Lessons From Granddaddy: Observations From The Evaluation Of The New Jersey PSE&G Standard Offer Program

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ABSTRACT

This paper presents the results of an evaluation of the New Jersey Public Service Electric and Gas (PSE&G) "Standard Offer" program. That program was of profound significance, both for its size (200 MW of energy efficiency savings) and for its contribution toward establishing the use of standard performance contracts as a viable utility DSM strategy. The paper describes the origins of the program design, presents highlights of the evaluation results, and discusses the key "lessons learned" from that groundbreaking program. The paper concludes with some thoughts on the role of such large-scale energy efficiency resource acquisition programs in the current utility industry environment.

Introduction

During the early to mid 1990s, the use of "standard performance contracts" (i.e., basically a contract to produce energy savings under a specified price arrangement, with savings measured and verified over time) emerged as one of the most promising program approaches available for utility DSM resource acquisition. One of the earliest, and perhaps the largest, of all of these efforts was the "Standard Offer" (SO) program operated by Public Service Electric and Gas (PSE&G) of New Jersey. The impact of that program was enormous, not just in terms of energy savings, but also in terms of its influence upon the evolution of utility performance contracting as an intervention strategy. (As an example, that PSE&G program has been acknowledged as an important precursor to the current California Nonresidential Standard Performance Contracting Program. See Goldman, et al., 1998.)

The purpose of this paper is to summarize the results of a comprehensive evaluation of the PSE&G Standard Offer program, and to discuss some of the lessons learned from that pioneering DSM effort.

Background: The Evolution Of The PSE&G Standard Offer Program

PSE&G's interest in a Standard Offer program grew out of its experience in implementing an all-source bidding pilot in 1989. That program was patterned after a popular concept at the time: having DSM "compete" directly with supply side resources through an open bidding process. The program was designed to acquire approximately 50MW of DSM resources. The experience with that bidding pilot revealed a number of problems. It turned out that bid evaluation and contract negotiation were resource and time intensive as well as costly, both in terms of administrative costs for PSE&G and transaction costs for bidders.

From the utility's standpoint, it was difficult to assess the relative value of different bids on an "apples to apples" basis when they featured different types of facilities, different timing of

savings, and different bid prices. A simpler process was clearly needed. From the contractors' standpoint, it was difficult to justify all the extensive front end work needed to market a project to a customer and design the engineering, when it was unknown whether the bid would even be accepted. A less risky and more certain program approach was desired.

At the same time, the pilot also revealed to PSE&G the potential extent of disincentives that were created by large scale acquisitions of energy savings if the "lost revenues" from such savings could not be recovered and no positive financial incentive could be earned (in contrast to when PSE&G built a power plant upon which PSE&G was authorized to earn a return).

The combination of these factors led to disillusionment with the DSM bidding technique and an interest in developing a new type of program approach. In October 1991, the New Jersey Board of Public Utilities (BPU) adopted new guidelines for utility DSM planning and acquisition (NJAC, 1991).

These guidelines represented the result of a consensus process of major stakeholders in New Jersey (e.g., the utilities, the BPU, ESCO representatives, environmental groups, etc.). Key aspects of the policy framework included: (1) energy efficiency is a viable alternative to constructing or procuring new electric generation resources: (2) utilities are uniquely positioned to foster increased energy efficiency; (3) utility shareholders should be given the opportunity to earn financial incentives on investment in energy efficiency; and (4) significantly increased opportunities for sale and delivery of energy efficiency measures and services by independent, non-utility energy service companies, contractors and suppliers would encourage the development of energy services markets not dominated by utilities.

In response to these new guidelines, PSE&G prepared and filed a DSM resource plan, which resulted in a negotiated settlement approved in late 1992 (NJBRC, 1992). In May of 1993, PSE&G initiated the Standard Offer program.

Program Description

The essence of the PSE&G Standard Offer (SO) program was the utility offer of long-term contracts for the purchase of energy savings, with standard terms and conditions, to project sponsors (who could be either customers or ESCOs). The design included posted, time-differentiated prices, to be paid for energy savings over the contract term (typically 5-15 years) as verified using an accepted measurement and verification (M&V) protocol. Contracts were offered on a first-come, first-served basis, until pre-defined MW savings targets were reached. The program scope was very broad, and included new construction as well as retrofits in the commercial, industrial and residential sectors.

One particularly innovative aspect of the program was the approach taken regarding utility shareholder incentives. In addition to more typical approaches in other states (e.g., allowing shareholder incentives in the form of explicit monetary awards or a share of net benefits produced), the New Jersey BPU also allowed the "incentive" option of having the utility participate in the program and generate earnings through energy efficiency activity. PSE&G selected that option and created a wholly-owned subsidiary (the Public Service Conservation Resources Corporation, or PSCRC) to participate as a project sponsor in the SO program. (To help allay concerns about anti-competitive impacts of utility affiliation, PSCRC's role was limited to just being an aggregator, financier, and sponsor of projects, with the actual on-site work to be performed by local contractors.) The outcome of this unique aspect of the program will be discussed later in this paper.

SO1 vs. SO2. At a more detailed level, the Standard Offer program examined in this study actually consisted of two different phases. The first phase (SO1) began in May of 1993 and targeted an initial total savings goal of 150 MW of summer prime period demand reduction. Payment levels were set based on avoided costs estimated through an earlier utility planning cycle, and were differentiated into various time categories. For example, for a ten-year project coming on line in 1994, levelized payments would be about 17.8 cents/kWh during the summer prime period, 4.8-5.4 cents/kWh during the on-peak periods of each season, and 2.9-3.5 cents/kWh during off-peak periods. (See Goldman, et al., 1995, for a complete pricing table.) After a one-year extension, the SO1 program officially ended on December 31, 1995.

The parameters for the SO2 program were also developed in a cooperative manner by PSE&G and other interested parties. The most significant change for SO2 was a substantial reduction in price payment levels to reflect updated and reduced estimates of utility avoided costs for electricity supply. Overall, the reduction was approximately 27% for the first block of 50MW, with additional 7% reductions for each of the remaining two blocks.

The other most noteworthy changes were: (1) a major restriction in the scope of eligibility for fuel switching projects (basically to only allow it for government-owned facilities and certain types of co-generation fueled projects); (2) a contract modification requiring that payments to projects be prorated for any facilities that switched to an electric supplier other than PSE&G; and (3) a decision to no longer have PSE&G market and promote the program, instead relying on ESCOs to serve that function. These program changes for SO2 had some major impacts on perception of, and participation in, the SO2 program, and will be discussed later in this paper.

Evaluation History

An early initial evaluation of the SO1 program was conducted in 1995 by researchers from Lawrence Berkeley Laboratory (Goldman, et al., 1995). Although many of their findings were necessarily quite preliminary because the program was in its beginning stages, much of that work was very helpful in framing this evaluation. As it turned out, many of their initial impressions were borne out in this later and more detailed study.

The current evaluation had its origin in discussions among PSE&G, the New Jersey BPU, and various other interested parties, which led to an informal agreement to pursue an evaluation of the SO2 program. The Wisconsin Energy Conservation Corporation (WECC) and its consultant subcontractors were retained to perform an independent evaluation of the program. The major purposes of this evaluation were to provide information and suggestions to the various stakeholders concerning the impacts of the SO program, and to make recommendations on whether the program should be continued in its present form, continued on a modified basis, or terminated in favor of potentially more effective and valuable program alternatives.

Methodology

Quantitative Data

The primary source of data regarding program impacts was a comprehensive program database maintained by PSE&G. That database contained extensive information on measures installed, costs, and kW and kWh impacts by sector, by project, and even down to the individual facility level. The data in the data set were based on confirmed (i.e., post-inspected) installations, using carefully developed and agreed-upon engineering projections which will be subject to on-going measurement and verification protocols. The data had not yet been subjected to any post-program measurement true-up, and that task was beyond the scope of this evaluation.

The methods used in this study consisted of statistical analysis of the database, including overall assessment of total program impacts and cost-effectiveness, as well as a dis-aggregated analysis of impacts by market sector, by measure type, and by project sponsor type (i.e., ESCO vs. customer self-sponsorship).

Qualitative Data

Qualitative data for this evaluation were obtained principally through interviews (both in-person and by telephone) with a wide variety of involved parties. Interviews were conducted with nearly a dozen different program personnel from the utility, over 50 participating customers (either customer hosts or customer sponsors), a dozen energy service companies (including virtually all of the leading ESCOs participating in the program), and representatives of the New Jersey BPU and the Office of the Ratepayer Advocate. Additional information was also gathered through a review of various program documents, reports and files.

Results

Residential Results Were Limited

Although the SO program was intended to be open to savings in all sectors, the actual level of participation for the residential sector was disappointingly low. The residential component of the program experienced delays in implementation, and ultimately there was only one residential ESCO sponsor participating in SO1, and only two in SO2. For SO1 there were only 5,474 dwelling units treated with electric measures (and 8,486 for gas). For SO2 the figures were 23,749 and 15,988 respectively. Measures installed often tended to be minor, quick payback items, and the total savings impact is projected to be only about 2 to 3 percent of the total for the commercial and industrial (C&I) sectors. (However, initial PSE&G analyses did indicate that early energy savings per participant were higher than projected, and it was felt that the residential component would ultimately turn out to be cost effective - - see Edgar, Kushler & Schultz, 1998.)

In addition to the low participation levels, until the very end of the study the database for the residential program was essentially inoperable. Hence the extent of evaluation conducted on the residential component of the SO program was rather limited. For the combination of these reasons, the remainder of this paper will focus on the C&I components of the SO program.

Program Participation

The first level of analysis performed in the study was to examine and characterize the market response obtained by the program. Over the nearly five years of program operation under study, there were a total of 859 projects installed and approved, accounting for a total of 5,078 separate facilities. Just over 80% of that total participated in the SO1 component of the program.

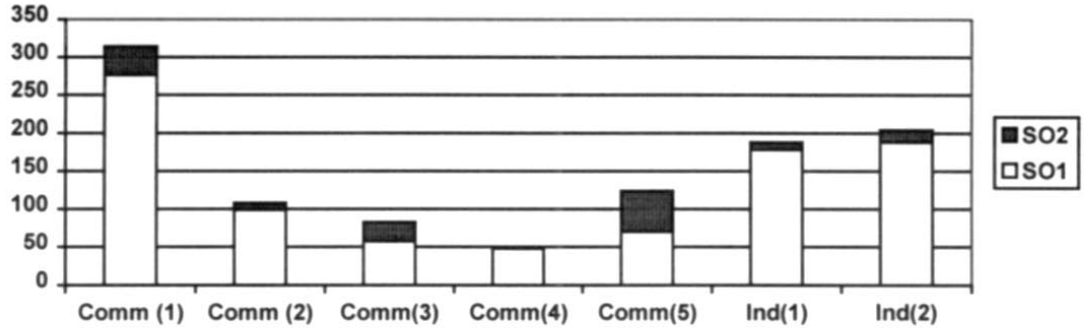
For the purposes of this study, the commercial and industrial market was divided into seven segments: five commercial (public institutional; business/financial/services; retail; hotel/motel/recreational; and transportation, communications, utilities), and two industrial ("heavy" and "light"). In terms of relative participation, the five commercial categories together accounted for nearly two-thirds (63%) of the total program savings, while the two industrial categories accounted for 37%. (Additional detail on load impacts by market sector is provided in Table 1.) Almost one-fifth (18%) of the program savings came from projects that were submitted directly by customers, with the remainder coming from ESCO sponsored projects.

Program Impacts

In total, for all projects approved through the time period covered in this study, the Standard Offer program is estimated to account for annual energy savings of approximately 1,100 GWH and summer prime period demand reduction of 200 MW. By almost any measure, that makes the PSE&G SO program one of the largest and most successful individual utility DSM resource acquisition programs ever implemented.

Impacts by market segment. Table 1 presents the savings impacts attributable to each of the seven C&I market segments identified previously. The data are presented separately for SO1 and SO2, and the total program, so that trends across the two components can be observed. By far the most noteworthy aspect of these results is the substantial drop-off in program impact between SO1 and SO2. This was a major issue examined in this evaluation, and will be addressed in more detail in the Discussion section of this paper.

Table 1. Standard Offer Load Impact Profile
Energy Savings (GWHs) by Customer Class and Market Segment



	COMMERCIAL					INDUSTRIAL		TOTALS		
	Comm (1)	Comm (2)	Comm (3)	Comm (4)	Comm (5)	Ind (1)	Ind (2)	Comm	Indust	C&I
SO1	276	99	57	48	70	178	188	548	366	914
SO2	38	9	26	2	54	10	16	128	26	154
TOTAL	313	107	82	50	124	188	203	677	392	1068
% of Sector	46%	16%	12%	7%	18%	48%	52%	100%	100%	100%
% of Nonres	29%	10%	8%	5%	12%	18%	19%	63%	37%	100%

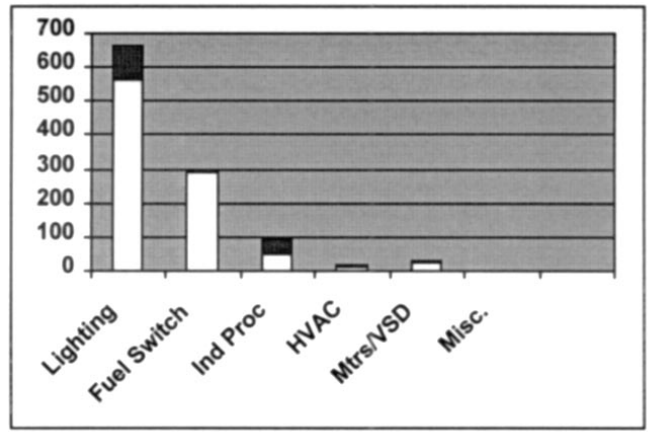
Key:

Comm (1) Public/Quasi-Pub Institutions
Comm (2) Business, Financial, and Personal Services
Comm (3) Retail
Comm (4) Hotels/Motels/Recreation
Comm (5) Transportation, Communications, Utilities

Ind (1) Manufacturing (heavy)
Ind (2) Manufacturing (light)

Impacts by measure type. The SO program allowed eligibility for a full range of C&I measures affecting virtually every end use: lighting, HVAC (heating, ventilation and air-conditioning), industrial process, motors (high efficiency and variable speed drive), refrigeration, building envelope, energy management systems (EMS), and even fuel switching (from electricity to some other fuel). Table 2 provides a break-out of the energy savings impact by measure type for participating SO projects. (Note that due to a very small level of implementation in the program, the measures for refrigeration, building envelope and EMS have been grouped into a "miscellaneous" category.)

Table 2: Standard Offer Load Impact Profile
Energy Savings (GWHs) by Measure Type



GWH	Lighting	Fuel Switch	Industrial Process1	HVAC	Motors/VSD	Misc.	All
SO1	563	293	50	12	23	1	942
SO2	100	4	44	6	5	0	159
TOTAL	663	297	93	18	28	1	1,101
% of All	60%	27%	8%	2%	3%	0%	100%
MW	**Lighting**	**Fuel Switch**	**Industrial Process1**	**HVAC**	**Motors/VSD**	**Misc.**	**All**
SO1	122	38	6	3	4	0	172
SO2	21	1	5	0	1	0	28
TOTAL	143	39	11	3	4	0	200
% of All	71%	19%	6%	1%	2%	0%	100%

Aside from the previously mentioned drop-off of program impacts between SO1 and SO2, the single most striking aspect of these results is the dominant share of savings accounted for by lighting measures. On a total program basis, lighting accounted for 60% of the energy (gWh) savings and 71% of the peak demand reduction. This proportion of load reductions from lighting is about twice as high as the relative contribution of lighting to total commercial sector electricity use in New Jersey (Xenergy, 1996). That program dominance by lighting measures was a major issue of concern in the evaluation and will be examined further in the Discussion section.

One other notable result in the table was the dramatic reduction in savings for "fuel switching" between SO1 and SO2. This was basically the result of the previously discussed change in program rules which severely narrowed the circumstances under which a fuel switching project could qualify.

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1 The SO program defined "industrial process" to include municipal sewerage process projects. A few large municipal sewerage projects account for most of the savings in this category.

Cost-Effectiveness

One of the objectives of this study was to assess the cost-effectiveness of the SO program. This task was complicated by the fact that both the program design, and the avoided cost factors used to assess the program, changed during the time period covered in the study. Space limitations prevent this paper from going into any detail about how this task was addressed, but the original report (Edgar, Kushler & Schultz, 1998) devotes an entire chapter to the analyses and various sensitivity cases examined.

The bottom line is that using New Jersey's version of a total resource cost (TRC) test, including a pre-specified value for environmental benefits of two cents per kWh, both the SO1 and SO2 programs were found to be cost-effective. Ironically, despite a large (over one-fourth) decline in the avoided cost input for SO2, the benefit-cost ratio for each program (SO1 and SO2) was found to be 1.38. (Basically, lower payment levels to participants and a higher proportion of lighting projects under SO2 offset the effects of a lower avoided cost value.)

Qualitative Results

One of the most important objectives of this study was to assess the operational aspects of the SO2 program (i.e., the most recent form of the SO program), and develop recommendations for how the program might be modified to optimize its role and performance in the future. As such, the reactions and opinions of the participants (i.e., customers, ESCOs, and program personnel) were of paramount importance. The following material presents some of the results of the more than 70 interviews conducted with those parties.

Customer satisfaction. Participants were asked about their satisfaction both with the program as a whole and with the ESCO they used in the program. In general, satisfaction was fairly high on both counts. Over 80% of participants were at least somewhat satisfied, and 55% or more were "very satisfied", with both the program in general and their ESCO partner.

Participants in the small commercial lighting component of the SO program were almost universally pleased with the simplicity and ease of participation in the program. A small proportion (16%) did have some problems with their ESCO (e.g., poor quality work, didn't do as much as promised, etc.). For larger C&I participants, there were some complaints about the program (approximately 15%), focusing on such things as delays in approving proposals and overly burdensome measurement and verification (M&V) requirements and procedures. Their level of dissatisfaction with their ESCO (approximately 20% having at least some dissatisfaction) was similar to that reported by small C&I customers.

ESCO satisfaction. ESCOs were generally very pleased that PSE&G had launched the Standard Offer program, and felt that it had significantly contributed to the growth and vitality of the ESCO industry in New Jersey. They also almost universally preferred the SO approach to the earlier DSM bidding program operated by PSE&G, for the reasons discussed earlier in this paper.

However, there were two areas of substantial dissatisfaction by almost all of the ESCOs interviewed. First, they tended to have a lot of complaints about the manner in which the program was administered. In fact, when asked to "grade" the program as a whole, a number of ESCOs voluntarily separated their response into two components, almost always an "A" for the

concept/design and a "C" or worse for execution of the program. Paralleling the large customer complaints mentioned above, their primary areas of complaint were delays in processing applications and difficulties in working out acceptable M&V protocols.

The second area of almost universal complaint was that the payment levels for project savings had been cut too much in the SO2 program. (They were reduced approximately 27 % from the SO1 level.) In fact, several ESCOs reported that they were no longer participating in the PSE&G SO program because it was financially infeasible. (This included all three of the ESCOs, which had previously targeted the small commercial lighting segment of the program.) Those that did remain in the SO2 program concentrated their efforts almost exclusively on large customer lighting projects, in facilities with long operating hours. That was about the only market niche where the program economics remained viable.

Discussion: Lessons Learned

Key Factors Affecting Program Success

The context for considering this issue was well established by the actual experience of the SO1 and SO2 programs. One of the central challenges, which emerged in this evaluation was to try to discover and understand the reasons for the dramatic difference in program performance between SO1 and SO2. The SO1 programs developed into an extensive and robust energy efficiency acquisition mechanism, which was very highly regarded by ESCOs and customers, over-subscribed, reached a broad variety of business types (including small commercial customers), and had at least some inclusion of non-lighting measures.

In contrast, the SO2 program had a dramatic fall-off in participation, was widely criticized, lost almost all small customer participation, and became almost exclusively focused on large lighting projects. The items presented below represent the authors' attempt at identifying the key factors affecting the relative level of success of the two SO program efforts, expressed in the form of key lessons learned.

Price matters. Some critics argue that utility performance contracting programs such as the SO Program are unnecessary and largely a "give-away", because participants were going to engage in the energy efficiency improvements anyway. Under that perspective, the payment level offered would be relatively unimportant. However, the observations in this evaluation definitely contradict that view. Not only were both ESCO and customer reported free-ridership levels very low (e.g., less than 10% "pure" free-riders with perhaps another 20% "partial" free-riders), but the dramatic fall-off in participation and the exodus of ESCOs from the program under SO2 provide substantial validation that the financial incentive was a key motivator and that the Standard Offer program was not just dishing out money to firms which were going to implement the measures anyway.

In fact, the large reduction in the price paid for savings under SO2 was the most important reason cited by ESCOs for their decision to leave the program. (Several commented that they were leaving the New Jersey market to focus on states which they perceived still had adequate incentive programs.) Clearly, ESCOs focus very carefully on the offered price. While some of the observed exodus may have been a "shake-out" of less-efficient firms attracted by the initial high incentives, the magnitude of the response suggests it was more than that. In this case, it is apparent that

somewhere between the SO1 payment levels and the SO2 payment levels, a threshold was crossed which made the SO program no longer financially viable to many, if not most, of the participating ESCOs.

As an interesting side note, even the utility affiliate (PSCRC) ceased marketing for new projects under SO2. This not only is a comment on payment levels, but also on the viability of the earlier discussed strategy of using utility affiliate participation as the "incentive" to a utility to pursue a Standard Offer type of program. In this case there was not even sufficient incentive to keep the affiliate active in the market. Not surprisingly, PSE&G support for continuing the SO program faded as well.

Program related costs affect the price required. An important corollary to the lesson that "price matters" is that it is not necessarily the absolute price, but rather the net of price minus associated program costs, which determines ESCO interest. A number of the ESCOs interviewed commented that they might have been able to live with the lower SO2 payment levels had something been done to reduce their cost burden associated with participation. In particular, they cited the costs associated with the complex, long-term (often 10 years or more) M&V requirements required, as well as the costs resulting from lengthy delays in the project approval process and the business risks associated with that delay and uncertainty. It seems clear that a program such as SO could achieve lower payment levels (and thus more attractive overall cost-effectiveness) if it could streamline M&V and other associated participation costs to ESCOs. Balancing the level of M&V precision or accuracy sought; the level at which it is sought (aggregate or disaggregated) and the attendant costs created for the utility and project sponsors are critical to the success of performance contracting efforts such as the SO program (see Goldberg, et.al. 1998).

Achieving comprehensive (i.e., non-lighting) measures may require differentiated pricing and streamlined M&V. Another important problem observed in this study was that the SO program was not very effective at reaching non-lighting measures. Although there was some inclusion of measures such as HVAC and motors under SO1, they virtually disappeared under SO2. The interviews with ESCOs (essentially all of whom characterized themselves as "comprehensive" energy service companies), as well as with customers, repeatedly pointed to two fundamental barriers. First, the costs and risks associated with M&V requirements for certain non-lighting measures (e.g. variable load) were perceived as substantial. These included time delays and repeated re-engineering of M&V plans, and the risk of partial or complete lack of approval. In response, many ESCOs "took the easy way" and simply submitted "lighting only" projects. Second, the standardized payment levels, particularly under SO2, were seen as simply not sufficient to cover the extra measure costs and business risks associated with the non-lighting measures.

In recognition of these problems, two of the major recommendations of the evaluation were to streamline the M&V requirements for non-lighting measures (both the approval process and the M&V protocols themselves) and to consider differentiated pricing targeted at different end-uses (i.e., allow the program to pay more for savings from certain designated non-lighting measures), so that cost-effective opportunities in non-lighting measures could be captured. (Interestingly, the Nonresidential Standard Performance Contracting program in California has successfully incorporated each of those desirable features, and has achieved a substantial proportion of non-lighting measures. See Rufo, Skumatz & Bordner, 1999.)

Reaching the small commercial market requires a higher price. ESCOs which had targeted the small commercial market described in some detail the additional transaction costs (e.g., marketing and negotiating and bundling numerous small contracts) and business risks (e.g., occupant turnover) associated with serving that market segment. The validity of those concerns is reinforced by the fact that, by the middle of the SO2 program, all three of the ESCOs which had targeted the small commercial market in the SO1 program (including the PSE&G affiliate PSCRC) had ceased operations in that market segment. (California has also recognized and responded to that problem by developing a special performance contracting program for small to medium sized customers, with higher payment levels and reduced M&V requirements.)

Aggressive and coordinated program promotion is important. The importance of aggressive promotion of the SO program by PSE&G was actually demonstrated in two ways over the history of the program. The SO1 program initially got off to a very slow start in 1993, until PSE&G launched an aggressive marketing campaign. The campaign included both the use of external media and communication channels, as well as vigorous promotion by company field representatives. That campaign succeeded in dramatically increasing program participation levels.

Conversely, for SO2 the parties agreed that PSE&G would cease all promotion of the program, leaving that responsibility to individual ESCOs. Not only did participation decline precipitously, but many customers and ESCOs interviewed in this evaluation cited the lack of promotion as an important reason for decline in participation, and lamented that lack of promotion. A few even commented that they weren't even sure there still was an SO2 program, because they hadn't heard anything about it.

Other Related Observations

Large scale resource acquisition program can have market transformation effects. Although not designed as a market transformation program, it seems clear that the PSE&G SO program had some significant market transformation effects. A number of interview respondents specifically credited the SO program (due to its sheer volume and the associated market demand on suppliers and the awareness and experience effects on ESCOs and contractors) with having substantively transformed the lighting market for lamps and ballasts (i.e., T-8s and electronic ballasts). In fact, they felt the program had impacted the market not only in New Jersey, but for much of the East Coast. This would seem to be important support for the proposition that resource acquisition and market transformation objectives need not conflict, but rather, can be complimentary.

On the other hand, an SO program is not a panacea. While very successful in certain market segments, there are clearly market segments and market activities that are not addressed well by a Standard Offer type program (e.g., "lost opportunity" events such as emergency replacement, new construction, measures where "upstream" intervention is critical, etc.). As a result, a core conclusion of the study was that optimal energy efficiency market effects would best be achieved by the integration of market transformation and resource acquisition strategies, rather than by just pursuing one or the other of those options (Edgar, et.al. 1998).

The anticipation of electric restructuring dampened customer interest in participating. ESCOs reported that during SO2, the anticipated approach of electric restructuring did have some effect on dampening customer interest in the program. Some customers were under the illusion that

restructuring would bring major reductions in electric costs, and therefore felt "why bother with energy efficiency?" More often, the effects were of the nature of customers hesitating to take any action in the face of uncertainty, until the new market situation was resolved. Also, the contractual requirement that future savings payments be prorated if a customer later switched some or all of its electric supply purchases to a company other than PSE&G raised an important barrier to some customers.

Independent (non-utility) administration may be preferable in the future. The authors of this study recommended that independent (non-utility) administration of this type of program be considered in the future. There are several reasons for that recommendation. First, since under restructuring the utility no longer has the responsibility of assuring total supply, there is less rationale for them to administer a resource acquisition program. The objectives are now more societal in nature, rather than utility-specific. Second, as a corollary to the first reason, there is no longer any rationale for utility "lost revenue recovery" (i.e, theoretically an energy efficiency program will save energy from all generation suppliers). Eliminating that recovery would substantially reduce the overall costs of the SO program to ratepayers. (As much as half of the current, total annual ratepayer cost of the SO program is lost revenue compensation to the utility.)

Third, in a restructured market where the utility (or its parent or affiliates) have any generation supply interests, there is too much potential for anti-competitive "tying arrangements" (such as the contractual requirement mentioned above) whereby access to program benefits is somehow tied to choice of electric supplier. Fourth, in that circumstance (i.e., utility affiliated with generation) the utility would also have a general conflict of interest with promoting reduced electricity sales, and may not be perceived as an enthusiastic or credible supporter of energy efficiency. For all of these reasons, future application of Standard Offer-type programs might best be accomplished through independent, non-utility administrators.

Conclusion

Perhaps the most important conclusion from the experience of the PSE&G Standard Offer program is that cost-effective, large-scale energy efficiency resource acquisition is feasible. The original objective of the SO program, to essentially build an energy efficiency "power-plant-scale" resource, was successfully accomplished, and PSE&G certainly deserves credit for making that happen.

Beyond that fundamental demonstration, the evaluation of the SO experience also yielded a number of practical recommendations for improving the effectiveness of future such efforts. These include ways to reduce costs as well as expand impacts into more comprehensive efficiency applications. Indeed, many of the lessons learned from the New Jersey SO experience are consistent with approaches now being taken in California's major Standard Performance Contracting programs.

However, the changes within the electric industry being brought about by restructuring have created substantial uncertainty about the current role for large-scale energy efficiency resource acquisition programs such as the Standard Offer. While experience has shown that this type of program can provide large savings and produce substantial societal benefits, there is much less clarity about how such efforts should be funded and who should administer them.

Had restructuring not come upon the scene, and the electric industry was still operating under the Integrated Resource Planning paradigm, there is little doubt that programs like Standard Offer would be seeing widespread application. But the electric industry, in most areas of the country at least, is presently on a different path. As a result, many observers question whether such ambitious energy efficiency resource programs are even appropriate. PSE&G's SO program has been terminated except for the fulfillment of previously approved projects. It is not clear if a new SO program will be proposed in the restructured environment in New Jersey.

Possibly the best that can be said is that the Standard Offer program model stands ready for service, should policy objectives shift. When state or federal policymakers (for reasons of local environmental or economic impact, or national security, or for global climate concerns) decide that aggressively pursuing large amounts of energy efficiency benefits is once again a priority, a Standard Offer type of program (incorporating the improvements suggested in this evaluation) would be an important element of an overall energy efficiency strategy. There is at least some value in knowing that this proven mechanism for delivering large-scale energy savings is available.

References

Edgar, George, Martin Kushler and Don Schultz 1998, "Evaluation of Public Service Electric & Gas Company's Standard Offer Program." Madison WI: Wisconsin Energy Conservation Corporation.

Goldberg, Miriam L., Michael Stockard and William Stevens Taber, Jr., "Reaching for High-Hanging Fruit: Cost Effective Measurement of Demand Side Bids." Proceedings: *1998 ACEEE Summer Study On Energy Efficiency In Buildings.* Vol. 6, pp. 6.55-6.66. Washington DC: American Council for an Energy Efficient Economy (ACEEE).

Goldman, Chuck, M. Kito and Mithra Moezzi 1995, "Evaluation of Public Service Electric & Gas Company" Standard Offer Program: Volume I." Berkeley CA: Lawrence Berkeley Laboratory.

Goldman, Chuck, Joe Eto, Ralph Prahl and Jeff Schlegel 1998, "California's Nonresidential Standard Performance Contract Program." *Proceedings: 1998 ACEEE Summer Study On Energy Efficiency In Buildings.* Vol. 6, pp. 6.67-6.79. Washington DC: American Council for an Energy Efficient Economy (ACEEE).

New Jersey Administrative Code (NJAC) 1991, "Demand Side Management Resource Plan." State of New Jersey.

New Jersey Board of Regulatory Commissioners (NJBRC) 1992, Docket #92020105. "Stipulation And Settlement". Newark NJ:NJBRC.

Rufo, Mike, Lisa Skumatz and Rob Bordner (1999) "Evaluation of the 1998 Nonresidential Standard Performance Contract Program: Volume 1. Draft Report." Oakland CA: Xenergy, May 13.

Xenergy, Inc. (1996) " Comprehensive DSM Assessment: Final Report." Prepared for PSE&G. Burlington MA: Xenergy Inc.