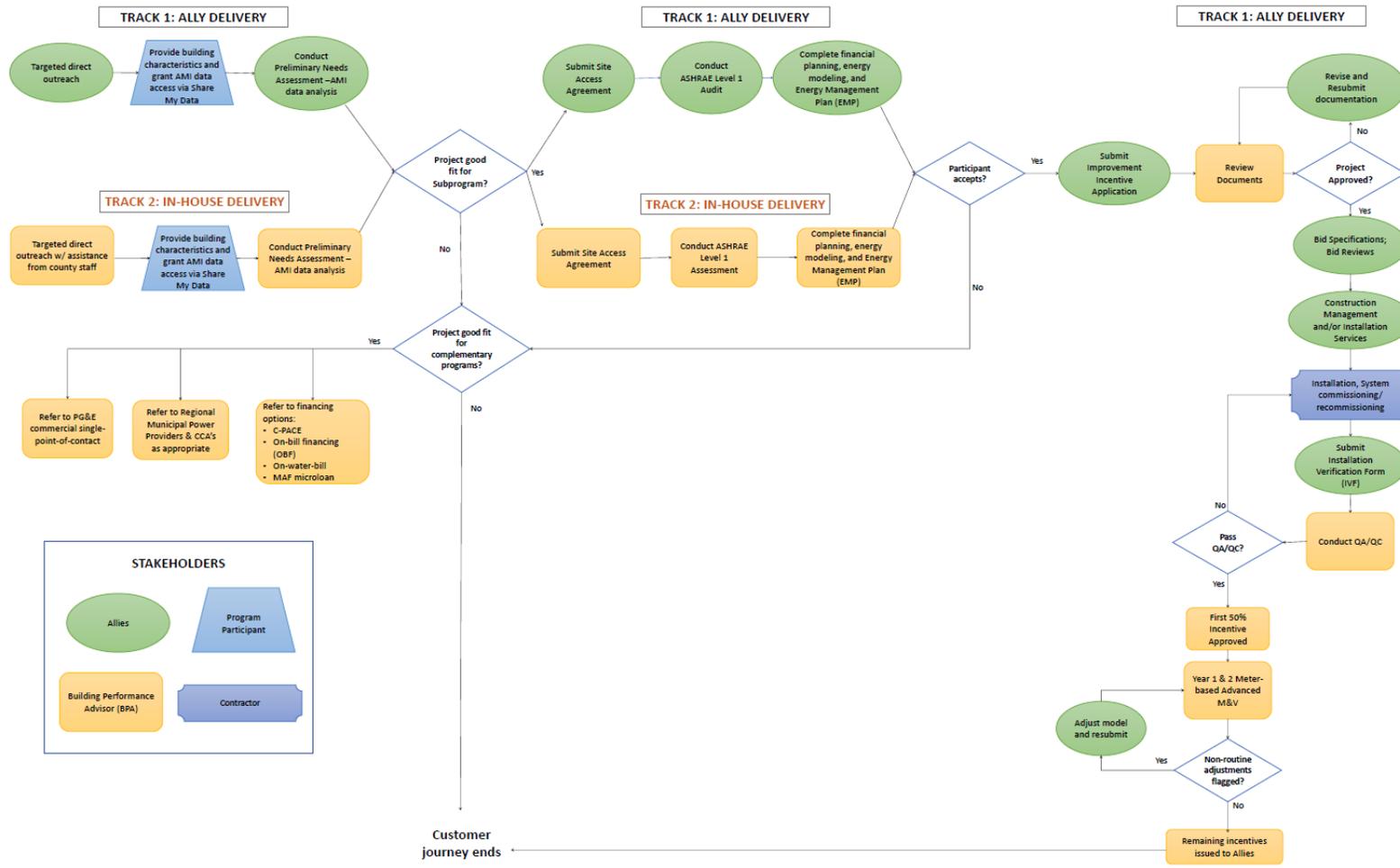
Assumptions

Through a solicitation process, BayREN successfully identifies and contracts with a number of Subprogram Allies (energy service companies with financing, engineering and sales expertise) to deliver the subprogram. BayREN also contracts with an entity to perform BPA services, and a M&V platform/provider that conforms to CalTRACK 2.0 methods.

External Factors

Economic disruptions that reduce SMB's interest in EE; [Subprogram evaluation would also address the extent to which assumptions and external factors impacted the subprogram](#)

3. Process Flow Chart



4. Incentive Tables, Workpapers, Software Tools

Eligible ECMs

The Subprogram will use all Commission depositions and workpapers to determine ex-ante savings. Additionally, ECMS not having workpapers will rely on engineering calculations and/or computer simulations using 2016 California Energy Commission (CEC) approved compliance.

Table 11: Eligible ECMs

ECM Category	ECM
Advanced Metering Systems	Install Advanced Metering Systems
	Clean and/or Repair
	Implement Training and/or Documentation
	Upgrade Operating Protocols, Calibration, and/or Sequencing
	Other
Boiler Plant Improvements	Replace Boiler
	Replace Burner
	Decentralize Boiler
	Insulate Boiler Room
	Add Energy Recovery Equipment
	Convert Gas-fired Unit to Boiler Loop
	Convert System from Steam to Hot Water (2-pipe systems only)

	Clean and/or Repair
	Implement Training and/or Documentation
	Upgrade Operating Protocols, Calibration, and/or Sequencing
	Other
Building Automation Systems/Energy Management Control Systems (EMCS)	Add Heat Recovery
	Add or Upgrade BAS/EMS/EMCS
	Add or Upgrade Controls
	Convert Pneumatic Controls to DDC
	Upgrade Operating Protocols, Calibration, and/or Sequencing
	Other
Building Envelope Modifications	Air-seal Envelope
	Install / Increase Wall Insulation
	Insulate Thermal Bypasses
	Install / Increase Ceiling Insulation
	Install / increase Roof Insulation
	Insulate Attic Hatch / Stair-box
	Add Attic/Knee-wall Insulation

	Install Cool/Green Roof
	Add Shading Devices
	Add Window Films
	Install or Replace Solar Screens
	Replace Glazing
	Replace Windows
	Install / Increase Floor Insulation
	Clean and/or Repair
	Other
Chilled Water, Hot Water, and Steam Distribution Systems	Add Pipe Insulation, Including Fittings and Valves
	Add Equipment Insulation (i.e. Heat Exchanger, Condensate Receiver, Etc)
	Repair and/or Replace Steam Traps
	Retrofit and Replace Chiller Plant Pumping, Piping, and Controls
	Repair or Replace Existing Condensate Return Systems or Install New Condensate Return Systems
	Add Recirculating Pumps
	Replace or Upgrade Water Heater

	Add Energy Recovery
	Separate DHW from Space Heating
	Replace with Higher Efficiency Pump
	Install Variable Speed or Frequency Pump
	Clean and/or Repair
	Implement Training and/or Documentation
	Upgrade Operating Protocols, Calibration, and/or Sequencing
	Other
Chiller Plant Improvements	Add Energy Recovery
	Install VSD on Electric Centrifugal Chillers
	Replace Chiller
	Install Gas Cooling
	Add or Repair Economizer Cycle
	Add or Replace Cooling Tower
	Clean and/or Repair
	Implement Training and/or Documentation
	Upgrade Operating Protocols, Calibration, and/or Sequencing

	Other
Electrical Peak Shaving/Load Shifting	Install Thermal Energy Storage
	Implement Training and/or Documentation
	Upgrade Operating Protocols, Calibration, and/or Sequencing
	Other
Electric Motors and Drives	Add Drive Controls
	Replace with Higher / NEMA Premium Efficiency
	Add Variable Speed Drive (VSD) motor controller
	Integrate into BMS
	Clean and/or Repair
	Implement Training and/or Documentation
	Upgrade Operating Protocols, Calibration, and/or Sequencing
	Other
Energy Cost Reduction Through Rate Adjustments	Change to More Favorable Rate Schedule
	Energy Cost Reduction Through Rate Adjustments - Uncategorized

	Energy Service Billing and Meter Auditing Recommendations
	Change to Lower Energy Cost Supplier(s)
	Other
Energy/Utility Distribution Systems	Implement Power Factor Corrections
	Implement Power Quality Upgrades
	Upgrade Transformers
	Install Gas Distribution Systems
	Clean and/or Repair
	Implement Training and/or Documentation
	Upgrade Operating Protocols, Calibration, and/or Sequencing
	Other
Energy Related Process Improvements	Implement Industrial Process Improvements
	Implement Production and/or Manufacturing Improvements
	Clean and/or Repair
	Implement Training and/or Documentation
	Upgrade Operating Protocols, Calibration, and/or Sequencing

	Other
Future/Other ECMs	Other
Lighting Improvements	Install New Fixtures
	Retrofit with T-5
	Retrofit with T-8
	Install Spectrally Enhanced Lighting
	Retrofit with Fiber Optic Lighting Technologies
	Retrofit with Light Emitting Diode (LED) Technologies
	Add Daylight Controls
	Add Occupancy Sensors
	Clean and/or Repair
	Implement Training and/or Documentation
	Upgrade Operating Protocols, Calibration, and/or Sequencing
Other	
Heating, Ventilating, and Air Conditioning (HVAC)	Replace or Modify Air-Handling Units (AHUs)
	Improve Distribution Fans
	Improve Ventilation Fans

	Convert Constant Volume System to Variable Air Volume system
	Upgrade Operating Protocols, Calibration, and/or Sequencing
	Repair Leaks / Seal Ducts
	Add Duct Insulation
	Balance Ventilation/Distribution System
	Repair or Replace HVAC Damper and Controller
	Replace Burner
	Replace Package Units
	Replace Packaged Terminal Units
	Change HVAC System Type to Heat Pump
	Replace AC and Heating Units with Ground Coupled Heat Pump Systems
	Add Energy Recovery
	Add or Replace Cooling Tower
	Change HVAC System Type to Variable Refrigerant Flow System
	Add or Repair Economizer
	Add Enhanced Dehumidification
Enable Demand Controlled Ventilation	

	Clean and/or Repair
	Implement Training and/or Documentation
	Other Heating
	Other Cooling
	Other Ventilation
	Other Distribution
	Other
Appliance and Plug-Load Reductions	Replace with ENERGY STAR-rated
	Install Plug Load Controls
	De-lamp Vending Machines
	Improve Data Center Efficiency
	Clean and/or Repair
	Implement Training and/or Documentation
	Upgrade Operating Protocols, Calibration, and/or Sequencing
	Other
	Replace with ENERGY STAR-rated
Refrigeration & Food Service Equipment	Replace Ice/Refrigeration Equipment with High-efficiency Units

	Replace Air-cooled Ice/Refrigeration Equipment
	Replace Refrigerators
	Clean and/or Repair
	Implement Training and/or Documentation
	Upgrade Operating Protocols, Calibration, and/or Sequencing
	Other
Water and Sewer Conservation Systems	Install Low-flow Faucets and Showerheads
	Install Low-flow Plumbing Equipment
	Install On-site Sewer Treatment Systems
	Implement Water Efficient Irrigation
	Clean and/or Repair
	Implement Training and/or Documentation
	Upgrade Operating Protocols, Calibration, and/or Sequencing
	Other

Ineligible Measures

The following ECMs are explicitly identified as being ineligible to count toward the energy savings in the bundled measures incentive. However, the Ally may recommend these measures and refer projects to other channels.

1. Solar Thermal for DHW, Space Heating & Pool Heating

2. Solar Photovoltaic (PV)

Table 12: Incentive Pricing

Assessment	\$ XX
Fuel Use Reduced Price	\$ XX per MMBTU/Hr

Table 13: Incentive Calculations

Milestone	Electricity²¹	Natural Gas
Total Price	\$XX / MMBTU (\$X / kWh)	\$XX / MMBTU (\$X / Therm)
Year 0: Project Completion, Based on Forecasted (Computer Modeling) Prediction	(=50% of Total Price)	(=50% of Total Price)
Year 1: Based on Metered Energy Savings	=75% of Total Price x metered savings – Year 0 payment	=75% of Total Price x metered savings – Year 0 payment
Year 2: Based on Metered Energy Savings	=100% of Total Price x metered savings – (Year 0 payment + Year 1 payment)	=100% of Total Price x metered savings – (Year 0 payment + Year 1 payment)

Subprogram Software Tools

The Subprogram will accept 2016 CEC-approved compliance software, such as EnergyPro, EnergyPro Lite, CBECC-Com, IES-Virtual Environment; others require BayREN approval.

M&V platform will comply with CalTRACK 2.0.

Project participation will be tracked using a Customer Relations Management (CRM) tool. The data gathered in this system will allow for reporting on metrics achieved and detailed characteristics of the participating projects. The tool has been configured to track the data specified by the “EM&V 2013-2014 REN Impact Assessment.” Finally, typical Microsoft Office software, such as MS Word, Excel and PowerPoint will also be used.

Data will be made available during regular reporting, and for EM&V requests. Subprogram Staff will engage in continuous coordination with the CPUC to ensure appropriate data collection for EM&V needs.

5. Quantitative Program Targets

Table 14: Targets by SMB Sector Size

²¹ MMBTUs calculated on a source savings basis: 1 kWh = 7,328 BTU_h, which is PG&E’s 12-month forward market heat rate per CPUC D.07-09-040 and Res. E-4246, as published on Aug. 1, 2018

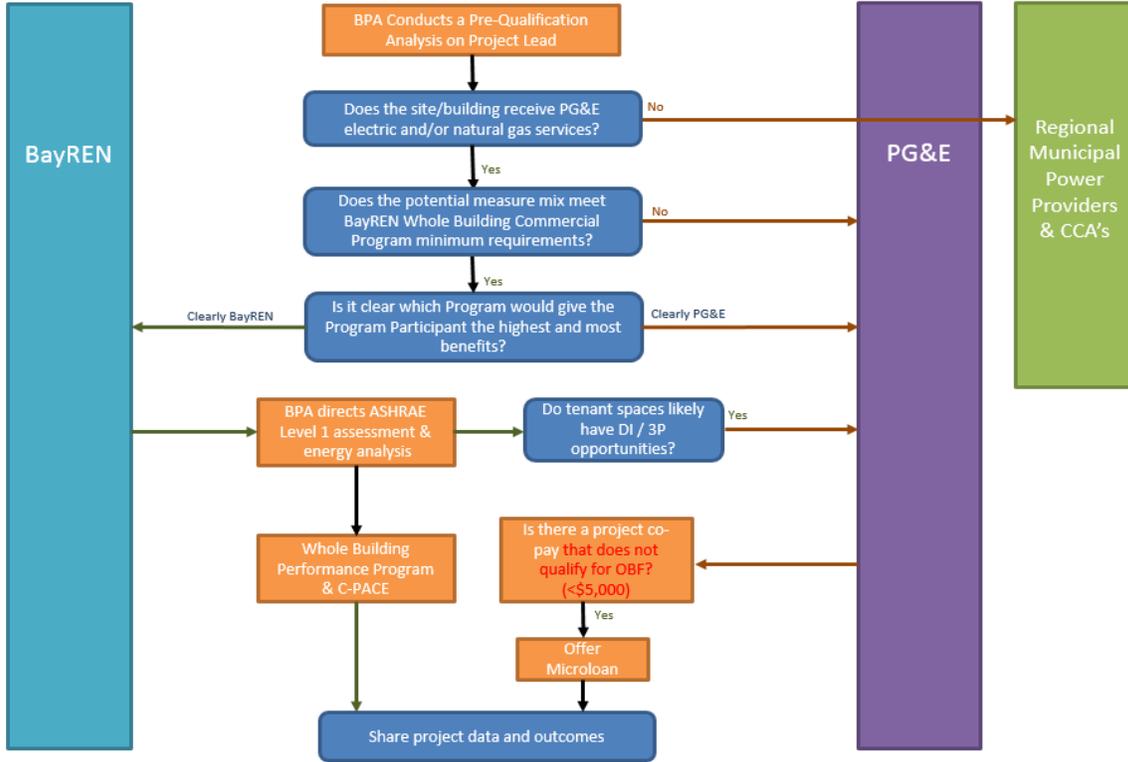
Small businesses			Medium businesses		
Average project size <10k: 3,977 sq ft			Average project size >10k: 22,480 sqft		
Year	# of projects	Estimated Retroffited Sq-ft	Year	# of projects	Estimated Retroffited Sq-ft
Baseline	0	-	Baseline	0	-
2019	20	79,540	2019	60	1,348,800
2020	42	166,040	2020	125	2,815,620
2021	48	189,902	2021	143	3,220,260
2022	59	234,643	2022	177	3,978,960
2023	68	270,436	2023	204	4,585,920
2024	74	295,292	2024	223	5,007,420
2025	80	318,160	2025	240	5,395,200

6. Diagram of Program

Figure 6: Referral Tree²²

²² BayREN & PG&E Joint Cooperation Memo

2019 Commercial Sector Referral Tree – PG&E, BayREN & Others



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Subprogram Name

BayREN Commercial PACE Subprogram

Sub-program Type

- Non-Resource

Subprogram Description

Support Commercial PACE (C-PACE) financing within BayREN territory

C-PACE supports deeper, more capital-intensive energy efficiency upgrades in commercial, industrial, and agricultural facilities and generates additional savings opportunities. PACE capital is offered through partnerships between private program administrators, and Joint Powers Authorities (JPA's) that issue PACE bonds which provide project capital.

The Subprogram fills gaps by promoting C-PACE to eligible C&I building owners, providing customized contractor training and support, sophisticated financial analysis, in support of multi-measure projects, with a specific emphasis on special use/mixed-use properties. BayREN has allocated the majority of its program budget for technical assistance provided by an expert consultant selected through a competitive RFP, who is now working closely with program stakeholders to facilitate the development of projects that meet owner and capital provider criteria. The subprogram performs outreach to commercial HVAC contractors primarily replacing failing HVAC equipment but do not participate in EE programs, while integrating existing EE resources (rebates, incentives, and technical assistance) with financing to generate additional savings. Projects may be financed by means other than C-PACE (e.g. owner self-financing, commercial term loans, PG&E on-bill financing), meaning projects initiated via BayREN technical assistance may end up being implemented by other means (data tracked and reported by Subprogram).

Specific tasks include:

- Work with contractors, regional direct install programs and others to identify low-cost assessment opportunities, and additional rebates and incentives to include in financial analysis; include deemed savings in project economics.
- Present findings to building owners at no cost or obligation
- Consolidate analytical data sets into the C-PACE Project Finance Reports to illustrate the project economics based on different finance options
- Assist and coordinate documentation for chosen finance option
- Liaise with Bay Area C-PACE capital providers and PG&E on-bill finance on outreach activities.
- Leverage new BayREN commercial P4P program and related analysis tools and methods to assist with customer targeting, energy modeling, and savings calculations.

Subprogram Name

BayREN Microloan Subprogram

Sub-program Type

- Non-Resource

Subprogram Description

The San Francisco Department of the Environment (SFE) partnered with a community-based specialty lender, Mission Asset Fund (MAF), to launch a program that provides 0% interest “microloans” (<\$2,500) to small businesses for co-pays associated with San Francisco Energy Watch (SFEW) energy efficiency projects (predominantly LED lighting). MAF’s mission is to provide small dollar loans to individuals and small businesses in order to create positive credit history, improve their credit scores, and expand their financial knowledge and opportunities. Under the SFEW pilot, SF Environment selected MAF through a competitive RFP process, developed the program structure and terms, and reviewed energy calculations, assisted customers through the application and closing process, oversaw contractors, and performed quality assurance per normal SFEW program protocols. MAF’s role is loan servicing, providing customer support, co-marketing, data collection, and reporting. Marketing and outreach (ME&O) to contractors and small businesses is co-delivered by SFE and MAF.

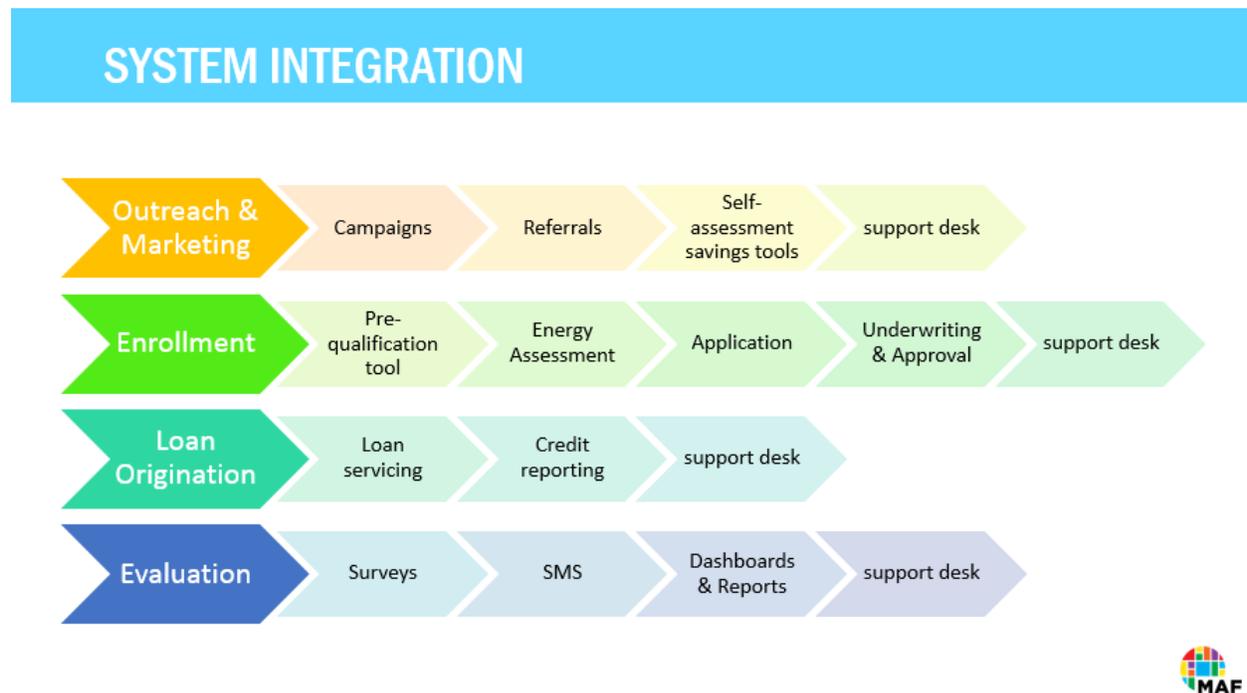
Under the expanded BayREN Commercial Program, MAF will continue offering these same services to qualifying small and medium business customers for eligible energy efficiency measures, maintenance, repair and projects. Underwriting, terms and conditions will not change under BayREN. As BayREN greatly expands the potential market for microloans, process improvements will be instituted to manage the borrower pipeline to ensure sufficient capital and administrative support to serve customers. Other details can be found in the Joint Cooperation Memo (JCM) between BayREN and PG&E.

Marketing and Outreach to Subprogram Participants

MAF will leverage their experience in delivering community programs and advanced technology infrastructure to conduct ME&O activities. In consultation with BayREN and in day-to-day coordination with the BPA, a streamlined “system integration” approach will be deployed (depicted in Figure #1) to create efficiencies and automate processes. Real-time dashboard and reports will help MAF and SFE evaluate the effectiveness of marketing campaigns, status of program applications and assessments, and the loan portfolio.

1. SF Environment will support MAF’s marketing efforts through at least the following activities:
2. Introduce MAF to local governments, business districts, chambers of commerce and similar prospective outreach partners
3. Negotiate with local government partners for access to data that may inform MAF’s customer targeting efforts in Hard-to-Reach (HTR) and Disadvantaged Communities (DACs)
4. Conduct marketing campaigns to build customer awareness and generate leads
5. Authorize MAF to co-brand services to confer credibility to partner’s marketing claims
6. Provide education and training on MAF services to program Allies and Building Performance Advisors

Figure #1: MAF System Integration Approach for ME&O Activities



Microloan Terms and Conditions

- Loan amounts: \$500-\$2,500
- Interest rate: 0%
- Loan term: 12-18 months, may be extended with approval
- For tenants, businesses must have lease agreement > loan term
- Approval: 1-2 days
- Repayment: Automated Clearing House (ACH)

Co-benefits

- Inclusion, including being able to serve hard-to-reach small businesses
- Neighborhood-based programming which helps to disseminate energy efficiency information between peers quickly and efficiently.
- Enhance maintenance and repair of existing equipment
- Increase small business financial stability through energy cost savings
- Help small businesses build credit and improve financial health
- Large return on investment in terms of community goodwill for dollars invested

BayREN Microloans Logic Model

Situation: “Hard to reach” (HTR) small and medium businesses (SMB’s) are particularly difficult to engage in energy efficiency (EE), and require highly tailored financial and technical assistance to take action, and by doing so, will improve their own business financial health while reducing emissions.

Inputs (What we invest)	Outputs (What we do and who we do it to)		Outcomes – Impact (The incremental events/changes that occur as a result of the outputs)		
	Activities	Participation	Short (2019)	Medium (2020-22)	Long (2023-25)
BayREN <ul style="list-style-type: none"> Funding (EE incentives, tech assistance, marketing) Local Government Outreach (counties) Relationships with small businesses/ organizations (licensing, permitting, etc.) 	BayREN <ul style="list-style-type: none"> Qualify and contract with EE Implementers to deliver program <ul style="list-style-type: none"> ESCO’s Bldg. Performance Advisor (BPA) Offer technical and financial resources Promote program through outreach and targeted marketing Identify challenges, barriers, make improvements (continuous improvement) 	BayREN <ul style="list-style-type: none"> SMB’s Allies Small contractors Other EE lenders Local government staff and elected officials barriers, make improvements (continuous improvement) 	<ul style="list-style-type: none"> Local government/MAF outreach plan finalized MAF SMB-facing web portal prototype designed, begin testing Initiate phased roll-out of MAF/BayREN plan to select counties (1 or 2) to gain experience and knowledge, identify gaps and problems, iterate and improve. 20 BayREN SMB’s served with Microloan (HTR and non-NTR) (\$50,000 in microloans) Small businesses increase participation in energy efficiency, and increase their financial strength Positive word of mouth helps spread the word about the program MAF and BayREN learn from experience and improve coordination with ESCO’s, BPA, SMB contractors, and other program stakeholders. 	<ul style="list-style-type: none"> Expanded roll-out to remaining counties 60 BayREN SMB’s served with Microloan (HTR and non-NTR) (\$150,000 in microloans) Identify challenges, barriers, make improvements Word of mouth continues to generate interest in Microloans. BayREN commercial program process becomes more streamlined, and successfully integrates P4P incentives/ESCO’s, SMB contractors, and all financing options, including Microloans 	<ul style="list-style-type: none"> 100 BayREN SMB’s served with Microloan (HTR and non-NTR) (\$250,000 in microloans) BayREN Commercial has increased the flow of information, credit resources and project capital, and energy and cost savings to the underserved SMB market in the Bay Area
Mission Asset Fund <ul style="list-style-type: none"> Funding (microloans) Loan servicing, credit reporting Technology (dashboards and reporting) Existing customer relationships 	Mission Asset Fund <ul style="list-style-type: none"> Public facing website w/ “self-assessment” tool (incl. microloan pre-qualification, BayREN BPA info, links to resources) Coordinate campaigns to SMB’s per BayREN guidance (DAC’s and HTR businesses) Manage referrals from BPA Support desk 	Mission Asset Fund <ul style="list-style-type: none"> SMB borrowers BPA Small and medium Contractors Local government staff and elected officials 			
Program evaluation would assess (thru data analysis, metrics evaluation, interviews, etc.) the effectiveness of these inputs in helping to accomplish the long term goal. For example: <ul style="list-style-type: none"> Was funding for the program adequate? Did the initial approach for marketing the program effective in driving interest? 	Program evaluation would assess the effectiveness of these outputs in helping to accomplish the long term goal. For example: <ul style="list-style-type: none"> Was the outreach to small businesses effective in promoting BayREN programs, including Microloan? 	Program evaluation would assess participation levels and related metrics in helping to accomplish the long term goal. For example: <ul style="list-style-type: none"> Did the program target the right participants? Were the messages and communications effective? Did stakeholders/ advocates fulfill their roles? 			
MAF and BayREN program tracking data can serve as indicators.	MAF and BayREN program tracking data (# of self-assessments, applications, loans funded) can serve as indicators.	MAF and BayREN program tracking data, plus surveys and interviews, can serve as indicators.			

Assumptions

MAF and BayREN both commit to collaborate closely on program implementation, funding will be adequate, coordination between BayREN and MAF will be smooth; messaging will be compelling and tailored to the customer base.

External Factors

Economic disruptions that reduce SMB’s interest in EE;
 Program evaluation would also address the extent to which assumptions and external factors impacted the program