PROCESS EVALUATION OF A MAJOR C&I RETROFIT PROGRAM IN NEW ENGLAND

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Introduction

This paper discusses the methodology and results of a process evaluation conducted in late summer and fall of 1990 of the New England Electric System's (NEES) major commercial and industrial (C&I) customer retrofit program, Energy Initiative.[1] This program provides rebates (fixed and calculated) and technical assistance for the installation of a variety of energy efficient measures, custom and process-related equipment (Table 1). Energy Initiative is offered system-wide to all existing C&I customers and represents the comprehensive culmination of previous C&I incentive programs that addressed specific measures and market segments.[2]

Table 1. Eligible Measures Covered under Energy Initiative

Category	Measure
Energy Efficient Lamps	*Fluorescent lamps*
	Compact fluorescent bulbs
	High Intensity Discharge (HID) lamps
	Halogen bulbs
	Low voltage halogen bulbs
Other Lighting Measures	*Fluorescent ballasts*
	Other energy efficient ballasts
	Reflecting lenses (with system)
Other Measures	*Refrigeration equipment*
	Motors and motor controls
	Industrial equipment
	Heat recovery systems
	HVAC replacement measures
	EMS/load control devices
	Air-conditioning upgrades
	Cool storage systems
	Window film
	Customized measures

The program was first offered in June 1989. Energy Initiative reached 146% of its goal for the 1990 program year (system-wide); the averages for the nine participating regions ranged from 253% to 88%. Findings from the process evaluation provide evidence that the utility has successfully incorporated feedback from previous program evaluations in designing the current Energy Initiative program. Customer participants, utility delivery staff, and trade allies unanimously prefer Energy Initiative to its predecessors. Satisfaction ratings are not only high for participants, but over 80% of nonparticipants indicated that they plan to participate in the near future.

The primary purpose of this comprehensive process evaluation was to assess the strengths and weaknesses of Energy Initiative from the perspectives of both those who provide and receive program services. These perspectives included, first, the utility staff who deliver program services to customers and who deal with trade allies in arranging for the installation of measures. Second, NEES was interested in examining the response of local trade allies to the program (such as equipment dealers, installers, and contractors), particularly in comparison to previous programs for the C&I sector. Third, the study investigated customer satisfaction and behavior issues for both participants and nonparticipants. Finally, the utility was interested in examining the potential need for enhanced technical assistance to large industrial customers for identifying energy conservation opportunities as part of the program. A separate on-site observation and interview activity was conducted to address this issue.

A secondary, and increasingly important, objective of the telephone survey part of the process evaluation was to collect data required for calculating program impacts. This information concerns customer behaviors and intentions regarding the installation of measures and their subsequent use. Factors were derived, through question-

ing of participants and nonparticipants, for free-ridership levels, snap-back effects, erosion (or persistence) of savings, and other variables used in the impact evaluation. The line of questioning used to derive these factors represents an improvement in the methodology over previous attempts, primarily in the estimation of effects *by measure* rather than for the program as a whole. While the majority of measures installed through Energy Initiative in its first full year were lighting measures, the survey instrument is now in place for tracking these data in more significant numbers as penetrations of other measures increase over time. This level of investigation allows for more realistic program impact calculations which recognize different levels of consumer knowledge, behaviors, and intentions for different types of equipment.

Results of the evaluation have already been used to make minor program changes and will be used to assess how to further improve Energy Initiative over time. The full report of this study is referenced at the end of this paper (Ref. 1). Also, an earlier paper was prepared that shows key comparative results to the surveys in this study to surveys conducted as part of the evaluations of the predecessor programs (Ref. 2).

Methodology

Various methods were used to investigate the issues of concern in this evaluation. On-site observation of the delivery of program services was performed at various locations to enable the evaluator to personally experience the program services. This was done at project initiation in several districts by riding along with a utility representative when carrying out regular daily duties. Typical activities included meeting with customers to either help fill out an application, check on an installation schedule, perform a post-installation inspection, or deliver a rebate check. Activities also included visits to trade allies to confirm a scheduled job, answer questions about the program, or review applications (several trade allies fill out the forms for customers and thus receive the rebate check directly). A separate on-site observation was performed at a large paper mill where an expanded Energy Initiative service was being tested. This visit entailed observing interactions between several representatives of the customer facility, expert consultants hired by NEES at utility expense to identify energy efficiency opportunities, and various utility personnel from the district and corporate offices.

A series of structured one-on-one interviews were then conducted with utility staff in a selection of geographically diverse districts of the utility service territory. An attempt was made to talk with three or four staff members of each district, some newer employees and some who had been in their jobs for several years, to obtain a representative range of impressions about the program. (Individual appointments were scheduled by the district offices and therefore were not random.) In these same locations, one-on-one interviews were also conducted with trade allies (lighting, motors, and HVAC equipment dealers). These interviews were fewer in number and the results are not considered necessarily representative of trade ally opinions system-wide, but are considered to be valuable anecdotal information for program planning purposes. [Quantitative telephone surveys of equipment dealers have been performed by Freeman Research Resources for NEES in 1987 and 1989 (Ref. 3).]

For the customer perspective, telephone surveys of participant and nonparticipant customers were conducted using a detailed survey instrument. The survey results were analyzed using standard crosstabulations and comparisons between participant and nonparticipant responses for core questions contained on both survey instruments. The survey statistics are shown in Table 2.

Table 2. Completion Statistics for Customer Surveys

	Participants	Nonparticipants
Initial sample	923	699
Sample attempted	870	504
Completed surveys	206	105

Finally, a limited number of informal interviews were conducted with corporate program planning and management staff at the initiation of the project.

There are several findings which emerged from this multifaceted study. These can be grouped into three categories: program operation findings, market transformation findings, and customer behavior findings. Where findings were anticipated or are easily addressed, the utility may already have implemented changes prior to the publication of the evaluation report. In other cases, findings provide the basis for further analysis (as in the impact evaluation) and future planning as appropriate.

Findings Related to Program Operations

Findings from a process evaluation that are specific to the program being investigated, the effectiveness of the current delivery system, and ways to enhance and im-

prove it are referred to here as relating to program operations. In many cases, issues are already anticipated by program management in the design of the study, and solutions are discovered through the interview process. Often the utility implements minor changes almost immediately, or has other larger changes already in progress (such as making changes to the application forms). The independent process evaluation here serves to confirm and validate (or reject) internal hypotheses. Thus, relevant operational issues are often addressed by the utility in advance of the publication of the final report.

Operational findings for the Energy Initiative program were identified largely in the interviews with program staff and trade allies, and in some cases were verified in the customer surveys. Several conclusions of the study relate to the finding that the program is very field-labor intensive. This finding has grown out of predecessor programs that were less hands-on in terms of utility representative support. It may be that these earlier programs exhausted the do-it-yourself or early adopter populations with their simple rebate formats for turn key measures. Energy Initiative, on the other hand, carries the customer and the equipment trade allies through from initial project application to post-installation inspection, with the utility representatives working alongside the team all the way. The objective here is to minimize the hassle for customers and to build a three-way relationship to effect a more comprehensive installation. The implications of this approach are positive and negative: on the plus side, utility representatives like the program because it offers them more professional roles and the chance to cement good relations with customers and trade allies. Customers, too, like this intensive treatment and attention. On the negative side is the resultant pressure on field staff. Field offices complain of being understaffed and in need of more support (training, quick turnaround of paperwork by the corporate office). Trade allies are ambivalent as a group: those who actively support the program love it, and those who do not play a large role feel left out of the action (the program tends to favor larger equipment dealers and contractors due to cash flow requirements). Whether the utility has the ability to respond to this operational issue—the need for more field staff to serve the program—is a long term question, but one which will be considered as future DSM program commitments are made.

The process evaluation also revealed that utility representative relationships with trade allies are critical to the program's success. Indeed, the market cannot be transformed without having local dealers stock and become experienced with the qualifying equipment. Simple steps to improve communications with trade allies and promote fair practices in recommending dealers to customers were already being taken as the evaluation concluded. For example, it was revealed (confirming a suspicion) that utility districts treated dealers differently depending upon their locations, tending to favor dealers located within their districts. Since C/I equipment dealers typically have markets that transcend utility district lines, this differential treatment for the same program was perceived by dealers as unfair and counterproductive to smooth program operations (the utility management agreed). The importance of appeasing the trade allies resulted in new rules being established to ensure uniform handling of trade ally matters across districts, regardless of location.

In terms of operational issues from the customers' perspective, few problems were in evidence. In fact, there is a high incidence of repeat participation by customers, perhaps the best measure of a program's success and acceptance by its market. Nonparticipants, too, must be hearing good things from their neighboring business peers, since fully 80% indicated plans to participate within the next five years.

A final operational issue transcends Energy Initiative and speaks to the overall DSM planning and evaluation versus implementation roles played by corporate versus field staff, respectively. With the increased corporate importance placed upon the achievement of DSM goals (*i.e.*, and their attendant incentive payments) comes increased pressure on the field staff. The enthusiasm displayed by field representatives for attempting to reach goals set for a program that they enjoy delivering is offset by the perceived (or real) lower salaries and compensation packages, fewer opportunities for training or company travel, and other perks observed as available to corporate staff. In short, field staff do not feel that the increased pressures are being adequately met with increased corporate support to help meet the challenges. Exacerbating this (somewhat traditional) field/corporate gulf is the perceived lack of adequate support from the corporate offices to the field for support tasks. Lack of adequate staffing for program management at the corporate level can affect field operations for a program system-wide. The study thus identified that, despite the fact that Energy Initiative is a welcomed improvement over previous programs that has resulted from the combined advances on the learning curve of field and corporate staff alike, there still exist opportunities for improved communications between, and more balanced reward systems for, corporate and field DSM staff. Further, adequate staffing levels for the DSM programs continue to be a problem for both operations.

Market Transformation Findings

Several process evaluation findings relate to the broader context of how Energy Initiative and its predecessor programs are affecting the overall commercial/industrial market for energy efficiency in the utility's service territory. These conclusions were drawn primarily from interviews with lighting, motors, and HVAC equipment dealers and contractors around the system. It should be noted that the information collected was anecdotal in nature (even though a structured interview format was followed) and that these findings should eventually be verified in a quantitative survey.

It was very clear from the interviews that the interaction of Energy Initiative and its predecessor programs with the dealers interviewed has had a very significant effect on (1) their education and growing familiarity with energy efficient products, (2) their staffing and the way they do business with their customers, and (3) product changes demanded from manufacturers by the dealers, both in terms of volume of product and new product ideas. The initial findings show that utilities should not underestimate the impact that major programs such as Energy Initiative can have in changing the infrastructure for energy efficient product delivery to C&I customers. Even taking into account the fact that the dealers interviewed were not a random sample, they collectively do a large volume of business in their market areas and are most likely indicative of the behaviors and attitudes of their participating peers.

Lighting dealers in particular have grown more experienced with the energy efficient lighting products and, with this first-hand familiarity, are in a better position to make recommendations to customers. Additionally, dealers reported having either made specific product improvement recommendations to their manufacturers that have been adopted or, even more interestingly, have "invented" new products in conjunction with manufacturers. One example is in the development of a wider variety of reflector shields, including double-winged reflectors, that are inserted into fixtures to allow for the removal of tubes. The challenge for the utility program is to keep up with these products changes and introductions to ensure that appropriate ones are added to the menu of qualifying measures. (Note that the market transformation in lighting products has resulted in higher free-ridership levels for these products, as based on indications from this study. The question of how to treat these effects in terms of utility rate incentives—*i.e.*, as a credit or a deduction—will need to be revisited as other market transformations occur as a result of utility programs. This issue is discussed more in the Conclusions.)

Motor technology also is improving because of the increasing familiarity with products resulting from the utility program. One motor dealer interviewed made the statement that, "The utility should be flattered that dealers are pushing manufacturers to provide more and better energy efficient lines," with the result being that manufacturers are upgrading their product lines.

Because of the demand for more products from participating dealers in the NEES programs as well as other utility programs in the New England region, there is evidence that more products are being supplied by manufacturers for the C&I sector. Higher volume requests for energy efficient products are the apparent direct effect of the Energy Initiative and other programs within the NEES service territory. Increased dealer familiarity (and customer familiarity) with the products most likely adds to this direct effect. Finally, one lighting dealer reported that wholesale prices for energy efficient products are coming down and that manufacturers are starting to compete more. Equipment availability for some less familiar lighting items remains slow (hybrid ballasts, HIDs), and some availability problems were also reported for high-volume items in demand in the region such as lamps that are also distributed through the utility's companion direct-installation program for small C&I customers.

Finally, it was interesting to note the way in which dealers are responding to the Energy Initiative program in their staffing assignments and other operations. Three of the seven firms surveyed reported having a dedicated staffperson to work exclusively with the utility program, one being specifically hired for this purpose and two on reassignment. These staffpersons market the program, work with customers in specifying what could be done, fill out the paperwork, meet with the utility representatives on a regular basis"often coming out to the District offices, and follow each job through completion. Other firms reported that they have diversified from being exclusively involved in selling the products to now doing the installations as well. This is because it allows them to have control over the job from start to finish and thus ensure more timely completion, adherence to program guidelines, and higher profit retention.

Findings Related to Customer Behavior

The customer survey results provide findings related to free-rider effects, ages of equipment replaced, sustainability of savings, comprehensiveness of installations, overall customer satisfaction, satisfaction with specific program features, need for technical assistance, customer costs, and other issues. These findings are pre-

sented in summary form here, with complete tabulations available in Volume II of Ref. 1.

Participants and nonparticipants surveyed by telephone indicate a high level of interest in and acceptance of the Energy Initiative program. Many participants have submitted more than one application since the program's inception and report intentions to submit more in the future. Participants are very positive about their experiences with the program and give high ratings to the overall program and its features. The overall program received a 98% positive rating, including a 58% "excellent" rating from participants. (See Ref. 2 for how these statistics compare to those for the earlier programs.) Contact with a utility representative throughout the program appears to be a highly positive program feature to participants (95% combined positive rating). Utility representative contact is the key initial point of awareness (for participants and nonparticipants), and the primary outside source of influence in the decision to participate. Fully 99% of participants indicated that they would participate over again (204 out of 206 respondents).

Participants overwhelmingly chose to take advantage of the Energy Initiative program to cut operating costs. Almost one-third of participants upgraded working equipment and about one-fifth replaced failed equipment as part of their installation of measures. The availability of financial incentives was the second main reason for participation.

Both participants and current nonparticipants intend to participate in the program beyond their current levels of activity—75% of participants intend to submit more applications, and 34% of these intend to do so within the next 6 months. While a significant number of nonparticipants were unaware of the program when called, 82% of those who completed the survey (*i.e.*, were aware of the program) indicated future intentions to apply. In fact, many nonparticipants asked for more information on Energy Initiative at the end of the survey. A list of these names was provided, with customer permission, to NEES for pursuing at the district level.

Participants in the respondent pool installed an entire range of measures through the Energy Initiative program. Overall, 13% of nonparticipants installed some measures on their own; the only measures that had significant (≥1% or greater) installation levels by nonparticipants were "other lighting measures" (*i.e.*, other than lamps) and motors. Significant numbers of additional measures were considered for installation by participants (mostly lamps, other lighting measures, and motors), but were not installed because of perceived low incentive levels, time ("can't do it all now"), and the need for more information.

Participants appear to differ from nonparticipants in several interesting ways. Participants tend to look to outside sources of expertise for advice, while nonparticipants are "do-it-yourselfers." This finding suggests that, if indeed nonparticipants who install measures are inherently different from participants, estimates of freeridership based on nonparticipants' actions may be flawed. The findings imply that, unlike nonparticipants, participants need the program ("look to outside sources...") in order to undertake retrofit measures, and might not have "done it themselves."

Participants value "utility sensitivity to customer needs" most highly, while nonparticipants care first that their utility "provide adequate choices in rates." In terms of how they view the importance of electricity use in their business, most nonparticipants monitor their energy costs carefully as compared to participants (76% versus 2%), while participants consider their energy costs to be larger than do nonparticipants (59% versus 18%).

Desired changes for improving Energy Initiative focus on improving the turnaround time for review of applications and increasing the amount of technical assistance offered. When asked specifically about technical assistance, 11% said they wanted more of it and mostly for specifying the work to be done.

Several issues were investigated relating to the implementation of measures through the program, their continued use, and the customer costs associated with these measures. The questions posed to identify these data represented the most detailed attempt at addressing these issues for the utility to date, with most questions posed by measure. Brief discussions of the questions and their results follow.

Sustainability of Savings

Participants were asked, for each measure installed through the program, which measures were still installed and in use. This question attempted to identify sustained levels of energy savings that might be expected by measure. The findings show, for example, that 100% of the lamps, 94% of "other lighting measures," and 75% of air conditioning upgrades were still in use at the time of the survey. The lowest levels of measures still in use were for items installed by only one or two participants with one participant removing the item (or experiencing other difficulty). These included EMS/load controllers and customized equipment, as examples.

Free Ridership and Prior Intentions

An initial general question concerning the extent to which the program caused customers to take action revealed that only 22% of participants indicated that they had specific changes in mind before applying to the program, while 77% did not.

Free ridership, or the extent to which customers who have participated in the rebate program would have installed the measures on their own, was estimated in two ways. One way (cautioned above) examines comparable activity of nonparticipants. Fourteen nonparticipants out of 105 (13%) indicated having installed something on their own, without the rebate. These figures by measure (see Ref. 1), provide one estimate of free ridership in terms of what percent of participants might have installed measures without the rebate. The sample of nonparticipants was not specifically drawn for this purpose (nonparticipant sample n = 105 versus n = 206 participants), and the numbers are too small to provide a reliable estimate of market activity without the rebate.

To obtain a second measure of free-ridership, questions were asked of participants installing each measure as to their likely intention to have purchased the measure(s) without the rebate. While this approach has its own inherent bias in that the responses are speculative, it provides another, more direct measure of potential free ridership. The calculation divides the number of those who "would have installed the measure without the rebate" by the number of those installing the measure. These findings show a range of free-ridership levels by measure with items such as lamps, which have been offered for years by the utility in previous programs, having high levels of "prior intention to install." (All energy efficient lamp types combined showed 22% free ridership. The data collected in this study even allow for calculation of free ridership by type of lamp.) On the other hand, other measures such as motors and motor controls showed lower levels of free ridership (11%).

Prior Conditions and Installation Context

To get at the specific context in which installations were made, customers were asked whether the following conditions applied to their installation situations. The results give an indication as to the pre-conditions of the facility which affected the installation decision. Response choices were "upgraded working equipment" (with 29% indicating that this situation directly applied to them), replaced failed equipment (22%), "installed as part of a renovation" (11%), and "installed primarily to cut costs" (96%). Note that respondents were asked to respond to each situation; the responses are not mutually exclusive, as more than one situation and measure installation could apply.

Age of Equipment Replaced

The survey instruments captured information, by measure, as to the age of equipment that was replaced. These findings can be used on a per participant basis for calculating unit savings for measures where a pre-usage level can be derived from the survey based on age of equipment. Ages ranged by equipment and respondent. Lamps that were replaced through the program tended to be 5 years old (most frequent response category), other lighting measures were 25 years old, motors were from 10 to 18 years old, and HVAC and air conditioning equipment was most frequently reported as 35 years old. Some respondents installing lighting and motors indicated replacing equipment that was one year old; these same measures also represented the oldest type of equipment replaced. Two people who installed heat recovery systems reported the previous systems to have been 40 years old. Weighted mean ages of each type of equipment replaced were provided in the report for impact evaluation purposes.

Post-Installation Energy Use and Snap-back Effects

Utility investments in DSM technologies assume that energy savings and load reductions will result. These savings may erode if usage increases. This phenomenon is referred to as snap-back when the increased usage *is a direct result of the lower energy bill (real or perceived) caused by the efficiency installation.* Of course, energy use may increase due to non-program related reasons, such as expanded square footage, increased number of employees or production levels, for example. The concern among program evaluators is the extent to which electricity consumption may be increasing after the installation of efficiency measures specifically due to snap-back. In this case, a deduction to the assumed energy savings is made.

This project attempted to measure (1) the extent of increased usage, if any, and (2) increased usage that might be considered snap-back, for both participants and nonparticipants. First, the question was posed, "Have you experienced a change in your electric bill since the measures were installed?" This question is followed by one that attempts to identify respondents' perceptions of whether they think the installations have resulted in any energy savings. Then, all respondents are asked directly if they have increased their electricity use since the measures

were installed. For those indicating "yes" to this question, they are asked for the potential reason for the increase in usage. Unprompted responses were placed into categories identified during the design of the survey instruments, with unanticipated responses categorized as "Other" and typed out into a database.

Finally, those participants indicating an increase are asked a second follow-on question about whether the increase in usage is a *direct effect* of the cost savings they have achieved (or perceive to have achieved) through the installation of measures thorough the program. This is the measure of snap-back effects.

The findings concerning increased usage indicate that 20% of the participants (41) reported increasing their usage of electricity since installing measures. Their primary causes of increased usage are "other" (71% of 41 people), increased equipment operation (17%), added other equipment (10%), and increased operating hours (2%). Fifteen percent of those indicating some increase (15% of 20% = 3%) further indicated that the increase was a *direct effect* of the measures installed through the program (6 respondents out of 206, or 3%). Thus, the snap-back effect as measured for this program is calculated (across all measures) at 3% of respondents taking some part of the energy savings back.

In order to accurately measure snap-back for energy savings calculation purposes, data would need to be obtained by measure and by amount of increased consumption. This study merely attempted to quantify the effect at a gross level, with the intention of improving the methodology in future studies if the approach proved successful.

Costs of Participation and Financing Measures

NEES was interested in understanding what percentage of measure costs are actually covered by the rebate amounts being offered through the program. Criticism of some of the measure rebate levels surfaced in the trade ally interviews with equipment dealers. In spite of the fact that the utility tries to keep up with industry costs for various measures, the fact is that wholesale prices to dealers change frequently. Motors dealers report that, in fact, prices change with almost every order and that significant fluctuations can occur over the period of a year.

While changing rebate prices on a frequent basis would be an unworkable program strategy, NEES nonetheless wished to find out from customers how much of the cost of equipment was not covered by the rebate. The telephone survey identified the most frequently mentioned ranges of costs that are paid by customers, along with the percentage of customers represented by the response choices listed. An average mean cost per measure was also provided. Lamp costs are almost totally covered by the rebate (1-10% of costs paid out-of-pocket by customers), while 91-100% of refrigeration equipment costs are reported as borne by customers. Rebates for motors cover all but 31-40% of total costs.

Interest also is high concerning how the extra costs of installing measures are financed by customers. Both participants and nonparticipants who made installations (n = 14) were asked about project financing. Sixty-eight percent of participants indicted incurring no out-of-pocket costs, while 24% financed their portion of the measure plus installation costs through operating income or available cash, 2% through personal funds, and 1% each through budgeted capital and other means.

Additional out-of-pocket costs were incurred by participants for installation expenses (31% of the 74 people mentioning that they incurred out-of-pocket costs), additional or related equipment costs (8%), consultant expenses (5%), structural or process changes related to the installation of measures (3%), and other expenses (6%).

Finally, it should be noted that the sample sizes for the survey should be increased significantly in order to obtain more defensible estimates of out-of-pocket costs and financing methods.

Conclusions

This process evaluation identified that Energy Initiative is highly regarded by trade allies, supported enthusiastically by field representatives, and favorably viewed by both participating and nonparticipating customers. Participation levels have been high, with many participants submitting multiple applications with future intentions to submit even more. Nonparticipants also indicate intentions to participate in the near future, increasing the likelihood of continued achievement of program goals over time.

The advances in survey design implemented in this study have improved the collection of data regarding program marketing techniques and have set the stage for calculating better factors related to the calculation of program impacts. Further improvements in survey methodology could increase the reliability of such self-reported data as useful for regression models and otherwise valuable for explaining the results of impact analysis

methods (such as billing analysis). Regardless of data collection improvements, however, the utility industry and regulatory community will need to address the broader policy issue of how to treat the numbers that are calculated by evaluators. For example, how should utilities really be treated, in terms of incentives, regarding their investments in transforming the marketplace for energy efficiency? Should utilities get credit for free drivers and the increased exposure of nonparticipants to the availability of efficient products as a result of utility programs? Do these positive actions by nonparticipants in effect cancel out free-rider effects? In considering market transformation objectives, one would assume that the goal is eventually for all consumers to be free-riders, as is becoming the case with energy efficient lamps. What should the utility role be then—to ramp back to an informational program or to make rebates available for the next newest technology, with the aim of continually advancing the market toward increased energy efficiency? Capturing the overall market effects of utility programs, and not just the participant effects, suggests more of a societal treatment toward program evaluation. Whatever the view, evaluators continue to need direction from policy makers in order to design appropriate program evaluation methodologies to address these issues.

Finally, the qualitative methods employed here continue to be valuable as a management tool for identifying near term program improvements and for providing a basis for quantitative data collection to verify preliminary findings. There is room for moving the qualitative features of process evaluation away from the label of being an art toward adopting more of the theories and approaches of formal management science. The need for better cost-effectiveness assessments and increased efficiency in delivering such major programs as Energy Initiative will continue to push process evaluation in this direction.

Endnotes

[1]The New England Electric System serves electric customers in Massachusetts, Rhode Island, and New Hampshire through retail operating companies, Massachusetts Electric, Narragansett Electric, and Granite State Electric Companies, respectively.

[2]The companion energy-efficiency program for new buildings is called Design 2000.

References

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