

Maximizing the Usefulness of Process Evaluations

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Abstract

Con Edison and Navigant Consulting, Inc. developed a structured, innovative approach to conducting process evaluations of the utility's Energy Efficiency Portfolio Standards (EEPS) programs. The New York Department of Public Service (DPS) required utilities to implement certain "Fast Track" programs very quickly, as the state strove to meet its EEPS goal of reducing energy consumption by 15% by 2015. While the commission understood that the utilities would take some time to organize themselves, hire contractors and consultants, and develop program designs and implementation plans, it wanted to "fast track" certain key programs so that savings could begin to accrue. This paper will present the approach developed by the utility and its consultant team to conduct process evaluations in a way that facilitated quick feedback on these Fast Track programs and maximized the usefulness of all program evaluation results in additional ways. The goal was to identify and address program issues as the programs and their evaluations were being implemented, to the extent possible, rather than after evaluations were completed.

Three key elements of this approach included a 6-week "Red Flag" assessment of each program, organization of the evaluation effort under six specific research areas, and close cooperation between internal utility and evaluation consultant teams. This paper discusses each element of the approach, provides examples of program issues that were identified earlier than they otherwise would have been, and illustrates how the approach affected the entire process evaluation effort, from prioritization of issues to survey design to presentation of final results.

Introduction

In May 2007 the New York Public Service Commission (DPS) initiated a proceeding to design an electric and natural gas Energy Efficiency Portfolio Standard (EEPS). This order was in response to then-Governor Eliot Spitzer's goal of reducing energy usage 15 percent by 2015 ("15 by '15"). On June 23, 2008 the DPS issued an order establishing the EEPS savings target, approving the EEPS program concepts, requiring utilities to file most of their program proposals within 90 days, and requiring that two program proposals, the Small Business Direct Installation (SBDI) and the Residential HVAC programs (i.e., the "Fast Track" programs), be expedited and submitted within 60 days. While the New York Department of Public Service (DPS) understood that the utilities would take some time to organize themselves, hire contractors and consultants (and even utility staff), and develop detailed program designs and implementation plans, it wanted to "fast track" certain key programs so that savings could begin to accrue as soon as possible. These statewide Fast Track programs included the following:

- Residential HVAC program – incentives for the purchase and installation of equipment to reduce residential electric and gas HVAC energy consumption, including high-efficiency heating and cooling equipment, and add-on equipment to improve system efficiency such as programmable thermostats, electronically commutated motors for furnace fans, and gas boiler reset controls
- Small Business Direct Install (SBDI) program – on-site energy surveys, direct installation of free low-cost efficiency measures (CFLs, low-flow faucet aerators, high-pressure rinse sprayers, and water heater thermostat setback), and rebates for installing measures recommended by the

energy surveys, for non-residential customers with 12-month average demand under 100 kilowatts

Other programs approved for Con Edison included the following:

- Residential Room Air Conditioner (AC) program – incentives for Energy Star room ACs
- Residential Direct Install program – on-site energy surveys and low-cost measure installs
- Residential Appliance Bounty program – refrigerator/freezer/room AC recycling
- Multi-family Electric and Gas Efficiency programs – individual unit energy surveys and installation of low-cost measures (e.g., CFLs and Smart Strips), incentives for implementation of common area lighting and heating system measures
- Multi-family Low-Income program – incentives for efficient heating/shell measures at the New York City and Westchester Housing Authority facilities only
- Commercial & Industrial Electric and Gas Rebate and Custom programs – efficiency measure rebates targeting non-residential customers not addressed by the SBDI program (>100 kW)

As soon as its Fast Track programs were approved by the DPS, Con Edison began hiring contractors to implement its EEPS programs, starting with the Fast Track programs. About one year later, the utility selected a consultant team led by Navigant Consulting, Inc. (Navigant) to conduct process evaluations of the entire portfolio of Energy Efficiency Portfolio Standards (EEPS) programs.

Process evaluation planning began in the following context:

- New programs – These were programs Con Edison had not implemented previously.
- Utility staff new to energy efficiency program implementation – While fifteen years earlier, the utility had successfully administered energy efficiency programs in-house, the long hiatus in utility energy efficiency implementation (when only NYSEERDA was administering programs in New York) had decimated the utility's internal energy efficiency staff, as individuals left the company for other efficiency work, retired or were re-trained in other areas. The few available staff had very little, if any, direct energy efficiency experience and faced a steep learning curve, a problem exacerbated by the need to rapidly implement the Fast Track programs.
- A new approach to energy efficiency – In the past Con Edison had implemented its energy efficiency programs with its own staff. Now, it was outsourcing implementation to what it hoped were experienced, knowledgeable contractors. The utility was fresh from having administered its Targeted DSM program, using an outsourcing approach, and had learned some important lessons about working with implementation contractors. However, outsourcing these types of programs and on such a large scale was new to the utility.
- Slow start to programs – Because the utility could not be sure its programs would be approved by the DPS when filed or in what form, it couldn't hire staff ahead of time, to prepare for implementation. Fast track programs began quickly. This meant that the implementation contractors had to initiate their programs, hitting the ground running and filling in needed protocols and systems along the way. Each remaining program design was developed much more slowly, as the utility came to grips with specifying design details, followed by a pause to see whether the program would be approved, making program modifications required for approval, filing an implementation plan and obtaining approval, developing and issuing a Request for Proposals (RFP) for an implementation contractor, selecting the winning bidder and negotiating a contract. This process was repeated for each new program or set of programs. Meanwhile, the clock was ticking and program goals – and penalty structures for not achieving them – remained in place. The utility found itself with less and less time to achieve savings goals, as each new program was launched.
- New infrastructure – Con Edison had to create a new infrastructure, not only to address administration and oversight of energy efficiency implementation contractors but also to address its internal needs. Procedures and systems had to be decided on and designed. In some areas the

utility had to first experience problems before realizing that new infrastructure was needed (e.g., the process by which marketing materials were created, approved and delivered to market when working with implementation contractors).

In the face of the issues noted above, Con Edison had already decided that the process evaluation should be started prior to the impact evaluation effort, to facilitate earlier research into process issues. The utility and the Navigant team then developed an approach to process evaluation that was designed to be comprehensive, useful and practical, and also likely to alert the utility to program issues in a timely manner, so that such issues could be addressed as early as possible in the program period.

That approach had three important characteristics:

- A Red Flag analysis, in which a cursory assessment was made of the program, to determine whether there were any “red flags” – obvious issues that should be addressed immediately so that the program had a better opportunity to achieve its savings goals. This was a formative evaluation in the sense that it was “an assessment of efforts prior to their completion for the purpose of improving the efforts.” Formative evaluation is used in a number of other disciplines (Nan, 2003).
- A focus on six key research areas to investigate, rather than on research tasks to complete. The research areas were based largely on key operational processes associated with the programs.
- The evaluation (Navigant) contractor team and the Con Edison internal evaluation team both played active roles in evaluating the program, working as a team, while maintaining the evaluation contractor’s independence.

Each of these characteristics is described in more detail below, along with examples of why the approach was successful.

Red Flag Analysis

The Red Flag analysis comprised a 6- to 8-week assessment of each program:

- Quick review of program documentation and marketing materials (including program logic model, program goals and budgets, participation progress relative to goals, application forms, implementation and marketing plans, and performance indicators, if any)
- Quick review of the program participation database/tracking system (including whether key data fields required for impact evaluation are being tracked, consistency of the data, basic profile of participation, extent of outliers in the data)
- Interviews with program staff and implementation contractors, to gain an in-depth perspective of each program (including issues that have had to be addressed, consistency of understanding of utility and implementation contractor staff regarding key program objectives, processes and progress)

Findings immediately were summarized in a memorandum and delivered to the Con Edison Section Manager for Evaluation, who then forwarded it on to the appropriate internal and external program implementation staff for review and response. This was viewed as a critical element in helping the new programs overcome initial obstacles. The following are examples of early recommendations from the Red Flag analysis:

- Drop the contractor certification requirement. The Residential HVAC program was struggling to obtain participants. The Red Flag analysis revealed that most likely this was caused by a program requirement that rebates would only be provided for equipment that was installed by contractors who had been certified by the program. Program data indicated that few contractors had become certified, and program staff reported that contractors had been made aware of the program. The evaluation team’s working hypothesis was that the certification process was

perceived by the contractor community as being too onerous. It required in-person attendance at a 4- to 6-hour training session, some of which had to do with proper installation and most of which had to do with program rules. The evaluation team recommended that, especially in light of the newness of the program to the market, Con Edison consider removing the certification requirement at least until the contractor community developed some experience and comfort with high-efficiency products and working with a rebate program, and fully understood the benefits of such equipment and could promote it. Other utilities within the state allowed all contractors to immediately participate and provided program related training after the fact. Con Edison took the alternate route initially, by requiring the training before program eligibility was granted.

Result: The utility dropped the requirement within months, still offering program-specific training after the fact. Participation increased. While other changes were made to the program in the same time frame, this is thought to have resulted in increased participation. This change might not have occurred until much later in the absence of the Red Flag analysis.

- Streamline the process for generating marketing materials. Immediately upon initiating staff and implementation contractor interviews, it became apparent that producing marketing materials was a time-consuming and frustrating process. Con Edison had not fully worked out clear roles for implementation contractors and Con Edison's marketing and Corporate Communications and Media Relations departments. Some implementation contractors acted on their own, sending materials out without approval, so that marketing efforts could get underway, while others went through a lengthy and somewhat confusing approval process. In that process, an implementation contractor might believe a particular marketing material had been approved, only to find out much later that it still was not approved and could not yet be issued.

Result: Con Edison developed marketing material templates for contractors to use and defined material preparation and approval roles more clearly for the implementation contractors and internal staff. The added pressure of having an outside entity (the evaluation team) point out the problem and recommend changes helped to bring about changes. Because the evaluation team recommendations came early in the evaluation, the changes occurred much earlier than otherwise would have been the case.

- Target chain accounts. Early on, the evaluation team became aware of what Con Edison program and evaluation staff were already aware of – participation in the Small Business Direct Install program was significantly below what was needed to meet targets. The Red Flag analysis identified this problem but also proposed that one way to address this problem might be to target chain accounts. Fewer contacts might lead to greater participation, if decision-makers persuaded to participate would agree to participate in the program for multiple facilities they oversaw.

Result: As a result of this Red Flag recommendation, the utility's implementation contractor designated a specific individual to target chain accounts, so that greater savings might be possible. Targeting of chain accounts became an accepted strategy for the program. While it is difficult to assess the impact of this change, due to multiple issues being addressed for the program at the same time, it is clear that targeting of chain accounts would not have occurred until much later in the program if the recommendation had been made after the process evaluation was complete or even midway through the evaluation.

- Create a stronger link between the SBDI energy survey and measure installation. The SBDI program consisted of initial visits to potential small commercial customer participants, during which an energy survey was conducted, followed up by in-person presentation or mailing of the survey results to the customer and further follow-up by contractors to install some or all of the recommended measures. Many more customers were being surveyed than the number having measures installed. The evaluation team recommended better tracking of each survey project and follow-up for these customers.

Result: Con Edison began requiring aging reports from the program implementation contractor, allowing it to follow customers through the participation process more carefully. Later improvements were also made, including changes to the implementation contract.

Six Key Research Areas

Early on in the process evaluation planning, Navigant and Con Edison developed a set of research areas to address in each process evaluation:

- Program planning and design
- Program infrastructure
- Program marketing and customer acquisition
- Program delivery
- Program satisfaction
- Interaction with other programs

For the most part, five of these research areas are not that different from areas you might expect a process evaluation to address. The sixth area – interactions with other programs – was added, because programs were being implemented by each of the investor-owned utilities in the state and also by NYSEERDA. Several of the NYSEERDA programs competed directly with utility programs, including Con Edison's. Con Edison and the DPS were interested in knowing whether having multiple programs targeting the same customers with the same or similar measures with sometimes different rebate levels and program rules was confusing to customers. They also wanted to make sure that systems put in place to prevent individual customers from participating in both programs for the same efficiency projects were working. There was also potential confusion regarding the fact that a customer might be able to obtain a rebate from one utility for a gas heating measure and from another for lighting, even though both utilities might offer both electric and gas service. This is because neighboring utilities' service territory lines can be different for their electric service than for their gas service.

What was important about the focus on research areas was that it took the place of focusing on research tasks. Each question in each interview guide or survey was linked to a specific researchable topic included in one of the targeted research areas. Even more important was the way in which research results were analyzed and reported. For example, rather than reporting the results of program staff interviews, the results of implementation contractor interviews, the results of participant surveys, and the results of non-participant surveys, and so on, results were reported with respect to each research area. For a given process area, the research from all research tasks – from review of program documentation to program staff interviews to customer surveys to data base analysis – were synthesized to characterize the program in terms of that process area. In practice this resulted in a more structured, targeted and thoughtful analysis, which enabled more specific and actionable recommendations to be made.

Research areas were also used as a structure for determining why certain issues were arising. Once an issue or problem was identified, the evaluation team would step through each of the key research areas, to determine whether any of them might provide clues to the cause of the problem. This type of structured

issue assessment helped identify reasons for the emergence of certain problems and also helped in identifying ways in which problems could be addressed.

Table 1 below shows an example of mapping of tasks to the “Marketing & Customer Acquisition” research area for one of the programs (a Residential HVAC program).

Table 1. Sample Mapping of Research Tasks to a Research Area¹

Research Areas		Utility and Implementer Staff Interviews	Database, Document & Website Review	Trade Ally/Contractor Partner Interviews	Program Participant Surveys	Non-participant Surveys
Marketing & Customer Acquisition						
1	Determine customer awareness of the program and understanding of program requirements.				✓	✓
2	Assess whether marketing partners and channels are appropriate and effective.	✓	✓	✓	✓	✓
3	Determine whether marketing approaches are appropriate and effective, and whether marketing materials are being leveraged by contractors.	✓	✓		✓	
4	Identify customer and contractor participation drivers and barriers, including customer response to program value proposition.			✓	✓	✓
5	Identify the factors that motivate customers to upgrade to high efficiency equipment.			✓	✓	

The following provides examples of specific process evaluation problems that were identified by viewing the programs through the lens of the six key research areas.

Program Planning and Design

For most programs, this research area included a review of the types of measures and incentive levels offered, program participation requirements and, for certain programs, the effectiveness of outsourcing implementation to a contractor team rather than in-house. Sample process issues identified as part of this review included the following:

Outsourcing of program implementation. The utility’s prior experience with outsourcing program implementation had been done completely at arm’s length to the contractor. Lessons learned in that experience included the need to work more closely with implementation contractors, so that Con Edison’s brand equity could be brought to bear in energy efficiency sales efforts. However, there was a host of management issues that went along with such “outsourcing” and it quickly became apparent that this would not be a turnkey operation; active management on the part of utility staff would still be required. The focus on the outsourcing as a subject of the evaluation helped to allow these issues to be raised to a high enough level that they would be addressed.

¹ Excerpted from *Final Process Evaluation Plan for Con Edison’s and Orange & Rockland Utilities’ Residential HVAC Programs*, Navigant Consulting, Inc., August 2010.

Contractor certification. Review of program documentation and the program staff interviews conducted as part of the Red Flag analysis led to identifying the program's HVAC contractor certification requirement as a likely problem. (This is discussed in more detail below.)

Inappropriate measures. Targeting this area as part of C/I program evaluation focus group research led to the discovery that one of the measures expected to generate significant savings for the program was not applicable to most buildings in Manhattan. The Residential HVAC program was offered to customers residing in buildings with 1-4 units. However, cooling equipment sufficient to cool much of the 3- to 4-unit buildings was too large to qualify for the program. Similarly, trade allies in a focus group held regarding the C/I program noted that rebates were not available for a large share of the gas projects undertaken by the contractors – the steam boiler retrofit market in the City – and retrofitting that equipment (steam boiler conversions) is economically impractical (because of the need to re-pipe the entire building).

Unreasonable savings target. The evaluation sought to explain why Con Edison was not meeting its Residential HVAC program savings targets. The program eligibility criteria and rebate levels had been defined by the New York Department of Public Service (NYDPS). Con Edison had an experienced implementation contractor and had removed the contractor certification barrier, but still did not appear likely to achieve its savings targets. As part of a final review of program planning and design, the evaluation team estimated HVAC equipment penetration and turnover rates, finding that the targets were unreasonably high, requiring about 50% of all units turned over (replaced) in a given year to be replaced with rebated equipment. That is extremely ambitious; for a new program, it is unrealistic.

Further, utilities outside New York City were tending to come close to or exceed their program goals, while utilities serving the New York City area (i.e., Con Edison and National Grid of New York) were still far from their energy savings targets. Similarly, only two electric utilities had been approved by the NYPS&E to run full three-year electric Res HVAC programs: Con Edison and Central Hudson Gas & Electric. At the time of the evaluation, both utilities were struggling to achieve their goals. This suggested a possible flaw in the program design itself, or possibly in applying the same design statewide.

Finally, in updating the state's Technical Manual, the DPS had lowered the per-unit savings claimed for each central cooling equipment installation, by reducing the estimates of cooling equipment hours of use for different regions of the state, including New York City. All of these factors helped explain why goals were not being met.

Program Infrastructure

For most programs this included a review of the program tracking system and the quality of its data, the program web site and contracts. The tracking system review is always a critical part of a process evaluation, to ensure that the data needed for impact evaluation is indeed being captured and has sufficient controls in place to ensure high quality. Sample process issues identified as part of this review included the following.

Database deficiencies. For one program, this review found that it was extremely difficult to identify which measures were installed at which facility and who the program participant contact was. Con Edison and its implementation contractor began a long and arduous effort to rectify the situation. For another program, discussed later in this paper, the issue was the identification of the proper account number associated with projects in buildings that possessed multiple accounts. This problem had serious implications for the impact evaluation.

Web site issues. Program web site reviews identified some difficulties in customers being able to get to the appropriate web pages and made recommendations for improvements. This was a less serious problem, due to limited usage by potential participants, but it was seen as a possible barrier to participation.

Contract issues. Review of contractual requirements identified an issue with the Small Business Direct Install program. The review noted that vendor payments should be linked to measure installation rather than the number of completed surveys. (See discussion below.)

Program Marketing and Customer Acquisition

For most programs this task area included assessing program awareness levels and sources of that awareness, determining the effectiveness of marketing channels and partners, assessing customer response to the basic program value proposition and identifying barriers to participation. Sample process issues identified as part of this review included the following.

Lagging measure implementation. SBDI program participant surveys revealed that sales auditors often were not very responsive in providing survey reports or performing other follow-up activities with customers, and there was no easy way for customers to contact the sales auditor if they had questions. In fact, even the advance letters to potential participant survey respondents resulted in calls to the utility from customers complaining that individuals from the program had come out to their facilities and conducted the surveys but then nothing happened and they never heard from them again. When the contract was reviewed as part of the infrastructure review, this made sense. The program was paying bonuses to sales auditor subcontractors based on the number of facility surveys completed. This led to an increase in survey activity, but not increased measure installation. The graph below illustrates how the number of customer leads generated and the number of surveys completed increased dramatically between June 2010 and June 2011. However, the number of installations specified in the resulting work orders lagged far behind.

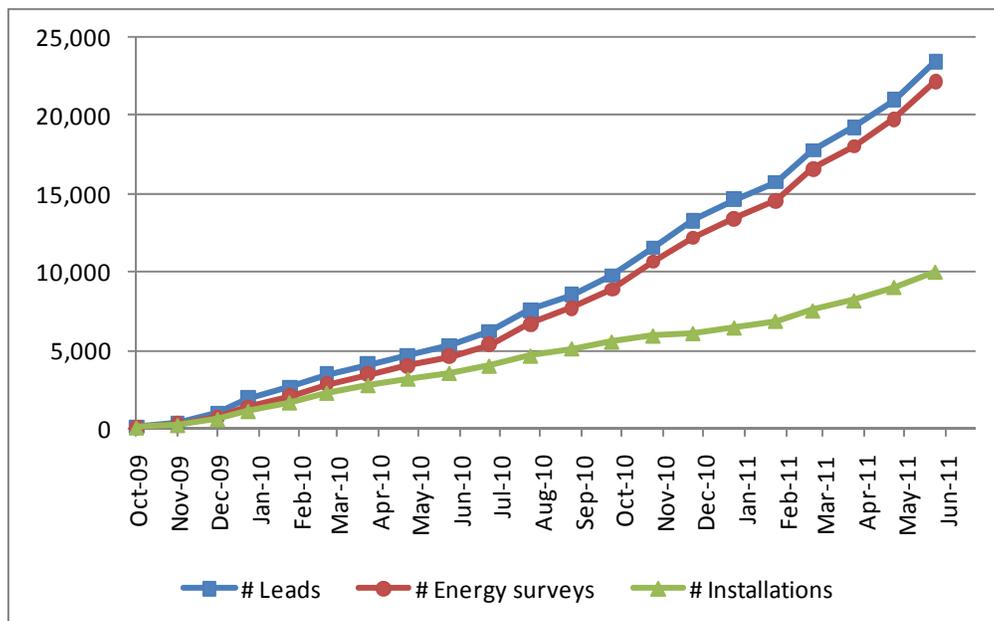


Figure 1. Con Edison – Cumulative Customer Leads, Energy Surveys and Installations Completed, per Month (October 2009 through June 2011). Source: Con Edison June 2011 Monthly Scorecard

The sales auditors had no incentive to conduct follow up because payments were tied to the number of surveys conducted, not measures installed or projects completed. The existing payment structure only encouraged an increase in the quantity of energy surveys and signed work orders. It did not encourage sales auditors to address customer questions, provide adequate explanation of survey reports, or ensure that the project specifications were adequate for the installation contractor. The process evaluation recommended that some portion of funds be tied to actual installation of measures. The contract was restructured to account for this, so that in the future sales auditors would be more responsive and the installation rate would improve.

Program communications vehicles. A standard part of the marketing and customer acquisition process review was assessing the choices the program made regarding marketing channels, the sources through which the program was publicizing the program. For the Multi-family Electric and Gas program, Con Edison had been considering reducing its in-person outreach efforts, believing they were not effective enough. The evaluation found that these efforts were responsible for a substantial portion of program participation and recommended against significant reductions in them. It also found that email was now the preferred method of making multi-family building owners aware of program information among both participating and non-participating building managers/owners.

Program Delivery

Included in this research area were an assessment of how well the program's value proposition and rules were being presented to contractors, a look at the effectiveness of the program website, and an examination of the participation process from receipt of marketing message through receipt of rebate. Sample process issues identified as part of this review included the following.

Subcontractor training needs. A ride-along observation in which someone from the evaluation team accompanied a program implementation contractor in the utility's Multi-family Electric and Gas program revealed that some implementation subcontractors were removing CFLs and replacing them with new CFLs, telling the customer they were more efficient. This led to re-training of subcontractor staff, so that CFLs only replaced incandescent bulbs.

Need for managing customer expectations. Ride-alongs and multi-family building manager interviews revealed that managers were disappointed that the program was so limited in the depth of the energy survey it offered. The team recommended that program implementers carefully manage customer expectations about the program when presenting it to them, and that Con Edison offer potential participants the choice of paying for a more extensive audit.

Program Satisfaction

This research area included assessing satisfaction with the timing of various steps in the participation process, measures included, communications with the program, and the overall program. Sample process issues identified as part of this review included the following.

Support for other evaluation conclusions. While satisfaction is clearly an area that utilities, including Con Edison, regard as very important in and of itself, addressing it in the context of the process evaluation also helped the team to identify process issues and support the need for program changes. For

example, a number of SBDI program participants reported being dissatisfied with the lack of follow-through on the part of the sales auditors who conducted surveys of their facilities. This was part of the impetus for the program to require more specific tracking of customer contacts and to look into why sales auditors were not following through, which in turn led to the eventual contract changes noted above.

Assurance that the programs resulted in positive customer experiences. The satisfaction research generally showed that participants were very satisfied with the program and were likely to recommend it to others. Even those customers who dropped out of the C/I programs (for various reasons) reported high levels of satisfaction with the program, their contacts with the utility/implementation contractor and the rebate levels. This told the utility that word of mouth about the program was probably very positive, a key element in successful marketing of the program.

Interactions with Other Programs

This research area generally addressed the impact of overlap with other programs, the extent to which such overlap was causing customer confusion, and the extent to which sufficient procedures had been put in place to avoid double-counting of participation or double dipping of payments. The primary focus of this research, however, was the interplay between NYSERDA programs (which had been in the market for some time) and the new Con Edison programs that served the same customer base with similar measures, often offering different incentives for the same projects. The evaluation did not attempt to assess the appropriateness of allowing such program overlap. Rather, it sought to determine how this phenomenon was affecting customers, if at all. This information could then be used by the NYDPS and Con Edison in future discussions about the program overlap issue. As with each of the other research areas, specific questions were included in interview guides and survey instruments to address the area. Sample issues/results identified included the following.

Low awareness. For many programs awareness was so low regarding either entity's program that there were no customer issues raised by the overlap. The evaluation team recommended monitoring the situation as programs became better known in the market.

Additional analysis for potential C/I program participants. It was in the C/I sector that program overlap was raised as an issue, partly because this evaluation was the last in the series of evaluations launched (and perhaps awareness levels had increased generally) and partly because C/I sector trade allies had a clear stake in knowing about both programs. In their efforts to help their customers get the best deal they could (and to keep their own prices competitive for potential project work), trade allies reported discussing each program's rebate levels and advantages and disadvantages with customers. Some customers reported being a bit confused by the multiple offerings, because it required them to go through an extra step of trying to determine which program was in their best interest and they wouldn't necessarily know whether it was worth the effort until they analyzed the offerings specific to their project. There was a sense, among both trade allies and customers, that the program participation process was less complex for the Con Edison program, so that customers also weighed that factor in their decisions. In short, there were trade-offs between rebate levels and ease of participation, varying in nature, all of which at least some customers seemed obliged to have to consider.

Utility and Evaluation Contractor Working As a Team

Process evaluations have historically been good at identifying problems, but less effective at determining the cause of these problems and even less effective in developing solutions to those problems. Some of this is due to the specific scope of the evaluation, in which utilities tend to desire defensible, practical recommendations but do not see the process evaluation as including the type of research and information sharing that could serve as the basis for improvements to basic internal utility processes. This is (1) in part because the activities needed to design and implement process improvements can be expensive, (2) in part because process improvements needed to address certain program process issues identified often extend beyond the realm of the departments responsible for those programs (e.g., internal data system linkages or capabilities), and (3) in part because the qualifications of firms selected to conduct process evaluations are often very different from the qualifications of firms that might be selected to perform process re-engineering or performance improvement work.

In this context utilities with stand-alone evaluation functions (evaluation staff that are independent of program implementation staff) can enhance the usefulness of the results of their process evaluations by taking an active role in following up on issues identified in the evaluation and pursuing additional leads that may be suggested by the process evaluation information as it rolls in. This was true in Con Edison's case, where the in-house evaluation team and the independent process evaluation team worked together and leveraged each other's insights and data to reach deeper in understanding the program issues that were arising, why they were arising, and how they could be addressed.

For example, because internal evaluation staff were exposed to program savings claims on a monthly basis, they noticed that some savings levels seemed particularly high. Subsequent research into selected projects showed that some project energy savings claims represented an extraordinarily high percentage of the customer's total annual energy consumption. The internal team then conducted some limited on-site QA/QC visits, which led to two interesting findings.

Some savings claims were clearly in error. There is a tendency for facilities in the Con Edison New York City territory to operate more hours daily than may be typical of the same facilities in other geographic regions. Con Edison and the primary implementation contractor were permitting the vendors conducting the site visits and installations to report actual operating hours, rather than relying on default operating hours from the state's Technical Manual (TM). However, vendors were being compensated based on savings achieved and so had a vested interest in overstating hours of use. The internal evaluation staff expected that the problem would be reporting of inappropriate hours of use.

In some early cases, this was indeed true. One example was a church in which 90% of lighting measures were installed in a part of the church used six hours per week, and 10% were installed in a part used ten hours per day. Savings for all installations was based on ten hours per day, so that savings actually exceeded total observed energy consumption for the church. The internal evaluation staff set up a savings-as-a-percentage-of-annual-consumption performance indicator, and then routinely began conducting site visits and other investigations for projects that exceeded a specified threshold percentage. In the end the utility decided to accept lower savings estimates by requiring vendors to use the TM-stipulated hours of use, to ensure that saving claims were not being inflated.

The internal team also noticed that in some situations, there were multiple account numbers for the facility (from multiple meters) and the vendor had either been sloppy or lazy about recording the appropriate one, so that savings that seemed extraordinary were actually reasonable. There was also some concern that some SBDI vendors might purposefully be choosing the account number that would make the customer eligible for the Small Business Direct Install program (with its 100-kW demand limit) so that the customer could receive a higher rebate for the efficiency project and the project could count for the SBDI program. As a result, Con Edison modified its performance indicator to apply only to facilities with one meter.

An additional implication of the multiple account number issue was that the impact evaluation team might not be able to trust all of the account numbers provided in the participation database. Based on early results from the impact analysis, this indeed did appear to be the case, and workarounds had to be developed.

Project verification quality control. One of the contractual requirements for the SBDI program contractor was to hire an independent consultant to verify samples of completed projects. The evaluation team, present at a series of meetings between utility program managers and implementation contractors, began to suspect that the implementation contractor might be guiding the QA/QC verification contractor toward certain projects and away from others. After several unsuccessful attempts to get the implementation contractor to provide data that would confirm or refute this speculation, Con Edison modified the contract terms so that verifications were performed by a contractor that reported to and was paid by Con Edison, rather than the implementation contractor. This mitigated concerns – founded or unfounded – that inappropriate sampling was occurring.

In summary, each of the major features in the process evaluation – the Red Flag analysis, the use of specific research areas to guide research design and results analysis, and the close cooperation between the evaluation consultant team and the utility’s internal evaluation team – led to increased usefulness of the evaluation results. While the quality of the causal analysis and recommendations stemming from the use of this approach likely depend on the knowledge and experience of the process evaluation team, key results were available to the utility program managers more quickly, reasons for process issues that arose were able to be discerned, and the overall evaluation effort was able to go deeper into the workings of the program, both from a practical viewpoint (e.g., through the use of site visits to test hypotheses generated by unexpected savings claims) and from a conceptual viewpoint (e.g., through review of contract terms to determine where the self-interest of contractors/vendors lay). Application of the Red Flag analysis approach appears to have significant value in assessing new programs, in particular.

Con Edison expects that different research areas may be used in subsequent process evaluations for the same programs, as different needs arise. The evaluation experience also made the internal evaluation team more aware of the types of issues that may arise and the types of steps the evaluation team can take to provide data that may assist the program implementation staff in managing their programs. Navigant has since applied the Red Flag analysis and research area approach in subsequent evaluations it has performed and found that they aid in developing process evaluation insights that might otherwise be missed or skimmed over. The company continues to investigate methods for enhancing the usefulness and timeliness of process and impact evaluation results for a variety of program types.

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