

# MANDATING VS. MARKETING: SEGMENTING THE MARKET FOR LOAD MANAGEMENT

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## Introduction

Like several electric utilities with a substantial summer peak, the Sacramento Municipal Utility District has marketed a residential air conditioning load management (ACLM) program for several years. Since 1979, the District has recruited 72,000 customers using a wide variety of marketing techniques and incentives to compensate participants for temporarily relinquishing control of their air-conditioning systems during the hottest summer days. From the outset, the utility's commitment has been to market this program as voluntary, on the assumption that policing compliance with a mandatory program would increase costs dramatically and would redefine the utility's relationship with its customers in an unwanted way. The incentive for participation during the past several years has taken the form of a discount on the customer's electric bill during the four summer months, June through September. The discount is a percentage of the total bill—10% to 20%, depending on the level of participation—with maximums and minimums. Table 1 summarizes participation levels and incentives for the 1990 program.

## Reasons for New Program Strategy

The cost of acquiring new participants for this program is driven primarily by costs to solicit among customers, whether that takes the form of traditional advertising using media, bill inserts, or involvement of local community groups. In an effort to reduce this significant up-front cost, program managers began exploring the possibility of installing the ACLM control switches on

air-conditioning compressors before new homeowners moved in. This strategy focused on new residential construction primarily because of the ease in identifying new construction sites, and the fact that the majority of new homes are clustered close together. This approach had several potential advantages:

- Solicitation costs were virtually eliminated. A brochure explaining the program was provided to new homeowners, but this would have been available for all program participants in any case.
- Installation of switches was simplified; no appointments were required, and no dogs, locked gates, or fences had to be negotiated. Technicians were able to install 20-25 switches per day, an increase of 100% over the normal rate for installation of switches.
- It was assumed that long-term participation rates (post-occupancy) would be very high; *i.e.*, 70-80% of homeowners who moved into new homes with the control devices already installed and eligible for a 15% discount on their summer electric bills would remain in the program.

For all of these reasons, it was anticipated that costs per installed switch would be much lower using this approach, with more efficient use of technical installation staff and fewer customer complaints.

**Table 1. Participation Levels and Incentives, 1990 Program**

Program Event	Peak Corps 20	Peak Corps 15	Peak Corps 10
Maximum monthly savings, June-September	20% of customer's bill, up to \$20 per month	15% of customer's bill, up to \$15 per month	10% of customer's bill, up to \$10 per month
Amount of time AC was off	No more than 4 consecutive hours per day, 12 days per summer season	20 min. each half hour	10 min. each half hour
Program time (p.m.)	2:00-9:30 Mon.-Sat.	2:00-9:30 Mon.-Sat.	2:00-9:30 Mon.-Sat.

## Policy Considerations and Planning

The decision to install ACLM switches on all new residential construction within the utility's service area constituted a significant policy change; *i.e.*, from an all-volunteer customer base to a mixture with some customers having the switch pre-installed. In keeping with the long-standing voluntary philosophy of the program, however, any participant was allowed to withdraw from the program at any time. It was also decided that the incentive levels for all participants would be the same because it would be difficult to justify varying incentives based on when or how customers joined the program. In order to impact all new residential construction equally, a new utility regulation was adopted which required installation of the ACLM control device for all new residential construction, with the exclusion of multi-family dwellings.

Accordingly, all builders and construction companies operating within the utility's service area were notified of the new requirement, but no penalties for non-compliance or incentives for compliance were provided. This proved to be one of several mistakes which substantially impacted the success of the program. During the planning stages for this program, however, it was not initial compliance which was considered to be a problem. Rather, it was feared that large numbers of new participants would choose to drop out of the program as soon as they moved in or during the first few days that their air conditioners were controlled. If this fear turned out to be justified, then the savings realized at the front end by avoiding solicitation costs and by easier installation might be illusory.

## Evaluation Questions

In order to answer these concerns and determine the cost and effectiveness of the pre-installation program, an evaluation was conducted of the program's performance for the first year. The evaluation compared each ACLM recruitment strategy, including the pre-installation strategy, on a number of variables:

- How many participants were recruited by each solicitation strategy?
- What was the drop-out rate (*i.e.*, number leaving program in first year as a percentage of number joining program that year) for each solicitation strategy?
- What was the cost per participant for each solicitation strategy?
- What was the cost per participant of each solicitation strategy after subtracting all dropouts during the first year?

For this evaluation, all related program costs were considered, including indirect and administrative costs associated with each recruitment strategy. Only first-year costs were considered, and they were not amortized over time as would be done for a benefit-cost analysis. The answers to these questions could be used to determine whether the new recruitment strategy should be expanded, revised, or eliminated. If the new strategy proved to be considerably more successful than the other recruitment efforts, more resources could be transferred to expanding the new strategy. On the other hand, if the pre-installation strategy proved to be more costly in the long run, then it would have to be either substantially revised or abandoned.

## Evaluation Results

The 1990 goals for ACLM switch installation and the actual number of switches installed are listed in Table 2. In addition to the pre-installation strategy, there was a direct-mail campaign to all residential utility customers, residential auditors attempted to recruit new participants, and low-income customers applying for a special rate were encouraged to participate in the ACLM program as an additional way to save on their electric bills.

It is apparent from Table 2 that total participation was lower than projected by 11%. However, direct mail produced 70% more installations than anticipated, while the other marketing efforts provided fewer than expected. The pre-installation strategy was the least successful at achieving its goal, managing to recruit only 33% of the 7,900 new participants projected. This shortfall on the part of the new strategy was due to start-up problems associated with it being a new strategy in 1990. The lack of a public education/advertising campaign targeting new homeowners and new home builders, and poor coordination within the utility exacerbated normal start-up

Table 2. 1990 ACLM Participation by Source

Source	Goal	Achieved	Achieved/ Goal(%)
Direct Mail	5,800	9,854	170
Energy Audits	400	157	39
New Construction	7,900	2,583	33
Low-income	1,000	893	89
Total	15,100	13,487	89

glitches. The result of all these factors was failure to meet project goals for new participants.

It should be pointed out that, even though the 1990 program participation goals were not met, the "bottom line" result of the program was still achieved. The ultimate goal of ACLM is, of course, not just to install switches but to provide dispatchable load reduction capacity. The program goal in terms of peak reduction capacity was achieved in 1990. This was due to the fact that a higher proportion of new participants opted for the more aggressive strategy, Peak Corps 20, than projected. Thus the program met planned peak capacity reduction goals because more new participants wanted Peak Corps 20 than the other cycling options.

But initial recruitment was not the only measure of program performance evaluated. Just as important was the drop-out rate for customers signed up from the different recruitment strategies. Table 3 indicates what the drop-out rate was for the ACLM program in 1990.

Table 3 shows that, although the drop-out rate for all ACLM participants who signed up in 1990 was relatively high, it was in fact *lowest* for those who were recruited by the pre-installation program. Less than 2% of those who joined the program via the pre-installation strategy dropped out in 1990. This compares favorably to Direct Mail (3.3%), Energy Audits (11%), and Low Income (4%). It is particularly significant if we consider that the overall drop-out rate for 1990 participants was 3.2%. It appears that this marketing strategy, despite being plagued with significant start-up problems that resulted in a failure to achieve the number of participants planned, nevertheless did not substantiate fears that people recruited by this strategy would decide not to continue participation in the program in greater numbers than other participants.

A third variable used to compare the pre-installation strategy to other recruitment strategies was cost. Total costs for all materials, equipment, and labor associated with the pre-installation customers for 1990 were \$538,448. Similar costs for the other strategies were:

- Direct mail, \$2,833,936
- Energy audits, \$38,339
- Low income, \$198,375

If we compare cost per installation after one year (*i.e.*, subtracting drop-outs for each strategy), we find that

**Table 3. 1990 ACLM Dropouts by Source**

Source	Actual Participants	Drop-outs	Dropouts/Participants(%)
Direct Mail	9,854	335	3.3
Energy Audits	157	17	10.8
New Construction	2,583	48	1.8
Low Income	893	37	4.1
Total	13,487	437	3.2

**Table 4. Cost per ACLM Installation—1990**

Source	Cost per Switch
Direct Mail	\$298
Energy Audits	\$274
New Construction	\$212
Low Income	\$232

pre-installation on new construction has a clear advantage over the other recruitment strategies (see Table 4).

### Unexpected Results

As with any evaluation, there were surprises. One major problem was the result of conceptual confusion in the planning steps of this new strategy. To program planners and utility managers the idea of pre-installing ACLM switches on new residential construction seemed a natural outgrowth of past solicitation efforts and a complement to a simultaneous advertising campaign to recruit other customers. It was felt that the ongoing voluntary recruitment was not at all incompatible with the quasi-mandatory nature of the pre-installation effort. If new homeowners decided not to participate in the program, they would not be required to. What was not anticipated was the confusion resulting from what was perceived as a mixed message by customers, builders, and contractors. The voluntary program continued, with the use of mass media, to urge customers to sign up. At the same time, new homeowners discovered they were already in the program and receiving the incentives, although the option to leave the program was not mentioned prominently in any of the written material. Consequently, customers were unclear on what action they had to take to join the program, stay in the program, or leave the program.

The confusion carried over to the builders and developers who could not (or would not) understand that their customers were going to have to take some action

to be *removed* from the program while everybody else was going to have to take some action to *enroll* in the program. Builders naturally want to complete their houses as quickly as they can and sell them as soon as completed. Unfortunately, getting the utility's switch installed was perceived by the builders to slow down both of these processes. The real problem was that the confusion between whether it was a voluntary or a mandatory program allowed builders to justify ignoring the new regulation.

Participation goals for the first year of the program were not reached. Because the program was perceived as having a detrimental effect on house sales, developers tried to avoid or ignore the program—and were quite successful at doing so. The utility did not enforce switch installation as a condition of service, so there was no reason for a builder to comply with the rule, and several reasons to ignore it—*e.g.*, the hassle of having to deal with the utility, having to explain it to customers, worry about the switch's effect on air-conditioning equipment, and other logistical problems. In addition, since the utility wanted to retain control of switch installation, builders were asked to notify the utility when an air-conditioner compressor was installed and hooked up so a switch could be installed. With all the reasons *not* to notify the utility and no real reason to do so, it is not surprising that most contractors and builders ignored the new utility regulation.

### Contrasting Program Results

The non-cooperation of builders and contractors constituted the single biggest reason for the failure to install as many ACLM switches as projected on new residential construction. By contrast, the regular solicitation campaign using bill inserts, targeted direct mail, and newspaper and radio support was able to achieve much more than its goal, with a margin to spare. Market research, primarily in the form of focus groups, was conducted among major builders and representatives of new home buyers after the first year of the program. The lesson learned was that an advertising campaign was required for the pre-installation strategy as well as for the voluntary segment of the program. Both customers and builders needed to be educated about the utility's new requirement and about what their mutual responsibilities were. In the end, this education was provided—but very inefficiently, on a one-to-one basis. A campaign to provide this information on a mass basis would have resolved many misunderstandings concerning program content and enabled the program to be more successful earlier on. Out of about 2,500 customers added to the program by pre-installing the switch on their home, we

received phone calls from about 250, or 10%, of the homeowners or builders with questions about their status in the Peak Corps. As it was, an educational campaign was not put into place until the second year of the pre-installation effort.

It appears to be a mistake to dichotomize advertising and pre-installation, especially when an advertising program for volunteers is ongoing. Information was needed by new homeowners and builders regarding how their participation fit with the voluntary program they already knew about. Just because the utility had accomplished its main purpose (*i.e.*, installing the switch) did not mean that the *informed* participation of the customer could be neglected. If anything, it became more important to get those customers who were automatically enrolled in the program when they moved into their new home to understand it and buy into it.

But even advertising was not enough to overcome the reluctance of some builders. They not only had to understand why the utility wanted to install switches on new residential air-conditioners, they needed to be convinced that it was in their best interest to assist in the installation by notifying the utility. Considerable research with air-conditioning equipment manufacturers was required in order to provide written reassurances to retailers and contractors that installation of the ACLM switch would not damage air conditioning equipment or void warranties. Similarly, advertising and education directed at new homeowners had to be developed to allow the builders to support the utility's program. Finally, there were the usual communication problems which prevented developers' decisions to support the program from trickling down to their superintendents in the field. There was, in fact, more than one instance where one of the utility's ACLM installers was physically chased away from a new subdivision by a superintendent who knew nothing about the program, despite the developer's support.

### Internal Utility Obstacles

In many ways the most ironic obstacle to successful pre-installation of ACLM switches came from other areas of the utility's work force who either feared that this new effort would encroach on some of their turf, or were jealous of the additional responsibilities given another department. For example, the division responsible for installing meters argued that they could install ACLM switches when they set meters on new houses, and that this would be an efficient use of field crews. No doubt, the phenomenon of inter-departmental non-cooperation, which may be a more benign label than what actually

occurs in many situations, is familiar to any program manager or evaluator. It came as a surprise in this case, however, because nobody was losing turf, staff, or responsibilities. No responsibility or job was being eliminated or transferred from one part of the organization to another. A brand new responsibility was being created and assigned to the only area where it made sense—the area which was already responsible for ACLM switch installation. Nevertheless, bureaucratic turf can be an all-encompassing concern, where perceptions take on a greater role in decision making than reality, and that was true in this case.

Local city and county building inspectors could have helped to enforce the utility's decision to require ACLM switches on new residential construction, but their perception was, if the utility was not willing to enforce their own requirement, why should the city or county? In addition, their resources are limited like everyone else's and it would have added to their workload to require another inspection point, no matter how minor.

## Conclusions

It should be added that 1990 was an extremely hot summer in the utility's service area. Records were set for the number of consecutive days over 105F. This weather put significant demands on customers' air conditioners and in turn on the ACLM program, which was activated a total of 19 days. Consequently, the overall program dropout rate was the highest it has been since the program began 12 years ago. In all prior years, the dropout rate averaged 2%—so the 1990 rate was substantially higher. Because of this fact, the finding that 1990 had a relatively low dropout rate for those recruited by the pre-installation strategy should be borne out over successive summers.

There is another factor that would lead one to expect lower drop-out rates from an ACLM program for customers in new residential construction. Newer homes

have to meet more stringent insulation and weatherization standards than older homes, and the air-conditioning equipment is new so it would be operating at peak efficiency. Consequently, newer homes would stay more comfortable than homes with less insulation or homes cooled by older equipment. Nevertheless, most participants in ACLM live in homes that meet California Title XXIV standards (*i.e.*, homes built since 1978) and meet relatively high weatherization standards. So although brand new homes do better in an ACLM program, most participants' houses in this program are well enough insulated that this difference alone does not explain the discrepancy in drop-out rates.

If internal and external coordination problems can be minimized, this new strategy stands a good chance to make a significant contribution to building the ACLM program. If a marketing/education program could be designed to explain and support the pre-installation strategy, then it seems likely that this could well become the primary strategy for adding new participants to the program. This would increase the cost-effectiveness of ACLM because this strategy drastically reduces the amount spent on design, production, and mailing of the more traditional advertising campaigns used to promote the program in prior years. Costs for customer information/education literature still exist because it is necessary to thoroughly explain the program to all new homeowners who find the ACLM switch already installed on their air conditioner. However, costs for mass-media could be significantly curtailed. It is also much more cost effective in the use of installation resources, which can be used to accomplish twice as many installations per day as with the retrofit effort. If the education and coordination necessary to properly support the pre-installation strategy can be developed, and new residential construction continues to add 8,000-9,000 new single-family homes with air conditioning in the utility's service area each year, this new strategy could be the single most effective recruitment effort for the ACLM program.