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A quantification of spillover was not included in the calculation of NTG ratio for PY3. However spillover effects were examined in this evaluation and their magnitude was found to be quite small as discussed below.

Once gross and NTG program impacts have been estimated, net program impacts are calculated by multiplying the gross impact estimate by the program NTG ratio.

Table 3-3. NTG Ratio and Relative Precision at 90% Confidence Level

Sampling Strata	Relative Precision ± %	Low	Mean	High
1	0%	0.73	0.73	0.73
2	4%	0.83	0.86	0.89
3	13%	0.55	0.63	0.71
Total	4%	0.71	0.74	0.77

The measured Year 3 NTG ratio of 0.74 was higher than in PY2 (0.65), meaning free-ridership was lower. Significant free-ridership (above 40%) was found in 10 out of 33 evaluated projects, of which only five had a resulting NTG ratio below 0.40. Four of these projects with substantial free-ridership had very low Program Influence¹⁰ and No-Program¹¹ scores. The other one project with substantial free-ridership had a zero as the No-Program score (on a scale of 0 to 10).

Projects with the lowest Program Components¹² scores tend to have lower NTG ratios, while those with higher Program Component scores have NTG ratios that are among the highest. For example, all projects with Program Components scores of 7 or lower have NTG ratios that are somewhat low; the average NTG ratio across all of these projects is 0.5. In contrast, the mean NTG ratio in the group with a Program Components score of 9 or greater is 0.80.

Relatively high and relatively low NTG scores in the sample are not directly affected to the same extent by the Program Influence score. That is, the correlation between the Program Influence score and resulting NTG is not as significant as is the correlation with the No-Program and Program Components scores.

¹⁰ A Program Influence score reflects the degree of influence the program had on the customer's decision to install the specified measures.

¹¹ A No-Program score captures the likelihood of various actions the customer might have taken at this time and in the future if the program had not been available.

¹² A Program Components score reflects the importance of various program and program-related elements in the customer's decision and timing of the decision in selecting specific program measures.

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Program influence was high in many cases, especially for the large stratum 1 and stratum 2 projects. The results indicate that the availability of incentives was a major factor for larger projects that customers initiated for energy savings reasons. Participants reported the program being a strong motivating factor in their decision to upgrade to efficient equipment at the time they elected to do so. The results also confirm that the program has improved in the area of project screening.

However, there were many cases for smaller Stratum 3 projects where the program influence was low for a number of different reasons. In some cases, the evidence indicates that the customer learned about the program late in the decision making process and offered incentives for projects that had already been decided upon. There were also several cases where the customer reported that they would have installed the same equipment at the same time in the absence of the program incentives (thus significantly increasing the odds of free ridership in any given project).

Spillover

Spillover effects were addressed in the PY3 evaluation, based on responses to a battery of spillover questions in the phone survey. The evidence of spillover for the Custom Incentive program is summarized in Table 3-4 below.

Table 3-4. Evidence of Spillover in PY3

Spillover Question	Evidence of Spillover
Since your participation in the DCEO program, did you implement any additional energy efficiency measures at this facility that did NOT receive incentives through any utility or government program?	Of the 37 surveyed customers that responded to this question, 14 said "Yes" (38%). These 14 respondents implemented a total of 26 energy efficiency measures.
What type of energy efficiency measure was installed without an incentive?	<ul style="list-style-type: none"> (6) Lighting Measures (2 T-8, 1 LED lamps, 1 CFL, 2 Non-specific lighting measures) (6) HVAC measures (3 Boilers, 1 In-ground radiant heat, 1 VFD on HVAC Motors, 1 VAV System) (5) Building Envelope (2 Windows, 2 Roof, 1 Insulation) (2) Lighting Controls (1 occupancy sensors, 1 timers) (3) Energy Management System/Building Automation System/Intelligent power distribution system (2) Conservation Measures (1 Turn off lights when not in use, 1 Reducing energy use)

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Spillover Question	Evidence of Spillover
	(2) Water Heat (1 Solar, 1 Unspecified) (1) Refrigerator (1) Fans (1) Stoves
On a scale of 0 to 10, where 0 means "not at all significant" and 10 means "extremely significant," how significant was your experience in the DCEO program in your decision to implement this energy efficiency measure?	For the 26 implemented measures: (16) Rating of 0 (2) Rating between 4 and 6 (7) Rating between 7 and 10 (1) Refused/Don't know
If you had not participated in the DCEO program, how likely is it that your organization would still have implemented this measure? Use a 0 to 10, scale where 0 means you definitely would NOT have implemented this measure and 10 means you definitely WOULD have implemented this measure?	For the 26 implemented measures: (5) Rating between 0 and 3 (2) Rating between 4 and 6 (14) Rating between 7 and 10 (5) Refused/Don't know
Why did you purchase this energy efficiency measure without the financial assistance available through the DCEO program?	For the 26 implemented measures: (13) Lack of knowledge about the program or about the measures eligible for program incentives (10 respondents, 13 measures) (3) No funding (2 respondents, 3 measures) (2) Part of normal maintenance (1 respondent, 2 measures) (2) Needed to replace measures ASAP (2 respondents, 2 measures) (1) Project was too small (1 respondent, 1 measure) (1) Incentive not worth the time involved (1 respondent, 1 measure) (1) Measures don't qualify (1 respondent, 1 measure) (1) Was planning to apply (1 respondent, 1 measure) (2) Currently looking to apply (1 respondent, 2 measures)

These findings suggest that spillover effects for PY3 are relatively small. While participating customers are installing other energy efficiency improvements outside of the program, they attribute little influence to the program in their decision to install these additional measures and

further state that these actions generally would have been implemented regardless of their program participation experiences. In addition, the respondents indicated that they did not pursue rebates through the DCEO program due to the lack of knowledge about the program or about the measures eligible for program incentives.

3.1.5 Net Program Impact Results

Net program impacts were derived by multiplying gross program savings by the estimated NTG ratio. Table 3-5 provides the program-level evaluation-adjusted net impact results for the PY3 Custom program. The gross program savings realization rate is 0.78, calculated based on the results from the projects in the impact sample. The overall NTG ratio for energy savings is 0.74, calculated using the responses from each contributing participant (and other sources) and kWh-based weights. The NTG ratio for demand savings could not be estimated due to the fact that the program does not estimate kW savings. The chained realization rate (gross RR * NTG Ratio) is 0.58 for kWh. Utility specific impacts are provided in Appendix 5.1.

Table 3-5. PY3 Gross and Net Parameter Estimates for Selected Custom Sample

Sampling Strata	Ex Ante Gross kWh	Ex Post Gross kWh	kWh RR	Ex Post Net kWh	NTGR (ex post gross)
1	8,493,421	7,943,899	0.94	5,794,757	0.73
2	9,277,658	5,244,567	0.57	4,513,840	0.86
3	9,067,976	7,696,774	0.85	4,845,068	0.63
Total	26,839,055	20,885,239	0.78	15,476,819	0.74

3.2 Process Evaluation Results

The process evaluation of the Custom Program covered a range of topics, including program participation, program design and implementation, program partnerships, trade allies, marketing and outreach, barriers to participation, program drop-outs, public sector procurement process, and participant satisfaction. Data sources for the process evaluation include a review of program materials, three in-depth interviews with DCEO staff, ten in-depth interviews with program participants regarding the equipment procurement process, five in-depth interviews with program drop-outs, and a CATI survey with 37 program participants. Of the telephone survey respondents, about two thirds (24) are in ComEd's service territory and one third (13) are in Ameren's service territory.

To facilitate participant survey data presentation and comparisons with previous years, we present many of the results as percentages of respondents. However, it should be noted that when sample sizes are small, such as in this survey (37 in PY3, 15 in PY2, and 10 in PY1), a

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single response can have a large impact on overall results. The reader should keep this in mind when drawing conclusions from survey results.

3.2.1 Participant Profile

In PY3, 99 organizations completed a total of 127 custom projects that accounted for 26.8 GWh of ex ante gross savings.¹³ PY3 participants represent a range of sectors. Key observations, by sector, are:

- Local governments represent the largest share of projects (65%), participants (67%), and energy savings (53%). K-12 schools account for the second largest share of projects (20%) and participants (19%), while universities account for the second largest share of energy savings (33%).
- The average size of projects in the university sector is significantly larger than any other sector (1.76 GWh). While universities only completed five projects (4%) in PY3, they accounted for 33% of savings. Two of the three largest custom projects were completed by universities.
- Community colleges and federal and state government entities represent the smallest shares of projects, participants, and energy savings.

Table 3-6 summarizes the distribution of PY3 projects, participants, and energy savings by sector.

Table 3-6. PY2 Distribution of Participants, Projects and Savings by Sector

	Projects		Participants		Projects/ Participant	Ex Ante Savings		kWh/ Project
	#	%	#	%		kWh	%	
Local Government	83	65%	66	67%	1.3	14,329,664	53%	172,647
K-12 Schools	26	20%	19	19%	1.4	1,566,784	6%	60,261
Federal Government	5	4%	2	2%	2.5	1,201,724	4%	240,345
Community Colleges	6	5%	6	6%	1.0	877,597	3%	146,266
University	5	4%	4	4%	1.3	8,805,375	33%	1,761,075
State Government	2	2%	2	2%	1.0	57,912	0%	28,956
TOTAL	127		99		1.3	26,839,055		211,331

Source: Program tracking database.

¹³ Ex ante gross savings reported in this section are based on the program tracking database.

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Overall, program participation increased compared to PY2, from 82 projects completed by 69 entities to 127 projects completed by 99 entities. On the other hand, ex ante gross energy savings decreased by 29% from 37.8 GWh in PY2 to 26.8 GWh in PY3.

Key participation trends over the three program years include:

- The total number of projects in PY3 increased by 55% over PY2 (127 vs. 82). Projects implemented by local governments continue to represent approximately two thirds (65%) of the projects. The distribution of projects by sector is similar to previous years.
- The total number of participants (entities) has increased by 43% over PY2 (99 vs. 69). The distribution of participants across sectors in PY3 is fairly similar to previous years. In PY3, state government entities participated in the Custom Program for the first time.
- PY3 ex ante energy savings decreased by 29% compared to PY2. The biggest reductions came from the Federal government sector (almost 8 GWh, or 87%) and Universities (4 GWh, or 32%). Nonetheless, universities continue to represent the second largest share (33%) of energy savings.
- The average project size decreased from 462 MWh per project in PY2 to 211 MWh per project in PY3. Projects implemented by universities and the federal government sector both saw substantial declines in project size.

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The figures below compare the number of projects, participants, ex ante gross energy savings, and average project size by sector and program year.

Figure 3-1. Projects by Sector and Program Year

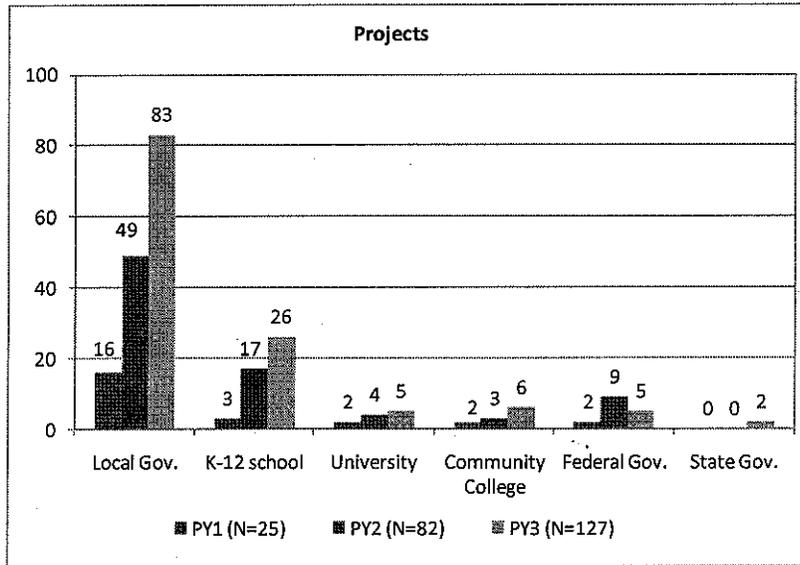


Figure 3-2. Participants by Sector and Program Year

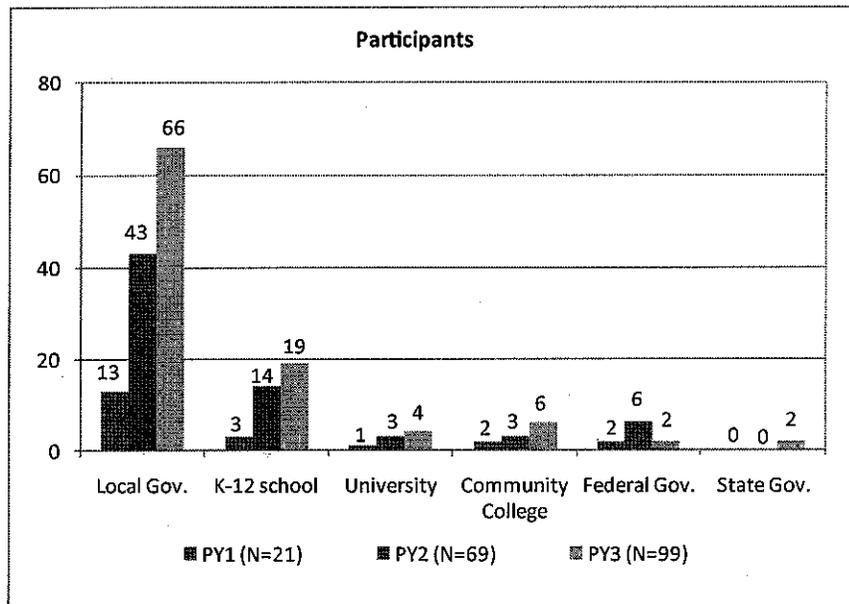


Figure 3-3. Energy Savings by Sector and Program Year

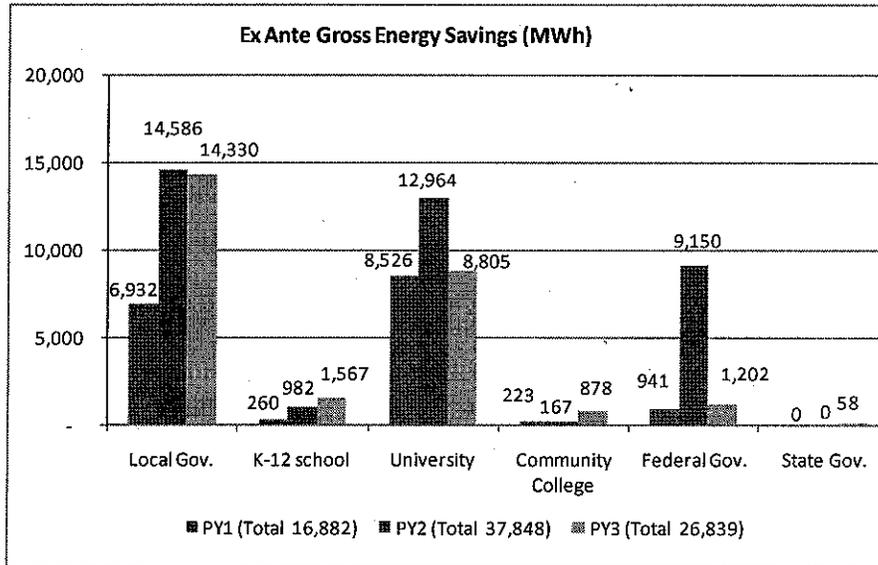
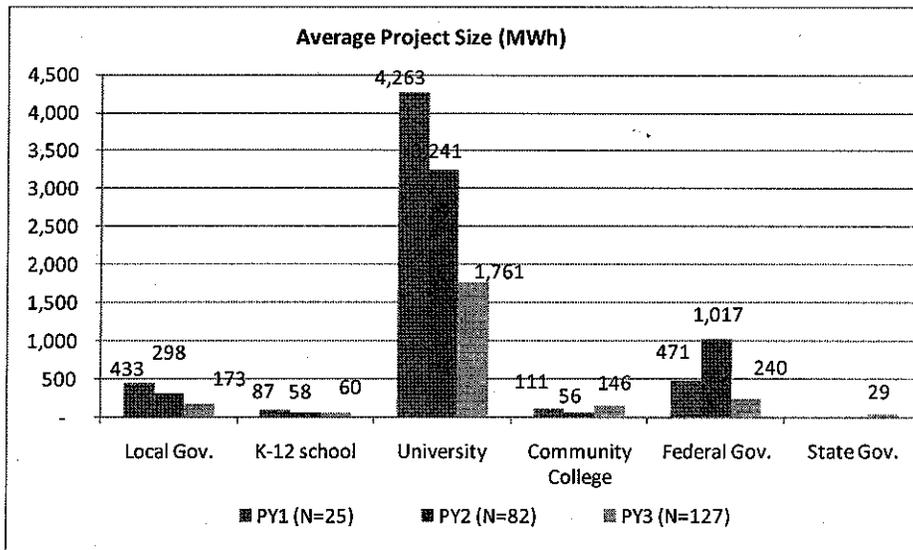


Figure 3-4. Average Project Size by Sector and Program Year



Source: Program tracking database

3.2.2 Program Design and Implementation

In PY3 several key changes were made to the design and implementation of the Custom Program:

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- **Incentives:** Program incentive caps were increased to \$300,000 (from \$200,000 in PY2). In addition, the maximum incentive rate for custom projects was increased from \$0.08/kWh to \$0.09/kWh for local governments, K-12 schools, and community colleges and to \$0.12/kWh for other types of entities.
- **Resources:** The program developed a relational database to enhance its ability to track participation data and manage the program. In addition, the program hired three new staff members.
- **Partnerships:** The program began partnering with the Illinois State Board of Education (ISBE) to channel K-12 school participants into the program. The program also leveraged its relationship with the Illinois Association of Regional Councils (ILARC) to 1) channel projects with EECBG funding into the PSEE program and 2) offer a 20% bonus for local government entities that applied for but did not receive EECBG funding.
- **Application Assistance Providers:** The program implemented an application assistance pilot program in PY3. This pilot will not be continued in future years.

The following sections provide more information about these and other changes implemented in PY3.

Incentives

In order to induce participation, a few changes have been made to the program incentive structure in PY3. First, the incentive cap was increased from \$200,000 in PY2 to \$300,000 in PY3. Despite this increase, nearly a fifth of participants say that the scope of their project was either limited (16%) or somewhat limited (3%) by the incentive cap.

Additionally, the maximum incentive rate for custom projects increased in PY3. In PY2, all projects received a flat incentive rate of \$0.08/kWh. In PY3, this rate was increased to \$0.12/kWh for the carve-out group (local governments, K-12 schools, and community colleges) and to \$0.09/kWh for non-carve out entities (federal and state governments and universities).

Since PY2, the program has been implementing an Emerging Technologies Pilot as part of the Custom Program. This pilot offers increased incentive rates for exterior LED and induction lighting. According to the Custom Program Manager, in PY3 the pilot continued to be successful in stimulating program participation and installation of energy efficiency lighting equipment.

In collaboration with the Illinois Association of Regional Councils (ILARC), the Standard and Custom Programs offered a 20% bonus for local governments in PY3 (the Non-EECBG 20% Bonus). This bonus was available for local governments that submitted Federal Energy Efficiency & Conservation Block Grant (EECBG) applications to their Regional Planning Agencies but were not selected for funding. The promotion was implemented to increase

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participation among local government entities. However, according to the program tracking database, no custom projects were implemented as part of this promotion.

Program Resources

Several changes took place in PY3 with regard to program resources:

- **Database development:** According to program staff, the development of a program tracking database was a key activity in PY3. Deployment of a new database system was intended to reduce administrative burden and allow multiple staff to enter data into the database at the same time. Staff members agree that the database has allowed them to be more productive and efficient in terms of processing paperwork and generating reports. However, the development of the database along with database user training required substantial effort and time on the part of program staff. Moreover, program staff point out that entering data into the system is more time consuming than the previous system (because more information is captured) and that many report automation capabilities that would be useful in conducting their work were not yet available in PY3.
- **Increased Staffing:** In PY3, DCEO hired more staff, bringing the total to nine staff members within the PSEE programs. Starting in PY2 and continuing in PY3, the PSEE programs have leveraged employees hired to support the implementation of the American Recovery and Reinvestment Act of 2009 (ARRA). These employees will transition full time to the PSEE programs as ARRA work phases out by January 2012. According to program staff, the additional resources have allowed the program to keep up with the increased volume of applications in PY3. However, other demands on staff's time (including the preparation for the integration of natural gas programs in PY4 and the processing of stimulus fund-related incentives), have continued to limit certain program activities (e.g., the number of inspections).
- **Staffing Segmentation:** In PY3, DCEO transitioned toward more staff specialization where individual staff members are assigned projects based on the sectors and utility service territories of the participant. This allows participants to work with the same staff member throughout their project and across years.

Participation and Application Process

The participation process has remained largely unchanged from previous years. Every custom project still has to undergo several steps, including project application, final paperwork, payment processing, and incentive disbursement. In addition, certain projects are subject to pre- and post-inspections to qualify for an incentive.

Similar to previous years, the application process includes a pre-approval application (not required) and a final application. Only minor changes were made to the PY3 application process:

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- **Carve-out Applications:** Two separate application forms were developed for different sectors. As part of an effort to direct three quarters of its funding to specific sectors, a “carve-out” group (local government, K-12 schools, and community colleges) was developed. The carve-out group was provided with a distinct application form that reflects the higher incentive levels compared to non-carve-out entities (federal and state government and universities).
- **Project Timelines:** In PY3 program participants were required to submit the final application within 45 days of project completion, as opposed to 60 days in previous years.
- **Application Assistance Providers:** In PY3 the program implemented a pilot effort that used Application Assistance Providers (AAPs) to help customers with the application process. As part of this effort, the program selected a small number of trade allies and listed them on the program website. However, this pilot was not as successful as expected and will not continue in future years (see Trade Allies section for further details).

More than half of participants (59%) fill out the program paperwork themselves. About three quarters of these individuals (73%) feel that the application forms clearly explain the program requirements and participation process. More than half of those who filled out the paperwork themselves (59%) rate the application process as easy, but some (14%) rate the process as difficult.¹⁴ Participants appear to find the application process more difficult than in previous years: in PY3, the average rating was 6.3 (in the “neutral” range) compared to 7.9 (in the “easy” range) in PY2. In addition, the most common drawback to participating in the program, identified by participants, is that the paperwork is too burdensome (11%).

3.2.3 Program Partnerships

DCEO has developed a number of partnerships that help channel participants into the program and support participants through the participation process. Program staff emphasized the importance of the partnerships the program has maintained over the years and those that were newly developed in PY3.

Smart Energy Design Assistance Center

The Smart Energy Design Assistance Center (SEDAC) continues to be one of the program’s closest partners. SEDAC currently supports several key functions for the PSEE programs. These functions are generally conducted in collaboration with DCEO and supported by DCEO funding. They include producing and distributing marketing materials; educating public

¹⁴ “Easy” is defined as a score of 7 to 10 on a scale from 0 to 10, where 0 is “very difficult” and 10 is “very easy.”
“Difficult” is defined as a score of 0 to 3.

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entities about the PSEE programs; and providing technical design and project implementation assistance. One DCEO staff member notes that expanding SEDAC's role in the program in the future would be beneficial, and plans have been made to enlist SEDAC in the development of a trade ally network in PY4.

Results from the participant survey confirm that SEDAC provides a supportive role in the Custom Program. About a quarter of program participants (24%) recall attending a SEDAC event that discussed the PSEE programs in PY3, and one-third (32%) recall receiving information about the PSEE programs through the SEDAC newsletter. Over a quarter of participants (28%) report that their contractor is affiliated with SEDAC (slightly more, 31%, do not know).

Illinois Association of Regional Councils

The program targets 75% of its funding towards local governments, K-12 schools, and community colleges. To achieve this level of participation, DCEO has partnered with other relevant public organizations, including the Illinois Association of Regional Councils (ILARC). As part of this effort, DCEO provided training to ILARC's Regional Planning Agencies on PSEE Program opportunities. ILARC guidelines required communities that received EECBG funds to also apply under the PSEE program, where eligible.

Based on the program tracking database, the number of local government projects in PY3 increased by almost 70% compared to PY2. Program staff estimates that as many as 100 PSEE applications were generated through this partnership; however, some of these applicants dropped out of the program. The final PY3 program tracking database shows that a total of 81 standard and custom projects received EECBG or Non-EECBG 20% Bonus funding; 10 of these were custom projects (8% of all custom projects).

Illinois State Board of Education

In PY3, the Illinois State Board of Education (ISBE) began awarding Energy Efficiency Grants, dollar for dollar state matching grants providing up to \$250,000 for energy efficiency projects in schools. All school districts, charter schools, vocational centers, or public university laboratory schools are eligible. DCEO collaborated with ISBE by sharing marketing and outreach efforts and by channeling participants into each others' programs. Participants were then incentivized by each entity for 50% of eligible measures. In PY3, the number of K-12 school participants in the Custom Program increased by 36% compared to PY2.

Ameren Illinois Utilities and ComEd

In PY3, DCEO continued to leverage Ameren Illinois Utilities and ComEd's activities in promoting the PSEE programs. The three entities coordinate through monthly conference calls in which marketing and outreach and other issues are discussed. The utilities include DCEO at

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events and in outreach efforts. Like in previous years, DCEO helped fund, co-sponsor, and attend some larger PY3 outreach events with the utilities.

DCEO continues to conduct training sessions for utility account managers. Program staff remarked that account managers are more knowledgeable about and engaged in the PSEE programs each year. Some account managers provide marketing support while others simply refer public sector customers to DCEO.

Participant survey responses also indicate that account managers play a role, albeit a small one, in supporting the Custom Program:

- Nearly a third of interviewed program participants (11 of 37, or 30%) report having a utility account manager. This share has decreased since PY1 when over half of participants (6 of 10, or 60%) reported having an account manager.
- Of those with an account manager, 82% received assistance from their account manager in implementing their project, 45% discussed the program with their account manager, and 20% first found out about the program from the account manager.

3.2.4 Trade Allies

In the first two program years, DCEO leveraged the trade ally networks of SEDAC, ComEd, and Ameren Illinois Utilities by referring potential participants to their lists of qualified contractors. In addition, DCEO directs marketing and outreach efforts towards these networks to inform trade allies of the PSEE program.

In PY3, DCEO continued to leverage these existing networks, but made a first attempt at developing its own network of contractors through a pilot effort under the Building Industry and Training Education Program (BITE). As part of this effort, DCEO selected a small number of Application Assistance Providers (AAPs) through a competitive bidding process. These trade allies were listed on the program website and were paid a fee per kWh for helping customers through the application process (AAPs received one payment when a pre-approval application was submitted and a second payment when a final application was submitted). Overall, program staff did not find this pilot effort to be a worthwhile use of program resources. While AAPs assisted with 10% of custom projects (based on program records), the quality of applications was not as good as program staff expected. As such, the AAP pilot was discontinued. DCEO plans to develop a formal trade ally network in PY4.

The telephone survey with program participants included questions about their use of contractors, their contractors' affiliation with SEDAC or the utility trade ally networks, and satisfaction with their contractors. Responses to the survey show that trade allies play an important role in the implementation of projects and channeling of participants:

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- Nearly all participants (92%) work with a vendor or contractor in selecting equipment for their project.
- Trade allies are the most common channel through which participants first learn about the program: 18% first learned of it through an equipment contractor, installer, designer, or consultant, and 15% first learned about it through a supplier, distributor, or vendor.
- 85% mention a trade ally as the resource who provided them with the most assistance in the design and specification of the installed equipment: nearly half (47%) named a contractor, equipment installer, designer, or consultant, and over a third (38%) named an equipment distributor, supplier, or vendor.
- Over a quarter of participants (28%) report that their contractor is affiliated with SEDAC (slightly more, 31%, do not know).
- A contractor's affiliation with SEDAC or the utility programs is important to about half of program participants (48%).¹⁵ On average, those in ComEd service territory find this to be more important than those in Ameren Illinois Utilities territory (mean rating of 7.1 vs. 4.4).
- Participant satisfaction with the contractors who helped implement the projects is high. Nearly all interviewed participants (97%) say that their contractor was able to meet their project needs and that they would recommend their contractor to others.

These findings support DCEO's plans to develop its own trade ally network in PY4. This network is planned to be similar to that of the utilities, where trade allies are enticed to participate by being eligible for incentives themselves.

3.2.5 Program Marketing & Outreach

In PY3, the PSEE Program was re-branded as *Illinois Energy Now* (IEN). The branding effort included usage of the IEN logo on all program marketing materials and revisions to the program website. Due to budget limitations, DCEO produced limited marketing materials in PY3. However, the majority of participants who recalled seeing program marketing materials (76%) found them to be useful.¹⁶

Key marketing and outreach activities included:

- **Events:** DCEO gave presentations at 52 workshops, conferences, and meetings in PY3 with an estimated total attendance of over 2,500. Target audiences included a range of public sector groups and organizations, as well as trade allies. Almost one in five participants (18%) first learned about the program through a presentation at an event.

¹⁵ "Important" is defined as a score of 7 or higher on a scale from 0 to 10, where 0 is "not at all important" and 10 is "very important."

¹⁶ A response of "very useful" or "somewhat useful."

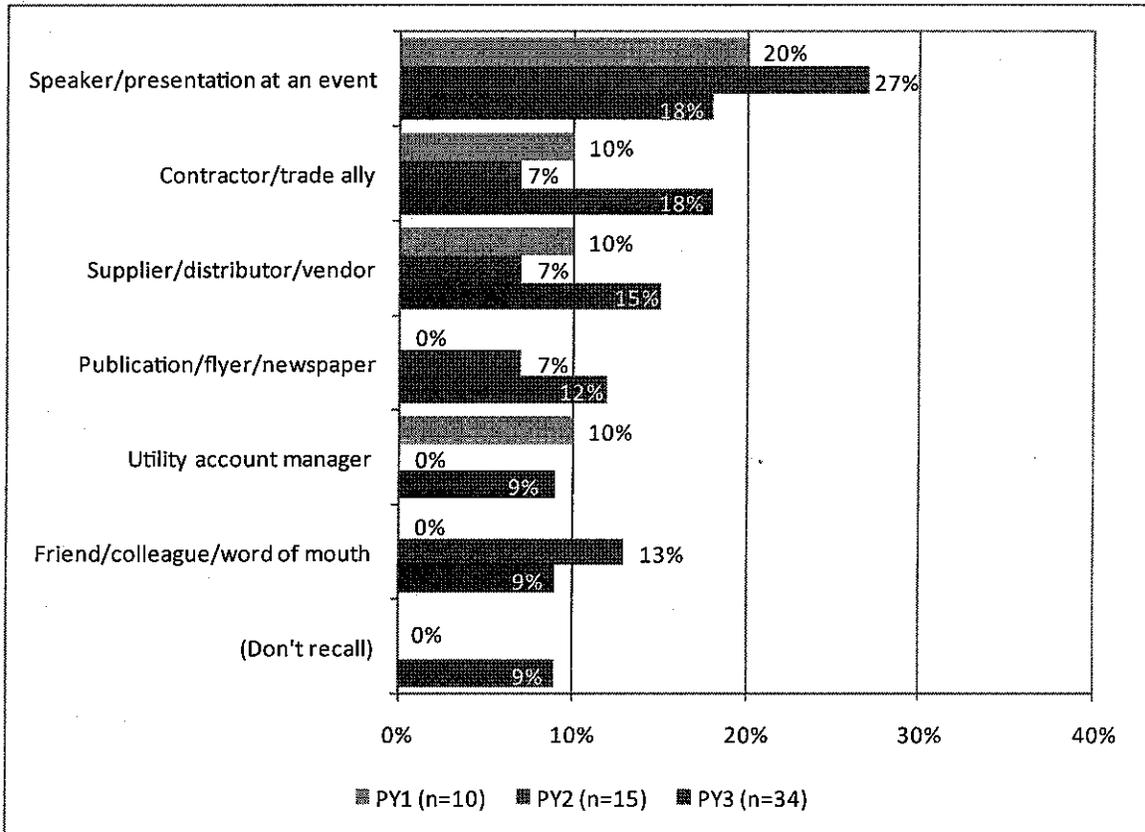
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- **Webinars:** DCEO continued conducting the webinars in PY3. According to program staff, webinar attendance has steadily grown during PY3. Some webinars were attended by up to 300 people. For example, the program held one well-attended webinar promoting the IEN Lighting Special directed at Ameren Illinois Utilities and ComEd trade ally contacts. Over a quarter of participants (29%) heard about the program during a webinar.
- **Elected Officials:** DCEO made efforts to leverage the work of elected officials and representatives – such as state senators – by encouraging these officials to speak about the PSEE Program in their communities. Notably, the contact for one of the three largest projects first learned about the program through an event at the Mayor’s Office.
- **SEDAC Electronic Correspondence:** DCEO continued leveraging SEDAC’s electronic newsletter and contact list to disseminate news and information about the program. Nearly a third of participants (32%) recall seeing information about the program in the SEDAC/DCEO newsletter and over two-thirds (68%) recall seeing information about the program in an email.

In PY3, participants first found out about the program from a range of sources. The contribution of contractors and other market actors in promoting the program (33%) supports DCEO’s planned efforts to develop its own trade ally network. As in previous program years, DCEO events and presentations are continuing to be an important way of recruiting participants (18%).

Figure 3-5 summarizes the ways participant first heard about the program.

Figure 3-5. How Participants First Learned about the Program (Unprompted)



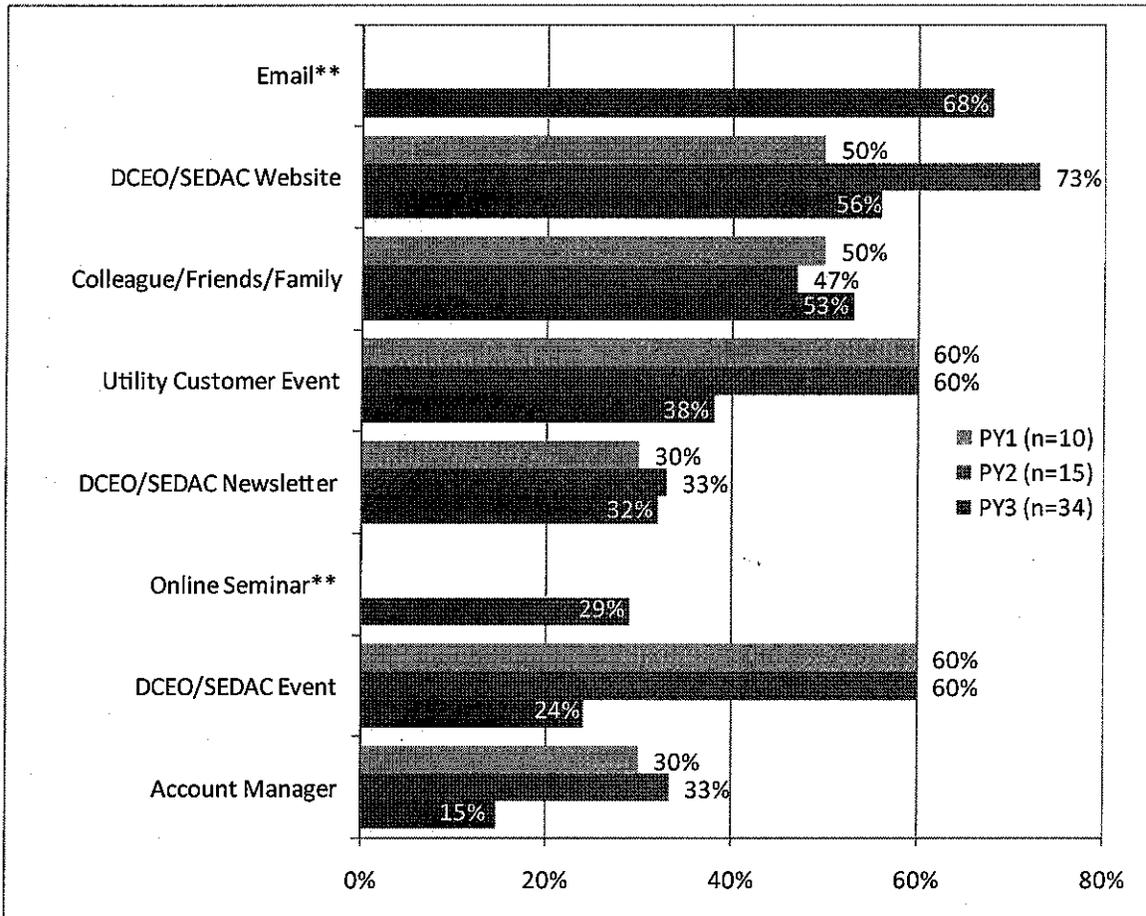
Source: PY1, PY2, and PY3 CATI Participant Surveys
 Note: Response categories under 5% in PY3 have been omitted.

The survey also asked participants about various sources through which they might have obtained information about the program in the past. Key findings include:

- Electronic media are an important way of disseminating information about the PSEE Program. More than two-thirds of participants (68%) recall receiving an e-mail with information about the program, and 32% recall hearing about the program in the DCEO/SEDAC newsletter, which is also sent out electronically. In addition, 56% of participants have seen program information on the DCEO website, and 29% have attended an on-line seminar/webinar.
- Word-of-mouth continues to be an important way of sharing information about the program. More than half of PY3 participants (53%) have heard about the program from colleagues, friends, or family.
- Participants are less likely to have heard about the program at a DCEO/SEDAC event (24%) or a utility event (38%) than in previous years. They are also less likely to have discussed the program with an account manager (15%).

Figure 3-6 summarizes these responses.

Figure 3-6. Sources of Information about the Public Sector Electric Efficiency Program (Prompted)

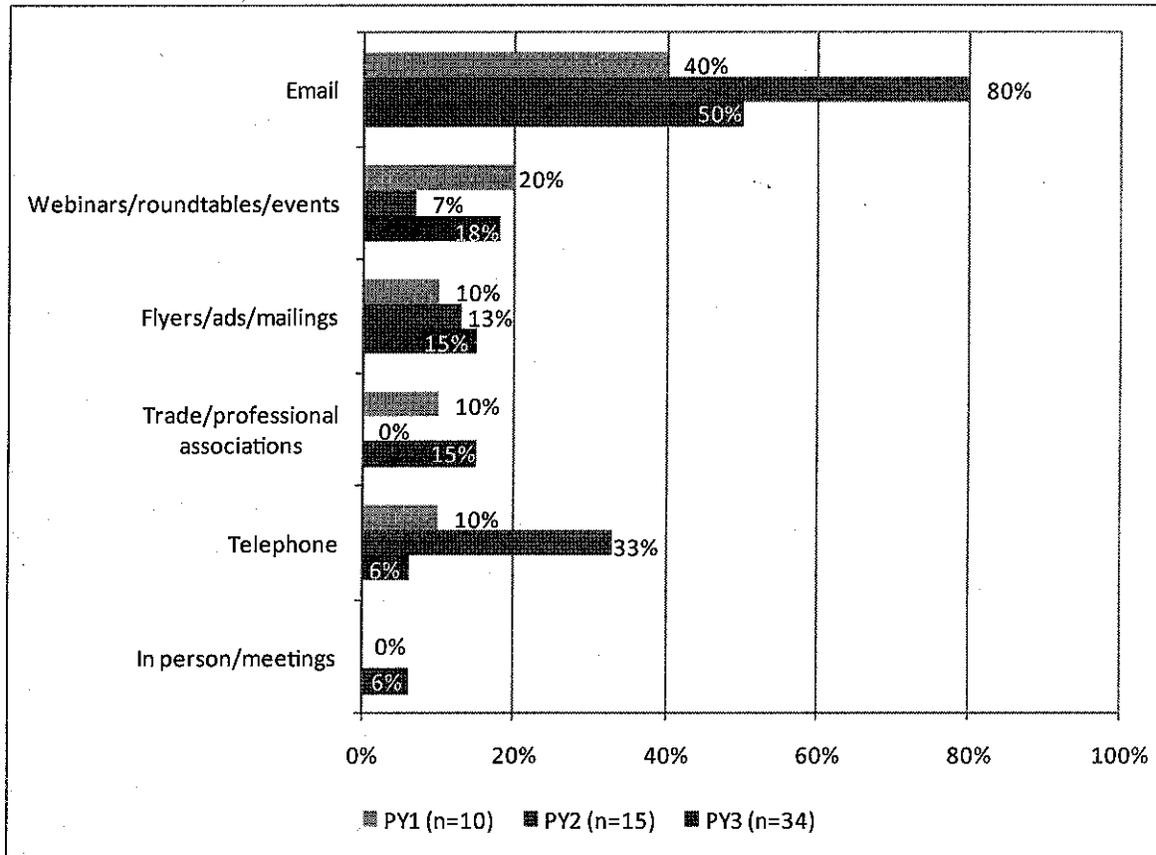


Source: PY1, PY2, and PY3 CATI Participant Surveys

**Channel not asked about in previous years.

E-mail continues to be the best way of reaching public sector entities with information about energy efficiency programs (50%) but the share of participants who prefer this outreach channel has declined compared to PY2 (80%). Other preferred ways of outreach include webinars and other events (18%), mailings and ads (15%), and through trade associations (15%). Figure 3-7 summarizes these findings.

Figure 3-7. Preferred Methods of Contact (Multiple Response, Unprompted)

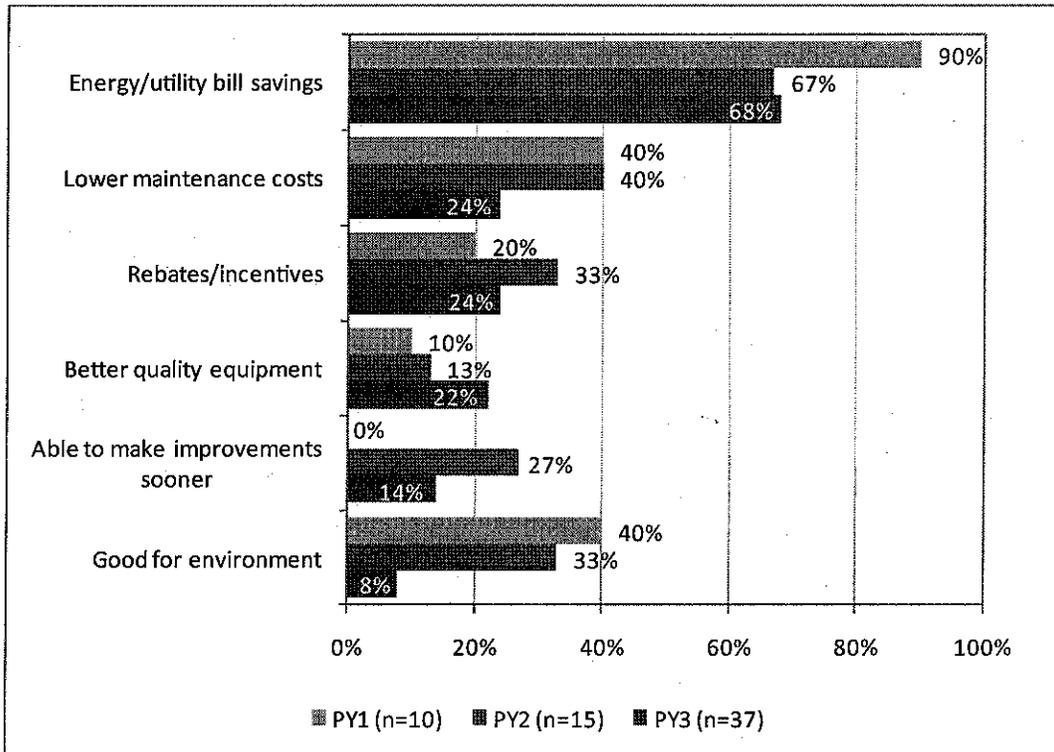


Note: Response categories under 5% in PY3 have been omitted.
 Source: PY1, PY2, and PY3 CATI Participant Surveys.

Similar to previous years, participants consider energy and cost savings the major benefit of participating in the Custom Program (68%). Participants also commonly reference the importance of lowering their maintenance costs (24%), receiving the rebates and incentives (24%), and acquiring better quality equipment (22%). These benefits should be emphasized in program marketing materials. Perhaps not surprisingly, considering the current economic climate, participants are far less motivated by a concern for the environment than they were previously (8% in PY3 vs. 33% in PY2 and 40% in PY1).

Figure 3-8 summarizes participant responses about the benefits of program participation.

Figure 3-8. Benefits of Program Participation (Unprompted, Multiple Response)



Source: PY1, PY2, and PY3 CATI Participant Surveys

3.2.6 Barriers to Participation

With increasing program goals, attracting new and repeat participants will become increasingly important in future years. As such, understanding why customers do not participate and what can be done to reduce their participation barriers is important. While this evaluation did not include research with non-participants, the evaluation did include several activities that explored barriers to participation (program staff interviews, interviews with customers who initiated the participation process but did not submit a final application, procurement process interviews, and the participant survey). Based on this research, key barriers to participation include:

- Lack of program awareness:** In the participant surveys for all three program years, lack of program awareness was most often identified as a barrier to participation. In PY3, 46% of participants thought that this prevented other public sector entities from participating.
- Budget constraints:** Lack of funding was identified as a barrier to the installation of energy efficient equipment, and thus participation in the PSEE program, by participants (24%) as well as program drop-outs and entities interviewed about the procurement process. As the contact for one entity that dropped out of the program in PY3 put it:

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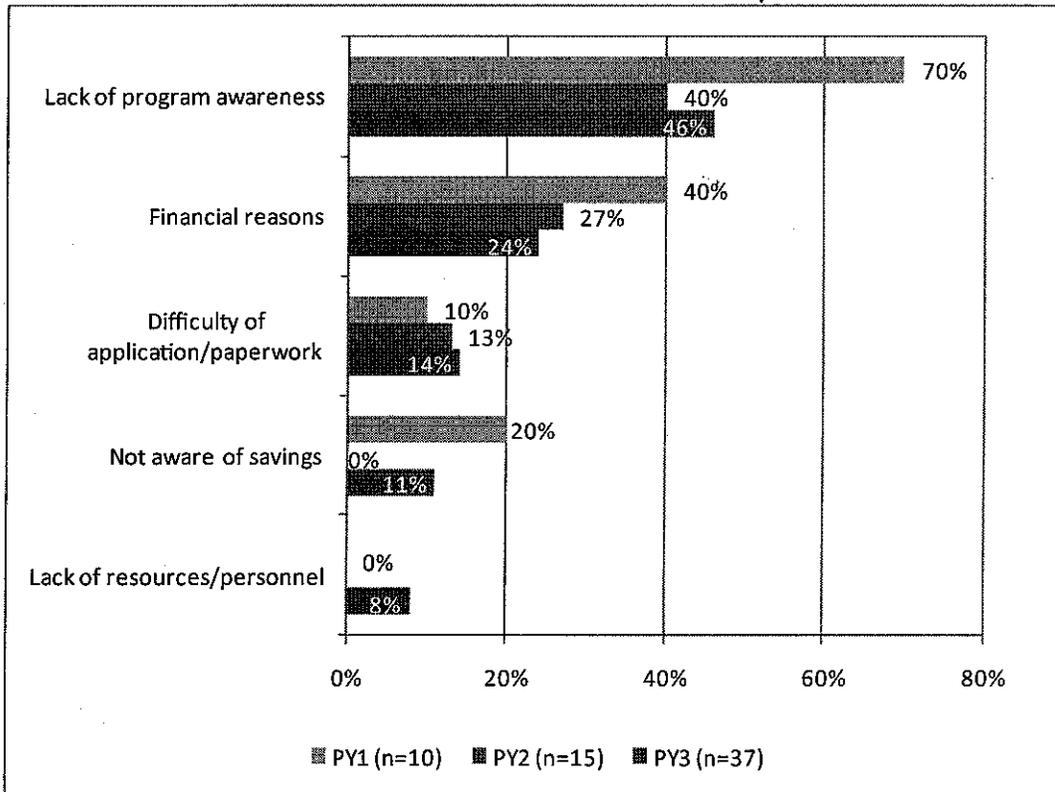
"As soon as funding is available I want to go ahead with [the project] because we saw such drastic decreases in our bills [after the first project we implemented] that it was well worth our effort to do it now. And I think as we go forward we're going to save even more money."

- **Lack of human resources/technical expertise:** Lack of technical expertise, or in some cases just personnel to oversee the application process, further affects adoption of energy efficient technologies and participation in the PSEE program. Program staff found that some of the smaller entities that came to the program through their EECBG funding simply did not have the resources to complete the application process (either personnel or physical office supplies).
- **Procurement process:** In the first program year, program staff identified the length and timing of the budget planning process as one of the major barriers to participation. Since public sector budgets are generally set far in advance, many customers did not have a chance to take advantage of the program in PY1 because the budgeting process for the year had already taken place. Research conducted for the PY3 evaluation confirm that the budgeting and procurement process is usually lengthy, often requiring multiple approvals and extensive project documentation, which can lead to delays in implementing projects and participation in programs like PSEE. Detailed findings from the procurement process research are presented in a later subsection.
- **Competing funds:** According to program staff, some projects dropped out of the program because the entity received direct stimulus grants from the federal government. These entities had started to work with DCEO but then dropped out when they learned that federal funding would cover 100% of the project cost.

Additional findings from our interviews with program drop-outs and entities interviewed about the procurement process are presented in the next two subsections.

Figure 3-9 summarizes participant survey responses to the question – “What do you think are the reasons organizations like yours do not participate in this program?” – from the PY3 participant survey, compared to PY1 and PY2.

Figure 3-9. Reasons for Non-Participation (Unprompted, Multiple Response)



*Note: Response categories 5% and under in PY3 are not included.
Source: PY1, PY2, and PY3 CATI Participant Surveys.*

3.2.7 Program Drop-outs

Understanding why applicants drop out of the program was a topic of interest to program staff in PY3. The evaluation team conducted interviews with 21 organizations that had filed a pre-approval application but did not submit a final application in PY3. Notably, 16 of these 21 organizations reported that they had already resubmitted their application for PY4 or were planning to do so. These individuals explained that their projects had been delayed due to difficulty obtaining funding and/or the timing of non-DCEO grants. According to program staff, EECBG funding could be used in either PY3 or PY4. Some applicants started the DCEO application process in PY3 but did not implement the project within the program year, causing them to “drop out.”¹⁷

¹⁷ It should be noted that in PY3, the program tracking database did not have the ability to reassign an applicant from PY3 into PY4. As such, the database identifies any project that started the application process in PY3 but was not completed as “cancelled.”

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Interestingly, some applicants dropped out of the PSEE program *as a result* of receiving federal stimulus money. As explained above, these entities had started to work with DCEO but then dropped out when they learned that federal funding would cover 100% of the project cost. While some projects were lost this way, other recipients of direct stimulus grants expanded the scope of their original project, or implemented additional projects, to take advantage of the DCEO funding.

Of the five interviewed drop-outs who have not resubmitted their application in PY4 and do not intend to do so, two implemented their project without the DCEO incentive and three are not planning to complete the project:

- Of the two entities that implemented the project without the DCEO incentive, one did not submit the final application because of staffing changes and the resulting lack of a person responsible for finalizing the grant application. The other did not know how and where to submit the final application. However, both indicated that the availability of DCEO funding was very influential on the initial decision to implement the projects and that the projects would not have been of the same efficiency levels without the program's incentive opportunities and information. These two projects present a missed opportunity for the program.
- The other three drop-out applicants never completed the project and do not plan to do so in the near future. Reasons for not completing the projects include project costs, an inability to secure supplemental funding, and structural limitations that prevented equipment installation. None of these respondents had any suggestions for ways DCEO could have helped them to complete those projects as payback and upfront costs are their organizations' primary considerations when investing in energy efficiency.

Overall, applicants like these five drop-outs present an opportunity for DCEO in the future. Most cite budget shortages and overall lack of funding as the core barriers to adoption of energy efficient equipment. However, all rate their facilities as either somewhat energy efficient or not very energy efficient, and nearly all plan to make additional improvements and are likely to consider energy efficient options. In addition, two drop-outs pointed to lack of technical expertise as a barrier to energy efficiency, and all five respondents rated themselves as being only somewhat knowledgeable about energy efficiency. Following up with these applicants, informing them about PSEE opportunities, and offering additional technical assistance and support might result in additional projects in the future.

3.2.8 Public Sector Equipment Procurement Process

The equipment procurement process of public organizations is fundamentally different from that of private ones, and it can present a challenge with respect to participation in energy efficiency programs. To further examine this process, and how the PSEE program might help potential participants overcome the challenges associated with it, the evaluation team

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conducted in-depth interviews with public sector personnel involved in the equipment procurement process. We interviewed ten entities who participated in PY3. These entities represent a range of public sectors including local governments (6), K-12 schools (3), and federal government entities (1).

Project Funding

Public sector entities use a variety of funding sources to pay for equipment replacement projects. For the majority of interviewed entities, capital improvements are budgeted for as part of the facility maintenance funds or general building operating expenses, which are then rolled into overall school, county, or other budgets. In addition, some entities utilize life safety funds, bonding issue, or additional taxes for capital improvements. These funding sources are frequently supplemented with available grant opportunities, such as the PSEE program.

Based on the interviews we conducted, there do not appear to be any caps or limitations for the costs of equipment upgrade projects.

Documentation required to reserve funding varies from general cost assumptions to detailed project specifications with ROI and payback calculations and a rationale for undertaking the project.

Budget Planning

Since capital improvements are often part of a school or county budgets, planning such improvements often goes hand-in-hand with the fiscal year planning process deadlines. All counties in Illinois have a fiscal year of December 1st through November 30th; planning for the year's budget starts in August. Fiscal years for other public sector entities vary. Notably, three of the ten interviewed entities mentioned having long-ranging capital improvement plans (three- and five-year plans) for larger equipment replacement projects. These plans outline priorities for the upcoming years; they are then further revised, specified, and incorporated into annual budgets.

A respondent from a local government entity explained that incorporating unforeseen projects into long-ranging plans is possible, yet onerous:

"You can submit a request [to amend long-ranging plans], which I had to do for next year's budget, but [...] you have to go through the process and put everything together and justify why you want to do what you want to do."

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Timing of Project Implementation

No single time of year appears to be ideal for project implementation. For example, all K-12 school representatives name summer as the best time for all equipment upgrade projects; one local government facility prefers to implement the projects in the fall, while another one says that spring is the best time. The remaining five respondents do not have a preference or say that the timing is equipment-specific.

Project Approval Process

Project approval steps vary among interviewed entities but generally include the following three common steps:

- **Cost estimates and project specifications:** This step can be performed by an in-house staff or outside engineering professional, sometimes with contribution from internal maintenance staff, the department of public works, or other individuals or entities.
- **Bidding process and winning bid selection:** This step generally includes issuing request for bids or proposals, an internal review of bids once they are submitted, and development of recommendations on the winning bidder.
- **Project approval:** depending on the entity, this step usually includes voting by the board of trustees, board of education, county board, or city council.

Interestingly, the order of the above mentioned steps varies. Within some interviewed public sector entities, the board approves project specifications and budgets before requests for bids are issued, while within others, the board approves the project after the bids are fielded. In cases where project specs do not undergo the board or council approval prior to issuing request for bids, individuals such as city managers, department heads, internal maintenance staff, or engineers review the accuracy of the project scope and pricing. In cases where bids are not reviewed or approved by the board or council, this step is performed by engineers or central purchasing department.

Within one local government entity, board approval is required both before the bid is issued and for the final selection of the winning bidder. One federal government entity requires several levels of project approval:

"Well [there are] many steps. It's got to go to the director of property management. Then it goes to asset management, and then above that it goes to executive director of office properties, and then after that it's got to [...] be approved by ownership."

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The duration of the project approval process among interviewed entities ranges from four to six months.

Bidding Process

All of the interviewed entities have project cost thresholds that require a formal bidding process, with \$20,000 being the most frequently cited cut-off amount below which the projects can be approved internally and procured directly without a need for an official bid request or board or council approval/voting. However, most of the interviewed public sector entities issue an informal request for bids regardless of the project costs, with the goal of ensuring competitive project pricing. Furthermore, a few respondents mentioned that they inform their board of the project or project-related decisions, even when board approval is not required. This is done in order to keep all the parties informed and maintain a good working relationship.

When it comes to awarding the bids, most of the public sector entities have either a requirement or a recommendation to award the project to the lowest qualified bidder. According to one respondent, proving that quality should come before cost presents its own hurdle:

"We have to take the lowest responsible bidder but at times [...] we can demonstrate why the low bid is not the one to go with. If we have some valid reasons for rejecting their bid – [...] if we get a bad reference or we hear that they didn't complete the project on time – but you do have to validate that in writing. You can't just decide arbitrarily to not take the lowest bid; you have to have some pretty good rationale for not accepting it."

Within one local government entity, there are ordinances in place that recommend selection of a local contractor. Most other interviewed public sector entities, however, do not have a requirement to give preference to a specific contractor type (e.g., local, women-run, etc.). A few respondents however, noted that in case of competitive bids, they give preference to local contractors. The tendency to select the lowest bidder does not present a barrier to energy efficiency, as project specifications are tightly formulated and outlined to bidding contractors at this stage in the process.

Role of Energy Efficiency

The importance of energy efficiency varies across the interviewed public sector entities. While not a formal requirement for any of the interviewed entities, three out of ten respondents said that energy efficiency is a top priority, two more said it is one of the main factors (along with cost), and one respondent said that energy efficiency is of greater importance for certain equipment options (such as motors).

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Procurement Process Challenges

Procurement process challenges mentioned by respondents include difficulty obtaining funding and developing project scope. Few of the interviewed entities have difficulty securing contractors to perform the work. One respondent, however, noted that while it is fairly easy to secure contractors for more common types of projects (such as lighting or HVAC projects), finding qualified contractors for specialized projects (such as water treatment or sewer plant retrofits) can present a challenge. Another respondent found that lack of internal technical expertise, when defining project scope and specifying equipment characteristics, is a challenge. This might present an area where DCEO can provide additional assistance to its customers. A DCEO specific trade ally network, planned for PY4, might help connect public sector entities to specialized contractors. Through SEDAC, additional technical assistance and support is available to customers who lack such resources.

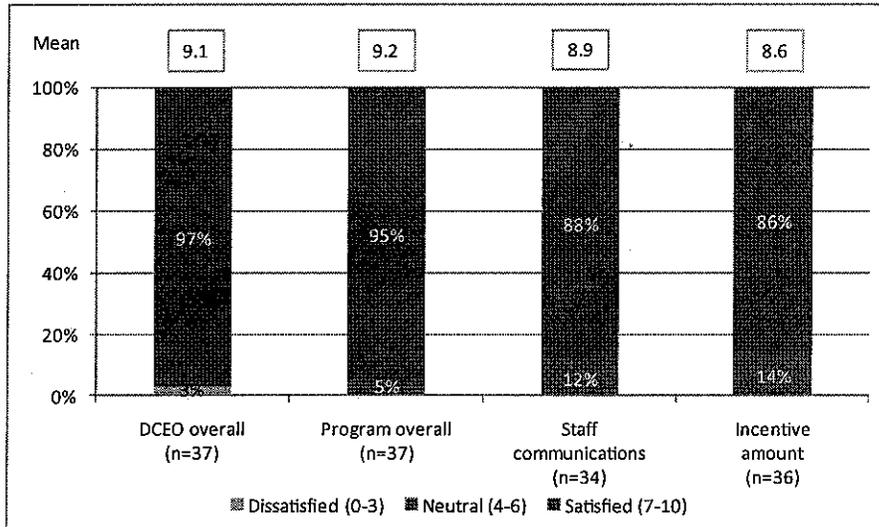
3.2.9 Participant Satisfaction

Participants are very satisfied with the Custom Program. Participants were asked to rate – on a scale of 0 to 10, where 0 means “very dissatisfied” and 10 means “very satisfied” – several aspects of the program. No participants are dissatisfied with the program overall, the incentive levels, or their communications with program staff. Satisfaction is highest with the program overall and DCEO overall, where participants give an average rating of 9.2 and 9.1, respectively.¹⁸ Figure 3-10 summarizes these results.

In addition, all participants interviewed about their procurement processes are very satisfied with their participation process and their interactions with DCEO.

¹⁸ Satisfied is defined as a rating of 7 to 10; dissatisfied as a rating of 0 to 3.

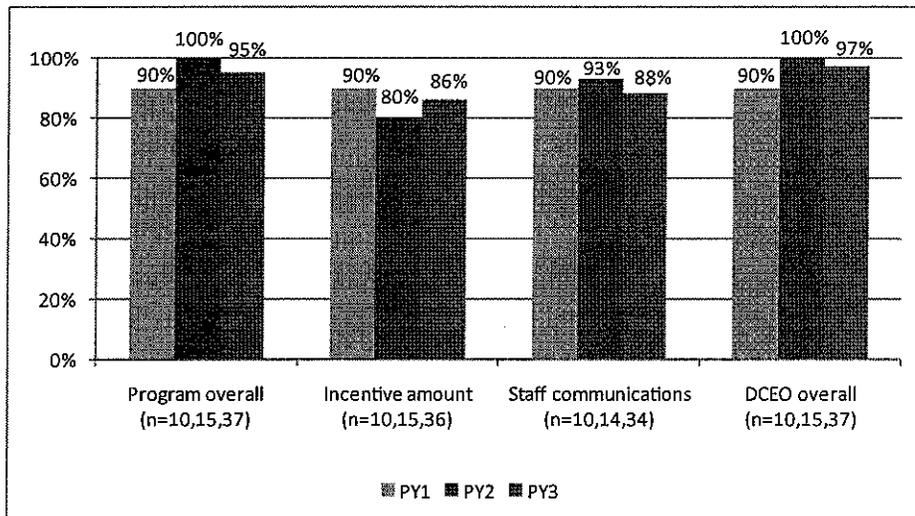
Figure 3-10. Program Satisfaction



Source: PY3 CATI Participant Survey

Satisfaction with the program and its elements in PY3 is largely unchanged from previous years. Figure 3-11 summarizes satisfaction levels in the three program years.

Figure 3-11. Percent Satisfied by Program Year



Source: PY1, PY2, and PY3 CATI Participant Surveys.

Given the high levels of satisfaction, it is not surprising that most participants plan to participate again in the future (84% say yes, 14% say maybe). When asked what could be done to improve the program, 27% of participants have no recommendations. The most common recommendations include increasing incentive levels (24%) and improving communication

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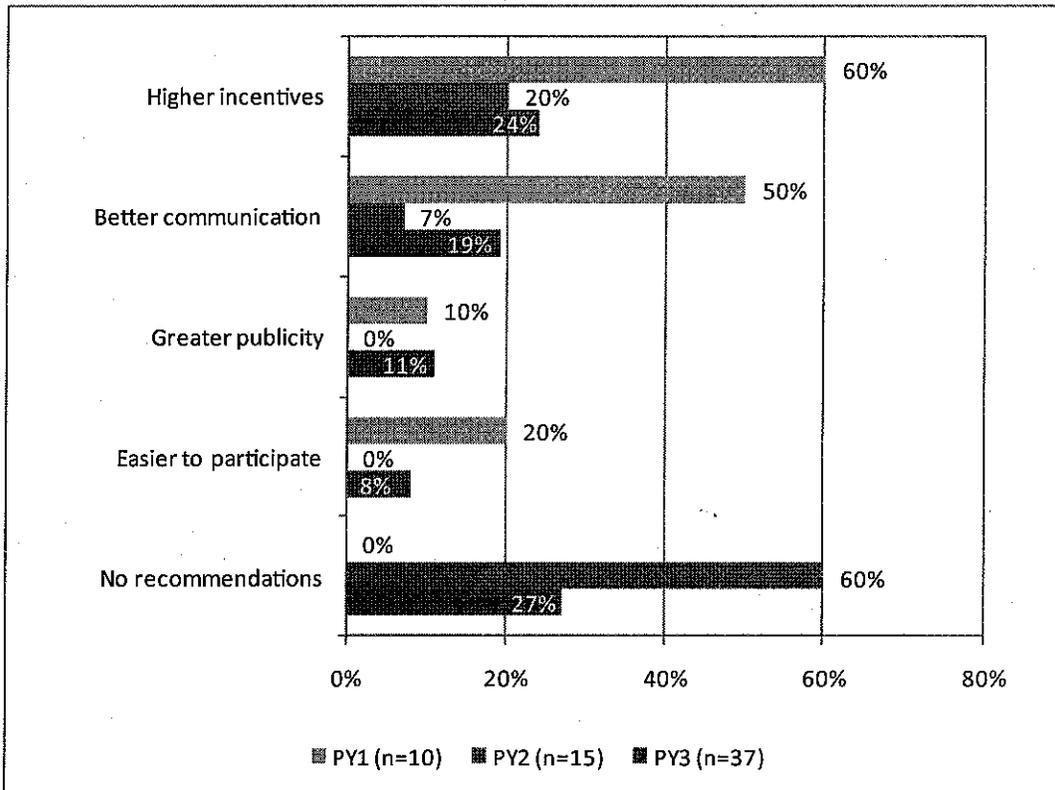
(19%). However, both of these concerns seem to be less of an issue in the last two years, compared to PY1 where 6 out of 10 respondents suggested increasing incentives and 5 out of 10 thought that better communication was needed.

One participant noted slight dissatisfaction with limitations in the equipment eligible for an incentive. The participant explained that it would have been more cost-effective, in terms of time and money spent on maintenance costs, if incentives could also cover the wiring components of the measures being retrofitted or replaced.

Participants interviewed about their procurement processes suggested that the program increase marketing and outreach efforts and simplify the applications process.

Figure 3-12 summarizes recommendations provided by PY3 participants, compared to PY1 and PY2.

**Figure 3-12. Recommended Program Improvements by Program Year
(Unprompted, Multiple Response)**



*Note: Response categories 5% and under in PY3 are not included.
Source: PY1, PY2, and PY3 CATI Participant Surveys.*

3.3 Cost Effectiveness

This section addresses the cost effectiveness of the Public Sector Electric Efficiency Custom Incentives Program. Cost effectiveness is assessed through the use of the Illinois Total Resource Cost (TRC) test. The Illinois TRC test is defined in the Illinois Power Agency Act SB1592 as follows:

'Total resource cost test' or 'TRC test' means a standard that is met if, for an investment in energy efficiency or demand-response measures, the benefit-cost ratio is greater than one. The benefit-cost ratio is the ratio of the net present value of the total benefits of the program to the net present value of the total costs as calculated over the lifetime of the measures. A total resource cost test compares the sum of avoided electric utility costs, representing the benefits that accrue to the system and the participant in the delivery of those efficiency measures, to the sum of all incremental costs of end-use measures that are implemented due to the program (including both utility and participant contributions), plus costs to administer, deliver, and evaluate each demand-side program, to quantify the net savings obtained by substituting the demand-side program for supply resources. In calculating avoided costs of power and energy that an electric utility would otherwise have had to acquire, reasonable estimates shall be included of financial costs likely to be imposed by future regulations and legislation on emissions of greenhouse gases.¹⁹

Navigant developed an Excel based TRC model that incorporates all relevant program level data including avoided costs, line losses, gross savings, free ridership, program costs and CO₂ reductions. It then calculates a TRC that meets the requirements of the Illinois Power Agency Act SB1592. The two electric distribution companies (EDCs) that pass funds to DCEO's programs, ComEd and Ameren, utilize different avoided costs in calculating the benefits that accrue from energy efficiency programs; therefore Navigant employed each utility's specific avoided costs to their corresponding energy and demand savings from each program.

Results

Table 3-7 summarizes the unique inputs used to calculate the TRC ratio for the Public Sector Electric Efficiency Custom Incentives Program in PY3. Most of the unique inputs come directly from the evaluation results presented previously in this report. Measure life estimates were based on similar ComEd programs, third party sources including the California Public Utilities Commission (CPUC) developed Database of Energy Efficiency Resources (DEER) and previous Navigant evaluation experience with similar programs. Program costs data came directly from

¹⁹ Illinois Power Agency Act SB1592, pages 7-8.

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DCEO. Incremental costs were estimated from program, survey data and similar ComEd programs. Avoided cost data came from both ComEd and Ameren and are the same for all programs.

Table 3-7. Inputs to TRC Model for Public Sector Electric Efficiency Custom Incentive Program

Item	Value Used
Measure Life	12 years
Participants	127 ²⁰
Annual Gross Energy Savings	20,885 MWh
Gross Coincident Peak Savings	2.71 MW
Net-to-Gross Ratio	74%
DCEO Administration and Implementation Costs	\$90,421
DCEO Incentive Costs	\$2,176,495
Net Participant Costs	\$3,899,688

Based on these inputs, the Illinois societal TRC for this program is 2.23 and the program passes the Illinois TRC test.

²⁰ 127 projects conducted by 99 organizations.

Section 4. Conclusions and Recommendations

This section highlights the findings and recommendations from the PY3 evaluation of DCEO's Public Sector Electric Efficiency Custom Incentive program. The primary evaluation objectives include quantifying the gross and net energy impacts resulting from the rebated measures and assessing program theory, design, and delivery. Below are the key conclusions and recommendations.

4.1 Key Impact Conclusions and Recommendations

Gross Impacts

The gross impact results yielded an energy realization rate of 0.78 which is a significant increase from the PY2 levels of 0.56. This shows DCEO has done a good job of improving the estimation of gross impacts for Custom energy efficiency projects in the program. However, the implementation team should make efforts to further close this gap. PY3 energy savings realization rate results indicate that the stratum 1 (RR = 0.94) and the stratum 3 (RR = 0.85) projects realized a greater proportion of the ex ante claims than the stratum 2 (RR = 0.57) projects. This is due to the complexity of the projects involved in stratum 2 that include technologies such as HVAC, VSDs and high efficiency blowers that require more in-depth technical reviews and pose a greater challenge for estimating savings accurately -- for example, due to varying operating conditions. Therefore, overall results suggest, and especially among complex projects in stratum 2 (n=7), that ex ante estimates could be further improved. Key evaluation conclusions and recommendations include the following:

Improvements to Ex Ante Impact Estimates

Finding. Program reported installed measures for two projects were not fully operational. For project (#486) the installed lighting control measure was not operational and for project (#3302) three from a total of 11 VFDs installed were not operational which significantly reduced the realized savings for these projects.

- **Recommendation.** Program should conduct thorough site visits to confirm that all the installed measures are fully operational.

Finding. Program estimated annual energy savings were not representative of the typical annual operating conditions for several projects (e.g. #3093 (VSD), 3302 (VSD), #3386 (Lights, Sensors), #3609 (Ext LED) and #3344 (Aeration Blower)). The program calculations were also not normalized to account for changes in operating conditions from the pre retrofit period to the post retrofit period (e.g. #3447(AHU Coil Cleaning)).