

***Commerical/Industrial Motor and HVAC Replacement Programs***

*Exemplary Program*

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*Commercial/Industrial Motor and HVAC Replacement Program  
Exemplary Program*

***Motor and HVAC Distributor Rebate Program  
Pacific Gas & Electric***

**PROGRAM OVERVIEW**

The 2006-2008 PG&E Motor and HVAC Distributor Rebate Program is an upstream program that provides prescriptive rebates to Motor and HVAC distributors who stock and sell Premium Efficiency Motors and HVAC equipment using an online application system and database to allow distributors to upload applications listing hundreds of units. PG&E then automatically verifies that equipment meets the eligibility requirements and that the end use customer is served by the sponsoring utility. The Program is open to distributors who install qualifying motors and HVAC equipment at any non-residential electric customer facility in the PG&E service territory, regardless of size.

The qualifying equipment must meet a minimum efficiency standard that is based on Consortium for Energy Efficiency (CEE) specifications. Incentives are paid for low voltage, three phase, 1 HP to 500HP, 1200, 1800 and 3600 RPM motors that meet the CEE/NEMA Premium standard. HVAC incentives are paid for unitary packaged and split system air-conditioners and heat pumps that meet the CEE HECAC specifications with some slight deviations for California.

The first upstream HVAC program began in 1998, and due to the initial success in the HVAC market, motors were added in 1999. These were among the first programs to use the upstream incentive approach and also one of the first to use an electronic application process. While the PG&E upstream motor and HVAC program was and continues to be very successful, it was temporarily discontinued in 2002-2003 when PG&E chose to adopt a downstream end use customer oriented approach. PG&E returned to the upstream approach in 2004-2005 when downstream energy savings accomplishments did not meet expectations.

The new 2004-2005 upstream program, which was introduced statewide, reemerged with a new application processing system that is at the heart of its success. The new application processing system is one of the first web-based online utility applications, and through the course of the 2004-2005 program year, feedback was gathered from users including both utility personnel and equipment distributors. This led to a new, more robust and user-friendly application processing system that was unveiled for the 2006-2008 PG&E Motor and HVAC Distributor Rebate Program. This new system is anticipated to be of service for various upstream program models in the years to come.

**PROGRAM PERFORMANCE**

The 2004-2005 Statewide Upstream Program resulted in two year energy savings of more than 62 GWh and 29 MW, with 24.4 GWh and 13.2 MW of that in PG&E. The 2006 PG&E Program

energy savings improved on the previous pace by delivering one year accomplishments of 16.55 GWh and 8.79 MW. This amounts to an increase of 36% in energy and 33% in demand impacts over the previous PG&E annual average.

Moving from the downstream to the upstream delivery mechanism has dramatically increased the number of units rebated in the program. This shift has resulted in a 590% increase in tons of HVAC and 400% increase in motors receiving rebates. As compared to the impacts being generated via the earlier downstream mechanism, the 2004 to 2006 PG&E upstream programs saved an additional 34.65 GWh and 17.3 MW.

It is estimated that over 95% of all distributors are enrolled and participating in the program. This includes all major motor and HVAC distributors. Distributors increased their stocking of Premium Efficiency (PE) equipment significantly. The stocking percentages now range from 25% to 100% depending on the product size and type. This increase in stocking PE equipment is a direct result of program design that utilizes an upstream rebate delivery approach with an easy to use, paperless rebate application system, and quick, prompt rebate payments in an average of 6 to 8 days. The distributors know they will receive their rebates quickly, thus they are willing to commit and invest in stocking PE equipment. Stocking is one of the main factors in increasing PE sales in burnout or failure situations as the equipment must be immediately available to the customer.

The Distributor's CEO, Sales Managers, and Sales Staff are pushing PE equipment by broadcasting the benefits, including quotes, doing energy saving calculations and discussing life cycle costs. In turn, customers and contractors are educated about the opportunities of using the equipment. This emphasis on PE equipment is changing the Motor and HVAC market from a principally first cost decision making environment to an environment where life cycle cost is increasingly considered.

## **LESSONS LEARNED**

Various elements have contributed to the program's success and cost-effectiveness. By utilizing an upstream delivery mechanism, program contacts are limited to a smaller pool of market actors that have a significant influence on the point of sale. By restricting the number of people that need to be updated on program policies, program implementation costs are reduced. Using an online application makes the program easy to use and applications easy to process and pay. This benefits both the distributor and the utility by reducing the cost associated with applying for and issuing the incentive.

The primary program customers for this program are equipment distributors. The California Instant Rebate System was developed with direct distributor input and streamlined to minimize distributor administrative time while ensuring utility required accountability. Distributors have commented on how well the program functions and how much better it is compared with other programs. The secondary program customer is the end use customer, who is receiving the long term benefits of premium efficiency equipment. The PG&E program design encourages distributor participation through increased competition, therefore customers benefit from not

only product availability but in many cases reduced equipment costs. By targeting distributors, customers also benefit because the markup is often low. The PG&E commitment to customer service is evident here by the willingness to deliver significant energy savings through an upstream program with little if no end use customer recognition. PG&E has turned down the opportunity to have a few high-profile motor and HVAC end use customer rebates issued in favor of deeper market penetration of premium efficient equipment.

Intervention strategies that cut across different market barriers faced in these markets and that have been used to increase sales of premium efficiency equipment are:

- *Encouraging stocking of premium efficiency (PE) equipment.* Stocking PE equipment is a key to increasing product availability and sales. If distributors don't stock it, they won't sell it.
- *Encouraging "up-selling" (selling to CEOs, presidents and other senior executives) PE equipment.* Up-selling PE equipment is one of the most important factors in increasing PE sales. Sales Representatives explain the benefits and life cycle cost involved with PE equipment and submit competitive bids. Program staff works with the CEOs and presidents of each distributor to help incorporate up-selling techniques for PE equipment throughout their organization. The program provides training, tools and assistance in client contacts.
- *Providing rebates for qualified equipment.* Rebates allow the distributors to offset the cost of stocking and up-selling PE equipment based on their business model. By not mandating how the incentives are to be applied, the program allows each distributor to react to their own specific market barriers. Rebates are used for a variety of activities that include offsetting the cost of stocking, training, salesman incentives, and increased customer sales time used to calculate life cycle costs and explaining the benefits of PE equipment.
- *Targeting influential market actors.* There are relatively few distributors compared to thousand of vendors and contractors. This makes working with distributors more manageable and cost effective than working with vendors and contractors.
- *Providing a user-friendly rebate application process.* The program provides a paperless, online, web based rebate application that has imbedded equipment, customer databases, and the ability to import application data. The program rebate application process is possibly the most user friendly rebate application ever used in a program of this type.
- *Prompt payment of rebates.* Paying rebates promptly allows distributors to have the confidence to invest in stocking and up selling. Because of the online application process the average rebate is paid in 6 to 8days. In most cases, distributors receive their rebate payments before their equipment invoices are paid.
- *Simplifying the rebate qualifying structure.* The rebate structure has been simplified so that requirements are based on PE equipment that meets State of California requirements.
- *Providing strong program support.* The program is supported through a web site and staff are available to answer any question about the program. More importantly, program staff proactively contact distributors, manufacturers, and other interested parties to gather feedback, assess needs, provide training, and make presentations. This effort continually reminds participating distributors of the importance of selling PE equipment.

The lessons learned in the Upstream Motor and HVAC Programs are being used to increase energy efficiency accomplishments and provide cost effective programs within PG&E and at other utilities. Utility companies such as Southern California Edison, San Diego Gas and Electric, and Sacramento Municipal Utilities District have or are using the Upstream Motor and HVAC Program and the online application. The upstream approach is now being used to deliver rebates for some lighting measures, and is being considered for measures that are new or not performing in other programs. These measures include air-cooled packaged chillers, packaged terminal units, single packaged vertical AC/HP, and Variable Speed Drives. An online application is also being considered for downstream rebates due to its success in lowering costs and decreasing processing time in the upstream program.

## PROGRAM AT A GLANCE

**Program Name:** Motor and HVAC Distributor Rebate Program

**Targeted Customer Segment:** Commercial, industrial and agricultural customers

**Program Start Date:** 1998 for HVAC; 1999 motors added.

**Program Participants:** PG&E estimates that about 95% of all HVAC and motor distributors are enrolled in the program.

**Annual Energy Savings Achieved:** In 2006 the program achieved 16.55 GWh savings; for two-year period 2004-05 the savings were 24.4 GWh.

**Peak Demand (Summer) Savings Achieved:** 8.79 MW in 2006; 13.2 MW in 2004-05.

**Other Measures of Program Results to Date:** Of the top 10 motor distributors participating in the program (accounting for 82% of participation) half are stocking mainly premium efficiency motors and the remainder report stocking between 25-50% of such grade motors.

**Budget:** \$3.9 million in rebates for 2006; total program budget 2006-08 is \$10 million. Additional funding may be available.

**Funding Sources:** California ratepayers through public goods charge funds

### Best Person to Contact for Information about the Program

- Jim Hanna, Senior Program Manager
- Organization: Pacific Gas and Electric Company
- Phone: 530-896-4222
- E-mail: JBH1@pge.com

*Commercial/Industrial Motor and HVAC Replacement Programs  
Honorable Mention*

***Workplace Equipment Replacement  
Vermont Gas Systems, Inc.***

**PROGRAM OVERVIEW**

The Workplace Equipment Replacement Program is designed to reduce natural-gas consumption and peak-day demand by encouraging commercial and industrial building owners and occupants to install high-efficiency natural gas space, water and process heating and cooling equipment when existing equipment has failed, reached the end of its useful life, or is being fuel switched to natural gas. The goal of this program is to encourage customers to install appropriate equipment that exceeds minimum energy efficiency standards established by federal, state and local codes where it is cost-effective to do so.

The National Appliance Energy Conservation Act (NAECA) establishes minimum energy efficiency standards for residential-sized furnaces, hot water and steam boilers, and tank-type water heaters. The National Energy Policy Act of 1992 establishes minimum efficiency levels for other types of commercial-grade space and water heating equipment. The 2005 Vermont Guidelines for Energy Efficient Commercial Construction as well as ASHRAE 90.1-2004 establish the baseline for projects minimum efficiency levels.

Eligible commercial and industrial customers receive cash rebates to reduce the incremental cost of purchasing and installing cost-effective high efficiency water, space and process heating equipment. The table below gives the fixed rebate schedule for different types of eligible equipment.

<b>Eligible Equipment</b>	<b>Required Efficiency</b>	<b>Rebate Amount</b>
Hot air furnace	90% to 92% AFUE	\$150
Hot air furnace	92.1% and greater AFUE	\$300
Water heater 40 or 50 gallons	0.61+ energy factor	\$100
Water heater	94% thermal efficiency	\$500
Tankless water heater	0.80+ energy factor	\$100
Indirect-fired water heater	Stand-by loss $\leq 2$ ° F/hr, must connect to $\geq 87\%$ AFUE boiler	\$100
Unit heaters up to 130,000 Btu/hr	Power vent, inter. ignition	\$300
Unit heaters up to 130,000 Btu/hr and greater	Power vent, inter. ignition	\$400
Infrared radiant heaters	Power vent, inter. ignition	\$400
Boilers < 175 MBH	87% AFUE	\$550
Boilers	92% AFUE w/multi-stage burner	\$1000
Carbon dioxide sensor control	NA (per sensor)	\$250
Fryolator (per vat)	ENERGY STAR or High Efficiency Custom	\$150

VGS also offers a fixed rebate schedule for engineered kitchen exhaust hoods based upon hood length in linear feet. Hoods in the compensating or short circuit hood family, as well as some simple engineered hoods, are provided rebates equal to 50% of the rebate offered for an engineered hood.

For other types of high-efficiency natural gas equipment or situations that don't sit the standard rebate schedule, VGS uses a custom screening tool to evaluate measures for cost effectiveness. If a measure is cost-effective, the customer is eligible to receive a rebate up to 50% of the actual incremental cost for the equipment and installation.

VGS provides engineering assistance to quantify savings and measure cost-effectiveness at no charge to customers. For projects where specialized engineering assistance is required, VGS provides assistance to customers in locating and selecting qualified consulting engineers and may help finance the cost of engineering analyses.

Energy efficiency projects for interruptible customers are treated no differently than project for firm customers in the WorkPlace Equipment Replacement Program, with the exception that no peak day savings are projected in the cost-effectiveness test for interruptible customers. VGS encourages both interruptible and firm customers to participate in its WorkPlace Equipment Replacement Program.

## **PROGRAM PERFORMANCE**

WorkPlace Equipment Replacement is one of a portfolio of six energy efficiency programs that VGS provides to its customers. The full portfolio achieved natural gas savings of 133,094 Mcf for 2005 and 2006. Lifetime savings for all VGS programs since inception in 1992 are 12.7 million Mcf. The WorkPlace programs on average achieved a benefit to cost ratio of 8.

In 2006 The WorkPlace Equipment Replacement program achieved 6,523 Mcf savings through 35 customer project completions. VGS also completed an additional 23 energy audits for its commercial customers who had requested them.

## **LESSONS LEARNED**

VGS's Key Accounts Representative has played and continues to play an important role in encouraging larger commercial and industrial customers to take advantage of VGS's programs, such as the WorkPlace Equipment Replacement Program. This single point of program contact for VGS's full portfolio of programs is a key to their success. The Key Accounts Representative can match available VGS programs and services to specific customer needs, whether replacing equipment as for this program---or undertaking new construction or major facility retrofits. This makes it easy for customers to participate---they don't have to figure out which program and which services might best suit their needs. VGS does this for them.

To ensure that customers are aware of savings opportunities for all regulated fuels and that incentives are allocated in an efficient manner, VGS coordinates potential client contacts with Burlington Electric and Efficiency Vermont as applicable (for electric energy efficiency opportunities). This also facilitates greater participation and helps customers to achieve greater total energy and cost savings since they are more apt to take advantage of a broader set of energy efficiency measures---both natural gas and electric.

VGS markets its commercial programs, such as WorkPlace Equipment Replacement, through numerous channels, including:

- The Vermont Business and Industry Expo
- Vermont Home and Garden Show
- Regular meetings with mechanical contractors, consulting engineers and architectural firms---most typically at the planning and design stage of new projects.
- Coordination with related energy efficiency programs offered by Efficiency Vermont and Burlington Electric
- Better Buildings by Design annual conference
- Association of Facilities Engineers Expo

VGS also gets numerous referrals from mechanical contractors, owners of multiple properties who have participated in the program previously, and suppliers of high efficiency equipment. VGS also encourages customers who have contacted the company complaining about high bills to investigate opportunities through its programs to reduce their costs through energy efficiency improvements.

## PROGRAM AT A GLANCE

**Program Name:** WorkPlace Equipment Replacement

**Budget:** \$161,242 for calendar year 2006

**Targeted Customer Segment:** Commercial and industrial customers

**Funding Sources:** VGS ratepayers

**Program Start Date:** 1993

**Best Person to Contact for Information about the Program**

**Program Participants:** 58 for calendar year 2006; 360 since program inception

- Raymond Keller
- Scott Harrington
- Phone: 802-863-4511 ext. 389 or 372
- Email: [Rkeller@vermontgas.com](mailto:Rkeller@vermontgas.com) and [Sharrington@vermontgas.com](mailto:Sharrington@vermontgas.com)

**Annual Energy Savings Achieved:** 6,523 Mcf

**Other Measures of Program Results to Date:** Benefit to cost ratio for VGS's WorkPlace programs is 6.14