

Small and Medium Sized Business Customers: Proactive Services to Increase the Installation Rate of Efficiency Upgrades

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ABSTRACT

Small business customers remain a formidable segment to reach for many utility ratepayer and government-sponsored energy-efficiency program efforts. Gaining the attention of small business customers and getting these customers to invest in efficiency upgrades is a challenging task. The effort is usually well worth the time since the segment can account for a significant portion of a utility's sales, and this customer group is often under-represented in terms of program saving results. A key barrier for greater participation: small business owners/managers' limited time to learn about energy-efficiency offerings and to act upon cost-effective upgrades.

This paper reflects the authors' investigation into the incidence, scale, and cost effectiveness of small business programs within ratepayer-funded program portfolios. With that context, the authors discuss their work to improve program impacts by profiling two small business programs to draw lessons from successful "back end" engagement of trade allies to increase the rate of energy assessments to completed energy efficiency projects.

The case studies involve the authors' work implementing small business programs on behalf of Wisconsin Public Service and Focus on Energy in Wisconsin, and a lighting program on behalf of Xcel Energy in Colorado. Authors discuss lessons learned, and highlight the recent work in Colorado to focus on "back end" services to improve installation results. These tactics include a) building a network of contractors to bid on identified projects, b) coordinating with these contractors to deliver a cost estimate in conjunction with the delivery of the audit report, c) handholding assistance to help customers compare estimates and schedule installation work, and d) preparation and submittal of paperwork to qualify for incentives. While the Colorado program is still within its first year of operation, and not all cost information is currently available, initial results of applying more proactive services show a marked improvement in terms of the audit to completed project ratio which is likely to drive cost effectiveness.

Introduction

Efficiency opportunities within the commercial building sector, and particularly for lighting end uses, continue to represent a significant energy savings opportunity. In 2008 commercial buildings accounted for 36% of total U.S. electricity consumption, according to estimates from the Energy Information Administration (EIA). Commercial lighting is estimated to account for 25% of commercial electricity end use. The Electric Power Research Institute's 2009 report on energy efficiency potential in the U.S. identifies more than 50 TWh of achievable potential from commercial lighting, the largest measure category across all sectors and more than all other commercial sector measures combined.¹

¹ Electric Power Research Institute, Assessment of Achievable Potential from Energy Efficiency and Demand Response Programs in the U.S. (2010–2030), Technical Report, January 2009 http://www.edisonfoundation.net/iee/reports/EPRI_AssessmentAchievableEEPotential0109.pdf

Within the commercial sector, “small” and “medium” sized customers make up a strategic target for efficiency programs given the significant energy-use from this class. As is the case with utility energy efficiency program eligibility criteria, the definition of small business can vary depending on the context. To put this customer class in perspective, the authors looked at data from the EIA’s Commercial Building Energy Consumption Survey (CBECS) that tracks commercial buildings by annual energy use. Table 1 below provides three approaches to commercial building segmentation that may be used to define small business facilities.²

**Table 1: Commercial Building Energy-Use Segmentation
(% of Commercial Sector kWh Consumption)**

Energy Consumption		Square Footage		Occupancy (non-mall buildings)	
<500 MWh	33%	<10k sq.ft.	19%	<10 workers	20%
<1,000 MWh	43%	<25k sq.ft.	33%	<50 workers	48%
<5,000 MWh	75%	<50k sq.ft.	44%	<100 workers	61%

If small business facilities are defined as those with under 1,000 MWh of annual consumption, <50,000 square feet of floor space, or fewer than 50 workers on site, such facilities are found to account for between 40% and 50% of total commercial energy consumption.

Franklin Energy’s program experience suggests that small and medium sized business customers tend to participate at lower levels in efficiency programs unless the program proactively reaches out to this segment and addresses some common barriers including lack of: a) information or awareness of the opportunity, b) capital to make the investment, c) time and resources on the back end of the energy assessment to complete the recommended work.

This paper reflects the authors’ investigation into the incidence, scale, and cost effectiveness of small business programs within ratepayer-funded program portfolios. With that context, the authors discuss their work to improve program impacts by profiling two small business programs to draw lessons from successful “back end” engagement of trade allies to increase the rate of energy assessments to completed energy efficiency projects.

Program Models to Address the Small Business Segment

In order to address the unique challenges posed in driving energy efficiency improvements among smaller businesses, many program administrators have designed and implemented programs targeted specifically at these customers. Eighty one utilities and other administrators of ratepayer-funded programs are listed in the Consortium for Energy Efficiency’s (CEE) commercial lighting program summary from September 2009.³ As noted in Figure 1 below, nearly half of these utilities are identified as offering energy-efficiency programs with eligibility limited to smaller businesses.

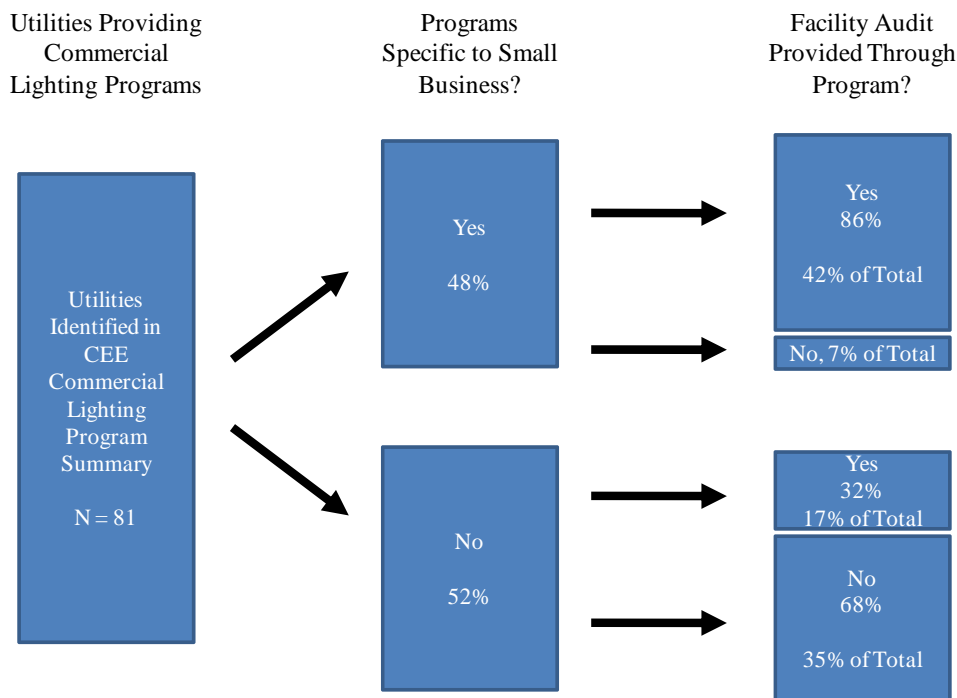
Utilities offering small business-focused programs are also much more likely to provide facility audits to assist end-use customers with identifying energy savings opportunities and quantifying costs and benefits. It is found that 86% of the utilities with small business programs provide audits, often through contractor allies, with nearly all offering these services at no cost to

² Energy Information Administration, Commercial Building Energy Consumption Survey, 2003 http://www.eia.doe.gov/emeu/cbecs/cbecs2003/detailed_tables_2003/detailed_tables_2003.html#enduse03

³ Consortium for Energy Efficiency, Commercial Lighting Program Summary, September 2009 <http://www.cee1.org/files/FINALCommercialLightingProgramSummary.xls>

the customer. Conversely, among utilities with commercial lighting programs that do not target small business customers specifically, only 1 in 3 is found to provide audits.

Figure 1: Small Business Focus among Utilities with Lighting Efficiency Programs



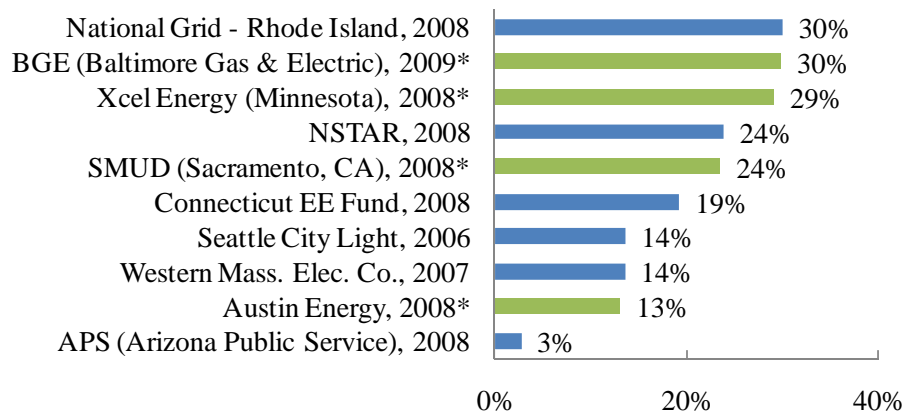
Definition of Small Business

The eligibility criteria applied by utilities to define eligible small businesses varies across program sponsors. In three quarters of instances (76%, N=25), the criteria is found to be defined in terms of peak demand. A 100 kW threshold is the most commonly applied limit (32%) for qualifying commercial customers, followed by 200 kW (24%). A facility square footage limit (e.g., <25k or 50k sq. ft.) is used in just over 10% of programs, while other criteria including total employees and annual spending make up the remainder (12%).

Program Characteristics Relative to Portfolio Totals

In order to investigate the performance characteristics of small business energy efficiency programs, the authors gathered filings and annual reports for a number of utilities and energy efficiency program administrators. Selection was limited to programs offering a small business energy efficiency program with eligibility restrictions. Based on reported program portfolio spending (see Figure 2 below) for identified utilities and administrators, programs targeting small business are found to account for as little as 3% of total commercial and industrial (i.e., non-residential) program spending up to 30%. A median value of 24% is found among the utilities surveyed in this study. Though not insignificant, these percentages fall well short of the 40-50% of commercial sector energy use likely attributable to small business customer facilities, highlighting the challenge of achieving proportional energy savings from these customers.

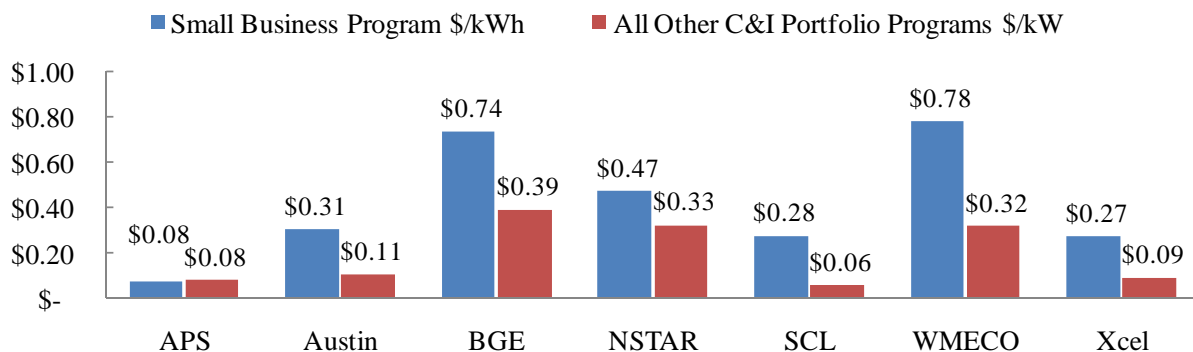
Figure 2: Small Business Programs as a % of C&I Portfolio Spending (Selected Utilities)



* - indicates program limited to lighting measures

A significant challenge in the implementation of small business programs is their cost effectiveness relative to other commercial and industrial programs in the portfolio. Data taken from several recent program reports (see Figure 3 below) highlights the fact that small business programs tend to deliver energy savings at significantly higher first-year costs per kWh saved than other programs in the C&I portfolio. The cost effectiveness of the seven small business programs highlighted in Figure 3 below ranges from \$.08 to \$.78, with an unweighted average of \$.42 and a median of \$.31 of program spending per first-year kWh savings.

Figure 3: First-Year \$/kWh – Small Business Programs vs. Other C&I Portfolio Programs



While there are examples of cost parity (e.g., Arizona Public Service), it is more common for programs to run at two times or more the cost of other programs.

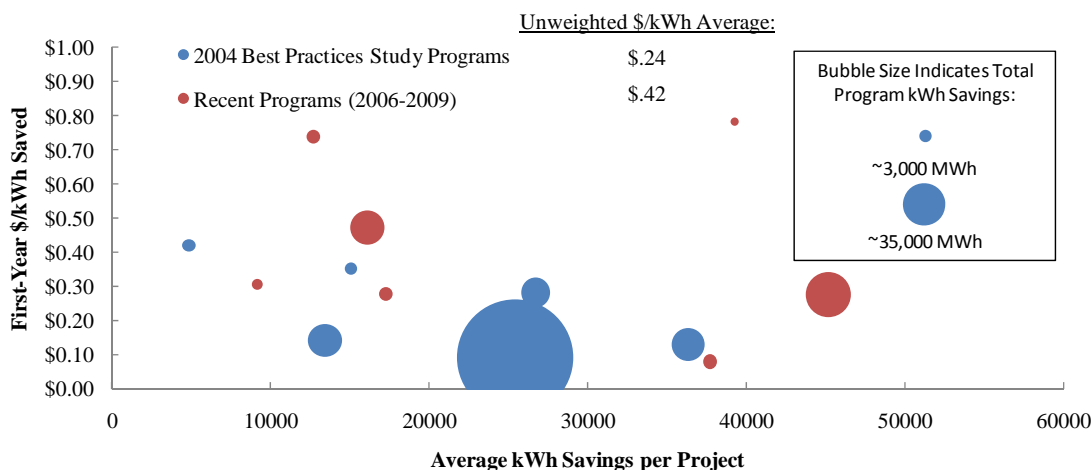
Drivers of Cost Effectiveness

In identifying the drivers of cost effectiveness variability across programs, it is observed that more costly small business programs (in terms of \$/kWh first-year savings) are found in portfolios in which other programs also see relatively higher costs, suggesting the influence of factors beyond the small business program design. It is also worth noting that the three highest program costs are found among utilities in Eastern states (BGE, NSTAR, WMECO), which may be attributable to regional differences in the built environment or policies in program design.

(e.g., incentive levels as a % of measure incremental cost). In the case of BGE, the data reflects the program's startup year of operation.

Examining cost effectiveness relative to average project size, there is some evidence that programs with larger average project sizes achieve lower \$/kWh delivery, but there are exceptions and significant variability. Likewise, with respect to overall project size, data from recent program experience does not suggest that larger programs will necessarily achieve scale benefits. The below chart depicts program cost effectiveness relative to project and program size. Included with the seven selected programs referenced above is the data from six programs included in a 2004 report as part of the National Energy Efficiency Best Practices Study.⁴

Figure 4: First-Year \$/kWh – Small Business Programs by Program Size



The California Statewide Express Efficiency Program from 2002 is found to be an outlier with respect to its size, achieving 244 GWh and 43 MW of savings at a cost of around \$.09 per kWh of first-year savings. Among the seven current programs surveyed, the average project size was found to be around 32 MWh per project, though these numbers are influenced by the customer eligibility limit; Xcel with eligibility up to 400 kW, had an average project size of 45 MWh.

Similar results are found when framing the program costs and savings with respect to demand savings. Among the recent programs surveyed, average cost per kW in first-year savings was found to be just under \$2,000. Programs ranged from \$404 per kW reported by Austin Energy in 2008 for its small business lighting program to as high as \$3,500 per kW in other instances. There is again limited evidence of clear relationships between program cost effectiveness and program size or average project size.

⁴ National Energy Efficiency Best Practices Study, Volume NR-1- Non-Residential Lighting Best Practices Report, Quantum Consulting, December 2004, http://www.eebestpractices.com/pdf/BP_NR1.PDF

Figure 5: First-Year \$/kW – Small Business Programs by Program Size

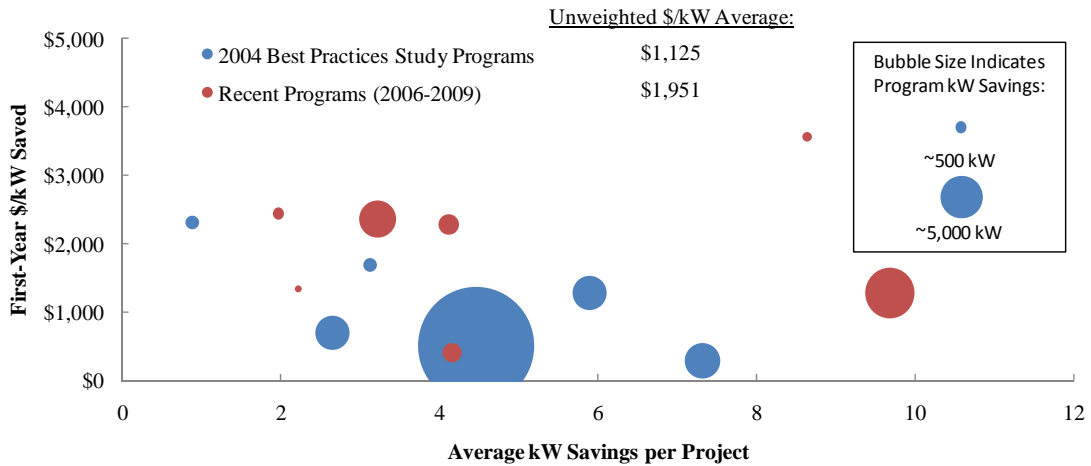


Table 2: Summary of Programs Reviewed

Organization Program	Eligibility Criteria	Yr	Budget \$ MM	# Projects	GWh Saved	\$/kWh	kW Saved	\$/kW
APS (Arizona Public Service) Small Business Program	<200 kW	'08	\$0.27	90	3.4	\$0.08	200	\$1,338
Austin Energy Small Business Lighting	<100 kW	'08	\$0.74	264	2.4	\$0.31	1,100	\$404
BGE (Baltimore Gas & Electric) Small Business Lighting Solutions	<60 kW	'09	\$2.89	308	3.9	\$0.74	1,270	\$2,274
NSTAR Small Business Energy Advantage	<300 kW	'08	\$9.62	1308	21.1	\$0.47	4,216	\$2,363
PG&E (Pacific Gas & Electric) Small Business Energy Alliance	n.p.	'08	\$5.57	n.p.	18.3	\$0.31	3,722	\$1,498
Seattle City Light Smart Business Program	<50 kW	'06	\$1.01	209	3.6	\$0.28	413	\$2,437
WMECO (West. Mass. Elec. Co.) Small C&I Retrofit	<200 kW	'07	\$1.01	33	1.3	\$0.78	285	\$3,560
Xcel Energy (Minnesota) One-Stop Efficiency Shop	<400 kW	'08	\$10.16	819	37.0	\$0.27	7,932	\$1,280
Programs Included in the 2004 National Energy Efficiency Best Practices Study								
California Statewide Express Efficiency	<500 kW	'02	\$21.66	9,621	244.3	\$0.09	43,000	\$504
Connecticut Light & Power Small Business Energy Advantage	<100 kW	'03	\$4.57	605	16.2	\$0.28	3,570	\$1,280
KEMA-XENERGY Business Energy Services Team	<100 kW	'03	\$0.94	179	2.7	\$0.35	559	\$1,683
San Diego Gas & Electric EZ Turnkey Program	<20 kW	'02	\$1.32	643	3.1	\$0.42	570	\$2,311
SMUD (Sacramento, CA) Small Commercial Prescriptive Lighting	<150kW	'03	\$2.73	1,478	19.9	\$0.14	3,920	\$696
Xcel Energy (Minnesota) Small Business Lighting Program	<500 kW	'03	\$1.09	535	19.4	\$0.13	3,918	\$277

(n.p. = not provided)

Case Studies: Small Business Program Efforts in Wisconsin, Colorado

Understanding the potential and the challenge to influence small business customers to pursue energy retrofit opportunities, the authors provide two case studies of recent program experiences to discuss lessons learned to improve program impacts – particularly with respect to the energy assessment to project implementation ratio, or the “implementation rate.”⁵ The authors’ experience finds that higher costs per energy savings unit in small business programs can be largely attributed to the need for greater on-site assistance. To capitalize on that substantial investment of on-site labor, program services need to be designed to ensure a high implementation rate.

The first service presented, Hometown Energy Savers, is a more passive program design on the back end of the energy assessment, while the current Small Business Lighting program with Xcel Energy is designed to be more proactive and provides substantial bid assistance to interested small business customers.

Hometown Energy Savers Program

Franklin Energy implemented the Hometown Energy Savers program on behalf of Wisconsin Public Service and the statewide Focus on Energy program from 2005 to 2009. The objective was to work closely with small business customers (<300 kW) in targeted communities to identify and help the customer implement both electric and gas savings projects. The program services included the following:

- On-site energy “Check Up” and direct installation of low-cost saving measures
- Written report detailing energy savings opportunities and measures
- Referral to contractor(s) if the customer was not already working with an electrician, HVAC, refrigeration contractor, etc.
- Follow-up letter within two weeks of the check up which identified their key efficiency opportunities and emphasized a limited time “Double Incentive” offer.
- Follow-up call with participants within 30 days of their check up visit
- Follow-up reminder letters to customers six-months post-check up and again 30 days prior to the expiration of their Double Incentive Coupon.

During the first three years of the program the goal was to complete approximately 250 small business customer Check Ups annually. Table 2 below provides information by year regarding Check Ups completed, and the resulting energy efficiency projects completed by small business customers.

⁵ The term “implementation rate” refers to the number of projects installed to the number of energy audits completed. At the time of writing this paper, not all program cost information was available. Authors will gather cost information on both programs as possible, and present as part of the 2010 Summer Study poster or oral presentation.

Table 3 – Hometown Energy Saver Results

Project Implementation	FY06		FY07		FY08		FY09	
	Check-Ups	Projects	Check-ups	Projects	Check-Ups	Projects	Check-ups	Projects
	232	8	251	31	273	34	109	43
IMPLEMENTATION RATE	3%		12%		12%		39%	

As noted in Table 3 above, during the early years of the Hometown effort the implementation rate was relatively low, reaching 12% annually in both 2007 and 2008 with a jump in the final year of the program to 39%. Several of the key lessons learned from the Hometown program effort were carried over to design and implementation of future programs including Xcel’s Small Business Lighting program:

- ***Balance energy assessment time with the ability to follow up with customers*** - the initial goal was to complete four to five Check Ups per day, four days per week. This increased the project pipeline but reduced the Energy Advisor’s ability for customer follow up.
- ***Build a network of local trade allies*** – The Hometown program did not have its own network of contractors besides the list of market providers posted on the Wisconsin statewide Focus on Energy Web site. However, given the focus on smaller businesses and communities Franklin Energy was able to increase the collective trade ally knowledge of the small business segment and establish an informal network of contractors in the target communities, making it easier for customers to have the education and assistance to act.
- ***Offer a bonus for small business customers if possible*** - Hometown had a limited-time Double Incentive Coupon. Setting a project completion timeline with the customer and contractor was an important factor; the team learned that customers are motivated to act within the time-frame to receive double incentives.
- ***Target small business customer segments more likely to implement projects*** – The team worked with Wisconsin Public Service’s information technology staff to mine business listings several months prior to a targeted city Hometown promotion. The target list was honed and improved over the four-year program run helping to drive an increased implementation rate at program maturity.
- ***Effective collaboration between the marketing arm and field staff*** – The implementation team from Franklin worked closely with Wisconsin Public Service’s internal call center to target small business customers within each of the program’s communities. The center conducted outbound calls to schedule energy assessments and make it easy for the customer to act and participate.

Small Business Lighting Program in Colorado

Franklin Energy applied lessons from recognized best practices and its experience on the Hometown and other small business efforts to implement the Xcel Energy Small Business Lighting (SBL) Program in Colorado⁶. The program, launched mid-year 2009, and at the time of

⁶ One notable best practice report from the authors’ perspective is by Quantum Consulting (2004) which identifies a series of best practices for lighting program design, implementation, marketing, and evaluation.

this paper’s authoring is still in a developmental stage in which the implementation team is applying program enhancements to continually increase installation results. This section explores what has been learned to date in terms of the overall impact of proactive services on program results, including the impact of “back-end” tactics to engage trade allies and encourage more small business customer participation. The proactive services for the purpose of the discussion include:

- Establishing qualifying criteria and building a network of experienced contractors
- Coordinating with the network of contractors to deliver a project estimate
- Follow-up to assist customers with estimate comparisons and establish a completion timeline
- Preparation and submission of rebate application/paperwork to qualify and receive incentives

The results of the Small Business Lighting program in Colorado to date are provided in Table 4, followed by a discussion of lessons learned since launching this effort in mid 2009 and details on the new service elements being applied to increase the project implementation rate.

Table 4 – Small Business Lighting Program to Date Results (June 2009 to May 2010)

	Program to Date	
	Lighting Audits	Projects
		378
IMPLEMENTATION RATE	15%	

Building a Network of Qualified Contractors

The importance of creating a network of experienced contractors is a highlight of best practice programs. In the case of the SBL program, where customers only receive incentives for qualified equipment, establishing a certified network of knowledgeable lighting contractors is imperative. During the program design phase, the following guidelines were developed to ensure quality and consistency across the contractor network:

- Contractors must have demonstrated proficiency in the field of lighting to include three out of four of the following:
 - One or more key personnel having lighting certification in the following accredited programs – CLEP, LC, NAILD, CLMC
 - One or more staff with at least 5 years experience with in-state lighting installations
 - Four or more years in business—and, presence in the state for at least three years
 - Completion of at least four lighting projects through Xcel Energy’s lighting programs
- Demonstrated experience working with small business customers (i.e., letters of recommendation, references, etc.)

These guidelines became the criteria for creating the SBL Trade Partner Participation Application. The SBL Program was promoted through various contractor channels and events in order to recruit a base of qualified contractors. At these promotions, the specifics of the SBL Program offering and the participation criteria were communicated. The result of these promotional efforts was a network of twenty-five qualified contractors for the SBL program.

Under the initial program offering, it was thought that providing the small business customer with the list of qualified contractors as part of the delivery of their lighting assessment would suffice as a means of connecting the customer to the contractor. However, it was determined that this method did not motivate the customer. Additionally, participating contractors believed this method to be unfair in terms of the distribution of potential projects. In response to these challenges, the program team implemented the Project Opportunity Notification (PON) process to facilitate unbiased distribution of project opportunities across the contractor network. The mechanism had the added benefit of an interactive follow-up technique to keep customers motivated to implement their lighting recommendations. The Project Opportunity Notification (PON) process consists of the following steps:

- Customers are asked at the time of their on-site lighting assessment if they would be interested in receiving estimates for their lighting project recommendations.
- If so, a random generator is utilized to select three contractors from the qualified list.
- Selected contractors receive a PON via e-mail which includes the customer's lighting assessment report without the actual customer contact info.
- Contractors make project cost estimates based on the recommendations made on the lighting assessment and submit to their bid to the SBL program.
- The SBL program includes the three project estimates in the lighting assessment report delivered to the customer. The customer is encouraged to contact the bidding contractors to discuss the project estimates and schedule a walk-through with the contractor for a more detailed quote.

Coordinating with Contractors to Deliver Lighting Project Estimates

The PON process has become an essential tool for the SBL program in terms of coordinating with contractors to deliver lighting project estimates. As the program continues to be refined, it is apparent that PON has been instrumental in creating consistency across the contractor base regarding project estimates. At program start-up, the SBL program experienced a wide disparity in project estimate costs. Delivering project estimates with significant cost differences created customer confusion and impacted perceptions of overall program quality. The SBL team concentrated effort on improving consistency across the participating contractor base by conducting monthly contractor training sessions. The training sessions went over the content and methodology behind the program's lighting assessment reports and incentive structure.

Contractors have been trained to provide project estimates which adhere to the specific lighting recommendations featured in the assessment report received as part of the PON. This results in closer "apples-to-apples" project estimates generated by contractors for the customer to evaluate. The process promotes consistency and ensures fairness for participating contractors to compete in a market characterized by low-bid dominance.

Feedback from the contractor network indicates a preference among the trade allies to work cooperatively within the parameters of the PON process to provide accurate project cost information to the customer versus the customer seeking such information outside of the qualified contractor network. Increased cooperation and collaboration results from knowledge that identified project opportunities are distributed equitably. Access to “unseen” project opportunities brought forth through the SBL program offering is viewed as a collective, competitive advantage.

The SBL program found that customers receiving PON estimates with their lighting assessment were often interested in the encouraged walk-through with the bidding contractors. In such instances, an SBL team member facilitates a contractor walk-through of the project and provides clarification on lighting design recommendations offered by the contractors. Overall, the sharing of ideas at the customer site between program staff and the contractors has helped to ensure optimal lighting system designs for customers.

Table 5 – Small Business Lighting Program-to-Date PON Results

Project to Audit Implementation Rate without PON Process	14 %
Project to Audit Implementation Rate with PON Process	29 %

The significant impact of the PON process on project to audit implementation rate has been tracked throughout the SBL program start-up. Refinement of the PON process and ongoing training of the contractor base participating in the program is expected to increase the audit implementation rate in excess of 30% by the second full year of the program.

Customer Follow-Up – Assistance Comparing and Clarifying Project Estimates

The SBL program includes “hand-holding” and follow-up tactics to assist the customer with the decisions needed to complete the lighting retrofit project. Customer Relationship Management (CRM) software tools are used to track follow-up activities with customers. Where a customer has expressed their intent to complete the project, they are then staged as committed in the CRM and follow-up is conducted with the customer according to a typical 90-120 day project timeline with accompanying project milestones. Once committed, customer follow-up activities include the following:

- Clarifying the project estimates so the customer is able to make an informed, confident decision in selecting a contractor
- Making sure that the lighting products identified in the project estimate will meet their expectations and lighting needs
- Ensuring that the lighting products qualify for the incentives prior to order or purchase
- Advising on potential hidden costs (i.e., recycling of old fixtures, lifts, etc.)
- Discussing potential displacement of business operations during project install to ease concerns over any loss of productivity.

These hand-holding follow-up tactics have been important for ensuring successful completion of lighting projects and successful processing of incentives. Conducting these follow-up activities along the project timeline allows the SBL team to stay in touch with both the

customer and the contractor. The collaborative communication which takes place through project milestones further enhances overall customer and contractor satisfaction, contributing to ongoing positive word-of-mouth marketing for the program.

Incentive Application Preparation Assistance

A final project milestone for the customer is the completion of the SBL Rebate Application. Program staff offers assistance to the customer at this stage to ensure proper project paperwork completion. The rebate application, while designed for simplicity, does require attention to specific details—which, if left incomplete, could result in a rejected application. Below are examples of the types of assistance provided in the application preparation process:

- Identification of lighting removed versus lighting installed
- Assistance gathering proper invoice and equipment specification documentation
- Correlation of ballasts to Consortium for Energy Efficiency (CEE) qualifying list
- Verification of deemed savings and applicable rebates
- Follow-up with rebate operations to ensure prompt rebate processing

This type of application preparation assistance significantly reduces rejected applications.

Conclusion

Small and medium sized business customers, accounting for close to half of commercial sector energy consumption, represent a sizable opportunity for ratepayer-funded energy efficiency programs. Half of utility sponsors are found to be pursuing programs targeted at small businesses, with most of these programs leveraging on-site audits and technical assistance to increase adoption and measure implementation. Within these program efforts there is evidence that energy savings comes at a higher cost relative to other commercial programs and there may be limited economies of scale. Reaching higher energy savings through small business programs and improving cost effectiveness will come from program innovations such as those that increase conversion of audits to executed projects.

The authors' experience highlights the need for unbiased, easy-to-understand on-site energy assessments as a starting point for small business program execution. However, as evidenced by the recent implementation of programs in Wisconsin and most recently in Colorado with Xcel Energy, providing additional proactive “back end” enhancements can dramatically improve program results. By implementing processes to engage trade allies, facilitating consistent unbiased processes to provide customers with project bid estimates, and assisting customers with decision making and incentive processing, more audits are found to be converted to project implementation, increasing energy savings and providing the potential to improve program cost effectiveness.

As noted, while all cost information was not available to authors at the time of this writing, authors will collect this information and present as part of the 2010 Summer Study poster or oral presentation.

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