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White Paper

Lessons Learned After 30 Years of Process Evaluation

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ACKNOWLEDGEMENTS

Finally, it goes without saying that the opinions in this document are solely my own. If there are errors, if important information was missed, I apologize and hope future efforts can improve on this initial effort to document lessons learned from the first 30 years of energy-efficiency program process and market evaluation.

Jane Peters

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EXECUTIVE SUMMARY

In preparation for the *Behavior, Energy & Climate Change Conference*, I agreed to prepare a White Paper on the lessons learned from 30 years of process evaluation of energy-efficiency programs. This White Paper is, I believe, a first effort to bring such findings into the public discourse. These lessons may seem obvious to the reader today, but in 1975 and 1985, and even in 1995, many of these lessons were still unknown or only guessed at. I hope in reading this White Paper you will find, as we did, process evaluation is a gold mine.

To collect these lessons learned, and to augment and help to articulate my own experiences, we interviewed 18 process evaluators who have been active in the field for some time, most of them with over 20 years of experience. The following is a compilation of the key lessons that emerged from this review. The document tells some of the stories that led to these lessons. It is hoped the reader will review those stories, as they will provide a greater understanding of why these lessons are so important.

SUMMARY OF LESSONS LEARNED

Program Design and Implementation

➡ *Lesson:* **Conduct research on new technologies to gauge customer response and identify problems with the technology prior to large-scale introductions. Collaborate with manufacturers to fix problems.**

➡ *Lesson:* **Rewards work – but they don't always work as expected. Metrics for programs, whether for third parties or utilities, should be carefully designed. Look behind the explicit reward to see what is *really* being rewarded.**

➡ *Lesson:* **Program managers and organizations with a commitment to adapt and grow a program can make otherwise lackluster efforts work.**

➡ *Lesson:* **Programs are more effective in targeting their services when they have access to consumption data.**

Program Administration

➡ *Lesson:* **There is no easy answer to databases. They are needed, they are costly, and the first one that is built will likely need to be rebuilt as the program evolves. Effective database creation requires skilled people who understand the program and its regulatory and evaluation requirements.**

➡ *Lesson:* **Simplify, simplify! Complex application processes and requirements for detailed information can lead to nonparticipation and missed opportunities.**

Reaching Market Actors

➡ *Lesson:* **Trade allies are a key to program success, but the program needs to incorporate steps to ensure they are informed of program changes and trained in how to complete program requirements. Programs need to be as stable as possible.**

➡ *Lesson:* **Service providers need support to gain skills and practical knowledge, but that alone is insufficient – programs also need to encourage purchasers of their services to ask for the energy-efficient or carbon-neutral solution.**

➡ *Lesson:* **Seek to create a large enough market of interest to capture the attention of manufacturers and emulate the product marketplace in program delivery. Provide for on-going training of retailer staffs that interact with customers.**

➡ *Lesson:* **Communication remains an important tool for customer and market management – ignoring this can lead to missed opportunities and potentially negative results for the program administrator.**

Reaching the Customer

➡ *Lesson:* **Targeting programs to the purchase-decision points will improve the ability of residential consumers to adopt energy-efficient equipment and services, and will keep the costs of the programs commensurate with the value of the savings.**

➡ *Lesson:* **The business of business is business, and the business of energy efficiency and climate change programs is to build relationships and know what businesses need to adopt the more efficient or more carbon-neutral behavior.**

Learning from Evaluation

➡ *Lesson:* **Going beyond general program satisfaction questions is necessary to understand where the opportunities for true program enhancement lie.**

➡ *Lesson:* **Process evaluation is a tool that can improve programs and provide in-depth feedback from the market to program managers. Done early and often, it will be truly effective in enhancing program performance.**

SUGGESTIONS FOR FUTURE RESEARCH

There are still probably some dozen to two dozen process or utility program evaluators who could contribute to this research. This project was constrained largely by funding and thus could

not pursue as comprehensive a set of interviews as I would have liked. I think the emergence of a forum for these types of discussions could be even more valuable as we move into a time when energy-efficiency efforts have a higher profile than in the recent past. My hope is the *Behavior, Energy & Climate Change Conference* may provide such a forum.

1 INTRODUCTION

This White Paper provides a first effort to bring into the public domain some of the lessons learned during the past 30 years of implementing energy-efficiency programs. These lessons were collected from interviews with 18 process evaluators, most of who have been in the field for over 20 years.

BACKGROUND

Since the 1970s, following the oil embargo of 1973, utilities and energy organizations in the United States have implemented a wide variety of programs to encourage energy conservation, demand-side management, load management, demand response, renewable energy project installations, and energy-efficiency investments. Because the programs have largely been financed through public or ratepayer funds, evaluation has been used to assess the progress of these efforts. Impact evaluations of these programs have documented their successes and failures in achieving the targeted participation rates, savings, and acquisition goals, while market evaluations have looked at the behavior changes they have produced, and process evaluations have studied implementation components in efforts to improve the programs' abilities to deliver their impacts.

With more than 30 years of experience delivering energy programs, it is evident there are many lessons learned from this process. At the same time, both the industry that implements energy programs and that which evaluates those programs have experienced several business cycles, resulting in the loss of much institutional knowledge from utilities, energy consortiums, and evaluation organizations. Additionally, while impact evaluations are typically well published – both in conference proceedings and in regulatory filings – process evaluations typically are available in neither, due to the fact they are largely management tools.

Today, in 2007, the public and the government have recognized climate change is a critical issue that must be addressed. Fossil fuels are a major contributor to climate change and reduction in fossil fuel use is critical to climate change mitigation. In particular, reductions in energy use through energy efficiency and renewable energy deployment will be a significant contributor to this process.

In preparation for the first *Behavior, Energy & Climate Change (BECC) Conference*, the author noted to contacts at the California Institute of Energy Efficiency (CIEE) and the American Council for an Energy Efficient Economy (ACEEE) that the 30-year history of process evaluations provided many lessons learned. This paper is an attempt to share these lessons to help maximize the effectiveness of current efforts to address climate change.

The Bonneville Power Administration and Seattle City Light offered to support this effort as part of their contribution to the BECC Conference, and Research Into Action, Inc. agreed to develop the data, conduct the analysis, and create this White Paper in order to move some of these lessons into the public domain.

APPROACH

As described, the public documentation of process evaluation results through publications, conferences, and regulatory proceedings has been limited; thus, it would be difficult to conduct an analysis of articles and draw conclusions about lessons learned. Additionally, because some of the lessons that emerge from process evaluations concern management functions, these are often considered confidential to the sponsoring organization.

To overcome this lack of access, we decided to conduct interviews with experienced process evaluators. These evaluators, while largely in private consulting organizations, also include some contacts who have worked as internal evaluators of energy organizations.

We identified 19 well known and respected process evaluators for interviews, of which 18 were able to participate. Table 1 shows the characteristics of those interviewed.

Table 1: Characteristics of Interviewed Evaluators

CHARACTERISTIC	COUNT (N=18)
EVALUATOR TYPE	
Internal	2
External	11
Both Internal and External	5
YEARS OF EXPERIENCE	
25 Years or More: Entered field by 1982	8
20-24 Years: Entered field 1983-1987	3
15-19 Years: Entered field 1988-1992	5
10-14 Years: Entered field 1991-1997	0
Less than 10 Years: Entered field 1998-2007	2

Most have over 20 years experience and have provided services as external evaluators during at least part of their careers. As Ben Bronfman commented to me, external evaluators have become

the institutional memory with so many staffing changes over the 30 years, including many evaluators leaving internal evaluation positions to become external evaluators.[1]

Finally, we prepared an interview guide (Appendix B) and sent an email to the evaluators to request their participation. Other than one person being out of town, all were willing and able to participate.

REPORT CONTENTS

Following this introduction, Section 2 discusses the findings from our discussions with other process evaluators, and Section 3 presents a summary and suggestions for future research. Additionally, Appendix A presents some key references that were identified during the conversations, Appendix B contains the Interview Guide used, and Appendix C lists those evaluators who contributed to this conversation.

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[1]   The number of years in the field correlates strongly with the various waves of funding for energy efficiency. The first being during the 1970s and concluding in 1981 with the election of Ronald Reagan, the second occurring primarily in the Pacific Northwest during the early and mid 1980s, and the third beginning in New England following power outages in 1987 and growing throughout the country until 1995. Notable are the lack of well known evaluators from the early and mid 1990s, many of whom as junior evaluation staff were unable to continue to find work when energy efficiency funding slacked in 1996 due to an emphasis on restructuring. The current energy efficiency funding cycle began in the late 1990s, as public benefit funding was approved and program evaluation efforts began to increase.

2 FINDINGS

Process evaluations typically address different aspects of a program – from design through delivery, on to response from customers and the market. The findings from our discussions with other process evaluators are organized in a similar fashion, beginning with design and implementation, moving on to program administration, then to reaching the market, and finally to reaching the customer. The discussion of findings concludes with some comments about process evaluation.

PROGRAM DESIGN AND IMPLEMENTATION

Program design and implementation is a broad category, as nearly everything process evaluators deal with reflects back on the program design and its implementation. However, three basics of program design and implementation will be addressed, specifically: technologies; the inducements and rewards used to motivate customers; and the implementers who deliver the programs. These three areas have emerged as particularly pertinent in determining a program's success.

Lessons Learned About Technologies

Over the years, process evaluators have been on the front lines of understanding how businesses and consumers respond to energy-saving products. Unfortunately, some of the products did not work well when they were first offered: energy-efficient motors, electronic ballasts with T-8 lamps, and compact fluorescent lights (CFLs). Many early energy-efficient motors and electronic ballasts with T-8 lamps had problems with reliability, resulting in high failure rates. Businesses that adopted these technologies when they first were offered were reluctant to continue to use them and became slow adopters once the technology worked better.

Sometimes a technology was not installed in a correct application, causing the technology to fail: indoor air quality and radon problems from "too-tight houses"; and installation of standard CFLs out-doors or in refrigeration systems where they failed from exposure to cold and wet conditions. Bob Wirtshafter noted a study he did of solar homes built in the Southeast in the late 1970s that used designs developed for the *Southwest*, which proved to be too hot for the Southeast's hot humid conditions and had room configurations that were different from the standard market, resulting in no sales of the homes after a year on the market.

Typically, a process evaluation is conducted and the evaluator hears stories about these technologies failing, or they ask participants why they are unwilling to accept a particular product when they accepted others. The answers are usually a surprise to program staff.

CFLs had many reports of problems in the first ten years: slow starts, poor color rendition, low levels of illumination when used for reading, etc. At the same time, the utilities were concerned about harmonic disturbances on their networks and other possible effects of the electronics. There was a slow development of standards, culminating in the ENERGY STAR® ratings, which are given to lamps that meet specific quality guidelines. However, in the process, many people who had the less-than-effective early lamps developed negative perceptions of the technology and remain unwilling to try current CFLs, even though, by and large, the product has good quality and acceptance now. Even today, in 2007, surveys still find a portion of respondents saying they tried ENERGY STAR® CFLs and found them unsatisfactory.

The lesson process evaluation sheds on this is that technologies typically are not failsafe. Promoting new technologies is important because it is only through the process of more people adopting them and experiencing them that real-life problems emerge and a product can be improved. However, it is important to return to those who have had bad experiences and attempt to improve their perceptions through exposure to the improved technologies.

The High Efficiency Laundry Metering and Market Analysis (THELMA) project was one of the few energy-efficiency ventures that seriously sought to address technology issues upfront. Designed to investigate the actual benefits and costs of energy-efficient clothes washing machines, the project included detailed impact evaluation efforts, along with market and process assessment components. The researchers conducted in-depth interviews with customers to understand their experiences with the energy-efficient washing machines they purchased, and the manufacturers cooperating in the project were able to use this information to improve the machines. The result was that when the utilities offered rebates to support the purchase of these new washers, by and large, the machines were technological winners (Electric Power Research Institute 1998; Shel Feldman Management Consulting et al. 2001).

➡ *Lesson:* **Conduct research on new technologies to gauge customer response and identify problems with the technology prior to large-scale introductions. Collaborate with manufacturers to fix problems.**

Lessons about Motivating with Rewards and Incentives

Whatever is rewarded will be done, whether it was intended or not. Ken Keating and I call this "the perversity of incentives." While it is true for incentives provided to customers, it is most common when rewards are structured to induce account representatives, program staff, or others to increase savings. As Ken says, "Managers pay attention only to the things that get measured." If energy savings are being measured, or if the number of measures installed are being measured, but not both, then the one being measured will be the focus of attention.

The potential perversity is difficult to address. On the one hand, it is important to obtain savings, but that can lead to "cream-skimming," where easy-to-identify and easy-to-install measures with immediate savings are targeted (often lighting), while measures that are more difficult to identify

and install – such as heating ventilating and cooling (HVAC) equipment or industrial process equipment – are ignored.

It is easy to devise a set of metrics – such as "100 widgets are installed each month" or "so many contacts are made each month" – and at the end, all of the metrics have been achieved, but no energy savings have occurred or the impact evaluation finds the savings are lower than goal.

Many process evaluations have shown that having turn-key operators can be a hazardous way to run a program, because they often are not rewarded for energy savings. Ken gave the example of refrigerator pick-up programs:

> *"The implementer is supposed to pick up only operating fridges because these would reduce energy consumption. Yet evaluators find that only about half of the programs save energy. The guy who picks up fridges gets paid if he picks up a fridge, and customers are angry if they don't get their fridge picked up, and the manager wants to report that so many fridges were picked up."*

As well known as this problem is, it crops up over and over again because structuring rewards that work is difficult. Additionally, if an organization has separate goals for diverse programs, with specific staff assigned to each, staff will likely interpret their responsibility as the achieving of the specific goal assigned to their own program. Staff in such situations typically will not aid in implementing other programs, will not recommend customers for other programs, and will not think it is a problem that they focus solely on their own program.

A well known example of a solution to the problem of narrow goal focus is the Efficiency Vermont contract between Vermont Energy Efficiency Corporation (VEIC) and the Vermont Public Service Board. VEIC is able to earn different rewards through their contract – one for just delivering to goal and others for exceeding the base requirements. This sets up a motivation for VEIC to examine how they are doing things and make improvements which will lead to above-goal performance.

> ➡ *Lesson:* **Rewards work – but they don't always work as expected. Metrics for programs, whether for third parties or utilities, should be carefully designed. Look behind the explicit reward to see what is *really* being rewarded.**

Lessons about Implementers

Who should implement energy-efficiency programs? The best answer is affected by solutions to the previous issue about rewards. In fact, it is likely the correct reward structure will offset many of the questions about who should implement the program.

Process evaluators typically find utilities are perceived as a trusted source of information on energy efficiency, and on the use of energy in homes and businesses. So if someone comes to the door with a utility insignia on their badge, people tend to trust they are there to do the right thing. This condition means third parties and non-utility agencies, such as public benefits

organizations, can run into more difficulty delivering a program if they are not able to portray themselves as associated with the utility.

Third-party implementers have also been observed, as noted above, to focus on meeting the metrics of their contract. Thus, like with the rewards for staff, if the metric of the contract is to obtain a certain amount of savings or a certain number of projects, these metrics will be the key drivers of the process: seeking measures with the highest savings or seeking to enroll numbers of participants irrespective of savings value. It is more difficult to set up a metric that includes goals of high customer satisfaction, reduced energy use for customers, and availability of high quality data to meet regulatory needs. Such goals are easier to set and reward for utilities than for third parties.

Process evaluations have also shown that utilities, because they have access to energy-consumption data and the trust of their customers, can be effective in delivering programs. Organizations, such as public benefits groups and third-party turn-key providers of programs, do not automatically have this information; and, while they can provide the services in a similar manner to utilities, and can more easily staff up and down, they need access to energy consumption data to optimize program delivery. Gaining access has been difficult in some jurisdictions; yet, where there is good cooperation with the utility, as well as consumption data transfer, third parties can be equally effective.

Finally, several of the process evaluators reported the program manager, rather than the program implementer or the program's design, seem to matter most in good program delivery. The program manager needs to be enthusiastic, proactive, and able to identify and adapt his or her efforts to the needs of the target population. A good program implemented by a program manager with little enthusiasm or commitment to make the program work will not be successful. Such a situation will be even worse if the program manager is focused on her or his own goals and objectives instead of the market success of the program.

Ingo Bensch noted he had done a literature review to try to address the issue of who should implement products and found that utilities, third parties, public agencies, and public benefits funds can each be effective implementers with "nothing driven by empirical evidence" to indicate one is better than the other. However, as has been clear to other evaluators, he noted certain criteria are important:

> *"One is having an organization that really believes in what it is doing, is mission-based and advocacy-oriented rather than one that treats it like a business. Two: that the right kind of incentive structure makes a difference. Third, it is important that implementers want to learn as they go – are interested in self-improvement – as opposed to those who emphasize "cookie cutter" approaches only because they are good business models."*

➡ *Lesson:* **Program managers and organizations with a commitment to adapt and grow a program can make otherwise lackluster efforts work.**

➡ *Lesson:* **Programs are more effective in targeting their services when they have access to consumption data.**

PROGRAM ADMINISTRATION

Program administration is integrated with program design and implementation, but the focus is on the nuts and bolts of running a program. Two areas with specific lessons are databases and program application processes.

Lessons Learned about Databases

Process evaluators have traditionally reviewed databases to see if the data are being collected in a manner that will facilitate program management and program evaluation. The requirements of these two functions are not always congruent – what a program manager thinks is needed to manage a program is not necessarily what is needed to meet regulatory requirements for evaluation of program effects. So it is not surprising most databases are found to be inadequate for evaluation and therefore inadequate to meet regulatory requirements.

Luisa Freeman commented: "Program administrators for all types of programs should do what works best for them in tracking programs (whether paper records, spreadsheet, or complex tracking system), but at the same time they need to be trained early on as to what data are required for assessing performance, evaluating impacts, and *why* it should matter to them."

Evaluators have often encouraged organizations to develop comprehensive databases, but it is difficult to know what will be needed until programs have been in operation for a while. In one program I helped evaluate, the staff had a comprehensive database; but as the program grew, it became impossible to work with the database because the volume of data slowed its function. A new database had to be created. A positive aspect of the situation was the program team was able to identify a much clearer set of parameters for the database at that time.

Process evaluators tend to find program-specific databases without key information needed for the evaluation. Databases tend to be incomplete because program staff see no value in the missing information for program management, or insufficient resources have been allocated to input the available data.

The data that need to be collected include contact information, as well as information on the measures installed or the services provided. Lacking this information, it is difficult to meet the requirements of regulators to confirm how money was spent or how much energy was saved. One of the critical issues for database development is establishing a way to identify participants consistently so cross-program comparisons can be made. Utilities can usually do this for residential customers, although often with some effort. However, doing this for commercial and industrial customers is difficult due to the presence of multiple meters, and sometimes to multiple addresses or to billing addresses that are different from facility locations. If the

organization is not a utility, then the need for a common identification process is even more important to develop.

Fundamentally, programs need to allocate sufficient resources for data collection, for building databases, and for putting the data into the database. Database creation is as much a special skill as installing electrical systems. As with everything else, keep it simple at the outset, and increase the complexity over time as the data that needs to be collected to support reporting requirements become clear.

> ➡ *Lesson:* **There is no easy answer to databases. They are needed, they are costly, and the first one that is built will likely need to be rebuilt as the program evolves. Effective database creation requires skilled people who understand the program and its regulatory and evaluation requirements.**

Lessons Learned about the Program Process

I like to remind my utility and energy organization clients that energy efficiency improvements their customers can make are not necessarily obvious or straightforward. Personally, since 1988, I have: installed two high-efficiency furnaces in two different homes; fully weatherized and remodeled one home; installed solar hot water and solar PV; installed energy-efficiency lighting fixtures in multiple rooms; participated in Home Performance with ENERGY STAR®; purchased energy-efficient appliances before the ENERGY STAR® label was in use (as well as after); installed energy-efficient lighting in my commercial office two times; and looked for lease property with energy-efficiency features for my business, or a business in which I was a principal, five times.

There were many decisions to be made and, in general, I did not have much help in making them. Several of the process evaluators we interviewed commented that business customers are skeptical about energy efficiency because they have heard lots of promises over the years. The same is true of residential consumers. A major benefit of programs is to help people learn about the choices that make more sense – to learn what really works and what does not.

But programs all too often make the process harder. Forms generally ask for energy and cost information at a level that is more detailed than a customer (or even an energy process evaluator!) is familiar with. The requirements of programs typically follow from the regulatory need to avoid fraud and fund those things that are truly cost-effective for society. Rob Bordner noted that a 2007 program he is familiar with has a 10-page application form for a rebate of less than $40.

Not surprisingly, process evaluators consistently find customers wanting simpler programs: one-page applications; applications that can be completed on-line; or applications with technical information, either completed by the trade ally or the program administrator, rather than the customer. Lori Megdal noted those programs with multiple outlets for enrollment – trade allies,

utility representatives, etc. – also work better for customers. They likely have more participants as well, since they are less dependent on single market channels to reach potential participants.

The need for item-by-item accounting to know where a specific piece of equipment is located has limited the ability of residential lighting programs to reach large numbers of people. When this requirement is relaxed, buy-down programs can be offered, where the incentive goes to the manufacturer, who then works with retailers. The retailers provide sales data and, while the installed location of each CFL is unknown, the overall trend in CFL sales can be monitored and compared to the trend in sales of standard incandescent lamps.

Lynn Hoefgen worked with a utility program that was run parallel to a state program, each with a unique application. The participant was required to provide duplicate information or, even worse, slightly different information to the two organizations. This was costly to the applicant and was resolved when both organizations agreed to accept a common application. But the process of achieving a common application is one that takes time and effort.

A common solution to the need for simpler forms was identified in the 1980s: if customers assign the incentive to the contractor, the contractor has the burden of completing the form. Given that the contractor has most of the technical information more readily available and, in theory, can gain some economies of scale in completing multiple similar applications, this practice has been adopted by many organizations. As will be noted in later, cooperation from trade allies is key to the success of this approach.

Phil Willems noted that linking monitoring and evaluation at the outset of a program has an advantage of ensuring paperwork and data infrastructure are considered and in place early in the program. In fact, without these features in place, it is difficult to figure out what to do to simplify the process. Standard Performance and other types of performance contracting programs typically require a project be monitored by the energy service company (ESCO) or customer to determine its performance and, consequently, to determine the final payment for the energy savings. Over time, in part as a result of evaluations identifying these requirements as a barrier to participation, programs have come to use stipulated savings or deemed savings for some common measures. Typically, the incentive will be somewhat less than for meeting a measured savings requirement, but sufficient to be worth the investment in the measure, without the monitoring.

Inspections also have evolved as a result of evaluations. Process evaluations have been used to assess the appropriate rate of inspections. A common resulting approach is to use 100% inspection for third-party contractors' first projects and, as the inspection process reveals fewer errors, converting to a sampling approach.

Finally, Scott Dimetrosky noted, "Delays with checks drive people crazy!" Streamlining the incentive payment process is one of the most important aspects of program simplification.

> ➡ *Lesson:* **Simplify, simplify! Complex application processes and requirements for detailed information can lead to nonparticipation and missed opportunities.**

REACHING MARKET ACTORS

Market actors are those firms, businesses, and individuals who offer services and products to consumers and businesses. These include the plumbers, electricians, contractors, designers, and engineers whose services enable energy-efficient products to be installed and maintained. Market actors also include the distributors, wholesalers, retailers (also known as vendors), and manufacturers who make and sell the products.

Lessons Learned about Trade Allies

Trade allies in many ways encompass all of the businesses mentioned above, though to many program managers, *trade allies* specifically refers to the plumbers, electricians, contractors, and others in the building trades who build and maintain residential, commercial, and industrial buildings.

No matter what the type of trade ally, a key complaint is programs should not stop-and-start or change dramatically. Change is difficult for building tradesmen, professional services providers, manufacturers, and vendors. Most businesses operate year in and year out. They do not have regulatory cycles. Different seasons come and go and, in some cases, drive sales (Christmas for retail merchants, summer hot spells for air conditioner sales, spring and summer for housing sales and associated appliance purchasing, etc.); but, by and large, it is difficult for trade allies to understand why a program structure changes when it does. As Bobbi Tannenbaum said, "You can't stop and start programs – it upsets vendors when they promise things to people and then can't deliver."

Some program administrators have learned from this that they need to inform their trade ally networks in advance – hold meetings with the local building association or electrical union to explain the program changes before they are implemented. Some programs contract with a firm that recruits trade allies into the program, trains them, and then keeps them informed as the program changes occur.

Trade allies are important to program success. Rich Hazzard commented, "The challenge for utilities is to learn to insert themselves into the business model of the trade allies." As discussed below, a key point for reaching consumers and businesses is at the time they are making a purchase or choosing to remodel their home or building. If the program is not working with trade allies, then those natural market-decision points are missed.

In working with trade allies, it is important to remember, as Linda Dethman noted, they are in the market to make a living. When they have invested time – both their staff's time and their own – to learn program requirements and procedures, they have a legitimate expectation the program will continue. Additionally, program changes about which they have not received advance notice can leave them with excess inventory. Not informing trade allies about changes can make them reticent to participate in the future. Several of our contacts noted situations where trade allies

were reluctant to participate in programs due to previous experiences with programs changing direction too rapidly or with no warning.

Training about program rules and procedures is helpful in improving trade ally ability to participate. Similarly, if the processes are too complicated, even for trade allies who are knowledgeable about the technical aspects of the products and services, the cost of retrieving that knowledge on a customer-by-customer basis to complete program forms is too much.

Process evaluators have found when trade allies are able to receive the incentive payment directly, rather than the incentive going to the consumer, the trade allies tend to be more willing to complete the paperwork and meet other program requirements. There are risks in doing this, as some evaluators have also found, but inspections and quality assurance oversight can be used to manage the risk and improve the ability of the program to deliver savings.

> ➡ *Lesson:* **Trade allies are a key to program success, but the program needs to incorporate steps to ensure they are informed of program changes and trained in how to complete program requirements. Programs need to be as stable as possible.**

Lessons Learned about Professional Service Providers

Engineers and architects have been the most targeted of professional service providers. There has long been an implicit expectation that architects and engineers should understand energy efficiency and they would then be able and willing to market these capabilities and ensure buildings were designed in an energy-efficient fashion. Part of this expectation likely arises from the fact many energy-efficiency program designers and implementers are themselves engineers or architects.

Yet architects and engineers face considerable challenges in the marketplace. They typically are not the decision-maker, but rather the service provider to a client – the building owner or manager, who is the person who makes decisions. If the owner does not explicitly call out a requirement for energy efficiency, then the service provider is unlikely to put that need in the building program.

The same experience occurs for the developer of equipment for a factory. If the engineer developing the equipment for the factory is told in the specifications the equipment must meet some energy-usage threshold, then it will be met in the equipment; if a threshold is not required, then the engineer will not consider the issue.

Service providers of all types must respond to the client's specifications and requirements. When energy usage is included as a parameter, the service provider will address that requirement along with other specifications. In considering climate change, the same issue is likely to emerge – if the specific greenhouse gas output is specified as a requirement, then it can be considered; but if it is not mentioned, it will be ignored.

Evaluators have learned architects and engineers will contend they are familiar with the design issues of energy-efficient buildings because, after all, they studied it in school. However, the principles and the practice are not the same. Process evaluators of programs that seek to work with architects and engineers hear from these designers it is only through participating in programs that help them include energy efficiency in their practice that they learn the practical application skills necessary to implement energy-efficient designs.

So, as with other areas of energy efficiency, there is a need to work closely with professionals to aid them in developing the skills and practical knowledge in order for them truly to design energy-efficient buildings.

> ➡ *Lesson:* **Service providers need support to gain skills and practical knowledge, but that alone is insufficient – programs also need to encourage purchasers of their services to ask for the energy-efficient or carbon-neutral solutions.**

Lessons Learned about Manufacturers and Vendors

In the mid-1980s, I was conducting research for the California Energy Commission (CEC) to obtain manufacturers' appliance-sales data for California. One of the biggest surprises of that project was, even though California represented 10% of the market for appliances in the United States, it was still not large enough to have a significant influence on the products manufacturers produced. Manufacturers were ensuring the products they distributed in California complied with California requirements, but those who did not have products that met the California requirements were still selling products in the rest of the country.

The manufacturers commented that only when more states joined together would it be sufficient to influence their actions. The Consortium for Energy Efficiency (CEE) and the ENERGY STAR® labeling efforts of the Department of Energy and the Environmental Protection Agency have had a significant effect in this regard. The clothes washer study cited earlier (Feldman et al. 2001) documents how some of this joint effort came about. The lesson of working together has been important in energy efficiency.

Manufacturers, and the distributor and retail vendors who market their products, are a key component of a successful effort to change the use of energy. Process evaluations have sought to understand what is necessary to influence the vendors. Some products are sold seasonally. These products are ordered about one year before the selling season, are marketed by vendors during the season, and, once sold, are not available until the next year. Knowing the ordering cycle, and then timing program and promotional activities to those ordering cycles, is key to making a difference.

Training retailers about products is useful when the retailers actually interact with purchasers. Training, however, is not a one-time thing. Retailers tend to have substantial staff turnover. Repeated visits using "circuit-riders" – who visit retailers to monitor the stocking practices and the promotional materials, as well as to provide training – can have a substantial effect on

product performance. Such a practice mirrors that of other products and, thus, is both understood by retailers and respected.

➡ *Lesson:* **Seek to create a large enough market of interest to capture the attention of manufacturers and emulate the product marketplace in program delivery. Provide for on-going training of retailer staffs that interact with customers.**

REACHING THE CUSTOMER

The term "customer" refers to the end-user of energy: the business, the industry, or the home- or apartment-dweller who uses the electricity or natural gas the program is targeting. When a government agency, public benefits organization, or foundation is the administrator, the term used for decision-makers is usually *end-user*, but thinking of end-users as the customer is something that can facilitate program design and implementation. As Tom Peters and Bob Waterman (1982) suggested, being close to the customer is important to success. Process evaluators concur that messages from customers about what they consider to be important or unimportant about a program, and about their experience with it, are among the most important information learned in a process evaluation.

Lessons Learned about Communication

It is no real surprise to learn communication is important for programs to be effective. What that means is communication must occur in both directions – communication must be grounded in the language of the customers and of the market in which they are operating.

Ben Bronfman noted, "Perception is reality." It does not matter whether a program manager or an advertising contractor for the program thinks they have been clear, the customer's perceptions are the reality. When a customer says a payment was late, even if the payment was within the schedule the utility promised or it met the utilities' guidelines, the customer still considers the payment to have been late. In service marketing, understanding a customer's expectations and satisfying customers beyond their expectations are keys to success. Merely because the advertising firm thinks the ad is persuasive and clear does not make it so. Try it with focus groups composed of customers who will be the target for the message. If they think it is persuasive and clear, it probably will be clear to the market; if not, it won't be.

Customers are not interested in energy efficiency – they are interested in being cooler or warmer, or having better light quality. They aren't interested in *measures* – they want a motor, or an air conditioner. The language of programs often seems to reflect the planning and engineering process that was used to decide which products and services would meet a cost-benefit requirement. Bobbi Tannenbaum reminds us, "What sells efficient clothes washers, for example, is that they are better for clothes, save water, can be stacked. Think from the customer's point-of-view."

Process evaluations have found communication is an important tool for customers as well. Customers often want to tell their story. Business and industrial customers have concluded interviews with me by saying, "I did not realize I had so much to say," or "It was really good to have someone to tell all of that too."

Providing feedback is one of the things program participants like to do. Phil Willems talked of a residential new construction program where, through talking with builders, the evaluators learned, "Customers were not being marketed to so they would understand the extra cost was worth it. They were not brought into the loop to create the demand making it easy for the contractors to sell the program." Without that feedback, the program would have continued to have low purchase rates and contractors would have become disenchanted and probably left the program. Phil noted that that problem was probably a resource issue, rather than lack of intention to the market. And because the evaluator provided the feedback, the program identified another low-cost source for marketing – Realtors.

Another example of talking to nonparticipants, cited by Ken Keating, revealed nonparticipants were also interested in communication. They, in fact, were interested in the program, but were unaware of the program. This example of a communication shortfall also points to a key lesson – nonparticipants are often only *temporarily* nonparticipants. With more awareness and outreach, nonparticipants may be quite interested in participating.

> ➡ *Lesson:* **Communication remains an important tool for customer and market management – ignoring this can lead to missed opportunities and potentially negative results for the program administrator.**

Lessons Learned about Residential Consumers

It may seem strange, but there were many more comments from evaluators about lessons learned for reaching business and industry than for reaching residential consumers. Energy-efficiency efforts with residential customers dominated the industry in the 1970s and 1980s, while in the 1990s and recently, business and industry has been the focus. Despite the years of experience, there remain many challenges in the residential sector. The savings on a house-by-house basis tend to be fairly small, yet because each household makes its decisions independently of other households, the transaction costs to induce the household to invest in efficiency are quite high, especially in comparison to business and industry.

It is clear there remains substantial potential in the residential market. But the higher costs have led to a focus on residential consumers' market activities that could be influenced: purchases of appliances or a new home; energy-efficient mortgages for a new or existing home; linking interventions with decision-points, such as when households choose to remodel their homes; and the use of codes and standards to ensure homes and appliances in the market are efficient at these points. Much recognition of these intervention points occurred through process evaluations.

A lesson from several evaluations in the mid-1990s, suggesting it was important to focus on decision events in the marketplace, is that consumers believe the products in the market are already energy-efficient as a result of government requirements. If consumers believe the house or refrigerator they are considering purchasing is already energy-efficient, then it becomes necessary to try to persuade them at the point-of-sale that there are other, more energy-efficient options that could be purchased.

I have little doubt the majority of consumers would like to purchase energy-efficient products. There are barriers due to difficulty in knowing what *energy-efficient* is, and in a willingness to pay additional first costs because the operational benefits are difficult to estimate, or sometimes to believe. There are also issues with the technologies, such as whether the CFL will provide truly comparable light as an incandescent, or how much will really be saved when purchasing a 14-SEER air conditioner compared to a 13-SEER. However, one only needs to look at the most all-encompassing energy-efficiency effort ever implemented in the United States – the Hood River Conservation Project, conducted between 1983 and 1985 – to recognize energy efficiency is overall appealing to people. When the citizens of Hood River, Oregon, were offered full weatherization of their homes, at nearly no cost, fully 91% of the households participated.

Another observation from that experiment was that the marketing budget was largely untouched at the end of the project.[2] Across program after program, process evaluators have asked program implementers about their marketing efforts and it is quite common to learn marketing budgets are small. When there are larger budgets available, and they are actually spent, program participation typically will exceed program resources, causing increased wait times for services, and sometimes causing programs to exceed their budgets and to turn customers away.

> ➡ *Lesson:* **Targeting programs to the purchase-decision points will improve the ability of residential consumers to adopt energy-efficient equipment and services, and will keep the costs of the programs commensurate with the value of the savings.**

Lessons Learned about Businesses and Industry

Understanding business and industry has been a major focus of process evaluators for the past 15 years. While it might be expected that business and industry would easily see the economic benefits of energy efficiency, programs have been slow to grow. There are some simple lessons learned that have helped to improve program design.

There is enormous technical potential for energy-efficiency improvements in business and industry, especially industry. And much of the potential is sound economically, with less than

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[2]   Many reports have been written on the Hood River Project. A key website for an introduction is the Bonneville Power Administration website. Bonneville co-sponsored the project along with PacifiCorp. See: http://www.bpa.gov/Energy/N/Reports/Results_Center/ProfileInfo.cfm?ID=12.

two-year paybacks for many things. However, investments are not being made and programs are not finding participants. What is the problem?

It is commonly believed businesses, especially industry, take a more rational economic approach to decision-making. However, as Bobbi Tannenbaum noted:

> *"Businesses want a higher rate of return or shorter payback period than programs expect; first cost is a big issue. Different kinds of businesses have different issues. Even bigger businesses have split incentives in their internal operations – e.g., between operating and capital budgets."*

A split incentive occurs whenever the investor in a project does not receive the benefit from reduced costs of operating the equipment. This situation is common in new construction and tenant-landlord relationships. It also occurs within large organizations, where the operating budgets and capital budgets are treated separately.

In more than one evaluation in which I have participated, I have heard businesses claim certain payback periods as their benchmark for project viability. Yet the evaluations found payback periods to be much longer than the asserted benchmarks, indicating non-financial benefits were a key part of project decisions. Conversely, customers were found not to do projects that were within their payback parameters because other projects were deemed more important or because the strictly economic basis was insufficient. Thus, it appears non-energy costs and benefits are often the most critical criteria for decisions about investments involving energy efficiency.

Beyond the difficulty of identifying a clear economic reason for decisions, business cycles, annual plant shutdowns and start-ups, internal planning cycles, a focus on business-at-hand, and varied decision-making processes can also forestall program participation. These hurdles, however, can often be addressed.

➡ **Business Cycles:** There are boom times and there are slow times for every business. These do not necessarily coincide with other businesses, although many do. There are patterns to how businesses are affected by the business cycle. If homebuilding drops, this affects the suppliers of materials used in building homes: lumber, plumbing and electrical supplies, paint, drywall, etc. Some industries are insulated from business cycles because they serve multiple industries; others are hugely affected. Over time, I have noticed some businesses (especially those that expect to be around for the next boom) are more easily able to participate in programs during slow economic periods because their permanent staff is more available to deal with the paperwork and other issues of project implementation. On the other hand, there are businesses that operate on slim margins and make no investments during slow periods, because they judge the risk to be too great.

➡ **Annual Cycles:** Many businesses have annual cycles that affect their ability to participate. Many retailers depend on the Halloween to New Year's period for their major sales and will not be able to do any projects during that time period. Other businesses, especially some industries, have an annual plant shutdown and they like to schedule all

projects to occur during that time period. Programs that are effective learn how each
business is organized and the pace of their annual cycles, and then work the cycles into
their program implementation process and budgets.

➡ **Purchase Cycles:** Carol Mulholland noted an example I have often seen as well:

> *"[The program] had not taken the industrial business cycle into account. Most
> industrial entities plan major equipment purchases a year or two out. Many did not
> participate, not because they weren't interested, but because they had already made
> their major equipment purchases. The utility had talked to facilities engineers, who
> had been interested, but the financial person was not familiar with the technology.
> The process evaluation explained why they didn't get the results they wanted. The
> utility had to revise its projections based on its new understanding of the business
> cycle, and eventually reached the revised projections."*

➡ **The Internal Focus is on the Business:** Process evaluators have found, typically, no
one in a business knows much about energy. Energy is usually less than 5% of the total
cost of doing business, usually as low as 2%. In a few businesses it can approach 20%,
but mostly businesses are concerned about labor costs, raw materials costs, and dealing
with health, safety, and other regulations. Energy almost never makes it onto the agenda
of a budget meeting; it tends to be treated as a fixed cost. Because of this, it can be
difficult to see the value in saving 10% to 20% of 2% to 5%, which amounts to less than
1%. Yet for those businesses where the profit margin is less than 5%, 1% to 2% is
appealing, if explained to them in that way. Marjorie McRae noted it is also important to
help customers see energy as a *percent of variable costs*, rather than a *percent of total
costs*. Thus, process evaluators have pointed out that shaping the message so it is
consistent with the specific business financial model can be effective.

➡ **Decision-Making:** Evaluators have found there are typically "champions" who make
projects happen within large organizations. The reason for this is there are multiple levels
of decision-making in larger organizations. Someone has to be willing to bring the
project up to each decision-making level and be able to respond to questions and
comments. Evaluating several industrial programs in the 1980s and '90s, it became
increasingly apparent champions were important. If the champion changed jobs, the
projects would likely never go forward (Peters et al. 1996). Fundamentally, even large
businesses are composed of individuals who work in a system to make decisions about
how the business should be operated and capitalized. While it is possible to understand
the decision-making within any one organization, as people in the organization come and
go, the process will change. Because the champion is not necessarily easy to find,
programs that effectively work with large businesses and industry will contact people at
multiple levels of the organization and establish long-term relationships with those in
enough positions to facilitate the project over time.

➡ **Marketing Messages:** There is no generic message that appeals to all business people.
Linda Dethman noted, "Mass marketing works to build awareness, but doesn't do much

to effect behavior change, except in a crisis period. The business world is relationship-based. Understanding relationships and building on them, not just providing information, will build successful results." Process evaluators often ask people in business the names of publications they read; in addition to national business publications, the answer is usually a trade publication specific to the industry, sometimes even to their region of the country. They may read the general business press, but it is examples of success in their trade industry publications that makes the difference in whether they believe an idea is relevant to their needs or not.

➡ **Case Studies:** Many programs have realized they need to develop case studies of projects to motivate businesses. But developing case studies for each and every industry and business type in a market, and publicizing them in the trade press for that industry is even more important. For commercial businesses in the Pacific Northwest, BetterBricks is working to do this in a less-costly manner by using the *betterbricks.com* website as a vehicle for displaying case studies.[3] Having found through process evaluation that designers use the *betterbricks.com* website as a tool in their discussions with clients, BetterBricks is using case studies from around the country in order to expand the types of businesses which they have represented on the website, so there are sufficient examples to appeal to the target markets they are addressing.

➡ **Relationships Are the Key:** Industry, in particular, faces many challenges in the current economic environment – obsolete equipment, pressures from investors, new regulations to comply with, pressures from competition, etc. But businesses generally have these concerns and, thus, developing relationships with the business decision-makers is important to be able to engage them in facilitating energy-efficiency efforts.

➡ *Lesson:* **The business of business is business, and the business of energy-efficiency and climate-change programs is to build relationships and to know what businesses need to adopt the more efficient or more carbon-neutral behavior.**

LEARNING FROM EVALUATION

Lessons Learned about Going Beyond Satisfaction

Ken Keating commented:

> *"Process is a lot more than 'do people like the program?' But thousands of program evaluations done over the past 30 years have just focused on that question. Process evaluation is way more than that. Yet many reports spend way too much time analyzing that question, not enough on all the other information that process evaluation can provide."*

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[3]   The website address is: http://www.betterbricks.com.

Lori Megdal noted:

> *"The biggest gain is when the investment allows the evaluation to have a greater breadth of scope. You don't make big changes by going down the same road – you have to identify whole new ways to get where you want to go."*

It is that "way more than just satisfaction" that is the real benefit process evaluation offers to program implementation.

Luisa Freeman noted, "Many process evaluations reveal significant amounts of rich information and data that program administrators do not have the time or expertise to analyze." Lynn Hoefgen mentioned a new commercial construction program where the process evaluation found most contacts reported the market for energy efficiency was sophisticated. The program staff did not really want to believe that, but when the free-ridership rates came in high, it was clear the program needed to be redesigned to push further at the upper edge of efficiency than was targeted by most new commercial construction programs. Going beyond whether people were satisfied with the program was necessary to identify the opportunities for program modification.

A process evaluation I conducted in the mid-1980s looked at a performance contracting program. The program had been designed following a series of focus groups and the program staff really thought the program design reflected the ideas that had emerged in these groups. Yet, the program was not taking off. Uptake was slow and the ESCOs were not enthusiastic about some of the program features. Carefully reviewing the focus-group transcripts, the concerns from the ESCOs, and the program's design, it became apparent the final program design, while addressing some of the issues identified in the focus groups, had inadvertently added solutions that created new concerns. The program manager was able to see program changes were still needed and that one set of focus groups was not enough to set a design.

Ingo Bensch provided an example of a training program that had high enthusiasm and satisfaction, but the evaluation found participants were only doing some of the things they learned, and many only partially. Clearly, program satisfaction did not result in the application of the lessons from the training to provide energy savings. Changing the training to facilitate more implementation of its lessons was needed more than mere understanding about participant satisfaction.

In another example, Phil Willems noted a process evaluation that found customers were happy with the program unless they ran into a specific issue, such as with the incentive payment or a contractor; most people had a high level of satisfaction, but a few outliers pulled down the average. When they examined cases with a low level of satisfaction, they found a pattern of problem-resolution difficulties. Having problems was not unique; the difference was in how the utility handled the problem. If the customer felt the utility listened to and addressed the problem, it didn't have a negative effect on satisfaction. The value of the evaluation was in figuring out how satisfaction with specific aspects of the program affected overall satisfaction.

➡ *Lesson:* **Going beyond general program satisfaction questions is necessary to understand where the opportunities for true program enhancement lie.**

Benefits and Timing of Process Evaluations

The evaluators we spoke with noted the challenge in doing process evaluations too late in a program implementation cycle or at too limited a depth. Program managers, the management of utilities, and energy agency administrators typically want to believe their programs are good, even excellent. But evaluators have found evaluation is a tool that can improve programs, even excellent programs. Phil Willems noted how process evaluation in some ways is an analysis of the "failures" – often little failures that are scarcely noticeable. A few participants being "very dissatisfied" can point to glitches in the program process that, once identified and addressed, not only eliminate the "very dissatisfied" responses, but also enhance the experience of the satisfied participants.

Yet, there is resistance among managers to hearing about this. This is one of the reasons process evaluations typically are not published, as they might be seen as negative by the public or a public utility commission. Process evaluations should begin when a program concept is being developed, as part of the research support for the program, along with market research. Early activities can include testing the program response as it is rolling out in pilot phases or early implementation. Process evaluations can find negative things, yet good management does not use these as grades, but rather as tools for improvement. I know of only one program manager who lost a job after an evaluation was done, and the reason was because the program manager did not consider the findings of the process evaluation, but continued to argue the program was fine as it was.

Some of the key phrases these process evaluators noted in describing the merits of process evaluation:

➡ *"[What is important is] putting useful information into an implementer's hands"* – Rich Hazzard

➡ *"Reporting on things as you find them, not solely as part of the final report."* – Sharyn Barata

➡ *"The learning often occurs in the asking of the questions; changes can be implemented before the report comes out."* – Elizabeth Titus

➡ *"Involving an outside evaluator creates a focus on accountability and makes program implementers more self-reflective."* – Ken Keating

➡ Long-term relationships between evaluators and clients are important in process evaluation. *"Trust is built over time, so that findings that are less than stellar will be considered."* – Linda Dethman

➡ *"Process evaluation can identify outliers or unexpected situations that otherwise would not be apparent looking at the average."* – Lori Megdal

➡ *"Process evaluation is most effective when it is not too circumscribed. If you look at program delivery, you should also look at program design, the market etc. Then you can see connections among program elements."* – Lynn Hoefgen

In the end, process evaluation is an engaged process of research structured to understand a program as it is being implemented, and to provide feedback to the program management and other stakeholders on how to improve the program. The lessons learned from this type of research have been of cardinal importance in improving the energy efficiency of buildings.

➡ *Lesson:* **Process evaluation is a tool that can improve programs and provide in-depth feedback from the market to program managers. Done early and often, it will be truly effective in enhancing program performance.**

3 CONCLUSIONS

In reviewing this White Paper, Marjorie McRae noted it demonstrates what a gold mine process evaluation can be – versus the toxic waste dump that people fear. It seems true to me, process evaluation also demonstrates that some toxicity is required to find the gold. Certainly none of the lessons learned by these process evaluators would have occurred if programs had been perfect already, nor would they have occurred if the program implementers and their managers were unwilling to explore the possibility of improving their programs. So, ultimately, I want to give kudos to the many program managers over the years who have participated in process evaluations and have been willing to learn from them.

Like so many process evaluators have experienced, these lessons may seem obvious to the reader today, but in 1975 and 1985, and even in 1995, many of these lessons were still unknown or only guessed at. Over the course of 30 years operating programs and evaluating them, the energy-efficiency industry has learned a great deal about how to deliver programs effectively and efficiently. I hope these lessons can prove useful to future program implementers and more lessons will emerge as all actors in energy conservation delve even more deeply into improving the energy efficiency of homes, businesses, and industry.

SUMMARY

Program Design and Implementation

➡ *Lesson:* **Conduct research on new technologies to gauge customer response and identify problems with the technology prior to large-scale introductions.** Collaborate with manufacturers to fix problems.

➡ *Lesson:* **Rewards work – but they don't always work as expected.** Metrics for programs, whether for third parties or utilities, should be carefully designed. Look behind the explicit reward to see what is *really* being rewarded.

➡ *Lesson:* **Program managers and organizations with a commitment to adapt and grow a program can make otherwise lackluster efforts work.**

➡ *Lesson:* **Programs are more effective in targeting their services when they have access to consumption data.**

Program Administration

➡ *Lesson:* **There is no easy answer to databases.** They are needed, they are costly, and the first one that is built will likely need to be rebuilt as the program evolves. Effective

database creation requires skilled people who understand the program and its regulatory and evaluation requirements.

➡ *Lesson:* **Simplify, simplify!** Complex application processes and requirements for detailed information can lead to nonparticipation and missed opportunities.

Reaching Market Actors

➡ *Lesson:* **Trade allies are a key to program success**, but the program needs to incorporate steps to ensure they are informed of program changes and trained in how to complete program requirements. Programs need to be as stable as possible.

➡ *Lesson:* **Service providers need support to gain skills and practical knowledge**, but that alone is insufficient – programs also need to encourage purchasers of their services to ask for the energy-efficient or carbon-neutral solution.

➡ *Lesson:* **Seek to create a large enough market to capture the attention of manufacturers and seek to emulate the product marketplace in program delivery.** Provide for on-going training of retailer staffs that interact with customers.

➡ *Lesson:* **Communication remains an important tool for customer and market management –** ignoring this can lead to missed opportunities and potentially negative results for the program administrator.

Reaching the Customer

➡ *Lesson:* **Targeting programs to the purchase-decision points will improve the ability of residential consumers to adopt energy-efficient equipment and services, and will keep the costs of the programs commensurate with the value of the savings.**

➡ *Lesson:* **The business of business is business, and the business of energy-efficiency and climate-change programs is to build relationships and to know what businesses need to adopt the more efficient or more carbon-neutral behavior.**

Learning from Evaluation

➡ *Lesson:* **Going beyond general program satisfaction questions is necessary to understand where the opportunities for true program enhancement lie.**

➡ *Lesson:* **Process evaluation is a tool that can improve programs and provide in-depth feedback from the market to program managers**. Done early and often, it will be truly effective in enhancing program performance.

SUGGESTIONS FOR FUTURE RESEARCH

The lessons reported in this White Paper are some of the key lessons learned over the past 30 years of energy-efficiency programs. There are certainly more lessons that could be learned with additional research investment. I can easily think of another 12 to 24 people who have been involved in process evaluations who could be consulted and added to this group of 18. There are likely additional lessons that would emerge from adding their insights. In the process of having six of those interviewed review this paper, additional ideas surfaced, as well as sections that were identified as needing additional consideration than given here.

But perhaps more importantly, this effort demonstrates the richness of knowledge among evaluators. With so few published papers exploring the lessons learned across multiple process and market evaluations, a more formal structured process of developing these lessons could provide value to the energy-efficiency industry. Perhaps the *Behavior, Energy & Climate Change Conference* will become such a venue for process evaluators to discuss the broader lessons about program implementation they have seen over the course of their work.

In the 1990s, the late Shel Feldman had the vision of a journal that could capture this type of learning and make the lessons more readily available to the energy-efficiency industry, and to a wider audience. The *Energy Services Journal* had a short two-year life before running out of support as the energy-efficiency industry contracted in the mid-1990s. Yet the need for such a vehicle that would facilitate the dissemination of information about program implementation remains.

APPENDICES

APPENDIX A: REFERENCES

APPENDIX B: INTERVIEW GUIDE

APPENDIX C: LIST OF CONTRIBUTORS

APPENDICES

A | REFERENCES

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B INTERVIEW GUIDE

INTERVIEW GUIDE
IMPROVING PROGRAM EFFECTIVENESS: WHAT HAVE WE LEARNED IN THE PAST 30 YEARS?

DATE & TIME: _____

NAME: _____

TITLE: _____

ORGANIZATION: _____

TELEPHONE: _____

Hi, this is Ryan Bliss of Research Into Action. Jane Peters recently contacted you that I would be calling as part of our effort to gather information on what process evaluation has taught us in the past 30 years about how to improve energy-efficiency programs. Do you have time to talk right now?

IF NO, MAKE CALLBACK APPT.: _____

IF YES, CONTINUE

Thanks. As climate change has grown as an issue, there are efforts underway (especially in California) to develop programs to reduce CO_2 emissions. It seems like a good idea to assess what we have learned over the past 30 years of energy-efficiency programs so that people don't have to reinvent the wheel as they develop these new programs. So the purpose of this discussion is to pick your brain about:

- What process evaluation has taught us in the past 30 years about how to improve the design, implementation, and delivery of energy-efficiency programs aimed at the consumer and business markets? (business = agriculture, industrial, commercial, and institutional)

- Program effectiveness, from a process point of view, deals with a variety of components: the administration of a program, the delivery, marketing, outreach and implementation, and ultimately how the market and customers respond to the program through participation and later use of a service or operation and maintenance of the hardware.

- Is there anything in particular that immediately comes to mind as a lesson learned in your years of process evaluation? (We want an example of the problem and how it was solved, a reference to a report would be great but that might be difficult)

So let's start with marketing and outreach:

1. What would you say are some lessons learned about marketing and outreach for residential customers? (We want an example of the problem and how it was solved, a reference to a report would be great but that might be difficult)

2. How about business customers?

How about program delivery or implementation:

3. What are some of the lessons learned about program delivery and implementation for residential programs? (We want an example of the problem and how it was solved, a reference to a report would be great but that might be difficult)

4. How about business programs?

5. Do you have any specific lessons learned regarding who the party is that implements a program? (Clarification: whether the type of party that implements the program affects program implementation)

Program administration concerns the forms, paperwork, and procedures of a program.

6. What are some of the lessons learned about program administration for residential programs? (We want an example of the problem and how it was solved, a reference to a report would be great but that might be difficult)

7. How about business programs?

8. What have been some of the lessons learned about working with trade allies?

9. As a result of process evaluations, what changes have been made to customer response requirements that have led to lower barriers to enrollment and participation?

Finally:

10. Is there any thing else that you can think of that process evaluation has found out about any other aspects of program that were found to improve success?

The results of these discussions will be included in a White Paper for the BECC conference in November and will be publicly available. Thank you for your participation. Good-bye.

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