Opinion Dynamics

Boston | Headquarters

617 492 1400 tel
617 497 7944 fax
800 966 1254 toll free

1000 Winter St
Waltham, MA 02451

Impact and Process Evaluation of the 2013 Illinois Power Agency Small Business Prescriptive Program

Final

February 6, 2015

CADMUS

NAVIGANT

MichaelsEnergy

Opinion Dynamics

Contributors

Hannah Arnold
Senior Project Manager, Opinion Dynamics

David Cybulski
Project Analyst, Opinion Dynamics

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1. Executive Summary

This report presents results from the evaluation of the first program year (which we refer to as IPA PY6 or IPA 2013) of the Leidos Commercial and Industrial (C&I) Small Business Prescriptive Program, which is one of five stand-alone Illinois Power Agency (IPA) energy efficiency programs implemented from June 2013 to May 2014. This program is also known as the Big Bonus Program because participating small business customers received a 30% bonus incentive on standard measures such as lighting, HVAC, and specialty equipment.

At the time of this evaluation, the Big Bonus Program had only been bid into the IPA for PY6. Within PY6, Leidos expected to complete approximately 600 projects through this program, accounting for savings of 6,916 MWh.. Given the program's scale, as well as its status as a single-year offering, evaluation activity was somewhat limited. The evaluation team conducted program staff interviews, reviewed program materials, and conducted a participant survey to assess the program's net-to-gross ratio (NTGR) for potential future application.

Below we present the key findings from the PY6 evaluation.

1.1 Impact Results

Overall, the PY6 Small Business Prescriptive Program performed well and exceeded internal net savings targets. As shown in Table 1-1 below, the program achieved 10,323 MWh in net electric savings.

Table 1-1. Small Business Prescriptive Program Net Impacts

	Ex Ante Gross	RR	Ex Post Gross	NTGR	Ex Post Net
Energy Savings (MWh)					
Total MWh	13,065	1.04	13,583	0.76	10,323
Demand Savings (MW)					
Total MW	2.27	0.93	2.10	0.76	1.60

In determining the overall net savings associated with the Big Bonus Program, the team applied the NTGR from AIC's IPA filing for this program to *ex post* gross savings. The value applied was 0.76 for all end-use categories.

1.2 Process Results

Overall in PY6, the Big Bonus Program surpassed savings expectations and approved 374 unique projects, which comprised a mix of different measure types, including lighting, refrigeration, variable frequency drives (VFDs), and specialty equipment. Consistent with other AIC program offerings in prior years, our review of program processes and implementation revealed that the Big Bonus Program received high levels of participant satisfaction in all program areas. This indicates that the implementation team was able to effectively expand C&I offerings and continue meeting customer needs.

However, our findings do indicate some challenges. In particular, awareness of the Big Bonus incentive is lower than expected with 49% of survey respondents unaware that they received this bonus. In addition, discontinuing the Program Ally bonus caused some confusion among Program Allies, leading some to believe

that the program had exhausted budgeted funds. Finally, the marketing approach of mailing sector-specific materials offered no way to track customer exposure, which created uncertainty around their effectiveness.

Based on the team's PY6 evaluation activities, we make the following recommendations for the program, should it be offered again in the future:

- **Communicate clearly with Program Allies regarding program changes.** If a change or stoppage of the Program Ally bonus occurs in future program years, specific communication efforts should be made to ensure that Program Allies do not misinterpret changes to the Program Ally bonus as reflective on the program as a whole.

- **Provide marketing guidance and/or training for Program Allies.** One potential reason for low Big Bonus awareness is program ally marketing strategies and specifically the fact that some may not have highlighted the increased incentive funds to customers. As a result, if the program is offered again, Leidos should consider providing guidelines to contractors regarding how to talk about and educate customers on the bonus. Additionally, future research efforts could include contractor interviews to learn their perspective on effective sales messages and to determine whether the 30% Big Bonus incentive was or was not central to their marketing messages, and why.

2. Introduction

This report presents results from the evaluation of the first program year of the Leidos C&I Small Business Prescriptive Program for electric energy efficiency (also known as the Big Bonus Program), a stand-alone Illinois Power Agency (IPA) program.

To support the evaluation we conducted a review of program materials and program-tracking data, as well as interviews with program administrators and implementation staff. Our quantitative research efforts included a telephone survey of Small Business Prescriptive Program participants.

2.1 Program Description

The Big Bonus Program, implemented by Leidos (the implementation contractor), offered a 30% incentive bonus for standard electric projects implemented by DS-2 rate code customers. Eligible energy efficiency measures included select standard lighting, HVAC, VFD, leak survey and repair, and specialty equipment. Overall, this program was successful in meeting its savings targets and closed in February 2014.

With the exception of the incentive amount, the design of the Big Bonus Program is the same as the C&I Standard Program. The same staff accepted, reviewed, and approved applications. Both program allies and, energy advisors, helped to promote the program. According to program staff, program allies played a key role in recruiting customers to the program in PY6. The program ally bonus, which covered both the IPA and the C&I Custom and Standard 8-103/8-104 programs [1] for part of the program year, helped to keep program allies engaged.

The Big Bonus Program also has links to both the Small Business Direct Install (SBDI) and C&I Standard programs in terms of channeling. The SBDI Program and the energy assessments it offers provided an opportunity for some small business customers to learn about the Big Bonus Program. In addition, the C&I Standard Program served as a channeling mechanism given that eligible customers who pursued projects through that program were given the bonus based on their rate code as long as funds were available.

2.2 Research Objectives

The evaluation team designed the PY6 evaluation of the Big Bonus Program to answer the research questions that follow. Because the Big Bonus Program will not be offered in PY7 (June 2014–May 2015), the focus of the PY6 evaluation was primarily on the estimation of energy impacts.

The PY6 impact evaluation answers the following impact questions:

1. What are the estimated gross energy and demand impacts from this program?
2. What are the estimated net energy and demand impacts from this program?

In addition, the team answered the following process-related questions:

[1] These programs are part of the energy efficiency portfolio referred to as 8-103 and 8-104 programs per Order 13-0498. 8-103 covers AIC's electric programs, while 8-104 covers AIC's gas programs.

1. Was the program implemented according to plan?
2. Were participants satisfied with the program?
3. What impact, if any, did the higher incentive levels have on the participant decision-making process?

3. Evaluation Methods

Table 3-1 summarizes the evaluation tasks that the evaluation team completed for the PY6 Big Bonus Program evaluation. We discuss each activity in detail below.

Table 3-1. Summary of Big Bonus Program Evaluation Activities for PY6

Activity	PY6 Impact	PY6 Process	Forward Looking	Details
In-Depth Interviews with Program Staff		✓		Collected detailed information on program design, processes, and marketing
Program Data and Materials Review	✓	✓		Ascertained how the program communicated with customers, the scope of participation, and the mix of measures incented
Participant Survey		✓	✓	Conducted interviews with program participants related to program processes and project-related decision-making (to develop an updated NTGR)
Impact Analysis	✓			Calculated *ex post* gross and net program savings

3.1 Data Collection

The following activities informed the PY6 evaluation of the Big Bonus Program.

3.1.1 Program Staff Interviews

As part of this task, the team interviewed two members of the Leidos implementation team. The purpose of the interviews was to gain information about the program's design, implementation, and processes. The team also inquired about data tracking and customer outreach related to this program.

3.1.2 Review of Program Materials and Data

The evaluation team conducted a review of program data and materials, including the implementation and marketing plans, marketing materials, and the program-tracking database. The review provided the team with information on program design, processes, and participation.

3.1.3 Participant Survey

The evaluation team conducted a telephone survey with PY6 program participants with the primary goal of assessing attribution. AIC was interested in assessing the potential impact of increased incentives on the NTGR given that this program is similar to the C&I Standard Program with the exception of higher incentive

levels. In addition, the survey included a small number of questions related to the program participation process.

Sample Design

The evaluation team developed the sample frame based on an extract of the final participant database as of May 15, 2014. The database included 374 unique Big Bonus projects. As shown in the Table 3-2, the overwhelming majority of projects were lighting (84%) and there were multiple projects completed per contact.

Table 3-2. Final Big Bonus Program Population by End-Use Category

End-Use Category	Number of Contacts	Number of Total Projects	Percent of Total Projects	Number of Unique Measures	Percent of Total Measures
Lighting	274	316	84.49%	1,072	89.7%
Specialty	12	34	9.1%	84	7.0%
HVAC	22	20	5.3%	35	2.9%
VFD	4	4	1.1%	4	0.3%
Total	**296***	**374**	**100.0%**	**1,195**	**100.0%**

Source: Amplify Extract, May 15, 2014

*Note: The number of contacts by category does not sum to the total because some contacts have projects with different equipment types. In addition, some of the unique contacts shared the same phone number, and therefore were not included in the final sample frame described below.

Because some participants completed multiple projects through the program, we conducted sampling at the level of the project contact and asked each respondent about one project. In preparing the sample frame, we dropped projects that had no valid phone number. We also removed duplicate contact names and phone numbers. This resulted in 274 projects in our sample frame. Additionally, if a contact had multiple projects of the same end-use (e.g., lighting), we asked about the project with the largest savings and, in order to ensure that the sample included a sufficient number of non-lighting measures, we prioritized non-lighting measures for participants who installed both lighting and non-lighting measures. To support the NTGR analysis, we also asked if the decision-making process was the same for the contact's other projects. This follow-up question provided information for up to two additional projects.

The evaluation team also designed the participant survey to ask each participant about up to, but no more than, three measures installed through the selected project in order to minimize respondent burden and fatigue. However, the overwhelming majority of customers in our sample installed only one or two measure types through the program.

Overall, the evaluation team completed the telephone survey with 70 of the 274 decision makers associated with the 374 projects completed in PY6. Table 3-3 summarizes key information about the sampling for the Big Bonus Program participant survey.

Table 3-3. Summary of Big Bonus Program Survey Sampling and Completed Surveys

Category	Population of Completed Projects [a]		Contacts in Sample Frame[b]	Completed Surveys		
	Projects	*Ex Ante* MWh Savings		Contacts	Completed Free-Ridership Modules	MWh Savings
Lighting	316	12,025	251	60	62	2,382
Specialty	34	612	9	4	4	245
HVAC	20	62	11	4	4	19
VFD	4	350	3	2	2	65
Total	**374**	**13,048**	**274**	**70**	**72**	**2,712**

[a] The total number of projects listed reflects the population of paid projects as of May 15, 2014.
[b] Each contact in the sample frame represents a unique name, address, and phone number combination. Some of the 296 unique decision makers (Table 3-2) shared the same phone number, and the team did not contact them.

Because the evaluation team attempted to gather data from a census of program participants, there is no sampling error. However, we describe potential sources of error, as well as the steps taken to mitigate them, in Section 3.3.

Survey Dispositions and Response Rate

We fielded the survey with Big Bonus Program participants from August 4th to August 20th, 2014. Table 3-4 presents the dispositions from the participant survey.

Table 3-4. Big Bonus Program Participant Survey Dispositions

Disposition	*N*
Completed Interviews (I)	70
Partial (P)	1
Eligible Non-Interviews	153
Refusals (R)	38
Mid-Interview terminate (R)	7
Respondent never available (NC)	82
Answering Machine Confirming Business (NC)	26
Not Eligible (E)	20
Fax/Data Line	4
Non-Working	3
Wrong Number	5
No Eligible Respondent	8
Unknown Eligibility Non-Interview (U)	15

Disposition	*N*
No Answer	15
Sample Not Opened	15
Total Participants in Sample	**274**

Table 3-5 provides the response and cooperation rates. The evaluation team calculated the survey response rate using the standards and formulas set forth by the American Association for Public Opinion Research (AAPOR).[2]

Table 3-5. Big Bonus Program Survey Response and Cooperation Rates

AAPOR Rate	Percentage
Response Rate (RR3)	29%
Cooperation Rate	60%

Weighting

The evaluation team chose not to weight the data for the process analysis given the alignment of the population and completed interviews in terms of project end-use. In addition, prior research on the ActOnEnergy Business Program suggests that there are unlikely to be differences in program satisfaction, the key process-related question in this survey, based on the participant's project end-use.

Table 3-6. Comparison of the Big Bonus Program Population and Completed Surveys by End-Use

End-Use Category	Population		Completed Surveys	
	Total # of Projects	% of Total Projects	Total # of Surveyed Projects	% of Surveyed Projects
Lighting	316	84%	60	86%
Specialty	20	5%	4	6%
HVAC	34	9%	4	6%
VFD	4	1%	2	3%
Total	374	100%	70	100%

[2] *Standard Definitions: Final Dispositions of Case Codes and Outcome Rates for Surveys*, AAPOR, 2009. http://www.aapor.org/Standard_Definitions/2852.htm.

3.2 Analytical Methods

3.2.1 Gross Impacts

The evaluation team determined *ex post* impacts through a thorough review of the program-tracking database and the Illinois Technical Reference Manual (TRM) algorithms and assumptions[3] and other resources as applicable.[4] The evaluation team performed individual savings calculations for each measure type using the data provided in the program-tracking database. The process included several steps, including several revisions to the database and assumptions. These revisions are detailed in the gross impact evaluation findings in Section 4.3.1 below.

3.2.2 Net Impacts

To estimate net savings, the team applied the NTGR from AIC's filing for this program to the *ex post* gross savings (0.76 for all end-use categories).

3.2.3 Net-to-Gross Ratio

As part of the PY6 evaluation, the team also gathered data to support the development of an updated NTGR for prospective application for potential IPA programs, approved by the Illinois Commerce Commission (ICC) in a docketed proceeding, for implementation in PY8 (June 1, 2015–May 31, 2016). We provide information about the data collected to update the PY8 NTGR in Appendix B.

3.3 Sources and Mitigation of Error

Table 3-7 provides a summary of possible sources of error associated with data collection conducted for the Big Bonus Program. We discuss each item in detail below.

Table 3-7. Possible Sources of Error

Research Task	Survey Error		Non-Survey Error
	Sampling	Non-Sampling	
Participant Survey	• No, Census Attempt	• Measurement error • Non-response bias • Data processing error • External validity	• N/A
Gross Savings Calculations	• N/A	• N/A	• Analytical error
Net Savings Calculations	• N/A	• N/A	• Analytical error
NTG Analysis	• No, Census Attempt	• Measurement error • Non-response bias • Data processing error	• N/A

[3] State of Illinois Energy Efficiency Technical Reference Manual Version 1. Final. September 14, 2012.

[4] Certain HVAC measures required online searches to determine efficiency values.

Research Task	Survey Error		Non-Survey Error
	Sampling	Non-Sampling	
		• External validity	

The evaluation team took a number of steps to mitigate potential sources of error throughout the planning and implementation of the PY6 evaluation.

Survey Error

- **Non-Sampling Error**:
  - Measurement Error: The evaluation team addressed both the validity and reliability of quantitative data through multiple strategies. First, we relied upon the experience of the evaluation team to create questions that, at face value, appear to measure the idea or construct what they are intended to measure. We reviewed the questions to ensure that we did not ask double-barreled questions (i.e., questions that ask about two subjects, but with only one response) or loaded questions (i.e., questions that are slanted one way or the other). We also checked the overall logical flow of the questions in order not to confuse respondents, which would decrease reliability.

    Key members of the evaluation team, as well as AIC and ICC staff, had the opportunity to review all survey instruments. In addition, to determine if the wording of the questions was clear and unambiguous, the team pre-tested each survey instrument and monitored the telephone interviews as they were being conducted and reviewed the pre-test survey data. The team also used the pre-tests to assess whether the length of the survey was reasonable and reduced survey length as needed.

  - Non-Response and Self-Selection Bias: While the response rate for the participant survey was 29%, which is considered high by current standards, there is still a potential for non-response bias. However, the team attempted to mitigate possible bias by calling each contact in the sample at least eight times (unless we received a hard refusal) and by calling at different times of the day, as appropriate. In addition, the team used all available data at their disposal to assess whether evidence of non-response bias exists. For this survey effort, the team compared survey respondents to the population based on business type, facility size, and project savings. We found that there was not a significant difference between respondents and the population in terms of either facility size or project savings. However, there were slight differences based on facility type, particularly among restaurants where we saw a limited response to the survey (10% in the population versus 3% in the survey). As a result, the survey may not accurately reflect the viewpoints of this segment.

  - Data Processing Error: The team addressed processing error through interviewer training, as well as quality checks of completed survey data. First, Opinion Dynamics interviewers went through a rigorous training before they began interviewing. Interviewers received a general overview of the research goals and the intent of the survey instrument. Through survey monitoring, members of the evaluation team also provided guidance on proper coding of survey responses. In addition, the team implemented continuous, random monitoring of all telephone interviews and validation of at least 10% of every interviewer's work.

- External Validity: The team addressed external validity (the ability to generalize any findings to the population of interest) through development of an appropriate research design. Given that we attempted a census of participants and did not find evidence of substantial non-response bias, we did not need to worry about having a sample that was representative of customers who participated in the program.

Non-Survey Error

- Analytical Error:
  - Gross Impact Calculations: We applied the TRM calculations to the participant data in the program-tracking database to calculate gross impacts. To minimize analysis error, the evaluation team had all calculations reviewed by a separate team member to verify that calculations were performed accurately.
  - Net Impact Calculations: We applied the prospective deemed NTGR to gross impacts to estimate the program's net impacts. To minimize analysis error, the evaluation team had all calculations reviewed by a separate team member to verify that calculations were performed accurately.

4. Evaluation Findings

4.1 Program Description and Participation

As previously noted, the Big Bonus Program offered a 30% bonus incentive to DS-2 rate code customers who implemented eligible electric projects during PY6. Leidos planned to offer the bonus for applications submitted on or after July 1, 2013 until either bonus funds were exhausted or the program achieved its savings goal of 6,916 MWh. Ultimately, the Big Bonus Program surpassed its savings goal and closed in February 2014.

Program Participation

Over the course of PY6, 296 unique customers participated in the Big Bonus Program, completing 374 projects. Most projects involved the installation of lighting equipment, with a few Specialty, HVAC, and VFD projects completed as well. The dominance of lighting projects within this program is consistent with activity in the Standard Program over the last 5 program years.

Table 4-1. PY6 Small Business Participation by End-Use

Equipment Type	Number of Projects	% of Projects	*Ex Ante* Savings (kWh)	Percent of kWh
Lighting	316	84%	12,024,584	92%
Specialty	34	9%	61,837	0.5%
HVAC	20	5%	611,950	5%
VFD	4	1%	350,012	3%
Total	**374**	**100%**	**13,048,383**	**100%**

Note: Some percentages do not total to 100% due to rounding.

Retail and service businesses were the largest category of program participants (38%), followed by office buildings (10%), restaurants (10%), industrial or manufacturing (7%), and warehouses (7%).

Table 4-2. PY6 Small Business Participation by AIC-Tracked Facility Type

Facility Type[a]	Population		Completed Surveys	
	Number of Projects	% of Projects	Number of Projects	% of Projects
Retail/Service	141	38%	16	23%
Office	37	10%	11	16%
Restaurant	36	10%	2	3%
Manufacturing/Industrial	26	7%	15	21%
Warehouse	25	7%	5	7%
Religious Worship/Church	23	6%	7	10%
Hotel/Motel	9	2%	3	4%
School/College	6	2%	0	0%
Grocery	4	1%	0	0%
Miscellaneous/Other	67	18%	11	16%

Facility Type[a]	Population		Completed Surveys	
	Number of Projects	% of Projects	Number of Projects	% of Projects
Total	374	100%	70	100%

[a] Facility type categories are from the AIC program-tracking database.

4.2 Process Assessment

Given that the Big Bonus Program will not continue in PY7, the team conducted a limited process assessment in order to give AIC a sense of what worked well and what could be improved if the program is offered in the future. We based our assessment of program processes on in-depth interviews with program implementation staff as well as a survey of participating customers.

4.2.1 Program Design and Implementation

Overall, AIC and the implementation team implemented the Big Bonus Program according to plan. In terms of program delivery, the program leverages AIC's C&I Standard Program, as well as the SBDI Program, which lets eligible customers know about actions they can take at their facility to save energy. AIC designed the Big Bonus Program to overcome barriers faced by small businesses, such as a lack of knowledge regarding energy efficiency and lack of personnel with time available to pursue projects.

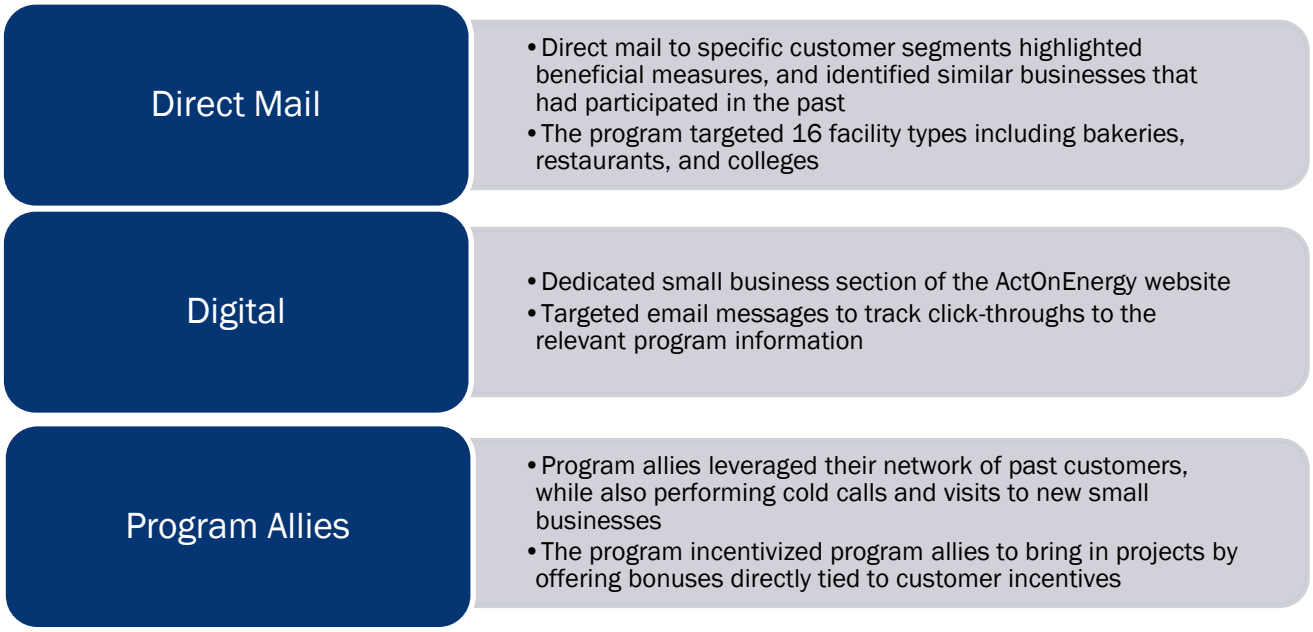
Contractors used Big Bonus incentives as a sales tool among eligible customers in the DS-2 rate code. Often these contractors also participated in the Standard, Custom, and the SBDI programs. Contractors needed to register as an ActOnEnergy Business Program Ally in order to become eligible for Program Ally bonuses, which were determined as a percentage of the customer bonus.

In addition, the implementation team tried to make participation in the program as easy as possible by using existing C&I Standard Program application forms, with which some customers and Program Allies were already familiar. Program Allies were expected to determine the eligibility of potential participants as determined by rate code.

Marketing and Outreach

Given the specific target market for the Big Bonus Program, AIC and the implementation team used a number of targeted marketing efforts. In particular, the team used available business-type data to send customers direct mail featuring information relevant to their particular business. The implementation team also sought to convey a sense of urgency for taking advantage of the offer and provided clear and direct channels for response within the marketing materials and messaging to help customers take action. In addition to targeted direct mail, program staff used targeted emails to drive traffic to the small business section of the ActOnEnergy Business website, as well as leveraged the program ally network as a mechanism for raising program awareness. Figure 4-1 highlights these overarching strategies.

Figure 4-1. Big Bonus Program Marketing Strategies



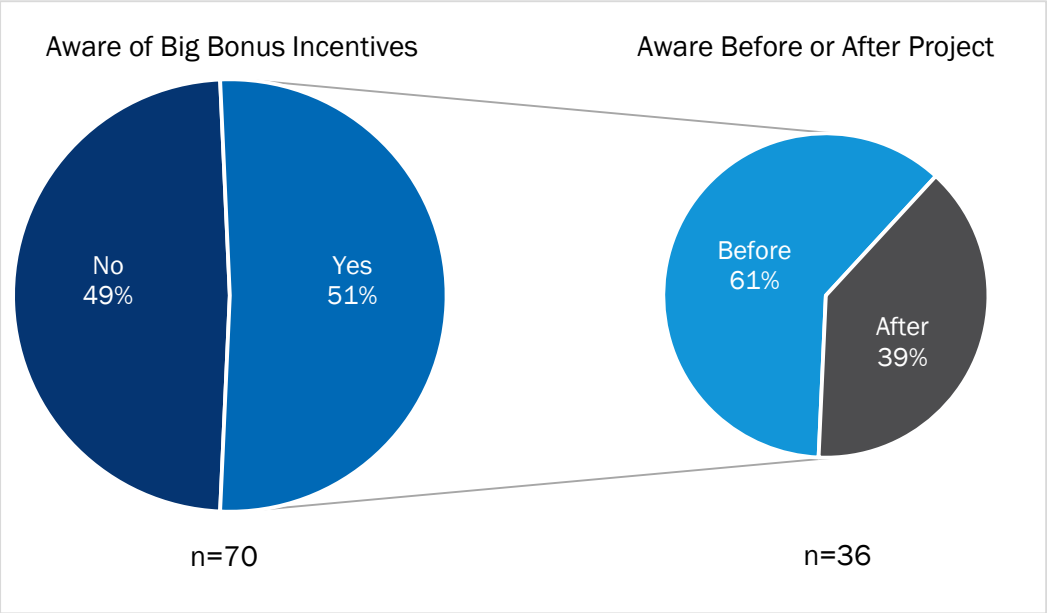
Based on the response to the 8-103/8-104 C&I programs early in the program year, program staff decided to slow marketing for the overall ActOnEnergy Business Program, which in turn affected the Big Bonus Program. As part of that process, program staff removed tips provided to SBDI Program participants highlighting the Big Bonus Program in order to limit interest in the program.

In addition to customer outreach, the program used program ally bonuses to engage program allies in the Big Bonus Program. However, funding for the bonuses was exhausted quickly and the program stopped offering them in September 2013. This created confusion among some program allies, who assumed that the end of program ally bonuses meant that the program had also run out of funding for customer incentives.

4.2.2 Awareness and Role of the Big Bonus in Customer Decision-Making

Findings from the participant survey suggest that awareness of the Big Bonus incentive is moderate and may not have been a key driver of participation in the program. In particular, while the program provided increased incentives to participating customers, only half of those who received the offer were aware of that fact. As shown in Figure 4-2, half of the respondents (51%) reported that they were aware that they had received a 30% Big Bonus incentive offered specifically for small businesses. However, some participants did not learn about the bonus until after they had implemented their project. In particular, among those aware that they received the bonus, over one-third (39%) stated that they became aware of the bonus after implementing their project. These results are consistent with information provided by the implementation team, indicating that some qualifying customers were given the bonus after submitting an application through the C&I Standard Program if they met the criteria. Further, the approach that program allies took in promoting the program may have affected awareness of the bonus. In particular, some program allies may not have indicated to customers that their incentive included a bonus and therefore, they may not have understood that the incentive level was higher than usual.

Figure 4-2. Awareness of Big Bonus Program Incentives



Note: For the purpose of this figure, "don't know" responses have been included in the "no" category.

As shown in Table 4-3, among those who knew they received the bonus, the largest percentage heard about it from a contractor (42%), followed by word-of-mouth (28%), and an AIC representative (8%). In addition, it is somewhat surprising that while AIC and the implementation team used direct mail pieces to market the program, none of the respondents mentioned them (unaided) as the first point of contact. These results suggest that direct, in-person contact with customers has been the most effective channel for educating them about the program. They also indicate that if significant time and resources are invested in direct mail pieces in the future, program staff may want to develop a way to track the response to this form of outreach.

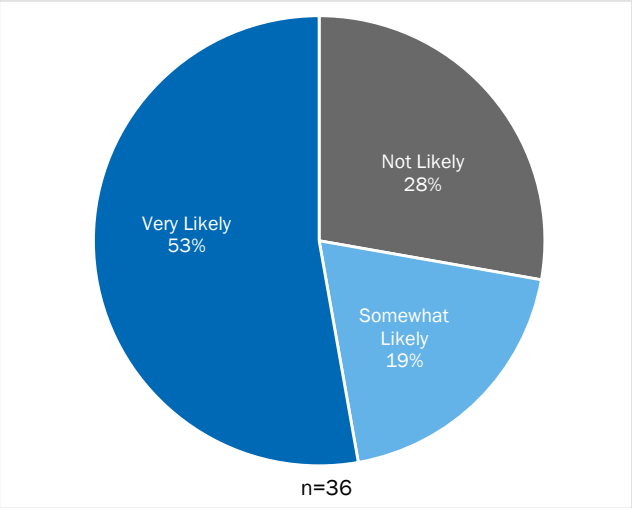
Table 4-3. How Participants First Found Out About the Big Bonus Program Incentive among Those Aware

Marketing Channel	Percentage (n=36)	N
Contractor	42%	15
Word of Mouth	28%	10
Ameren Representative	8%	3
Ameren Website	3%	1
Ameren Newsletter	3%	1
Key Account Executive	3%	1
Other	3%	1
Don't Know	11%	4

We also asked those aware of the bonus how it influenced their decision to implement energy efficient measures. Results suggest that while many small business customers need the extra funding to move forward with these types of energy efficient projects, others do not. For example, among those who knew they received

the Big Bonus incentive, half (53%) said that they were very likely (7 through 10 on a 11 point scale) to have completed the project at the regular incentive level, while almost one-third (28%) said that they were not likely (0 to 3 out of 10) to have done so (Figure 4-3).

Figure 4-3. Likelihood of Implementing the Same Project with the Regular Incentive



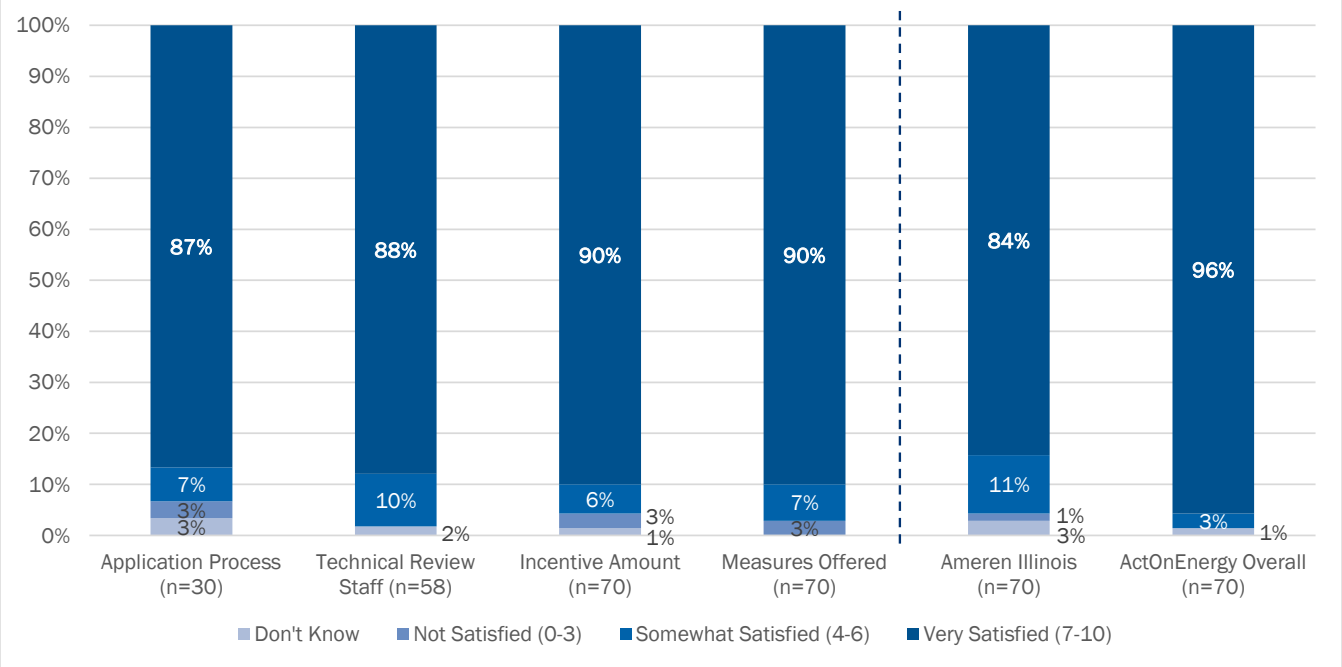
These findings suggest that, while the program appears to be moving a subset of target customers toward projects that they otherwise would not have implemented, it is not having as large an effect as planned. We provide additional information on the participant decision-making process for this program in Appendix B where we present the NTGR results.

4.2.3 Participant Satisfaction

Overall, participants provided positive feedback on the participation process and program components. In particular, while most participants (57%) did not complete the application forms themselves, those who did generally felt that the forms clearly explained both program requirements and the participation process (90%). Further, two-thirds (66%) of those who filled out the application forms found the application process to be "very easy" (a score of 7 through 10 on an 11-point scale where 0 is "very difficult" and 10 is "very easy"). Only one respondent felt that the process was difficult (a score of 3 out of 10) and described the process as "cumbersome."

Figure 4-4 presents additional positive ratings for the various program components. In general, the high levels of satisfaction with this program offering are consistent with findings from the AIC ActOnEnergy Business Programs in prior years, which indicates that the implementation team has been able to effectively expand aspects of the program while continuing to meet customer needs.

Figure 4-4. Overall Big Bonus Program and Component Satisfaction Scores



Note: Questions based on a 11-point scale where 0 is "very dissatisfied" and 10 is "very satisfied". Totals may not sum to 100% due to rounding.

4.3 Impact Assessment

4.3.1 Gross Impacts

Overall, total gross energy and demand impacts for the PY6 Big Bonus Program are 2.1 MW and 13,583 MWh. The following sections outline the verification and analysis activities performed for each program component.

Overall Program Results

The Big Bonus Program paid incentives for 375 applications in PY6. The evaluation team verified implementation through a review of program-tracking data and supporting files as needed. Table 4-4 shows a breakdown of projects by end-use including the number of unique measures within each category. The unique measures are counted at the end-use level and do not account for multiple units within certain measures (e.g., a lighting measure that installs 12 fixtures counts as one measure). Lighting installations drove the program, accounting for nearly 85% of the program applications and approximately 90% of the installed measures.

Table 4-4. Project and Measure Count by End-Use

End-Use Category	Number of Total Applications	Percent of Total Applications	Number of Unique Measures	Percent of Total Measures
Lighting	317	84.5%	1,076	89.7%
Specialty	34	9.1%	84	7.0%
HVAC	20	5.3%	35	2.9%
VFD	4	1.1%	4	0.3%
Total	**375**	**100.0%**	**1,199**	**100.0%**

Our impact analysis activities yielded ex post gross electric and peak demand savings.[5] Table 4-5 summarizes ex ante gross savings, ex post gross savings, as well as the realization rate for kW, kWh, and therm savings. An explanation of specific adjustments and calculations is included in the sections that follow.

Table 4-5. Big Bonus Program PY6 Impacts

End-Use Category	Verified Measures	Ex Ante Gross		Ex Post Gross		Realization Rate	
		kW	MWh	kW	MWh	kW	MWh
Lighting	1,076	1,958	12,042	1,789	12,547	0.91	1.04
Specialty	84	182	612	182	623	1.00	1.02
HVAC	35	36	62	34	63	0.95	1.02
VFD	4	94	350	94	350	1.00	1.00
Total	**1,199**	**2,269**	**13,065**	**2,100**	**13,583**	**0.93**	**1.04**

We note the reasons for the minor differences in energy and demand realization rates below.

Database Revisions and Assumptions

In general, the evaluation team reviewed the AMPlify online database for inputs to several measures when project-specific data was not included in the database extract (e.g., motor sizes for VFD measure, freezer sizes). This step allowed several measures to achieve a realization rate of 1.0 after confirming the input assumptions with the ex ante calculations. Additionally, the team reviewed survey responses for specific projects to cross-check applications and databases. For example, we revised facility type and heating fuel type based on survey responses, if they differed from what was on the application form. These modifications caused the overall ex-post savings to increase by less than 1%.

Table 4-6 provides a summary and explanation of the few realization rates that are not at 100%.

[5] While the program achieved some gas savings based on supporting funds from 8-104, those savings are presented and claimed under the Standard Program.

Table 4-6. Big Bonus Program Gross Realization Rate Explanations

End-Use Category	kW Impact	kWh Impact	Explanation
Lighting	↓	↑	• kW: This is due to the occupancy sensor measures and the team's use of default kW controlled values from the TRM, because the program-tracking database did not include the actual kW controlled for each project. • kWh: This is largely due to ensuring that the implementer applied the correct factors (e.g., hours of use, coincidence factor) for all lighting applications based on the location of the installation and facility type
HVAC	↓	↑	• kW and kWh: The difference is due to split AC units and the team's use of baseline values from the TRM.
Specialty	-	↑	• kWh: The difference is due to the implementer's use of weighted average savings for the electronically commutated (EC) motor for walk-in coolers and freezers, while the evaluation team applied TRM-specific deemed savings depending on whether the project was a cooler or freezer.

4.3.2 Net Impacts

In determining the overall net savings associated with the Big Bonus Program, the team applied the NTGR from AIC's IPA filing for this program to the ex post gross savings. The value applied was 0.76 for all end-use categories. As shown in Table 4-7 below, the Big Bonus Program's overall net realization rate is 104% and 93% for electric energy and demand, respectively.

Table 4-7. Big Bonus Program PY6 Net Impacts

Program	Ex Ante NTGR (MWh)	Ex Ante Net		Ex Post NTGR (MWh)	Ex Post Net	
		MW	MWh		MW	MWh
Big Bonus	0.76	1.72	9,930	0.76	1.60	10,323
Net Realization Rate					*0.93*	*1.04*

Note: Realization Rate = *Ex Post* Net Value / *Ex Ante* Net Value

4.4 Conclusions and Recommendations

The Big Bonus Program had a successful year in terms of participant satisfaction, as well as program performance against goals. Overall, the Big Bonus Program saw 375 completed projects and claimed (ex ante) gross savings of 13,065 MWh in PY6. This level of activity and resulting savings surpassed expectations, necessitating a reduction in marketing efforts and ultimately ending the program before exhausting the budget.

Consistent with other AIC program offerings in prior years, the Big Bonus Program also had high reported levels of participant satisfaction in all program areas including the application process, technical review staff, incentive amount, and measures offered. This indicates that the implementation team was able to effectively expand C&I offerings and continue meeting customer needs.

However, findings indicate that the program did face some challenges. In particular, awareness of the Big Bonus incentive among participants is lower than expected, with 49% of survey respondents unaware that they received this bonus. In addition, when the Program Ally bonus stopped being offered because funds

budgeted for this purpose were depleted, some program allies erroneously assumed that the entire program had run out of funds.

In terms of program data tracking to support impact evaluation, AIC may want to consider the addition of controlled kW as a column in the database for each occupancy sensor project. The implementer collects these data on the application form, but they did not appear in the database so the evaluation team needed to estimate controlled kW using assumptions from the TRM. Having the controlled kW from the applications would have enabled the team to more accurately estimate ex-post savings

While neither Leidos nor another implementer have bid the Big Bonus Program into the IPA process for future cycles, we provide the following recommendations in the event the program is re-introduced:

- **Proactively communicate program changes to program allies.** Given the confusion regarding the end of the program ally bonus in PY6, program staff could develop communication strategies for similar scenarios so that they are out in front of allies with information and can avoid confusion or misunderstanding among this group.
- **Provide Marketing Training for Program Allies.** Because almost half of the program's participants were not aware that they received bonus incentives, AIC and the implementation team could work with program allies to help improve participant awareness of the offering as they are the most common channel through which participants first learned about the program. One way to accomplish this would be to provide contractor training. Alternatively, the program could conduct interviews or focus groups with contractors to gather their perspective on program messaging and how they used the 30% Big Bonus in their sales pitches to customers.

4.5 Inputs for Future Planning

In PY6, the evaluation team gathered data to develop a NTGR for the Big Bonus Program for potential application in future program years. Consistent with the approach used for AIC's C&I Portfolio in prior years, as well as by the ComEd evaluation team, the value is based on self-reported information from the telephone survey of program participants. The goal of the survey was to quantify the percentage of the gross program impacts that can be reliably attributed to the program. Further, the team calculated a program-level NTGR based on both the level of free ridership and participant spillover for the program. Appendix B provides detailed information about the methodology, as well as the results.

4.5.1 Big Bonus Program NTGR

Table 4-8 provides the estimated new NTGR for the Big Bonus Program. This value may be applied in the future if the program is offered again.

Table 4-8. Big Bonus Program NTGR

Project Type	N	n	Electric NTGR			Demand NTGR		
			Free-Ridership	Spillover	NTGR (1–FR+SO)	Free-Ridership	Spillover	NTGR (1–FR+SO)
Overall Program	374	70	0.21	0.005	0.80	0.22	0.003	0.78

Appendix A. Data Collection Instruments

The following file contains the Big Bonus Program participant survey.

Appendix B. NTGR Results

As part of the assessment of the Big Bonus Program, the evaluation team gathered data to develop a NTGR for the program for application, if the program is offered again. These findings are based on interviews with customers selected from projects in the AIC tracking system extract from July 2014. Consistent with evaluations of other AIC programs in prior program years, the NTGR developed in PY6 is based on self-reported information from the CATI survey that quantifies the percentage of the gross program impacts that can reliably be attributed to the program.

Methodology

The goal of the net impact analysis is to determine the program's net effect on participating customers' electricity usage. We derived net program impacts by estimating a NTGR. This NTGR is based on self-reported information from the CATI survey that quantifies the percentage of the ex ante gross program impacts that can reliably be attributed to the program. As in previous program years, we calculated NTGR based on both the level of free-ridership and participant spillover.

Because we attempted to gather data from a census of program participants, the resulting estimate of the NTGR has no sampling error, i.e., there is no confidence interval around the NTGR. However, as noted in Section 3.3 of the main report, we took a number of steps to address other potential sources of error in this analysis.

In general, the evaluation team assessed attribution using an algorithm consistent with that developed and used for the C&I Standard Program in order to enable a direct comparison of the NTGRs for these two programs. In addition, the team tested whether or not including a question about the influence of past program participation had an impact on the NTGR results.

Free-Ridership

Free-riders are program participants who would have implemented the incented energy efficient measure(s) even without the program. These estimates are based on a series of survey questions that explore the influence of the program in making the energy efficient installations, as well as likely actions had the incentive not been available. We developed a NTGR that consists of three scores: overall influence, influence of program components, and influence of program timing.[6]

1. **Overall influence.** This score is based on two survey questions. The first question asked respondents to rate the importance of the program compared to the importance of other factors, in their decision to implement the energy efficient equipment. To do so, respondents were asked to divide 100 points between program and non-program factors. This score is equal to the number of points given to the program divided by 10. The second question asked if they had learned about the program before or after they decided to implement the energy efficient equipment rather than standard efficiency equipment. If respondents learned about the program *after* deciding to install energy efficient equipment, the value from the first question (the total points divided by 10) is halved. As a result, greater importance of the program translates to a lower level of free-ridership.

[6] This algorithm is based on the "basic rigor" self-report method used in California and is the same method used for the ComEd C&I programs.

For example, if a respondent awarded the program 70 points out of 100, the first component of the overall influence score would be 7 (70/10). If that same respondent said they learned about the program before they decided to implement the energy efficient equipment, their score would remain 7. However, if they said they learned about the program *after* they decided to implement the energy efficient equipment, their score would be divided in half and equal 3.5 (7/2).

2. **Influence of program components.** This score is based on a series of four questions. These questions asked respondents to rate the importance of four program components, on a scale of 0 to 10 (where 0 is not at all important and 10 is very important): the incentive, program marketing materials, recommendation from program staff, and recommendation from a key account executive.[7] This program components score is equal to the highest rating given to any one of these components. Greater importance of the program components means lower level of free-ridership.

   In this case, if a respondent rated the program rebate 10 out of 10, the recommendation of program staff 8 out of 10, and the information from program materials 8 out of 10, the final Influence of Program Components score would be a 10 (the highest of all scores given).

3. **Influence of program timing.** This score is developed based on three questions: (1) the likelihood that the exact same equipment would have been installed without the program (on a scale of 0 to 10); (2) if the installation would have been done at the same time without the program; and 3) if the installation would have been done later, how much later. This score takes the response to the likelihood question and adjusts this value by the responses to the timing questions. A greater likelihood of participating without the program means higher level of free-ridership. Later implementation without the program means lower level of free-ridership.

   For example, if the participant reports that they would have installed the same equipment at the same time, they are considered to be a full free-rider for this part of the net-to-gross index. If they likely would have installed the equipment (a rating between 7 and 10) but would have done it later, they are considered a partial free-rider and the influence of the program influence is higher. Information about how much later (determined by question #3) helps to assign a free-ridership value. If the customer would not have installed the same equipment until 4 years later, we do not consider them a free-rider for this component of the net-to-gross index (i.e., the program is given full influence on the timing of the installation).

Each of the three scores receives a value of 0 to 10, where a higher score means a lower level of free-ridership. The overall NTGR for a project is the average of the three scores, divided by 10. The NTGR for each project thus ranges from 0 (100% free-ridership) to 1 (no free-ridership).

For larger projects, this approach is supplemented with findings from interviews with trade allies and key account executives where the participant indicates they played an important role in their decision to participate in the program.[8] In the current evaluation, no respondents required interviews with trade allies or key account executives, based on their stated level of influence in the participant's decision-making.

[7] While not included in the main analysis, the team also asked about the importance of the past participation in the ActOnEnergy Business Program.

[8] Projects with estimated ex ante kWh savings of 600,000 kWh or more are assessed under this "standard rigor" approach. No projects completed in the PY6 Big Bonus Program met this criteria.

Participant Spillover

Participant spillover refers to energy efficiency installations that were influenced by the program, but did not receive an incentive. There are two types of participant spillover—inside spillover and outside spillover. Inside spillover occurs when a participant takes additional program-influenced energy saving actions at the project site and outside spillover captures program-influenced energy saving actions taken at other sites with no program participation. The questions asked by the evaluation team address both types of participant spillover.

The team examined inside and outside spillover using participant responses to the telephone survey, as well as callbacks where needed. Based on this data, we found spillover for two Big Bonus Program participants in the AIC service territory. We conducted an engineering assessment of participant responses and gathered additional information via follow-up interviews to determine the savings associated with measures installed outside of the program. The program influenced each of the participants to install additional LED lighting measures.

Big Bonus Program NTGR Results

Table 4-9 presents the results of our PY6 net-to gross analysis to inform an updated NTGR for the Big Bonus Program. We found a small amount of spillover from two program participants.

Table 4-9. Big Bonus Program NTGR Results

Project Type	Electric NTGR			Demand NTGR		
	Free-Ridership	Spillover	NTGR (1–FR+SO)	Free-Ridership	Spillover	NTGR (1–FR+SO)
Lighting	0.20	0.005	0.81	0.20	0.003	0.80
Non-Lighting	0.28	0.005	0.73	0.28	0.003	0.72
Overall Program	**0.21**	**0.005**	**0.80**	**0.22**	**0.003**	**0.78**

It is also important to note that we only assessed attribution for the overall Big Bonus Program and did not attempt to isolate the effect of the bonus incentive. Further, responses to other survey questions indicated that, in many cases, the customers would have installed the same equipment with the regular incentive.

Spillover

The evaluation team calculated spillover for two customers participating in AIC's Big Bonus Program. In order for the team to calculate spillover, participants had to meet two specific criteria: (1) the customer must have installed energy efficient measures not rebated by the program, and (2) the customer must have indicated a high level of program influence on their choice to install the measures.[9] Cases where we found that customers had received rebates through the Big Bonus Program for the indicated measures were excluded them from this analysis. Table 4-10 presents the spillover savings by measure.

Table 4-10. Total Spillover Savings per Measure

Measure	kWh	kW

[9] The customer must have answered 7 or higher on a 10 point scale where 1 means no influence and 10 means a great deal of influence.

Exterior LED Fixtures	3,432	0
Interior Recessed-Can LED Dimmable Fixtures	9,117	1.7
Total Spillover Savings	**12,550**	**1.7**
Total Verified Gross Sample Savings	**2,372,250**	**538**

As shown in the table above, the total net spillover reported by the participant sample equaled 13 MWh while the gross savings from the participant sample equaled 2,372 MWh. The following equation provided the program spillover rate for both electricity and demand:

$$\text{Spillover \%} = \frac{\text{Total participant sample spillover (MWh)}}{\text{Total participant sample gross savings (MWh)}} = \frac{12.6 \text{ MWh}}{2{,}372.3 \text{ MWh}} = 0.005\%$$

Spillover Assumptions and Calculations

The evaluation team used the equations in Table 4-11 to calculate the per unit savings shown in Table 4-102.

Table 4-11. Algorithms Used to Calculate per Unit Spillover Savings

Measure	Units	kWh Savings Equation	kW Savings Equation	Source
LED Fixtures	Per Lamp	((WattsBase – WattsEE)/1000) * Hours * WHF_e *ISR	((WattsBase – WattsEE)/1000) * ISR * WHF_d *CF	IL TRM V1.0

The following are definitions for each of the terms used in the savings equations above:

WattsBase = Wattage of existing equipment

WattsEE = Wattage of installed equipment (actual wattage used)

ISR = In-service rate or the percentage of units rebated that get installed

Hours = Annual operating hours

WHF_e = Waste heat factor for energy (accounts for cooling savings from efficient lighting)

WHF_d = Waste heat factor for demand (accounts for cooling savings from efficient lighting)

CF = Summer peak coincidence factor

We used information collected from follow-up calls with participants as the source of inputs for the savings algorithms. However, in cases where information was unknown, we used the Illinois Technical Reference Manual V1.0 (IL TRM V1.0). We include all inputs to the spillover calculations by measure in Table 4-12.

Table 4-12. Spillover Measure per Unit Savings

Spillover Measure	Savings kWh/Unit	Savings kW/Unit	Units	Quantity	Source
Exterior LED Fixtures	343.2	0.000	Per lamp	10	- Follow up call with participant - IL TRM V1.0
Interior Recessed-Can LED Dimmable Fixtures	260.5	0.049	Per lamp	35	- Follow up call with participant - IL TRM V1.0

Additional NTGR Analyses

Past Program Experience as a NTGR Input

There has been ongoing discussion of the role that past program experience should play in attribution analyses. Based on comments from AIC and ICC staff, the evaluation team included a question within the participant survey NTGR battery to assess the potential influence of past program participation on participant decision-making. The team then calculated the program NTGR both with this question included and excluded from the influence of program components score.

The new question asked the respondent to rate the importance of their past participation in the ActOnEnergy Business Program on the same 0 to 10 scale as other questions related to program components (0 is "not at all important" and 10 is "very important"). In the same way as described in the free-ridership section above, the influence of program components score was then determined by taking the highest score from among the five program component related questions. Using this approach, of the 70 survey respondents, 17 reported prior participation in the ActOnEnergy Business Program. Overall, three respondents rated past program experience as the highest program participation influence. In addition, seven other respondents gave past program experience their highest rating, but it shared that rating with at least one other program component.

As a result, while the inclusion of the question regarding past participation had an impact on the program influence scores of some respondents, overall, this alternative method of calculating the program NTGR did not change the overall value (Table 4-13).

Table 4-13. Comparison of Big Bonus Program NTGR With and Without Past Program Experience

Project Type	Without Program Experience			With Program Experience		
	Free-Ridership	Spillover	NTGR (1–FR+SO)	Free-Ridership	Spillover	NTGR (1–FR+SO)
Lighting	0.20	0.005	0.81	0.20	0.005	0.81
Non-Lighting	0.28	0.005	0.73	0.27	0.005	0.73
Overall Program	**0.21**	**0.005**	**0.80**	**0.21**	**0.005**	**0.80**

Comparison of NTGR Results

The evaluation team also compared the updated Big Bonus Program level NTGR with the C&I Standard Program level NTGR (for small businesses only) given AIC's interest in examining the difference between the NTGRs for the two offerings. As part of this analysis, we used the most recent NTGR data available for the Standard Program, which was from PY4. We then re-calculated the PY4 Standard Program NTGR using only customers in the DS-2 rate code, which is the eligible population for the Big Bonus Program.

As shown in Table 4-14, the program level NTGR for the PY4 Standard Program (0.63) differs significantly from that for PY6 Big Bonus Program (0.80) at the 90% confidence level. These results suggest that the Big Bonus Program has been more effective at influencing small businesses to participate than the Standard Program alone.

Table 4-14. Comparison of Big Bonus Program and C&I Standard Program NTGRs

Program	Number of Projects in Analysis (n)	Electric NTGR
PY6 Big Bonus	72	0.80
PY4 Standard (DS-2 Only)	182	0.63

Appendix C. Engineering Analysis—Detailed Findings

This section of the report details the adjustments made as a result of the gross impact analysis. The team presents the overall impact of these modifications in Section 4.3.1.

1. The evaluation team ensured that Leidos had applied the correct factors (e.g., hours of use, coincidence factor, waste heat factors) for all lighting applications based on the location of the installation and facility type. This included reviewing all exterior fixture applications to ensure the use of appropriate coincidence factors based on IL TRM V1.0 errata for exterior applications. The tracking database did not appear to use the updated errata, as it claimed no peak demand savings for exterior lighting applications. Our team applied peak savings as included in the IL TRM V1.0 errata.

2. The evaluation team revised the cooled and uncooled column based on the lighting description column:

    a. When the cooled/uncooled field was blank, we assumed uncooled to be conservative (88 measures).

    b. If the lighting description was *BPL50 Exterior Fixture* and the space was labeled as "cooled", we changed it to "uncooled" since it was an exterior application (27 measures).

3. For *BPL78 LED Exit Signs Replacing an Incandescent* measures, the team:

    a. Assumed pre- and post-quantity was the same when the pre-install quantity was missing from the database. This applied to 20 of 46 (44%) of the measures in this category. The 26 measures that did contain a pre- and post-install quantity were all one-for-one replacements, and this assumption is consistent with the program requirement for this measure of replacing one incandescent with one LED exit sign.

    b. Ensured that the existing fixture was 35 watts and LED wattage was 2 watts based on IL TRM V1.0.

4. The evaluation team adjusted the mounting type for occupancy sensor measures to correspond with the three types listed in the IL TRM V1.0 (i.e., fixture-mounted, remote-mounted, wall-mounted) because the lighting description did not always clearly give this information. Mounting type was determined by reviewing the measure code and the description on the application form for the specific measure code. For example, we assumed BPL74 Occupancy Sensors are wall-mounted occupancy sensors based on the description in the application form. Applying inputs from the IL TRM V1.0 for these mounting types results in a realization rate of 0.64 for energy and 0.52 for demand savings for all lighting control measures. The database did not include the kW controlled for each lighting measure so we used default values from the IL TRM V1.0 based on mounting type.[10] The difference in realization rates is caused by the fact that we used default values for kW controlled in the IL TRM V1.0 (as expected for this analysis), while the implementer used actual kW controlled from the applications.

[10] Since the completion of this analysis, the evaluation team learned that Leidos does track kW controlled in the program-tracking database. However, it was not included in the extract provided to the evaluation team due to an error.

5. The team used information collected from application forms and surveys on heating fuel for each facility to determine the heating penalty for lighting measures for cost effectiveness calculations only.

6. The team adjusted for failed HVAC equipment versus equipment that was operational.

    a. For failed equipment (8 measures), we used a baseline of the minimum efficiency currently available (11.2 EER) because the customer would need to purchase new equipment anyway. This resulted in a realization rate of 1.00 for energy and 0.99 for demand for these measures.

    b. For equipment that is still operating (7 measures), we assumed an older efficiency for the baseline (10.3 EER—from before Jan 1, 2010) based on the IL TRM V1.0. This resulted in a realization rate of 1.32 for energy and 0.82 for demand for these measures.

7. The team used equipment reference (i.e., model numbers) to look up specific HVAC equipment online to determine installed SEER and EER values because the database did not always contain the new equipment efficiency. This applied to 15 HVAC measures resulting in an energy realization rate of 0.92 and demand realization rate of 1.13 for these 15 measures.

8. The evaluation team adjusted auto door closer measures as follows:

    a. Updated the measure in the database labeled as "BPR13 Auto Door Closers for Display Case Door" to "BPR7 Auto Door Closers for Walk-In Cooler" based on a review of the project application form and the fact that the IL TRM V1.0 does not contain a measure for auto door closers for display case doors. Ex post savings use deemed savings from the IL TRM V1.0 for door closers for walk-in coolers and arrive at an energy and demand realization rate of 0.83 and 0.86, respectively.

    b. Adjusted the quantity of installations from two to four for a separate "BPR7 Auto Door Closers for Walk-In Freezer" measure based on the quantity identified in the application form. This adjustment resulted in a realization rate of 2.0 for this measure for both energy and demand savings because the ex ante calculations likely used the quantity of two from the database, whereas we used the quantity of four from the project application form.

9. The team removed two AC tune-up measures from the program because they were smaller than 3 tons and the deemed savings from the IL TRM V1.0 assumes the equipment is at least 3 tons in size. Note that the ex ante and ex post savings from these two measures account for less than 0.1% of the total program savings, so removing them from the ex post savings calculations has little impact in the final calculations.

Discrepancies in Database

1. Lighting measure #601086 appears to have a database entry issue for ex ante savings. It shows kW, kWh, and therm savings all at 0.226. This results in an ex post realization rate for kWh of 5,041%, however it has a relatively small (< 0.01%) contribution to the overall program savings.

For more information, please contact:

Hannah Arnold
Senior Project Manager

510 444 5050 tel
510 444 5222 fax
harnold@opiniondynamics.com

1999 Harrison Street
Suite 1420
Oakland, CA 94612