

**PACIFIC GAS AND ELECTRIC COMPANY  
2013-2014 ENERGY EFFICIENCY PORTFOLIO  
LOCAL PROGRAM IMPLEMENTATION PLAN  
THIRD PARTY  
INNOVATIVE DESIGNS FOR ENERGY EFFICIENCY  
APPROACHES (IDEEA365)**

**LABORATORY FUME HOODS PROGRAM**

**PGE210136**

**JULY 2014**

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- 1) Sub-Program Name: IDEEA365 - Laboratory Fume Hoods Program
- 2) Sub-Program ID number: PGE210136
- 3) Type of Sub-Program:  Core  Third Party  Partnership
- 4) Market sector or segment that this sub-program is designed to serve:
  - a.  Residential
    - i. Including Low Income?  Yes  No
    - ii. Including Moderate Income?  Yes  No
    - iii. Including or specifically Multifamily buildings  Yes  No
    - iv. Including or specifically Rental units?  Yes  No

- b.  Commercial. NAIC Codes:

Description of Customer Segment
541380 – Testing Laboratories
621511 – Medical Laboratories
611310 – Colleges, Universities, and Professional Schools
541712 – Research and Development in the Physical, Engineering, and Life Sciences (except Biotechnology)
541711 – Research and Development in Biotechnology
622110 – General Medical and Surgical Hospitals

- c.  Industrial
  - d.  Agricultural
- 5) This sub-program is primarily a resource program
    - e. Non-resource program  Yes  No
    - f. Resource acquisition program  Yes  No
    - g. Market Transformation Program  Yes  No

- 6) The primary intervention strategies:

- h. Upstream  Yes  No
- i. Midstream  Yes  No
- j. Downstream  Yes  No
- k. Direct Install  Yes  No
- l. Non Resource  Yes  No

- 7) Projected Sub-program Total Resource Cost (TRC) and Program Administrator Cost (PAC)

**TRC 1.74 PAC 3.69**

8) Sub-Program Budget

**Table 1. Sub-Program 2013-2014 Budget**

Sub Program ID SubProgram Name	Total Administrative Cost	Total Marketing & Outreach	Total Direct Implementation (Customer Services)	Direct Implementation (Incentives & Rebates)	Total 2013-2014 Compliance Budget
PGE210136 Laboratory Fume Hoods Program	\$68,422	\$38,083	\$176,971	\$483,512	\$766,987

9) Sub-Program Description, Objectives and Theory

a) **Sub-Program Description and Theory:**

The Laboratory Fume Hoods Program will produce energy and demand savings through the installation of automated controls for laboratory fume hoods. The usage-based controls system combines a window sash position detection system with occupancy-based sensing and local variable air volume (VAV) supply and exhaust control for laboratory fume hoods.

This program will commercialize and create market adoption of innovative technologies in universities and companies that have chemical fume hoods that run 24x7.

b) **Sub-Program Energy and Demand Objectives:**

**Table 2. Projected Sub-Program Gross Energy and Demand Impacts**

	Program Year 2014		
	kWh	kW	Therms
<b>Laboratory Fume Hoods Program</b>	1,647,900	264	142,000

c) **Program Non-Energy Objectives:**

- Increase participation and installation of underutilized technologies for laboratory controls.
- Laboratory safety is believed to be a concern when not operating with a constant volume system. The program objective is to provide customer education and training to break this market barrier.

- Establish untapped relationships and channels to effectively target and support laboratory environments.
- Increase market penetration as seen in existing studies for fume hood retrofits – see below under item *e*.

d) **Cost Effectiveness/Market Need:** Standard Practice Manual will be utilized for cost effectiveness.

In 2007, a PG&E and LBNL study was completed to show the effectiveness and efficiency of retrofitting fume hoods with variable controls. While the project proved to have substantial savings, there were a couple market barriers that prevented clients to move forward with this innovative technology. One barrier was that the cost of the implementation was too high. With this program in place, the capital cost concerns are reduced, thus allowing clients to move forward with implementation without the burden of high capital costs. There is a great need for existing labs operating with constant volume systems to be retrofitted to variable volume systems with variable flow fume hoods. McKinstry is focusing on the needs for this retrofit in community colleges, universities, and bio pharmaceutical facilities.

e) **Measure Savings/ Work Papers:**

Calculated measures for customized projects will have different energy savings and data sources depending on the project. Every calculated project will have a pre- and post-inspection to determine the actual energy savings.

10) Program Implementation Details

a) **Timelines:**

**Table 3. Milestones**

Milestone	Date
Final Date for Designs	August 29, 2014
Final Date for Permittings	September 30, 2014
Final Date for Project Implementations	December 1, 2014
End Program Implementation Activities	December 15, 2014
End Program Ramp Down Activities	January 25, 2015

b) **Geographic Scope:**

The Laboratory Fume Hoods Program is offered throughout PG&E’s service territory.

c) Program Administration

**Table 4: Program Administration of Program Components**

Program Name	Program Component	Implemented by IOU Staff? (X = Yes)	Implemented by contractors to be selected by competitive bid process (if Yes then enter type of contractor/other market actor possibly used)	Implemented by contractors NOT selected by competitive bid process (list prime contractor and sub-contractor names)	Implemented by local government or other entity ( X = Yes)
Laboratory Fume Hoods Program	Contract execution	X			
	Program materials development	X	McKinstry		
	Program materials review and approval	X			
	Setting up tracking and reporting systems	X			
	Marketing and Program sale		McKinstry		
	Program leads and customer relationship management	X			
	Training and presentation to PG&E personnel		McKinstry		
	Installation, data collection and analysis		McKinstry		
	Project application processing		McKinstry		
	Project implementation assistance		McKinstry		
	QA inspection and M&EV		McKinstry		
	Pre- and post-installation review and approval	X			
	Customer incentive check processing		McKinstry		
	Incentive check reimbursement	X			
	Invoice and reporting		McKinstry		
	Invoice review and payment	X			

**d) Program Eligibility Requirements:**

- i. Customers:** List any customer eligibility requirements (e.g., annual energy use, peak kW demand):

**Table 5: Customer Eligibility Requirements**

<b>Customer Eligibility Requirement (list of requirements)</b>	<b>PG&amp;E</b>
Nonresidential customer	X
Constant Volume Fume Hoods	X
Fume Hoods Operating 24/7/365	X
Within PG&E Territory	X
Pays PPP and/or gas surcharges	X
Laboratory must have Digital Controls (can be retrofitted as part of the project)	X

- ii. Contractors/Participants:** Contractors will be chosen based on the site that is approved for the Laboratory Fume Hoods Program. They will be chosen through a competitive request for proposal (RFP) process, and client’s preferred vendors will be invited in the bid process. Fifteen percent of the implementation work will be conducted by small and disadvantaged businesses. Contractors will be required to attend site specific safety training, as well as McKinstry safety training. Subcontractors must be licensed to work in the state of California and retain the appropriate contractors license for services offered. McKinstry will request the following from subcontractors during the RFP process:

*Subcontractor Selection*

Create a list of pre-qualified subcontractors from the local community with an emphasis on encouraging small and disadvantaged businesses. We solicit the subcontractor’s response to a standard statement of qualification (SOQ), review this with the project team, and ask for the team’s approval. The SOQ document will ask for the following information:

*Financial Strength*

McKinstry reviews each subcontractor’s Dunn & Bradstreet to ensure appropriate financial strength. We may also review project bonding capability and rates, even if we do not require a bond.

*References and Experience*

Request 3-10 references (based on size and scope) and contact them randomly. We also request pending litigation.

*Review Project Staffing*

McKinstry is unique by having complete in-house construction estimate

capabilities, which allows us to estimate the labor needs of all portions of the project. We then compare our expectations to the subcontractor's detailed staffing to ensure they can complete the project on time and on-budget.

*Review Project Scheduling*

An up-to-date schedule is made available to the subcontractors to review throughout the pre-construction phase, and we ask the subcontractor if they can meet the general project timeline.

*Review Past Performance*

Problem subcontractors will not be invited to submit pricing. Overall attitude of the company, project personnel, and ease of communication all play an important role.

*Small and/or Disadvantaged Business*

We will seek out at least one subcontractor or vendor per trade that is a small and/or disadvantaged business and request the appropriate documentation.

e) **Program Partners:**

i. **Manufacturer/Retailer/Distributor partners:**

Manufacturers for parts and products will be chosen based on existing conditions in facilities and requirements from clients. The following is a list of manufacturers and/or retailers that may be involved in project implementation.

- Accutrol
- Jenesys
- Siemens
- Belimo
- Veris Industries
- Honeywell
- Dwyer
- Phoenix

ii. **Other key program partners:** Indicate any research or other key program partners:

Not applicable for this program.

f) **Measures and incentive levels:**

The following energy conservation measures will be targeted for laboratories with fume hoods. These energy conservation measures are intended to reduce operating cost while increasing the efficiency in the lab environment. All measures listed below will result in energy and demand savings.

- Decrease Fan Flow
- Decrease Fan Discharge Static Pressure
- Setpoint Optimization
- Supply Air Reset
- Duct Static Pressure Reduction
- Duct Static Pressure Reset
- Economization

**Table 6: Summary Table of Measures, Incentive Levels and Verification Rates**

Measure Group	Market Actor Receiving Incentive or Rebate	PG&E	
		Incentive Level	Installation Sampling Rate
Energy Savings	Educational Facilities and Bio-Pharma Facilities	\$.36/kWh Saved	<ul style="list-style-type: none"> <li>• 100% of projects are inspected by the implementer</li> <li>• 100% of first three projects inspected by PG&amp;E, then random sampling of projects inspecting no less than 10%</li> </ul>

**g) Additional Services:**

Not applicable for this program.

**h) Sub-Program Specific Marketing and Outreach:**

Marketing and outreach will be on-going through the life of the program. Marketing and outreach will start with PG&E team and PG&E customers that McKinstry has established relationships with already.

**i) Sub-Program Specific Training:**

Training will be provided at the end of each project under the Laboratory Fume Hoods Program. In addition, PG&E account representations can receive training on program requirements and process by request.

**j) Sub-Program Software and/or Additional Tools:**

- i. List all eligible software or similar tools required for sub-program participation.

None. eQuest will be utilized where necessary.

- ii. Indicate if pre and/or post implementation audits will be required for the sub-program.

Pre-implementation audit required  X  Yes \_\_\_ No

Post-implementation audit required  X  Yes \_\_\_ No

- iii. As applicable, indicate levels at which such audits shall be rebated or funded, and to whom such rebates/funding will be provided (i.e. to customer or contractor).

Incentives will be deducted from total project cost at the end of the project – when savings has been verified. There is no check that will be given to the customer. The contractor will invoice PG&E based on performance.

**Table 7: Post-implementation Audits**

Levels at Which Program Related Audits Are Rebated or Funded	Who Receives the Rebate/Funding (Customer or Contractor)
Pre-Implementation	\$.03/kWh to Contractor
Post-Implementation	\$.08/kWh to Contractor less the pre-implementation incentive
Post-Implementation	\$.36/kWh saved post-completion

- k) **Sub-Program Quality Assurance Provisions:** Please list quality assurance, quality control, including accreditations/certification or other credentials

**Table 8: Quality Assurance (QA) Provisions**

QA Requirements	QA Sampling Rate (Indicate Pre/Post Sample)	QA Personnel Certification Requirements
Project Risk Assessment	Pre-Installation (during audit phase), Mid-Installation (construction phase), Post-Installation (M&V Phase)	NA

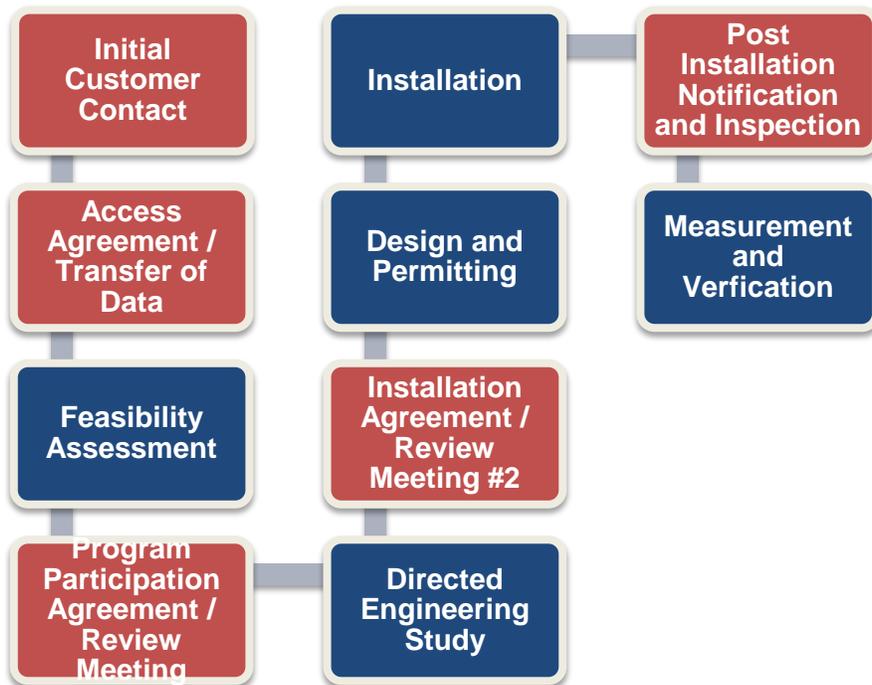
Energy Risk Assessment	Pre-Installation (during audit phase), Mid-Installation (construction phase), Post-Installation (M&V Phase)	NA
Design Risk Assessment	Pre-Installation (during audit phase), Mid-Installation (construction phase), Post-Installation (M&V Phase)	NA

l) **Sub-program Delivery Method and Measure Installation /Marketing or Training:**  
 Briefly describe any additional sub-program delivery and measure installation and/or marketing & outreach, training and/or other services provided, if not yet described above.

See details above.

m) **Sub-program Process Flow Chart:**

The program participation process is outlined in the following figure.



n) **Cross-cutting Sub-program and Non-IOU Partner Coordination:**

Not applicable for this program.

11) Additional Sub-Program Information

a) **Advancing Strategic Plan Goals and Objectives:**

For long term goals, McKinstry will be identifying the market demand for this innovative technology and the need for a program such as Laboratory Fume Hoods Program during marketing and outreach activities. A list of customers and the potential for energy savings through laboratory fume hood retrofits will be kept for clients that cannot proceed with the program in the year of 2014. In addition, completed projects will be utilized where allowed to help demonstrate to other PG&E clients the benefits and efficiencies of the Laboratory Fume Hoods Program.

b) **Integration**

i. **Integrated/coordinated Demand Side Management:**

Not applicable for this program.

ii. **Integration across resource types** (energy, water, air quality, etc):

Not applicable for this program.

c) **Leveraging of Resources:** Not applicable for this program.

d) **Trials/ Pilots:** Not applicable for this program.

e) **Knowledge Transfer:** Program will work closely with PG&E's assigned account representatives in Energy Solutions and Service.

12) Market Transformation Information: Not applicable for this program.

13) Additional information as required by Commission decision or ruling or as needed:  
None