Putting the "Portfolio" into a Portfolio Evaluation

Erinn Monroe and Latisha Younger-Canon, Opinion Dynamics

ABSTRACT

Too often program evaluators fail to look at how a program operates in the context of a larger environment with multiple program offerings. Rarely do we ask: How does one program element impact others? How do customers sequence through program offerings? How can cross-program operational effectiveness be achieved?

As energy efficiency program evaluation has evolved, many jurisdictions have moved towards a portfolio evaluation approach, which makes evaluations more cost-effective and easier to administer, but most portfolio evaluations are actually individual program evaluations as opposed to a holistic examination of the full suite of portfolio programs.

Likewise, as programs and markets mature, utilities and administrators often add new offerings to address market-specific barriers and achieve deeper savings. When this happens, individual program elements, do not operate as separate, stand-alone units; rather, they are a part of an "energy efficiency ecosystem" designed to address a myriad of customer needs.

This paper examines an effort to bring to bear the lessons learned and available recommendations for utilities and administrators interested in understanding how their program elements work in concert with each other to leverage their entire suite of offerings to achieve deeper savings. Using findings from a recent cross-cutting portfolio evaluation, including interviews with all program stakeholders, as well as a deep review of all program data and documents, this paper highlights the importance of understanding how stakeholders work together, but also how they work apart from each other, revealing barriers to participant channeling that upon reversal could lead to significant gains.

Introduction

As energy efficiency program evaluation has evolved, many jurisdictions have moved towards a portfolio evaluation approach, which makes evaluations more cost-effective and easier to administer, but most portfolio evaluations are actually individual program evaluations as opposed to a holistic examination of the full suite of portfolio programs. Likewise, program administrators often find the need to leverage different types of program designs and delivery mechanisms in order to serve different customer segments and address market-specific barriers. In this case, the benefit of having diversity in terms of programming, sectors, and stakeholders is also potentially a barrier in affecting change. The purpose of this paper is to provide recommendations for utilities and administrators interested in understanding how program elements work in concert with each other to leverage an entire suite of offerings to achieve deeper savings. Drawing on the lessons learned from a recent cross-cutting portfolio evaluation, this paper highlights the importance of understanding how stakeholders work together, but also how they work apart from each other, revealing barriers to participant channeling that upon reversal could lead to significant gains.

Utilities serve a variety of customer types, who all have different needs and interests. Moreover, customers of different sizes or from varying sectors may experience alternate barriers to completing efficiency projects. For example, a small business might not have the expertise

needed to understand the benefits of efficient technology, whereas a large facility may have a person dedicated specifically to energy management. The reality is that there is no single solution that will work for all customers.

Often, as programs grow, they begin to develop program offerings geared towards key industry sectors. In addition, some program implementation companies may focus solely on specific business types or market barriers. For instance, some implementation contractors specialize in providing audits and technical assistance, while others specialize in prescriptive incentives and trade ally development.

As a result, utilities and program administrators often have more than one program implementation service provider under contract at any given time. Program implementers may be tasked with managing trade ally networks, marketing their programs, and often operating rather autonomously, depending on the environment in which they operate and their clients' needs. All of this leads to a situation where there may be multiple program staff or trade allies reaching out to the same pool of customers, which can be duplicative and irritating to customers. Adding to the overlap in outreach channels, many customers may still not be fully aware of all of the offerings they qualify for through a program or know who to contact for help and support regarding specific program offerings. In this case, there is something of a domino effect at play, where if one stakeholder actions can easily lead to success or failure in maintaining continuous engagement with customers.

A key challenge in program evaluation is that it often occurs at the program level. Regulators expect savings numbers to be provided by the program and cost-effectiveness is also determined by program. As a result, evaluators resort to program-based evaluation approaches. This, and the move to more uniform evaluation methods that results from this, does not to justice to the interactive effects that each program has—both on the residential and commercial side. Because of this, evaluators end up bucketing savings into programs, when, in fact, the programs may not be the underlying reason why a respondent participates. A customer could have participated in one program element based on their experience with a different program element. This is even further complicated by the umbrella marketing and other overarching portfolio approaches that lead to customers performing energy efficiency activities—whether within a program or not. If we evaluate energy efficiency implementation strategies in a more holistic fashion, we can uncover the nuances that lead to real and sustainable market change.

In a commercial and industrial (C&I) program, this may mean that a retro-commissioning program is evaluated separately from prescriptive program, which is evaluated separately from a direct install program. More importantly, this approach fails to capture how the programs exist within an energy efficiency "ecosystem" in which multiple program offerings may be available to customers. How do customers navigate different program offerings? Do trade allies participate in multiple programs and if so, how does that work for them? Are there operational efficiencies that can be captured through enhanced cooperation and how does a program administrator or utility make that happen?

Portfolio Design

As a part of an annual process evaluation, Opinion Dynamics was asked to investigate how the different program elements within a C&I portfolio were interacting with each other. The client in this situation was a large, investor-owned electric utility in the Upper Midwest. At the time of the study, the client's portfolio included thirteen different program offerings implemented by nine different implementation contractors. The client's goal is to provide a

comprehensive suite of offerings that is seamless for customers regardless of which offer, implementer, or trade ally is involved in the program.

This study looked at the entire C&I portfolio to gain insight into how the different elements of the program are working together and identify areas where coordination can be improved including:

- Implementation Coordination
- Trade Ally Interface
- Customer Experience
- Cross-program Data and Tracking

Cross-cutting is not a new approach to portfolio evaluation, but it is an underused and misused device. Rarely do evaluators look at programs together as one unit. Often times, evaluations that purport to be cross-cutting actually are only applying similar methodological tasks to program evaluations that are conducted in isolation. The work described in this paper entailed looking across the programs and tracking utility customers, affiliated trade allies and program implementers to develop an understanding of the actual flow of activity through the program.

Implementation Coordination

With many different implementers operating in the customer outreach space, it was critical for the evaluation team to understand how each of these contractors operated alone and in concert with the other program implementation teams. The client utility in this case offers the implementation teams a number of tools, such as a common customer relationship management (CRM) database and an implementation handbook to facilitate coordination. We wanted to understand how effective these tools were in helping the implementers' direct customers to the most appropriate offering or if there was something else they needed.

Trade Ally Interface

Trade allies are one of the key channels for bringing customers into the programs; however each program offering may utilize trade allies in a different capacity, depending on the delivery model. For example, some of the program offerings had "open" trade ally programs where customers could have any company install the qualified measures. Other delivery models were "closed," whereby customers had to use a pre-qualified trade ally to complete the work. Some programs relied on trade allies only for installations of technologies whereas others leveraged trade allies for providing assessments and other types of technical assistance. Although the requirements of trade allies are different among the program elements, trade allies may participate in more than one offering. We wanted to learn if trade allies were active across multiple program elements and how they functioned in the energy efficiency "ecosystem".

Customer Experience

With so many entities involved in the customer's program experience, it is important to clearly understand the customer experience. Satisfied customers are more likely to return to the program for additional projects and are more likely to encourage others to participate in

efficiency programs in the future. If customers qualify for a number of program offerings they could be approached by several different agents working on behalf of the program (program staff, implementation staff or trade allies). Also, it is important that customers understand all of the options available to them. If they participate in one aspect of the program they may be a good candidate for another offering. We wanted to find out if customers understood what was available to them and in general what their experiences were with the program.

Cross-Program Data and Tracking

After having implemented programs for several years, the utility had collected a significant amount of data from their customers. Although the program had a centralized tracking database for most of its programs, several implementers maintained separate databases for project tracking and marketing purposes. In addition, all marketing and outreach actions were tracked in another separate database. This can be common as program tracking databases are often designed to process applications but to do not have the capability to track all of the outreach and marketing activities that lead up to the application submittal. We combined these separate databases along with the utility's full customer database into one master database that allowed us to view year over year participation and energy savings trends as well as trends across customer types, size categories and end-use over time across the entire portfolio.

In this study, the utility portfolio offers customers a myriad of incentives and technical assistance to help them implement energy efficiency measures in their facilities. It is operated under a single brand name. Although the program has distinct elements that are implemented by separate companies, the utility recognizes the importance of projecting a unified "face" to customers in the market. A key aspect of this cross-cutting process evaluation was to gain an understanding of how the various implementation contractors interact with each other.

Approach

To understand how the program portfolio "ecosystem" functioned, we designed a process evaluation that considered all of the perspectives of the different agents working on behalf of the program, including program staff, implementation contractor staff, trade allies, and customers. We also reviewed the program data to look for year-over-year participation and energy savings trends. Primary research was gathered through program staff interviews, trade ally surveys, participant surveys, and database analysis.

Program Staff Interviews

The evaluation team attempted a census of interviews with all implementation staff working on the portfolio including staff for the utility as well as the implementation contractors. In total, 31 individuals representing 12 program elements were identified as program implementation staff. In total, 20 interviews were completed with 25 implementation staff members.

Trade Ally Surveys

The trade ally sample was constructed by merging the lists of participating trade allies provided by program implementers using contact name, trade ally organization name, and phone

number. The Trade Ally Survey sample was composed of almost 600 unique trade ally organizations that have participated in the program elements in the past or most recent program year. Trade allies in the sample participated in one to four programs with the majority (67%) participating in two programs. Sixty interviews were completed providing a response rate of 16%.

Participant Survey

The sample was compiled using participant data files and customer contact information files provided by the utility. Balancing program representation with potential differences between single program participants and multiple program participants, the sample frame established for the evaluation of program participants consisted of participants representing eight program offerings.

There were several circumstances leading to the exclusion of a customer or project. Acknowledging that customers who participated in the initial years of the program may not be easily accessible and may not fully recall the details of their participation, projects more than three years old were excluded from the sample. Furthermore, projects that were not completed and were cancelled, in addition to projects that had not progressed beyond the initial stages of work were also excluded from the sample. We did not find many customers that participated across multiple programs in one year which could indicate that there is a pool of one-time participants that haven't come back to the program. Given that overall the program had very high satisfaction rates it seems likely that this had to do with awareness.

Drop-out Participant Survey

The Drop-out Participant Survey sample was composed of 352 program applicants who initiated projects in the two most recent program years, but have since "dropped out" of the program. The majority (85%) of applicants in the sample dropped out of the program's prescriptive offerings, while only 2% dropped out of more than one program offering.

Database Analysis

The client had rich data regarding customers through their customer relationship management database, program tracking databases, billing systems, and purchased customer firmographic data. The evaluation team compiled this data into a master database and mined this data for program insights to inform planning, program design, targeting and outreach activities. From this activity, it was determined that 35% of customers who cancel projects initiated through the program reinstate those projects at a later date. Additionally, this analysis uncovered that 38% of customers, who "drop out" of the program went on to complete their projects outside of the program, which represents a significant lost opportunity for the program.

Key Learnings

Using primary data collected through surveys and interviews as well as insights gained through the program database analysis, we were able to help the client understand how their energy efficiency "ecosystem" was operating for their C&I customers. Although most of the findings were very specific to the client, there were several that we think are applicable across

utilities and program administrators alike. First, trade allies do tend to participate in multiple program offerings. Second, it is critical that if a utility or program administrator wishes to engage more than one implementation contractor they need to ensure that the proper incentives are put in place to encourage (or require) them to work together for the benefit of customers and the portfolio. Finally, programs do influence each other. As a portfolio expands and tailors offerings to help address different types of barriers these new offerings may not only expand the offerings but perhaps divert customers that would have participated in other portfolio elements.

Trade Allies Participating in More than One Program Offering

The trade allies we interviewed tended to participate in multiple program elements, as demonstrated in **Error! Reference source not found.** below. In fact, only 13% of the trade allies we interviewed reported participating in only one program element. A total of 40% reported participating in three or more program offerings. With trade allies participating in this many program offerings, it is easy to see how they can become confused or overwhelmed.
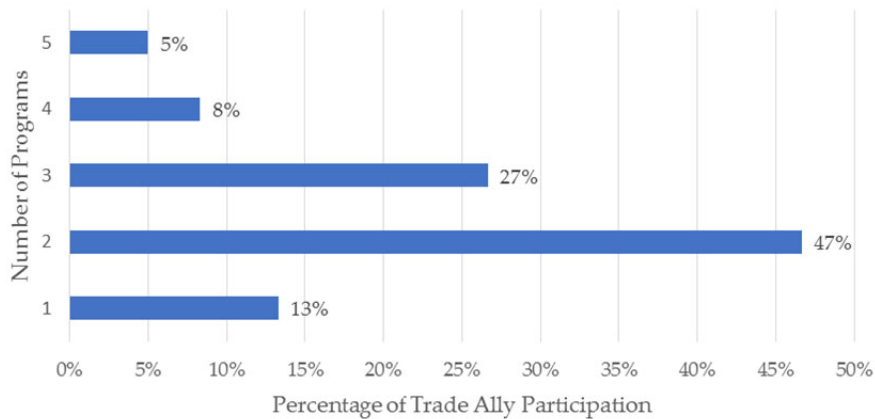

Figure 1. Count of programs in which trade allies participate.

Given that trade allies work across different programs, we also looked at the amount of reported staff interactions. Forty-one percent (41%) of trade allies reported meeting with more than 10 program staff members, including utility and implementation staff, and more than a third (36%) reported being in regular contact with six or more program staff.

Table 1. Comparison of trade ally interaction and program staff

Count	All Interactions Percent (n=59)	Regular Interactions Percent (n=51)
Did not interact with anyone	2%	N/A
1-2	7%	43%
3-5	20%	22%
6-10	31%	24%
More than 10	41%	12%

Ninety-eight percent (98%) of the trade allies interviewed were aware of the program's unified branding. Nevertheless, over a third (36%) viewed it as multiple distinct programs. Table 2 below shows the reasons that trade allies gave for viewing it that way. This underscores the importance of consistency between program offerings and the need for coordination among implementation contractors managing the program offers.

Table 2. Reasons the program is viewed as multiple programs

Response	Percent (n=19)
Different incentives/rules/paperwork	26%
Administrators are different/multiple companies/program contacts	21%
Different focus/sectors/areas/customers	21%
Consists of more than one program	16%
Marketing/branding	5%
Other	11%

This has implications for how trade allies communicate with customers about the program as well; if they see the program as a series of separate programs, they are less likely to present the program as a single, comprehensive solution. To that end, trade allies were divided in their responses over whether their customers understand their program and incentive qualifications with slightly more than half (53%) indicating that their customers do not understand their program. Additionally, 57% reported that their customers would not know how to find out what programs and incentives are available to them.

Branding alone cannot solve this problem; as mentioned earlier 98% of these trade allies were aware of the program branding. Trade allies need as much consistency between program offerings as possible and need a single point-of-contact to help them navigate the program and arrive at the best solution for their customer.

Harmonizing Implementer Motivation with Portfolio Goals

Another key learning of this research effort was driven by understanding the dynamics of stakeholder relationships. When two parties working together have alternative interests or motivations and do not share the same level of expertise or information, then the "principal-agent problem" or "agency dilemma" can occur. An example of this would be homeowner contracting with a remodeling contractor for a kitchen remodel. Both parties share the goal of completing the project, however the contractor is more concerned with protecting the profit margin while the homeowner is more concerned about getting the best quality for the lowest price. The contractor may take short cuts that the homeowners is not aware of.

In the energy efficiency program implementation field, one party, the "principal," may struggle to motivate the "agent" to act in the best interests of the principal, rather than agent's own interests. In this case, without perfect and complete information, the principal will always be somewhat unsure that the actions and recommendations of the agent are in the principal's best interest.

Principal-agent theory has strong roots in the literature of Political Science and Economics, where many have examined this phenomenon through the lens of game theory, where changing the rules of the game going forward for both participants, the principal and the agent, can potentially facilitate a scenario where the choices of the agent align with the interests

of the principal. **Error! Reference source not found.Error! Reference source not found.** illustrates the basic structure of a principal-agent problem.
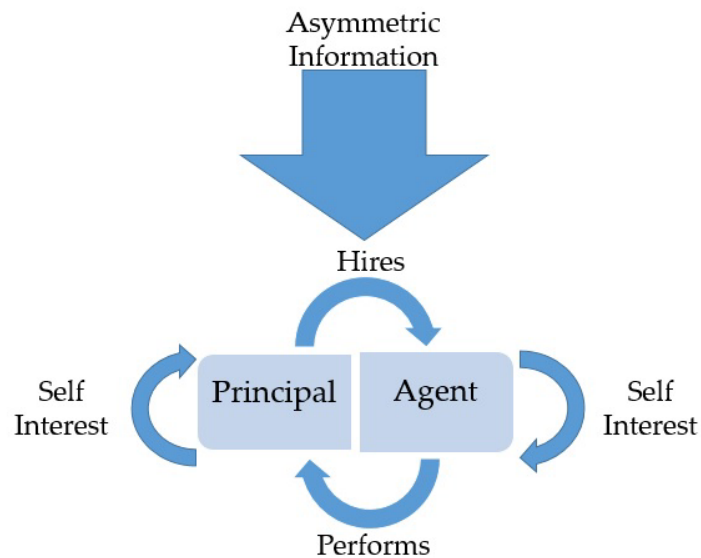

Figure 2. Principal-agent theory.

Within energy efficiency research, the principal-agent theory has been examined from a number of perspectives. Carl Blumstein[1] addressed principal-agent problems that arise among utility regulators and investor-owned utilities in developing incentive structures for energy efficiency programs in his Center for the Study of Energy Markets (CSEM) working paper. Dan Charles[2] looked at principal-agent problems from the consumer's perspective. Here, Charles examined how stricter appliance standards and ARRA dollars were used to promote energy efficiency among residential customers, but found that reluctance to adopt hindered the reduction in energy waste expected from these policy driven changes. Finally, drawing on eight case studies from five countries, the International Energy Agency[3] attempted to estimate how much energy is affected by principal-agent problems by looking at a variety of settings (i.e., commercial and residential) and measures (i.e., set-top boxes, space heating, office equipment, and vending machines). The 2007 report ultimately showed that there is an identifiable gap between actual and optimal use of energy resulting from market barriers.

Clearly, there are a number of areas where the principal-agent theory could apply within utility efficiency programs and particularly between the utility and the program implementers. Several program implementers and program managers acknowledged that while they understand it benefits the program overall, there is not a direct incentive to promote the entire portfolio.

---

[1] Blumstein, C. 2010. "Program Evaluation and Incentives for Administrators of Energy-Efficiency Programs: Can Evaluation Solve the Principal/Agent Problem?" *Center for the Study of Energy Market Working Paper Series*. University of California Energy Institute.

[2] Charles. D. 2009. "Leaping the Efficiency Gap." *Science* 14.325: 804-11.

[3] International Energy Agency. 2007. *Mind the Gap: Quantifying Principal-Agent Problems in Energy Efficiency.* <http://www.iea.org/publications/freepublications/publication/name,3747,en.html>.

Table 3. Principal-agent transaction from agent's perspective

	Program Implementer/Trade Ally provides incentive/services	Program Implementer/Trade Ally does not provide incentive/services
C&I Customer participates in Utility program	No Principal-Agent problem; Both parties have same interests	Efficiency problem – Customer invests, but fails to receive expected incentive/service and loses confidence
C&I Customer does not participate in Utility program	Usage and Efficiency problem	Usage problem – Neither party takes action and no benefits are achieved

There are two types of problems illustrated in this relationship, a usage problem and an efficiency problem. Usage problems are those where the agent is unable to convince the principal to account for his or her energy costs and take action to reduce them. An example of this occurs when program implementers or trade allies attempt to convince customers to participate in the program by appealing to their need to save energy. In some cases, customers may not have an interest to save energy because their company is a manufacturing plant that has to run at full capacity to maintain profit margins. Efficiency problems are those where the principal is positioned to pay for a service where he or she is not fully in control of the choice or action. For instance, program participants can be required to take particular energy saving actions, even if they are not wholly interested in these tasks, in order to receive the program incentives. When we look at the full scale of involvement among the program implementer, trade ally, and potential participant, we can see the areas where uncertainty can produce the potential for principal-agent problems.

Utilities and program administrators can mitigate this principal-agent problem through contract design (such as an incentive for a specific and desired outcome) and program evaluation. If implementer compensation is tied not only to the performance of the program element they manage, but also to how much assistance they provide in channeling customers to other program elements, implementers may be more motivated to cross-promote program offerings. Also, another way to overcome the principal-agent problem is through regular evaluations. Process evaluations should explore not only how each program offering operates on its own, but also how it interacts with other elements.

Programs Influence Each Other

In terms of how programs influence each other, it is clear that portfolios evolve over time to meet the needs of customers. In a new market, utilities and program administrators may start with a simple portfolio with more general offerings. As portfolios evolve, utilities and program administrators often need to broaden program participation or achieve deeper savings within the facilities that they are able to reach. As a result, new program delivery models may be introduced into the market. These new models may focus on a key target market identified by past program participation and energy savings trends or they may focus on a type of technology or technological assistance. For example, often new C&I program portfolios start with a custom program element whereby incentives for energy efficiency projects are determined based on the energy savings projected for unique projects. After some time a program administrator may add a compressed air or commercial refrigeration program element to target those technologies. In that case, compressed air or refrigeration projects that may have been in the custom program are

now diverted to the new program offerings. We saw this when we looked at year over year participation data. For example, in the portfolio's fourth year of operation the utility added an upstream lighting element. When we looked at the energy savings coming from various end uses through the different program offerings there is a marked decline in the ex-ante energy savings for lighting achieved through the portfolios prescriptive and standard offerings.
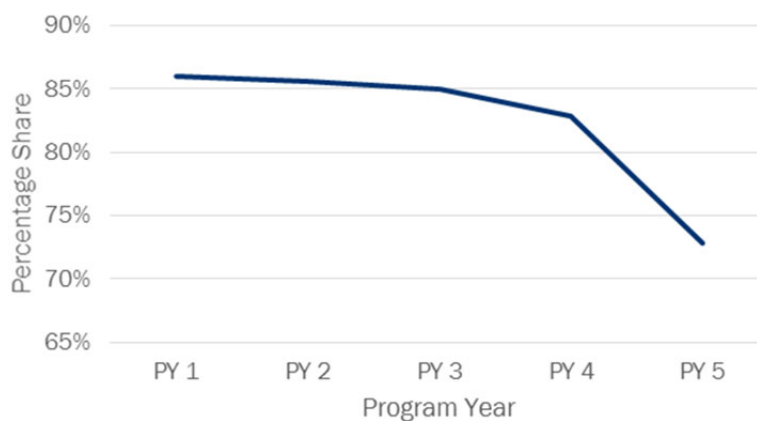

Figure 3: Share of savings from lighting.

Under the standard evaluation paradigm of looking at each program individually, it may appear that the prescriptive and custom programs were achieving fewer and fewer savings through lighting projects as time went on. A similar trend could be seen if a portfolio added a program element targeted at specific business sectors.

More than You Know: Tapping Internal Data Resources

As mentioned previously, cross-cutting evaluations are often overlooked as an evaluation option due to fears associated with either not having enough data or not having data in easily accessible formats. Often times, utilities collect far more data on their customers than they realize, which can be leveraged to support customer segmentation among other activities focused on targeting programming to the customers most likely to participate.

In this research effort, the evaluation team found an abundance of customer data and information that enabled the team to develop a profile of the utility's C&I customers, in addition to tracking their customers over the years of the program's development. While it was not possible to track participation across all program elements back to individual participants, since not all program databases contained account numbers, the evaluation team was able to match data to 45% unique customers by using a series of "fuzzy matching" algorithms looking at contact information and addresses. Although this approach was not ideal due to inconsistencies in data format and structure, it was an approach that offered some insight into a previously unexamined area for the utility consider going forward.

Summary and Conclusions

Portfolios consist of many moving parts. There are stakeholders at various levels with varying interests. Ultimately, to maintain a successful portfolio of programs, program administrators need to find harmony among those involved behind-the-scenes and those in

customer-facing roles. In the same vein, portfolio evaluations need to look not only at program operations, process, and impact findings, but also dig into how the program stakeholders interact to uncover the catalyst for future growth.

The research touched on in this paper identifies trade allies as the group that has the highest level of connectivity with both customers, program implementers, program administrators. In this instance, it is paramount that program administrators increase awareness and promote acceptance or "buy-in" of the program goals among trade allies in order to increase the effectiveness of program outreach.

If coordination is the key to success, then communication is the driver. From our study's findings, program managers that met more often to discuss customers and trade ally involvement were more successful in growing their programs and keeping their customers engaged in the program. That communication could take the form of meetings, phone calls or emails but can also be facilitated through a shared customer relationship management database. That said, many customers interviewed through this research indicated high preference for concierge-style program navigation, which potentially could increase activity outside of single program offerings. In any case, the benefit of true portfolio evaluations is that it fosters an environment where roles are clearly defined and steps are identified to improve overall program operation acknowledging overlapping tasks, activities, and goals.