

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

**MAZZETTI DYNAMIC GAS SCAVENGING SYSTEMS (DGSS)  
THIRD PARTY PROGRAM**

**PGE210140**

**JULY 2014**

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- 1) Sub-Program Name: Mazzetti Dynamic Gas Scavenging Systems Program
- 2) Sub-Program ID number: PGE210140
- 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: 62210, 621493

Description of Customer Segment
622110 – Hospitals
621493 – Ambulatory Surgical Centers and Clinics

- c.  Industrial
- d.  Agricultural

- 5) This sub-program is primarily:
  - e. Non-resource program  Yes  No
  - f. Resource acquisition program  Yes  No
  - g. Market Transformation Program  Yes  No

- 6) 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 1.02 PAC 1.84

8) 2013-2014 Sub-Program Budget

**Table 1. 2013-2014 Subprogram 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
PGE210140  Mazzetti Dynamic Gas Scavenging Systems	\$6,347	\$31,736	\$127,070	\$91,000	\$256,152

9) Sub-Program Description, Objectives and Theory

- a) **Sub-Program Description and Theory:** For the last 15 years, Mazzetti has successfully worked with our healthcare clients to reduce energy consumption. They have repeatedly tested and proven that installing a new valve technology in anesthetic gas systems dramatically reduces energy consumption in operating rooms. The dynamic gas scavenging system (DGSS) valve reduces energy consumption up to 90% – saving up to 4,000 kWh per operating room every year.

Waste anesthetic gas scavenging technology has not changed much in the last 30 years. Although current systems are reasonably safe, they require large pumps that run 24 hours per day. However, the installation of DGSS valves reduces waste, lowers energy consumption, and reduces the cost to run and service anesthetic vacuum pumps. Energy cost savings to the hospital delivered through installation of DGSS may generate a return on investment within three years. DGSS installation also increases the life of the anesthetic gas systems, decreases maintenance costs and the frequency of needing servicing, reduces water usage, and adds new capacity to the system.

The program target markets include: hospital facilities, ambulatory surgery centers, and veterinary facilities which can be resistant to change for a number of reasons. The installation of DGSS is able to overcome challenging behavioral barriers and make significant improvements in hospital energy usage by combining the installation of this proven technology with one-on-one direct marketing, utility rebates, normative social modeling, and leveraging of Mazzetti’s 50-year relationships within the healthcare industry. In a one-year period, Mazzetti anticipates being able to achieve a 10% market penetration rate. Market penetration outreach should become easier as best practices become normalized throughout the market.

The DGSS valve is an innovative technology not yet covered by PG&E’s existing energy efficiency (EE) programs.

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

Currently in California there are 3,181 hospital and ambulatory operating rooms and 67 veterinary facilities. Yet, there are as little as 20 DGSS valves currently installed in the entire state. The goal of Mazzetti’s DGSS Program is to have approximately six percent of California’s operating rooms (OR) install their DGSS valves by the end of 2014.

To realize these savings, the Mazzetti DGSS Program will target hospitals, ambulatory surgery centers, and veterinary facilities throughout the State of California. Decision-makers vary within each facility, from CEOs to biomedical engineers, technologists and anesthesiologists. The program will include a plan for training hospital staff at DGSS valve installation. And during their post-installation follow-up visits, they will suggest additional energy-savings measures from PG&E programs.

To date there has never been a concentrated campaign to install this new energy- and water-saving technology. Since fewer than 20 California hospitals have installed DGSS valves, no duplication of efforts would occur. The end energy use is electric, with water as well in the case of certain types of pumps. To ensure the integrity of their energy saving measures, they will monitor the valves directly and work with facility staff to make certain that reductions from the valve are identified separately from any other reductions claimed by the facility.

**Table 2. Projected Sub-Program Gross Energy and Demand Impacts, by Calendar Year**

		Program Year 2014		
Program ID	Program Name	Gross kWh Savings	Gross kW Savings	Gross Therm Savings
PGE210140	Mazzetti Dynamic Gas Scavenging Systems (DGSS) Program	637,000	91	--

**c) Program Non-Energy Objectives:** Installation of the DGSS valve will reduce waste, lower energy consumption, and reduce costs to run and service the anesthetic vacuum pumps in operating rooms. Additionally, DGSS installation also increases the life of the anesthetic gas system, decreases maintenance costs and frequency of servicing, reduces water usage (for liquid-ring type lubrication systems), and adds new capacity to the system.

- d) **Cost Effectiveness/Market Need:** This program specifically addresses the adoption of the dynamic gas scavenging system (DGSS) valve – a new, emerging and underutilized technology. To date there has never been a concentrated campaign to install this new energy- and water-saving technology.

Costs can be a major barrier to entry for medical equipment improvements. One of the keys to the DGSS program's success is making the business case, which would be significantly bolstered by offsetting some of the installation cost through a utility rebate. In addition to the financial incentive, this partnership with PG&E would serve two other functions. First, this partnership will add a social norming component ("if the utility company is backing it, competitors are likely to be doing this"). Second, it will provide a platform for measuring and communicating results during a time when hospitals are looking to save costs and report real sustainability efforts.

Hospital facilities, ambulatory surgery centers, and veterinary facilities are often resistant to change for a number of reasons. This program will overcome these barriers and increase market adoption in the following ways:

1. One-on-one Direct Marketing -- generate awareness around the benefits of DGSS installation.
2. Utility Rebates -- reduce the perceived cost barrier to valve installation.
3. Storytelling and Behavior Modeling -- reduce an overall resistance to change.
4. By providing training, technical assistance and follow up -- ensure this technology is installed and maintained with maximum long-term benefit.
5. Through developing and circulating a final work paper -- share their learning, approach and results – documenting best practices and increasing awareness around the benefits of the valve

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

This program currently identifies this measure as a calculated approach.

Implementer will develop a work paper documenting the findings after installation and project completion of the initial projects, including methodology used to calculate the baseline and savings, and any reference materials.

According to contract terms, development of the work paper is due by December 1, 2014. Upon workpaper completion and approval, the measure is expected to become a deemed measure.

10) Program Implementation Details

a) **Timelines:**

**Table 3: Milestones**

Milestone	Date
Contract Execution	First Qtr of 2014
Program Launch/Ramp-up	Second Qtr of 2014
Initial customer incentive payment	Third Qtr of 2014 (Expected)
Work Paper Development	December 1, 2014
End date for all program activities	January 25, 2015 (unless otherwise negotiated)

b) **Geographic Scope:** The Mazzetti DGSS 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)
Mazzetti DGSS	Contract execution	X			
	Program materials development		Mazzetti		
	Program materials review and approval	X			
	Setting up tracking and reporting systems	X			
	Marketing and Program sale		Mazzetti		
	Program leads and customer relationship management	X			
	Training and presentation to PG&E personnel		Mazzetti		

	Data collection and analysis		Mazzetti		
	Project application processing		Mazzetti		
	Project implementation assistance		Mazzetti		
	QA inspection and M&EV		Mazzetti		
	Pre- and post-installation review and approval	X			
	Customer incentive check processing		Mazzetti		
	Incentive check reimbursement	X			
	Invoice and reporting		Mazzetti		
	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**

Customer Eligibility Requirement (list of requirements)	PG&E
Non-residential customer	X
Hospitals (NAICs 622110)	X
Ambulatory Surgical Centers and Clinics (NAICs 621493)	X
Must have functional anesthesia machines in operating rooms	X
Customer receives electricity and/or gas supply from PG&E and pays PPP charges and/or gas surcharges	X

- ii. Contractors/Participants: Anesthetic Gas Reclamation (AGR) is the product manufacturer and installer of this measure.

**e) Program Partners:**

- a. **Manufacturer/Retailer/Distributor partners:** For upstream or midstream incentive and/or buy down programs indicate:

Installation of equipment will be done by an AGR (Anesthetic Gas Reclamation) Authorized Installer

- f) **Other key program partners:** None.
- g) **Measures and incentive levels:** Provide measure groupings and market actors, no need to list detailed measures that are included in E3 calculators. Sampling rate is % of installed measures PG&E selects for verification.

**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
Pump valve	<ul style="list-style-type: none"> <li>• Incentive will go to Implementer</li> <li>• Customer will get discount to offset price of pump</li> </ul>	\$500/unit	100%

- h) **Additional Services:**

Not applicable for this program.

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

Based on what Mazzetti learned by piloting DGSS over the last few years, one-on-one direct marketing – with a referral from a trusted source – is the most effective way to approach healthcare facilities around new technologies and best practices. Mazzetti will utilize their current connections, partners, and other networks in the California healthcare industry first. Second, Mazzetti will reach out to target markets through PG&E field account managers. Third, Mazzetti will network through medical facility support services and bona fide perioperative or surgical practitioner societies, groups, collaborations, and consortiums.

Mazzetti will give a sales presentation to potential prospects and/or promote DGSS via marketing materials to California ORs in 2014.

As an additional marketing tool, Mazzetti has created a calculation tool based on the current vacuum pump technology, the number of operating rooms, and cost of electrical utilities and water (in the case of liquid ring-type vacuum pumps). With this tool, Mazzetti can quickly show potential customers the long-term cost payoff for installing the valve.

- j) **Sub-Program Specific Training:** Specific training will be conducted on-site with the customer during the DGSS installation.

k) **Sub-Program Software and/or Additional Tools:** Not applicable for this resource program.

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

l) **Sub-Program Quality Assurance Provisions:**

**Table 7: Quality Assurance (QA) Provisions**

QA Requirements	QA Sampling Rate (Indicate Pre/Post Sample)	QA Personnel Certification Requirements
Installer inspections	100%	AGR
Mazzetti inspections	100%	N/A
PG&E inspections	Per PG&E's inspection policy	N/A

m) **Sub-program Delivery Method and Measure Installation/Marketing or Training:**

The Mazzetti Dynamic Gas Scavenging Systems Program will include the following key elements:

1. Marketing: Develop compelling marketing materials that address our target audiences, which make the business case, describe the utility rebate and model new behaviors.
2. Enrollment: Develop leads via a direct marketing approach; follow up with phone calls, presentations and meetings to ensure adoption.
3. Rebate: Offer a PG&E rebate for installation of DGSS.
4. Iterative Program Learning: Implement best practices, evaluate their success, and make adjustments to materials and approach as needed – through an agile campaign approach
5. Technology Installation: Install the new DGSS valves.
6. Customer Education: Provide product education, technical assistance, and satisfaction follow-up.
7. Measurement: Quantify the baseline, then measure and verify energy savings.
8. Sharing Best Practices: Develop and circulate a paper on our approach, learning, and results.

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

**Table 9:** Mazzetti Dynamic Gas Scavenging Systems (DGSS) Program flow chart



- o) **Cross-cutting Sub-program and Non-IOU Partner:** We will coordinate with other Third Party Programs as applicable.

11) Additional Sub-Program Information

- a) **Advancing Strategic Plan Goals and Objectives:** The Program advances objectives of the California Long Term Energy Efficiency Strategic Plan by implementing new technology and delivery methods for hard-to-reach and underserved health care market thus potentially increasing market penetration and cost-effectiveness of energy efficiency offerings.
- 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:** Not applicable for this program.

12) Market Transformation Information

Not applicable for this program.

13) Additional information as required by Commission decision or ruling or as needed

Not applicable for this program.