

Draft

SMART LABS

IMPLEMENTATION PLAN

LABORATORY TECHNICAL ASSISTANCE
RETROFIT PROGRAM



PREPARED FOR PG&E

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kW
ENGINEERING



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Program Overview

Smart Labs is a retrofit program for laboratory buildings that provides technical assistance with airflow management, risk mitigation, implementation, and long-term performance planning. It is a pay-for-performance efficiency program that applies a normalized metered energy consumption (NMEC) approach and provides customer incentives based on whole building energy savings to motivate customers to make modifications to laboratory ventilation systems.

Program Budget and Savings

1. Program and/or Sub-Program Name

Smart Labs

2. Program / Sub-Program ID number

PGE_Com_002

3. Program / Sub-program Budget Table

\$4,378,800 Total Program Budget

EE Program Budget	TOTAL PROGRAM BUDGET
3P Program Administrative Costs	\$ 378,276
Marketing & Outreach Costs	\$ 238,745
Direct Implementation: Incentives & Rebate Costs	\$ 1,216,600
Direct Implementation: Non-Incentive (DINI) Costs	\$ 1,934,930
Exempt DINI Costs for items less IDSM costs	\$ -
TOTALS	\$ 3,768,551
DINI: SGAP, CEPP, KIPP and upside from Tab F1a	\$ 610,249
TOTALS NTE EE BUDGET with SGAP, CEPP, KPIP and upside	\$ 4,378,800

4. Program / Sub-Program Gross Impacts Table

[F] ANNUALIZED FIRST-YEAR ENERGY SAVINGS - GROSS								
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Total	Lifecycle
kWh	-	-	3,780,000	5,040,000	-	-	8,820,000	132,300,000
kW	-	-	432	575	-	-	1,007	-
therms	-	-	182,520	243,360	-	-	425,880	6,388,200

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

1.20

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

2.91

7. Type of Program / Sub-Program Implementer (PA-delivered, third party-delivered or Partnership)

Third party-delivered

8. Market Sector(s) (i.e., residential, commercial, industrial, agricultural, public)

Commercial



9. Program / Sub-Program Type (i.e., Non-resource, Resource)

Resource

10. Market channel(s) (i.e., downstream, midstream, and/or upstream) and Intervention Strategies (e.g., direct install, incentive, finance, audit, technical assistance, etc.), campaign goals, and - timeline.

Market Channel: Downstream

Intervention Strategies: Technical Assistance, Incentive

Implementation Plan Narrative

1. Program Description

Brief Summary

The Smart Labs program provides an innovative delivery approach that addresses a persistent market barrier: that of risk avoidance on the part of lab owners. The program focuses on providing laboratory owners with the expert assessments needed to allow confidence in setting ventilation rates according to actual needs, resulting in reduced overall ventilation rates and significant energy savings in suitable candidate facilities. Crucially, the program also includes development of a performance management plan for the facility to ensure that the systems continue to operate optimally and that changing facility needs are properly managed.

The Smart Labs program targets energy reductions through a clear process of assessment, planning, and execution. Each lab is unique, but the process is replicable, scalable, and proven. The process begins with a brief scoping study to determine program fit, with selection based on building characteristics and participant engagement. Once selected, the team follows 3Flow's Smart Labs assessment methodology to develop recommended measures. The program then provides incentives and technical assistance to install and commission the measures. Finally, the team provides ongoing measurement and verification and a tailored lab performance management plan to ensure project success and savings persistence.

Program Rationale

Laboratories make up a significant portion of commercial building space in Northern California. Estimates indicate that lab buildings occupy over 230 million square feet of space in the state and make up 9% of the electricity consumed by commercial buildings¹. Labs are among the most energy-intensive facilities in operation in the commercial sector. Despite these facts, historical participation in utility-sponsored energy efficiency programs has been very low. According to CEDARs data², in 2018 there were only 4 reported installations of laboratory ventilation measures in PG&E's service territory, totaling less than 20,000 kWh of gross electric savings. Previous programs were evidently not reaching this important market sector.

Program Objectives

The principal energy benefits of the program will be reliable, cost-effective, and deep savings in one of the state's largest energy-consuming market sectors.

Lack of information on appropriate ventilation in labs and improper application of airflow controls frequently leads to the blanket application of high ventilation rates and inability to reduce operation during periods of low activity. The result is wasted energy without added benefit to occupant safety. The program facilitates optimization of energy use and safety, enabling facilities to plan and cost-effectively achieve high-performance laboratories that mitigate risk, operate dependably, provide greater flexibility,

¹ Looking Down the Duct at Plug Load Reductions, 2015, I²SL Annual Conference Session D2

² cedars.sound-data.com/reports/summary

and reduce energy consumption. These benefits are all realized with a predictable and demonstratable return on investment while complying with all applicable codes and standards.

Additional non-energy benefits include:

- Safe and healthy workspaces that promote recruitment and retention of top researchers.
- Reduced degradation, deferred maintenance, and property loss.
- Lower risk for the organization and greater returns on investment.
- Improved resilience.

2. Program Delivery and Customer Services

Delivery Strategies

The program will target medium and large commercial customer groups with laboratory buildings within PG&E's service territory, including the following segments: government, higher education, biotech/pharma, chemical, healthcare, technology, and industrial organizations. Labs are most concentrated in the Bay Area, particularly in the Peninsula Division where biotech and pharma companies are clustered, but many are located elsewhere, including inland academic campuses such as UC Davis and UC Merced.

Customer Outreach

Direct and indirect outreach efforts to potential customers will include:

- **One-to-One Outreach:** Enrollment through one-to-one "warm calls" with known owners, operators, and trade allies.
- **Industry Outreach and Webinars:** The program will solicit and sponsor advertising and outreach through existing industry forums like Critical Facilities Roundtable, BayBio, and the I²SL Northern California Chapter.
- **Website:** The program will set up and maintain a website where potential program participants can find information about program details and request a call from our staff.

Customer Services

Program participants benefit from the following services:

- **Scoping Study:** Laboratory and Safety Energy Profile Study will be delivered to customers who are selected for scoping technical services.
- **Performance Audit:** A quantitative laboratory ventilation risk assessment Report will be delivered to customers who are selected for quantitative assessment.
- **Incentives**
 - Program incentives of \$0.10/kWh and \$0.50/therm will be offered downstream to participating customers.
 - 70% of the incentive (based on estimated energy savings) will be distributed after retrofit installations are complete.
 - The remaining 30% of the incentive (based on NMEC verified energy savings) will be distributed one year after installation.
- **Ventilation Management Plan:** Laboratory ventilation management plans will be delivered to customers who complete retrofit projects under the program.

3. Program Design and Best Practices

Program Design Strategies Addressing Market Barriers

Laboratory operators are justifiably very concerned about mitigating risks associated with any changes to ventilation; this is the primary market barrier to realized energy savings in laboratories. We address this concern by providing extensive hazard assessment services that establish the foundation for adjustments to ventilation, fume hoods, and controls. This technical expertise is the greatest benefit to the customer and will be provided at no cost to selected program participants. Secondly, program participants will receive expert technical assistance during the implementation phase, removing a common barrier to action by providing services that ease project implementation. Finally, we will use performance-based incentives to drive participants to complete projects and maintain efficient operation during the 12-month performance period.

Best Practices

The program promotes the best practice of deep, persistent, and long-lived savings through the following means:

- The program offers very cost competitive incentives of \$0.10 / kWh and \$0.50 / therm. This approach will motivate market participants to complete more comprehensive retrofits, with longer measure lives.
- The recommended measures in our approach typically have long lifetimes – 15 years across the spectrum of measures targeted in our program design.
- Our technical assistance to sites includes detailed assessments of environmental health and safety, bid documents to set out performance criteria, and commissioning of measures to ensure that savings strategies are correctly implemented. Through these steps and throughout the process, we confirm that the design intent is maintained, and that final projects protect the health and safety of building occupants and deliver the intended savings at the meter.

4. Innovation

The program is innovating in the following ways:

- The program's lab hazard assessments are a technology innovation. These assessments are no longer "emerging" approaches and are widely understood to be the best approach for setting lab ventilation rates. However, these assessments are not yet standard practice in the industry. Previous PG&E incentive programs have not provided hazard assessments to mitigate risks for participants.
- The program provides an innovative delivery approach via the provision of risk assessments as part of the program. In doing so, it tackles the persistent market barrier of risk aversion on the part of lab owners.
- The program makes use of the new NMEC platform for delivery, pay-for-performance, and M&V. NMEC provides tangible benefits to lab operators, PG&E, and California ratepayers by tracking performance and emphasizing savings persistence.
- A further innovative delivery approach of program is the provision of support for development of a lab ventilation management plan. This tackles the persistent market barrier of inadequate management of change regarding lab ventilation rates. Previous PG&E incentive programs did not provide support for the development of lab ventilation management plans.

5. Metrics

Program progress will be tracked through the following metrics:

- Number and date of scoping studies delivered.
- Number and date of quantitative performance audits delivered.
- Estimated kWh savings (reported at time of retrofit installation verification).
- Estimated therm savings (reported at time of retrofit installation verification).
- Verified kWh savings (through NMEC).
- Verified therm savings (through NMEC).
- Program Cost Effectiveness (TRC).
- Program Data Quality.
- Savings Forecast Accuracy.
- Engineering Quality.
- Pipeline Quality.

6. For Programs Claiming To-code Savings

Not applicable to this program.

7. Pilots

Not applicable to this program.

8. Workforce Education and Training

Workforce education and training is not formally included in this program, nor was it budgeted. However, some general training may be passed along to the to the laboratory community through webinars, marketing material and outreach, and contractor training (as part of implementation assistance). Additionally, the program will promote best practices for laboratories as a core mission; it will be ingrained in all aspects of the program.

9. Workforce Standards

The HVAC workforce standards will be applicable to the program. Since our focus is on ventilation, and some of our projects will include significant retrofits, it is likely that some projects in the program will exceed the \$3,000 threshold for this standard.

A trained and qualified workforce helps ensure that energy efficiency projects are installed and commissioned correctly. Our project team will incorporate the required workforce standards by taking the following steps:

- Customer agreements for incentives will make notice of the applicable requirements. Program eligibility will be contingent on acceptance of the workforce standards for HVAC measure implementation according to the commission's decision D.18-10-018.
- The terms and conditions of any subcontractors employed to perform under the program will include requirements to meet these workforce standards. These terms will include, but not be limited to financial issues, contract termination, payment terms and incentive structures, progress and evaluation metrics, disadvantaged workers, and intellectual property, in alignment with commission's decision D.18-10-018.

10. Disadvantaged Worker Plan

The program meets PG&E's goals and CPUC guidance regarding disadvantaged workers by incorporating the following practices with project and subcontractor staff:

- The Smart Labs program has a disadvantaged worker reporting program that meets CPUC guidance for reporting worker status while maintaining privacy and anonymity. Participation of the workforce (and subcontractors) is voluntary, however, reporting of disadvantage worker status, in aggregate, is required.
- Program staff track and report any changes to disadvantage worker status.
- Metrics reflecting disadvantaged worker status for our staff and subcontractors are reported periodically along with other program KPIs.

11. Additional Information

The program team will monitor and respond to CPUC regulatory and related requirements and updates impacting the program. The program will comply with current and upcoming PG&E Policies, CPUC regulatory requirements, procedures, protocols processes, program-specific rules and manuals that are published and made publicly available. In addition, members of the program team will be participating in an upcoming Site-Specific NMEC Working Group, ensuring the program plan and rules remain up to date with CPUC changes.

Supporting Documents

1. Program Manuals and Program Rules

Provided in a separate document. See Smart Labs Program Manual.

2. Evaluation, Measurement & Verification (EM&V)

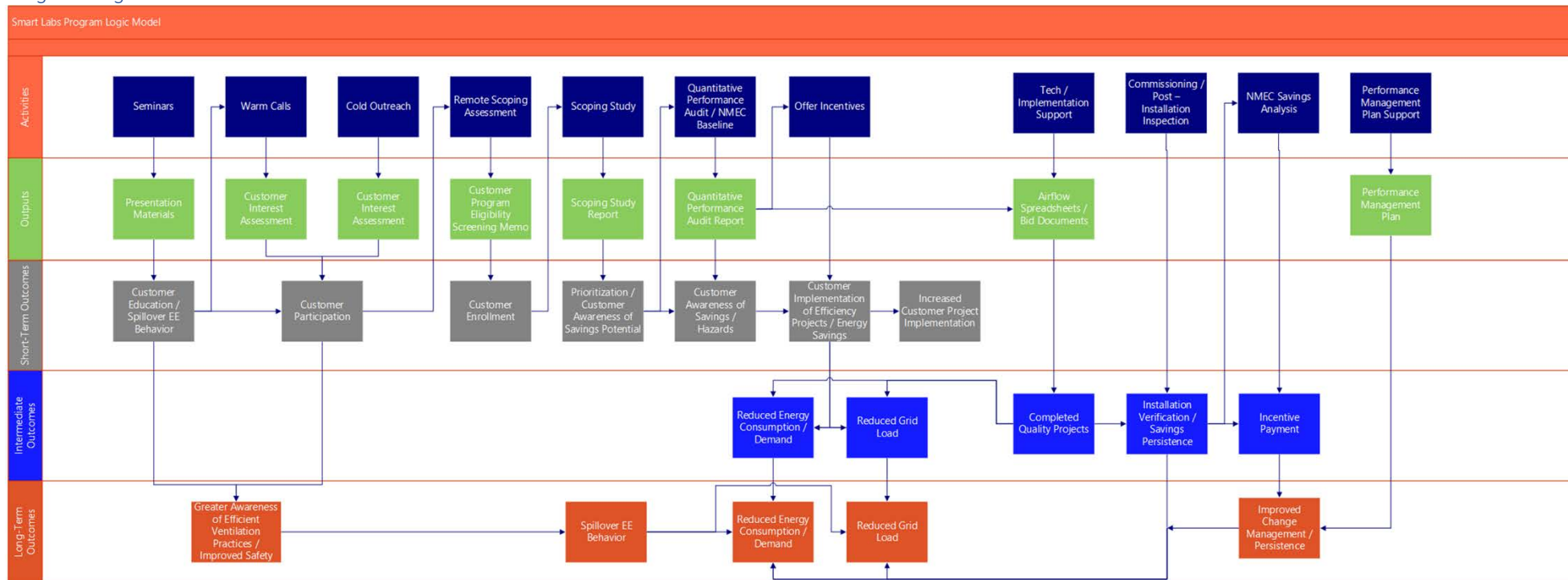
Provided in a separate document. The attached Measurement and Verification (M&V) plan covers M&V requirements and details for all NMEC projects.

3. Normalized Metered Energy Consumption (NMEC)

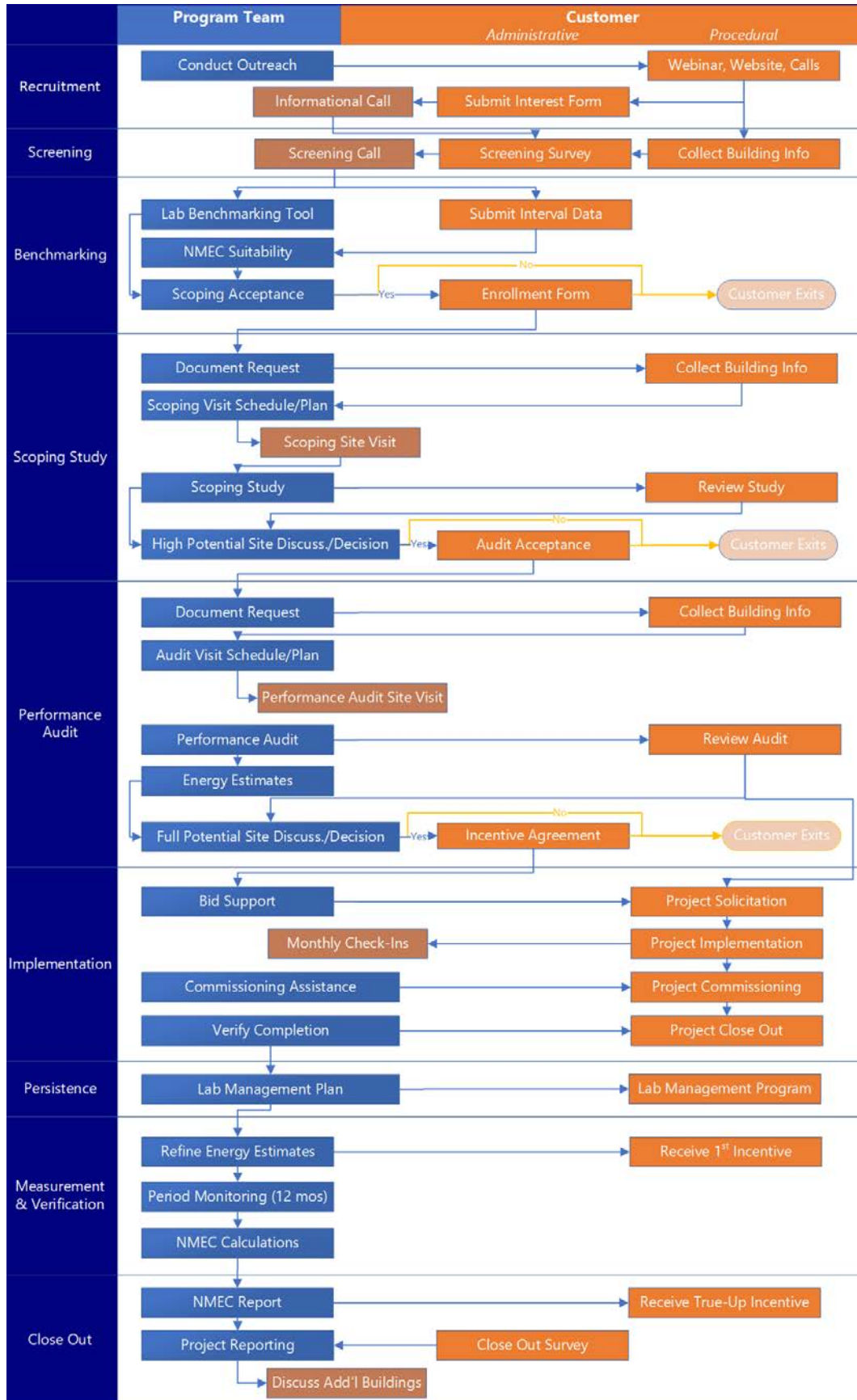
The attached Measurement and Verification (M&V) Plan describes the program-level M&V strategy for this site-level NMEC program.

4. Program Theory and Program Logic Model

Program Logic Model



5. Process Flow Chart



6. Incentive Tables, Workpapers, Software Tools

Category	Program Benefit
Services	Scoping Study Performance Audit Implementation Assistance (Bid Support, Commissioning Assistance) Lab Management Plan
Incentive	\$0.10 / kWh and \$0.50 / therm incentive 70% payment after installation verification 30% payment after 1-yr “true up” based on meter-based savings

No applicable workpapers.

No applicable software tools.

7. Quantitative Program Targets

The following table lists the number of customers expected to receive a Scoping Study. Not all customers were complete the subsequence program steps; we expect half will go on to the Performance Audit step and receive an incentive offer.

Customer Targets:

Targets	2021 Program Year 2	2022 Program Year 3	2023 Program Year 4	2024 Program Year 5	Total Program Term
Total Customers	6	11	10	1	28

Savings Targets:

Targets	2021 Program Year 2	2022 Program Year 3	2023 Program Year 4	2024 Program Year 5	Total Program Term
kWh	-	3,780,000	5,040,000	-	8,820,000
kW	-	432	575	-	1,007
therms	-	182,520	243,360	-	425,880

8. Diagram of Program

