

We're Cranking Now! A Motors Program Success Story

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ABSTRACT

Pacific Gas and Electric Company (PG&E) has run many successful customer energy efficiency (CEE) programs, but had always found the motors market a hard one to reach. For years, PG&E promoted energy-efficient motors through a combination of rebates, energy audits, and technical information for customers. Even with rebates that significantly reduced payback periods, participation never amounted to more than 610 motors annually since 1995. The primary purpose of the motors program and other CEE activities during this period had been resource acquisition. In 1998, PG&E decided to adopt a different strategy in light of EPart motor standards that went into effect in October 1997, and as a prelude to market transformation. Using the Consortium for Energy Efficiency motor standards, the utility began offering incentives for vendors (companies selling directly to end-use customers) to address stocking practices and increase the availability of premium efficiency motors (a preliminary step in market transformation). PG&E aggressively recruited vendors and offered special promotions to get them to try the program. Despite these efforts, the program only generated applications for 416 motors. In 1999, PG&E decided to try providing incentives to distributors (companies purchasing directly from manufacturers) for sales of premium efficiency motors. With the smaller number of market players, electronic application tools, qualifying motors database, listing participating distributors on PG&E's vendor database, and increased marketing, in the first year of the program, incentives were paid for 2,426 motors, making it one of the more successful motors programs in the nation (Jones 2000).

The Motor Market

In October of 1997 the new Energy Policy Act of 1992 (EPart) standards for minimum motor efficiency levels took effect. Many motor programs were previously using the EPart standards as the eligibility requirement for the incentives that they offered. Since EPart motors were now the standard, Pacific Gas and Electric Company (PG&E) chose to use standards that had been developed by the Consortium for Energy Efficiency (CEE) Motor Initiative for "premium efficiency" (PE) motors as the new eligibility requirement for their motor incentives. The CEE is nonprofit organization that fosters a cooperative effort among utilities nationwide to agree on common standards for the next generation of energy-efficient equipment. Motors meeting CEE standards are half again more energy-efficient than EPart-compliant motors are over earlier motors used under industry standard practice. The CEE standards are for three-phase motors between 1 and 200 horsepower (hp) with totally enclosed fan-cooled and open drip-proof enclosures, 1200/1800/3600 nominal RPM, general-purpose motors only.

Since over 80,000 motors are replaced in the PG&E service territory every year in the commercial, industrial and agricultural markets, there is a great potential for energy savings in the California market. In California approximately 53% (58,363 GWh) of the non-residential electric energy is used to operate motors 1 hp or greater. Of that energy, it is estimated that 45% (26,000 GWh) is used by the over one million motors in the PG&E service territory (SBW Consulting 2000). Over time EPCAct standards have the potential to increase the energy efficiency of these motors approximately 2.3% (600 GWh annually). If motors using the CEE standard were installed instead, an additional 1.2% (310 GWh annually) could be saved (Xenergy 1998).

Past PG&E Programs

1997 Program and Earlier

For a over a decade motors were rebated under the Retrofit Express program, which paid incentives directly to the customer for the purchase and installation of energy-efficient motors (i.e., motors meeting performance standards like those adopted by EPCAct). The primary purpose of the motors program had been energy efficiency resource acquisition to defer the construction of power plants. Energy-efficient motors were promoted to customers using a variety of methods: direct incentives, energy audits, technical information, vendor programs, and direct contacts with customers by account representatives. Despite these efforts, as can be seen in Table 1, customer rebates were never able to generate incentives for more than 610 motors since 1995.

Table 1. Express Efficiency Motor Accomplishments 1995 Through 1999

| Program Year | Motors Rebated |
|---------------------|-----------------------|
| 1995 | 609 |
| 1996 | 610 |
| 1997 | 557 |
| 1998 | 416 |
| 1999 | 2426 |

(Tse, 2000)

Some of the barriers to increasing the sales of energy efficient motors in California were typical of the energy efficiency market as a whole:

1. Equipment purchase priorities conflict between purchasing, maintenance and financial personnel.
2. Since motor energy costs are a small percentage of total facility operating costs, they are low priority.
3. Facility personnel are not aware of the long-term advantages of energy-efficient motors (reliability, durability, longer life), nor do they have the time to investigate and discover these advantages.
4. Vendors have little incentive to take the extra time to promote energy-efficient motors.

Given these market barriers and the EPCa standards taking effect in October 1997, it was time for a change in strategy for program year 1998.

1998 Program

To address some of the market barriers, electric industry restructuring, and adapt to the changing motors market, the 1998 program changed significantly. As a prelude to market transformation, incentives moved "upstream" from the customers to the vendors (defined as companies that sold directly to end-use customers). Since EPCa standards became the new benchmark for motor efficiency, the eligibility threshold was raised to pay incentives only for motors that met the stiffer CEE standards. Staff reorganizations and reduced energy efficiency budgets at PG&E (due to electric industry restructuring) all but eliminated the proactive local division field support to vendors. Because of the new standards, premium efficiency (PE) motors were not as available as the EPCa motors that had been on the market for years, and no manufacturer had a complete line of products that met the CEE standards for most of the year.

The move to vendor-level incentives changed the marketing focus of the program. With less field support the motors program was centralized under an upstream program manager (who also managed the Package Air Conditioning distributor program). The program manager, with the help of contract staff support, aggressively promoted the program to vendors. A great amount of time was spent explaining the program to the vendors and walking them through the application process. A vendor contest was used to promote participation and encourage competition among the vendors to increase sales. In addition, a \$200 bonus was given to distributors for submitting their first application. It was thought that delivering the incentives to the vendor would create a greater emphasis on the supply side and help market PE motors at the point of sale. Vendors would stock more PE motors and have them available for immediate customer needs (motor failure) instead of having to special order a motor which would take too long (a preliminary step in market transformation). Educating vendors about the program and the advantages of premium efficiency motors would help them educate customers and enable them to sell more PE motors.

The results for the 1998 program were less than expected. Only 416 motors were rebated. While some fall-off in participation might be anticipated at the beginning of a revised program (which was also hampered by regulatory delays), PG&E had expected a vendor program would be more successful than its customer program. This did not seem

unrealistic, but what had happened in 1998 that caused the program not to live up to its expectation? The first two barriers mentioned above, equipment purchasing conflicts, and motors being a low priority because of motor energy costs being a small percentage of a facility's operating costs, still existed. The second two barriers, the facility personnel's inadequate knowledge of the long-term advantages of energy-efficient motors, and vendors having little incentive to promote energy-efficient motors, should have been addressed by offering utility incentives to vendors and helping them educate customers about the benefits of PE motors.

New barriers came into play that overshadowed the barriers that were thought to have been overcome:

1. *Individual vendors that were not in charge of their corporate purchasing had little control over the stock they received.* The end result is that they could not stock and sell as many PE motors as they might have liked because they were not available from their corporate stock.
2. *The number of vendors was too large to promote the program in a timely, cost-effective fashion.* There were over six hundred vendors identified in PG&E's service territory. The majority of participating vendors needed the program explained to them personally and help filling out the applications. With so much time involved helping the interested vendors, there was little time available to proactively recruit the non-participating vendors.
3. *The application and incentive payment process was slower than vendors needed.* While electronic spreadsheet applications were available to speed the process, many small vendors could not use them because their shops did not have computers. To pay incentives at the vendor level, the vendors had to provide the installation address of the motor end user located within the PG&E electric service territory. Most applications for the program were done on paper, which was slow, cumbersome, and subject to error when transferred into PG&E's computer database. This resulted in slow payment of incentives and some vendor dissatisfaction with the program since they were basically providing discounts to the customers up front in many cases. However, vendors were under no obligation to discount PE motors. They could use the incentive as a marketing tool and/or use it to offset the costs of stocking the higher-cost PE motors.
4. *EPAAct motors that had been promoted by past programs were now the standard.* Customers thought that they were getting the energy-efficient motors when they got EPAAct-compliant motors. They were not aware of the PE motors that were available. Also, while manufacture and import of non-EPAAct motors was banned in 1997, sales of existing stock were still allowed. Anecdotal evidence suggests that many vendors were selling off their non-EPAAct-compliant stock at discount prices in 1998.
5. *Vendor's PE motor product lines were incomplete.* Vendors could not always offer PE motors to their customers unless they carried multiple manufacturers' product lines, and then they still might not have a PE motor to fit the customer's needs.

More changes were needed to make this program successful.

1999 Program (Strategies that Worked)

Solutions to overcome the market barriers had to be conceived and implemented in a coordinated marketing effort to capitalize on the demand side and the supply side leverage available. This would move PE motors into the market with pressure from the customer side and the distributor side.

Moving Further Upstream

Because of the challenges presented by such a large motor vendor population and the success of the PG&E Package Air Conditioning program (which offered incentives to distributors of high efficiency air conditioning equipment) PG&E decided to move the motor program further upstream in the supply chain. This change enabled PG&E to deal with a manageable number of participants who had greater control over their stocking practices. For example, distributors actually complained to a manufacturer about their "premium efficiency" motors that didn't meet the CEE standards.

Electronic Applications

To overcome the cumbersome paper application process, applications were changed to an electronic format using Microsoft Excel 5.0™ software. The electronic process meant less manual data transfer. The Department of Energy's MotorMaster Plus database was used to automatically enter performance data into the application when available. Distributors could now send their applications in to the utility via electronic mail or floppy disk. Paper applications were only accepted from distributors who didn't have IBM-compatible computers. This change reduced errors and unnecessary distributor interactions, and increased the speed at which incentive checks were delivered. With the electronic application also came an electronic approval process, which also helped to decrease processing time.

Increased Incentives

In 1999 the Express Efficiency program was offered in some form by all four of California's investor-owned utilities: Pacific Gas and Electric Company, San Diego Gas and Electric (SDG&E), Southern California Edison, and Southern California Gas Company. To be consistent, PG&E increased its motor incentive levels from the previous year to match those offered by SDG&E's distributor-level motor incentive program. The increase averaged 52%, ranging from 26% for the largest motors to 96% for 125 hp motors (see Table 2). However, incentive money alone is not enough: a successful program must also be marketed to the target audience using a variety of techniques and strategies.

Table 2. Increase in Express Efficiency Motor Incentives from 1998 to 1999

| Motor Size (horsepower) | 1999 Incentives | 1998 Incentives | 98 to 99 Increase |
|------------------------------------|----------------------------|----------------------------|------------------------------|
| 1 | \$35 | \$20 | 75% |
| 1.5 | \$35 | \$20 | 75% |
| 2 | \$35 | \$25 | 40% |
| 3 | \$40 | \$25 | 60% |
| 5 | \$50 | \$35 | 43% |
| 7.5 | \$60 | \$40 | 50% |
| 10 | \$70 | \$50 | 40% |
| 15 | \$80 | \$60 | 33% |
| 20 | \$90 | \$70 | 29% |
| 25 | \$115 | \$80 | 44% |
| 30 | \$135 | \$90 | 50% |
| 40 | \$160 | \$110 | 45% |
| 50 | \$200 | \$125 | 60% |
| 60 | \$235 | \$125 | 88% |
| 75 | \$270 | \$200 | 35% |
| 100 | \$360 | \$250 | 44% |
| 125 | \$540 | \$275 | 96% |
| 150 | \$630 | \$400 | 58% |
| 200 | \$630 | \$500 | 26% |
| Average | | | 52% |

Marketing

The success of PG&E's 1999 motors program took a concerted marketing effort through many avenues to begin to overcome the barriers to energy efficiency. With the program now at the distributor level, the word needed to go out to customers and distributors, interest in the product had to be created, and sales of PE motors made. This was done by using a combination of print advertisements, software tools and databases, direct mail, brochures, phone contacts, distributor visits, and special promotions.

Print advertisements. Print advertisements were placed in several key trade publications. Ads were placed in *Electrical Contracting and Engineering News*, *Electrical Equipment Guide*, *Electrical Apparatus*, *ASHRAE Journal* (California edition), and *Today's Facility Manager*. The trade journal ads emphasized the cash offerings of the program for distributors. Interested parties were referred to PG&E's SmarterEnergy web site for more information.

SmarterEnergy. The SmarterEnergy web site is designed to provide energy efficiency information to customers, educate them about available technologies, and provide searchable

databases of equipment and suppliers of these technologies. Customers can also use electronic tools to estimate rebates and energy savings. In the case of the motors program, there is a motors database, vendor database, and energy savings calculation tool. These information sources helped customers make informed decisions about PE motors. The site also directed distributors to contact the Express Efficiency upstream program manager to sign up for the rebate program.

Direct mail. One of the most effective methods of communicating program information for PG&E has been direct mail. Eleven different pieces (about one per month) promoting the program to distributors and PE motors to customers were developed and sent to target audiences. For example: one piece sent to industrial customer lauded the advantages of PE motors and their long-term effects on operating costs, another piece sent to distributors explained how the program could make their business more profitable. A common look and feel was used throughout so recipients would see a concerted marketing effort, rather than scattered individual pieces. There were pieces on contests, bonuses, program rollout, product availability, and program application deadlines. Each piece generated applications, inquiries and more interest in the program.

Telephone contacts. The program manager, contract staff, and the PG&E Energy Efficiency Resource Center staff contacted potential distributors by phone to proactively recruit participants, provide information, and answer questions about the program. Distributors were sent brochures, referred to the web site for the electronic application and information, and signed up for the program by the program manager. Special promotions and important program deadlines were generally announced by direct mail and phone contact. This use of the telephone gave the distributor a personal contact and a familiar person to ask questions and clarify details of the program.

Distributor visits. When phone contacts were not sufficient to provide the distributor with the information needed, an on-location visit would be arranged. Normally these visits were associated with helping them fill out the new electronic application because the distributor was unfamiliar with Microsoft Excel software.

Promotions. Direct mail was used to announce several special promotions implemented during the year to get distributors motivated:

- A \$200 bonus was given to each distributor upon payment of their first application of ten or more qualifying motors. This bonus was to help the distributor defray labor costs associated with initial program set-up and training.
- Contests were held in the summer and fall to foster competition between distributors, award program participants, and encourage early submission of applications. Each contest had seven prizes (1st & 2nd valued at \$1,000 and 3rd through 7th valued at \$500). The summer contest had an added minimum participant prize of three months free listing on the SmarterEnergy web site supplier directory.
- A bonus of \$1,000 for each 100 hp-worth of motors (e.g., four 25 hp, ten 10 hp, or one 100 hp) was offered twice during the year; once mid-year between the summer and fall contests, and then again in the last two weeks of the program. This bonus motivated

several of the distributors to get their applications in early, although many still waited until the end of the year to submit applications. The extra incentive was effective as PG&E found that more applications did come in during these bonus periods.

1999 Conclusions/Analysis

The results of the program changes and marketing efforts really paid off. The 1999 program paid incentives on over 2,400 motors (almost 38,000 hp) in the first year of marketing to distributors! (Tse 2000). The move to the distributor level, aggressive marketing, increased incentives, and changes in applications and processing drove the number of motors receiving incentives to more than the past four years combined.

Xenergy 1999 Milestone Study. The study was commissioned to increase the understanding of the efficacy of the PG&E distributor incentive programs. Key findings for the 1999 distributor program showed that a significant share of the motors distributor market had been successfully recruited, and that the program participants reported increases in the sales of premium efficiency motors, customer awareness, stocking levels, and bids that included PE motors (Xenergy 1999, 11).

For the distributors surveyed, the contrast between program participants and non-participants is striking. Of the participants, 53% stated that they actively tell customers about the availability of PE motors **all, or most of the time**, compared to 30% of non-participants. On the other hand, 30% of the non-participants stated that they never tell customers about the availability of PE motors, where 100% of the participants stated that they told customer at least some of the time. Similarly, participants were more likely to voluntarily include bids for PE motors as well as standard-efficiency motors, 40% versus 0% for the non-participants. (Xenergy 1999, 17).

Over 50% (14 of 27) of the study respondents believed that customer awareness of PE motors increased in 1999, and most them stated that they thought the increase was due to an increase in advertising by PG&E and the program participants promoting PE motors. (Xenergy 1999, 18).

When looking at stocking practices, the results were just as dramatic. An unweighted average showed participants stock 8 to 9 times more PE motors than non-participants. Over the last year, 25% of the participants increased their stock of PE motors and 11% decreased, while none of the non-participants increased their stock and 20% decreased. (Xenergy 1999, 19).

These study results show that the program has had a positive effect on the PE motor market in PG&E service territory. That is why 71% of the respondents thought the 1999 program was more effective than previous programs, and an impressive 88% thought that the program had a **somewhat significant** or **very significant** effect on their sales. (Xenergy 1999, 24).

Although the barriers to energy efficiency in the California motors market may have been lowered by the 1999 Express Efficiency program, there is still room for improvement.

The barriers that still remain are:

1. Not all distributors are participating, and of the ones with multiple branches, only a few branches are participating.

2. The application process still has elements that slow down payments to distributors and allows for errors in data entry. This results in decreased satisfaction with the program among distributors.
3. Conflicting priorities between purchasing, maintenance and financial personnel on equipment purchases still exist.
4. Since motor energy costs are a low percentage of a facility's total operating costs, they remain a low priority.
5. Many facility personnel are still not aware of the long-term advantages of energy-efficient motors (reliability, durability, longer life), nor do they have the time to investigate and discover these advantages.
6. Not all manufactures produce a complete line of PE motors adhering to the CEE standards. Baldor was the first with a complete line, but there are still gaps in most manufacturers' product lines.

In order for the year 2000 program to continue to grow beyond the 1999 accomplishments, these barriers need to be confronted and dismantled.

Planning for 2000 Program Success

To make the year 2000 program a success PG&E intends to decrease application processing time, increase distributor and customer participation, and make PE motors a priority in California. The utility can do this by:

1. Working with motor manufacturers to identify new distributors, original equipment manufacturers, and increase the supply of PE motors.
2. Offering continued PE motor education to customers and distributors through direct mail, seminars, advertisements, and personal contacts.
3. Changing the application process to CD-ROM. This change will decrease distributor data entry errors and the number of data transfer steps, allow motor database updates, increase processing speed and check delivery speed.
4. Working with distributors with multiple branches to insure full participation, and increase the stocking of PE motors. Identifying distributors and increasing participation until the purchase of a PE motor is the norm is the utility's goal for 2000.
5. Offering the "\$1,000 for 100 hp" bonus for the first half of 2000. This will allow distributors to use the bonus as a marketing tool, and bring new and old distributors into the program early in the year.

Final Conclusions/Analysis

The 1999 Express Efficiency Motors program was one of the most successful utility programs directed at the motors market in the nation. The program's success was due to the strategic use of marketing, incentives, and program management to overcome the barriers and get premium efficiency motors out into the marketplace.

PG&E learned that while distributor-level incentives are the most effective strategy thus far, they can't just sit back and wait for people to take the money. The hardest part in getting a distributor (or anyone) to participate in a utility incentive program is getting them to submit that first application. PG&E provided marketing, extra incentives, and personal

attention needed to overcome inertia. After receiving their first incentive check, distributors more clearly see the program merits for their customers and for themselves and are likely to continue to participate.

Despite this success, it is important to remember that 2,400 motors are a small portion of the 80,000 motors-plus replacement market in California. But now that PG&E has identified a strategy that works and knows the other barriers that stand in its way, it is well on the way to making a significant impact on the motors market, the environment, and the nation.

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