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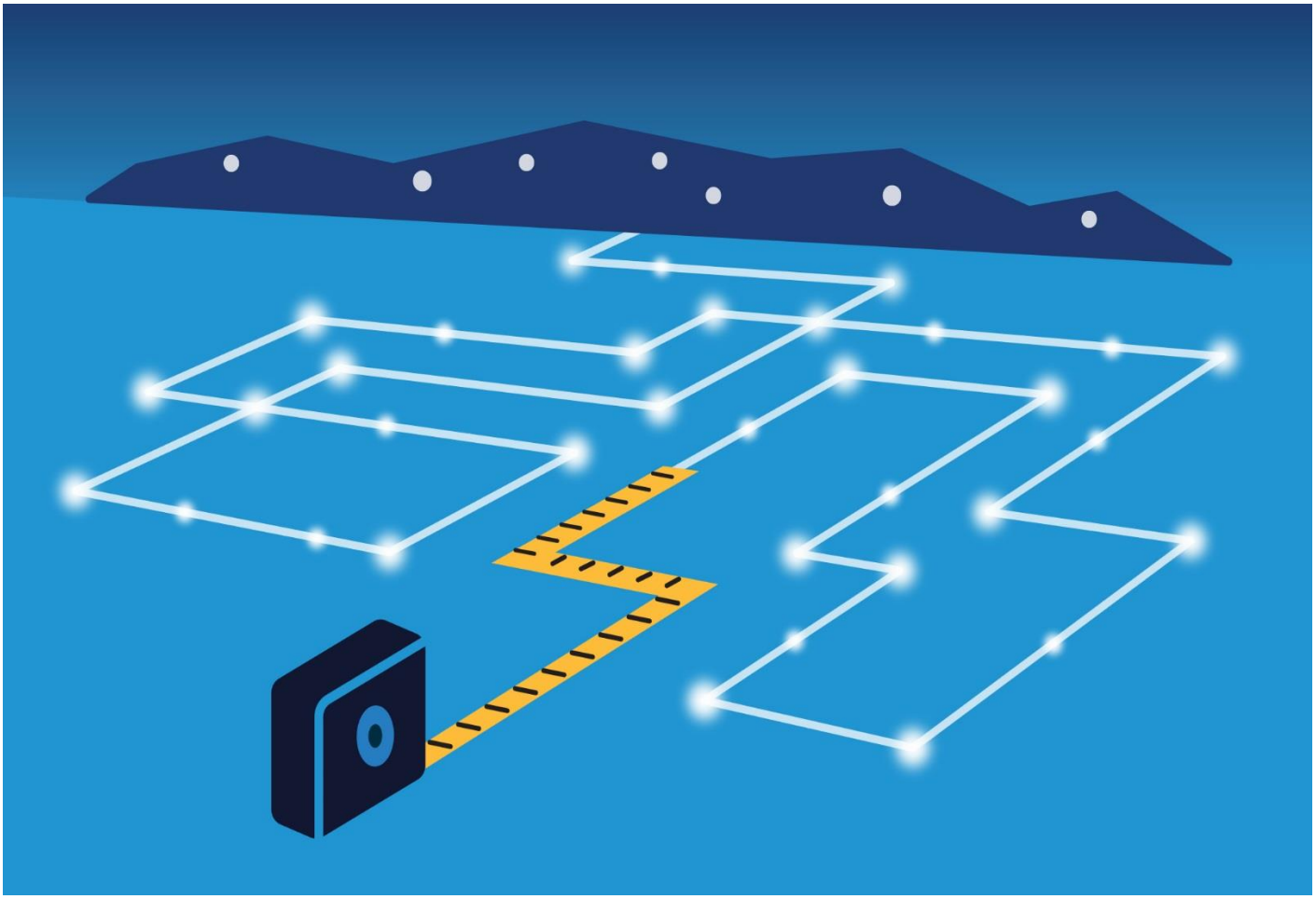

Impact and Process Evaluation of 2013 Illinois Power Agency Residential CFL Distribution Program

Final

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1. Executive Summary

Ameren Illinois Company (AIC) introduced the Residential CFL Distribution Program in PY6 as an approved program in the 2013 Illinois Power Agency (IPA) Docket to generate awareness of ENERGY STAR® lighting products and promote other AIC energy efficiency opportunities. This program is in its first year of operation and is not currently planned for future years. The program is delivered by Conservation Services Group (CSG), One Change (OC), and Sageview Associates (SA). AIC and OC field representatives delivered up to six CFLs to residential customers identified as less likely to already have installed CFLs based on implementer assessment of utility data and past participation. The program expected the participation of 25,000 households, while generating awareness of ENERGY STAR lighting products and promoting other AIC energy efficiency opportunities.

1.1 Impact Results

Table 1 outlines PY6-reported distribution of CFLs and verified CFLs based on the number of measures reported in the tracking database.

Table 1. Summary of PY6 Program Verification Results

Measure	Reported CFL Distribution*	Verification Rate	Verified CFL Distribution
60W replaced by 14W CFL	150,108	100%	150,108

* Participants multiplied by number of units provided.

The Residential CFL Distribution Program realized total net energy and demand savings of 4,715 MWh and 0.46 MW, based on verified program participation deemed per unit net savings values for program CFLs. .Table 2 shows the net savings results.

Table 2. PY6 Total Program Net Savings by Measure

Measure	Net-to-Gross Ratio	Ex Ante Net Savings (MWh)	Ex Ante Net Unit Savings (MW)	Ex Post Net Savings (MWh)	Ex Post Net Unit Savings (MW)	Net Realization Rate*
60W replaced by 14W CFL	70%	4,715	0.46	4,715	0.46	100%

* Net realization rate = ex post net savings/ex ante net savings.

1.2 Process Results

Through a limited process review, the evaluation team found implementation staff expressed satisfaction with the program's performance during PY6. Though the program experienced a delayed start, implementation staff reported using the time to provide outreach to community stakeholders, resulting in streamlined CFL delivery to households. Participant surveys suggested household satisfaction with the program, and some participants installed additional energy-saving items due to their participation. However, approximately 30% of survey respondents did not recall receiving the CFLs. This is expected since the majority of those receiving the bulbs were not home when they were delivered, and several months has passed between delivery and the survey. At the time of the survey, however, participants had installed only approximately 49% of delivered CFLs. This installation rate was not incorporated into the impact analysis, but rather was analyzed for future inputs.

1.3 Conclusions and Recommendations

After a delayed start to increase community outreach, the PY6 Residential CFL Distribution Program successfully delivered 150,108 CFLs to participants. The program identified geographic areas to target and provided energy-saving CFLs to participants. The program also provided information on next steps for participants interested in pursuing other energy efficiency programs, though at the time of the survey, none of the respondents had pursued these programs. Participants expressed satisfaction with the professional demeanor of field representatives and with the information they received.

While AIC currently does not plan to continue the program, the evaluation team developed the following recommendations for consideration.

Continue to Use Postcards to Notify Customers of Future Communication

Participants reported the postcards sent in advance of the field visit influenced their decisions to speak with representatives. Fewer participants may have engaged with the program had this measure not been taken.

Consider Coordinating the Delivery of CFLs with Customer Schedules

The phone survey indicated that field representatives left most CFLs at the customer's door when they were not home, rather than providing them directly to the customer. Delivering CFLs when customers will more likely be home or coordinating delivery with customers' schedules may enable field representatives to achieve face-to-face contacts with customers. While coordinating schedules would likely increase program administrative costs, direct contact between AIC customers and field representatives could affect measure installation rates, as field representatives receive training to communicate the importance of installing the CFLs and to address concerns about the measures.

2. Introduction

2.1 Program Description

Ameren Illinois Company's (AIC) Residential CFL Distribution Program, approved in the 2013 Illinois Power Agency (IPA) Docket, is delivered through a turnkey model. Through delivery of AIC-branded CFLs and special offers to customers, the program seeks to generate awareness of ENERGY STAR lighting products, while promoting other AIC energy efficiency opportunities. AIC expected program participation of 25,000 households, concentrated in geographic areas with low estimates of CFL adoption based on implementer assessment of utility data and past participation. Only available to customers during PY6, AIC does not currently plan to offer the program in future years.

AIC used Conservation Services Group (CSG), One Change (OC), and Sageview Associates (SA) to deliver the program. CSG implemented the program, providing training and outreach. CSG also ran the field campaign, designed to use meetings with community stakeholders to raise the community's awareness and support of the program. OC managed program operations, including marketing, communications, product procurement, staff recruitment, CFL deliveries, and on-site participant surveys. SA analyzed CFL penetration within AIC's service territory and targeted geographic areas for on-site program delivery.

2.2 Research Objectives

The PY6 Residential CFL Distribution Program evaluation sought to provide estimates of gross and net savings and program effectiveness. The PY6 impact evaluation addressed the following questions:

- What were the program's estimated gross energy and demand savings?
- What were the program's estimated net energy and demand savings?

The process evaluation addressed the following questions:

- How well did program processes function and could they be improved?
- How effectively did marketing materials cross-promote other AIC programs?

3. Evaluation Methods

Table 3 summarizes evaluation tasks conducted for PY6.

Table 3. Summary of Evaluation Activities for PY6

Activity	PY6 Impact	PY6 Process	Forward Looking	Details
Program Staff In-Depth Interviews		✓		Interviewed program and implementation staff to gain insights into design, delivery, successes, and challenges
Materials Review		✓	✓	Reviewed the CFL spec sheet, as well as on-site participant surveys conducted by the program implementer
Database Analysis	✓	✓		Summarized database information to determine participation, key program statistics, and savings
Participant Phone Surveys	✓	✓	✓	Surveyed participants to assess experience with the program, installation rates, persistence, and spillover.

3.1 Data Collection

The PY6 Residential CFL Distribution evaluation included the following activities.

3.1.1 Program Staff Interviews

Interviews with implementation staff, responsible for managing and marketing the program, explored the following issues:

- Program goals
- Program process flow
- Program design versus program implementation
- Program strengths and weaknesses
- Program marketing

3.1.2 Review of Program Materials and Data

The evaluation team reviewed the program database to verify the delivery and quantity of CFLs as well as wattage information, delivery dates, and participant contact information. In estimating PY6 gross and net impacts, the evaluation relied on reported distribution of CFLs and verified distribution, along with deemed per unit gross and net savings.

The evaluation team also reviewed a census of the survey data resulting from implementer-conducted surveys delivered with the bulbs to 586 recipients. These short surveys consisted of three questions designed to determine an informational free ridership estimate for the program. The in-field implementer used a simple random sample to conduct the survey at the time of participant contact.

3.1.3 Participant Survey

The evaluation team used participant phone surveys to estimate installation rates and spillover for input into *possible* future program activities. On average, surveys took place 3 months after participants engaged with the program, allowing sufficient time between distributions and surveys for installation and spillover. The evaluation team completed the full surveys with a simple random sample of 70 participants from the program database, resulting in better than 10% precision at a 90% confidence level for spillover and installation rates; however an additional 41 survey respondents were terminated because they did not recall receiving the CFLs. This could be due to recall error (as 3 months had passed), or the possibility that another person in the household picked up the CFLs left on the porch.

Table 4 summarizes the impact analysis source and sample size information.

Table 4. CFL Phone Survey Analysis Summary

Impact Analysis	Source	Sample Size*	Confidence/Precision
Spillover	Participant survey	70	90%/±10%
Installation rate	Participant survey		

*** We based spillover analysis on a sample size of 111, which includes surveys terminated because the respondent did not recall receiving the CFLs – assuming that those than do not recall receiving them are unlikely to have spillover.**

Survey Dispositions and Response Rate

We fielded the survey with Residential CFL Distribution Program participants from August 5th to August 13th, 2014. Table 5**Error! Reference source not found.** presents the dispositions from the participant survey.

Table 5. Residential CFL Distribution Participant Survey Dispositions

Disposition	N
Completed Interviews (I)	70
Partial (P)	4
Eligible Non-Interviews	240
Refusals (R)	41
Mid-Interview terminate (R)	7
Respondent never available (NC)	55
Telephone Answering Device (NC)	133
Language Problem	4
Not Eligible (e)	136
Duplicate Number	1
Fax/Data Line	3
Non-Working	70
Wrong Number	17

Disposition	N
Business/Other organization	4
No eligible respondent	41
Unknown Eligibility Non-Interview (U)	50
No Answer	49
Call Blocking	1
Total Participants in Sample	**500**

Table 6 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).[1]

Table 6. Residential CFL Distribution Program Survey Response and Cooperation Rates

AAPOR Rate	Percentage
Response Rate (RR3)	20%
Cooperation Rate	57%

3.2 Analytical Methods

3.2.1 Gross Impacts

The evaluation team used deemed per unit savings values, shown in Table 7, to determine program impacts.. The deemed per unit net impacts include the deemed NTGR provided in the IPA filing (Docket 12-0544)..

Table 7. PY6 CFL Distribution IPA Savings—Per Unit

Measure	NTGR	Gross kWh	Net kWh	Gross kW	Net kW
60W replaced by 14W CFL	0.70	44.87	31.41	0.004	0.003

3.2.2 Net Impacts

The evaluation team determined net impacts using the IPA pre-negotiated deemed NTGR established for this program.

3.3 Sources and Mitigation of Error

Table 8 summarizes possible sources of error associated with data collection conducted for the Residential CFL Distribution Program. A discussion of each error source follows.

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

Table 8. Potential Sources of Error

Analytical Task	Survey Error		Non-Survey Error
	Sampling	Non-Sampling	
Participant Survey	• Yes	• Measurement error • Non-response and self-selection bias • Data processing error • External validity	• N/A
Gross Savings Calculations	• N/A	• N/A	• Data processing error
Net Savings Calculations	• N/A	• N/A	• Data processing error

Throughout planning and implementing the PY6 evaluation, the evaluation team adopted a number of steps to mitigate these potential sources of error.

Survey Error

- **Sampling Error:**
  - Participant Survey: The evaluation team designed the survey sample to achieve a maximum error of ± 10% with 90% confidence, surveying 70 customers out of a population of 25,026 verified participants.
- **Non-Sampling Error:**
  - Measurement Error: The evaluation team addressed the validity and reliability of quantitative data using multiple strategies. First, the team used past experience to create questions that appeared to measure the idea or construct intended. Question design precluded asking "double-barrel questions" (i.e., questions asking about two subjects but requiring one response) or "loaded questions" (i.e., slanted questions). The team also checked the overall logical flow of questions to avoid confusing respondents (which would decrease reliability).

    Key members of the evaluation team, along with AIC and Illinois Commerce Commission staff, reviewed all survey instruments. In addition, pretests of phone survey instruments ensured clearly and unambiguously worded questions, as did monitoring telephone interviews and reviews of pretest survey data. The evaluation team also used pretests to assess a reasonable length of the survey, reducing it as necessary.
  - Non-Response Bias: Given that the participant surveys did not produce a 100% response rate, non-response bias could occur. The evaluation team mitigated this by contacting each possible respondent in the sample at least eight times (unless receiving a hard refusal) and by calling at different times of day, as appropriate.
  - Data Processing Errors: The evaluation team addressed processing errors through interviewer training and quality checks of completed survey data. Before conducting the surveys, Opinion Dynamics interviewers went through a rigorous training period. Interviewers received a general overview of research goals and the intent of each survey instrument. Through survey monitoring, the evaluation team provided guidance regarding proper coding of survey responses. In addition,

the team conducted continuous, random monitoring of telephone interviews and validation of at least 10% of every interviewer's work.

- External Validity: The evaluation team addressed external validity (generalizing any findings to the population of interest) through development of appropriate research design. Further, during data collection, the team managed the sample to minimize self-selection bias (i.e., allowing multiple attempts at different times of the day and exhausting one part of the sample prior to moving on to the next).

Non-Survey Error

- Data Processing Error:
  - Gross Impact Calculations: We applied deemed per unit gross savings values to the participant data in the tracking database. To minimize data processing errors, a separate team member reviewed all calculations to verify accuracy.
  - Net Impact Calculations: We applied the deemed per unit net savings values to the participant data in the tracking database. To minimize data processing errors, a separate team member reviewed all calculations to verify accuracy.

4. Evaluation Findings

4.1 Program Description and Participation

The Residential CFL Distribution Program's design sought to generate awareness of ENERGY STAR lighting products and to promote other AIC energy efficiency opportunities through delivery of AIC-branded CFLs and special offers to customers.

AIC established a PY6 participation goal of 25,000 households for the program, concentrated in geographic areas with low CFL adoption estimates. While the program experienced a delayed start due to additional outreach conducted with community stakeholders, it achieved reported participation of 25,026, delivering 150,108 CFLs. Additionally, customers received education regarding CFLs and special offers to participate in other
AIC programs.

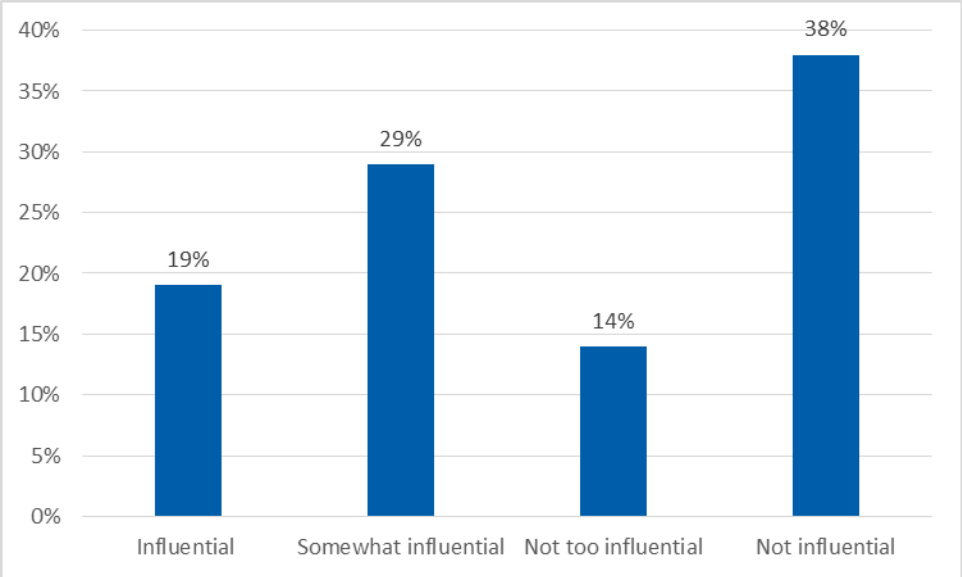
4.2 Process Assessment

4.2.1 Program Process

As part of program targeting, implementation staff purchased customer data to identify geographic areas with a low probability of having CFLs installed and higher potential follow-up savings resulting from future participation in AIC programs. This precluded geographic areas with apparently high engagement levels with AIC energy efficiency programs. Developing the list of target areas also included the consideration of transportation issues, housing types, energy intensity of homes, and other factors potentially affecting efficient program delivery.

When AIC rolled out the program, postcards were used to alert households that field representatives would deliver CFLs to their homes. Implementation staff reported mailing postcards up to 2 weeks in advance of CFL deliveries. As part of the telephone survey, the evaluation team asked the 42 participants who indicated receiving the postcards how influential they were in their decisions to speak with program representatives when they came to deliver the bulbs. Using a scale demarcated as *influential*, *somewhat influential*, *not too influential*, and *not influential*, 48% of the 42 responding customers found the postcard influential or somewhat influential, as shown in Figure 1.

Figure 1. Influence of Postcard on Decision to Speak with Representative (n=42)



While on-site, in-field representatives delivered up to six CFLs to each customer and explained, when possible, the benefits of installing these immediately to save money and energy. Field representative also delivered in-field surveys to a sample of participants; the surveys used questions designed to assess free ridership and the potential for future program targeting.

To understand how the delivery process worked from the customer perspective, the evaluation team asked program participants if an AIC representative directly provided them with CFLs or left CFLs at their doors. Of 63 respondents who were able to answer, 78% said representatives left CFLs when participants were not home and 22% said representatives provided CFLs directly.

4.2.2 Marketing and Outreach

Prior to delivery of CFLs, program implementers conducted outreach with community stakeholders. As the program relied on in-field staff going door to door in residential areas, implementation staff felt it appropriate to alert stakeholders, such as police and elected officials, about the program and to address concerns that they might have. Implementers did not conduct additional marketing and outreach activities to solicit participants, limiting outreach to customers in the targeted geographic areas.

While program delivery did not include direct program marketing, field representative uniforms and collateral material delivered with CFLs included the OC and AIC logos. In addition, the CFLs included a postcard promoting AIC's energy efficiency programs. The field visits also collected information on customers' home temperatures and comfort levels to determine whether homes made good candidates for future program targeting. When the evaluation team asked participants if they had participated in other AIC programs, seven respondents indicated that they had, but that this participation occurred prior to receiving CFLs through the Residential CFL Distribution Program.

4.2.3 Data Quality and Tracking

Implementation staff reported satisfaction with the program's demonstrated data quality and tracking. As part of the data collection process, field representatives used iPads, which allowed the program to capture time stamps, as well as survey responses.

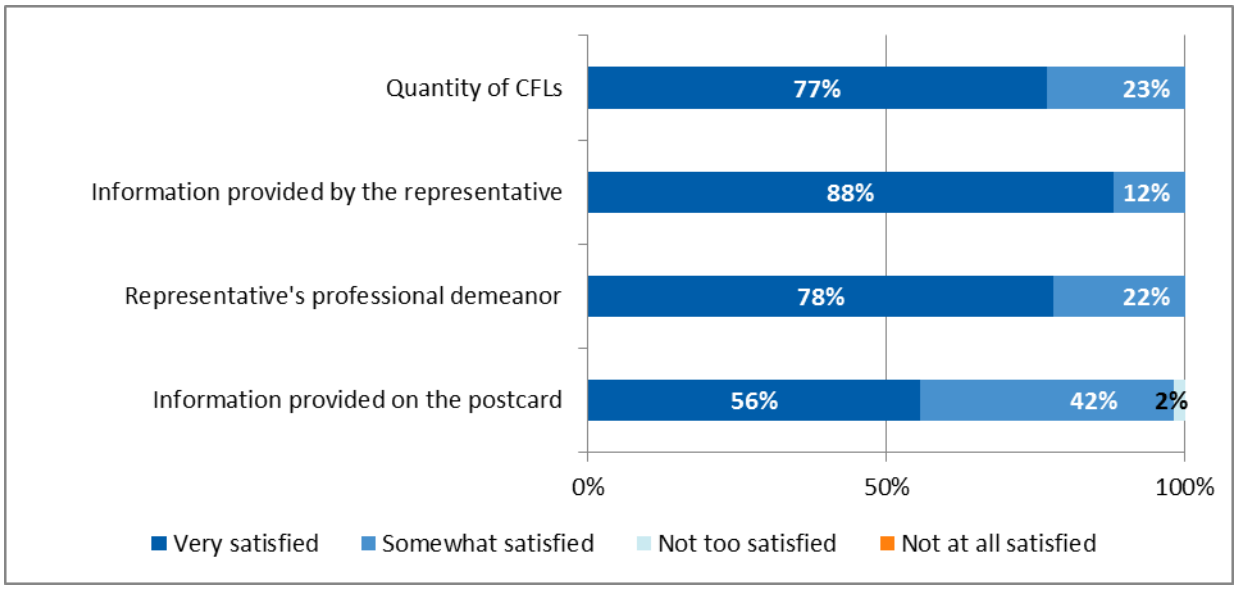
4.2.4 Program Strengths

The implementation staff reported that face-to-face contacts with community stakeholders created value for AIC and that conducting these outreach activities could demonstrate AIC going "above and beyond" powering homes, thus making the utility part of the community.

4.2.5 Participant Satisfaction

Participants reported high satisfaction levels when asked to rate their satisfaction with four program elements on a scale of *very satisfied, satisfied, not too satisfied,* and *not at all satisfied*. As shown in Figure 2, none of the respondents chose *not at all satisfied*.[2]

Figure 2. CFL Distribution Participant Satisfaction



4.3 Impact Assessment

CSG and SA maintained a program database of homes that received program CFLs. This database included the following information:

- Customer name
- Address and phone number

[2] Surveys did not include questions related to representatives if customers stated field staff left CFLs at their doors.

- Account number
- Number of CFLs delivered
- Delivery date

The evaluation team verified participation by reviewing the account numbers, contact information, and CFL counts, and verified that the delivery dates fell within the PY6 program period.

4.3.1 Gross Impacts

The program produced total gross energy and demand savings, based on verified distribution of CFLs and deemed gross per unit values, of 6,736 MWh and 0.66 MW in its first year. Table 9 shows ex post gross savings results.

Table 9. PY6 Program Ex Post Gross Impacts

Measure	Reported Distribution*	Verified Distribution*	Per Unit Impact		Ex Post Gross Impacts[a]	
			kWh	MW	MWh	MW
60W replaced by 14W CFL	150,108	150,108	44.9	0.004	6,736	0.656

4.3.2 Net Impacts

The program produced total net energy and demand savings, based on verified distribution of CFLs anddeemed net per unit values, of 4,715 MWh and 0.46 MW. Table 10 shows the net savings results.

Table 10. PY6 Total Program Net Savings by Measure

Measure	Ex Ante Net Savings (MWh)	Ex Ante Net Savings (MW)	Ex Post Net Savings (MWh)	Ex Post Net Savings (MW)
60W replaced by 14W CFL	4,715	0.46	4,715	0.46

4.4 Conclusions and Recommendations

After a delayed start to community outreach, the PY6 Residential CFL Distribution Program successfully delivered 150,108 CFLs to participants in targeted geographic areas. The program also provided information on next steps for participants interested in pursuing other energy efficiency programs, though none of the surveyed respondents had yet pursued these programs. Participants expressed satisfaction with the professional demeanor of field representatives and with the information they received. While AIC does not currently plan to continue the program, the evaluation team developed the following recommendations for consideration if it is reinstituted in the future.

Continue to Use Postcards to Notify Customers of Future Communication

Participants reported the postcards sent in advance of the field visit influenced their decisions to speak with representatives. Fewer participants may have engaged with the program had the program not taken this action.

Consider Coordinating the Delivery of CFLs with Customer Schedules

The phone survey indicated that field representatives left most CFLs at the customer's door when they were not home, rather than providing them directly to the customer. Delivering CFLs when customers will more likely be home or coordinating delivery with customers' schedules may enable field representatives to achieve greater face-to-face contacts with customers. While coordinating schedules would likely increase program administrative costs, direct contact between AIC customers and field representatives could affect measure installation rates, as field representatives receive training to communicate the importance of installing the CFLs and to address concerns about the measures.

5. Inputs for Future Planning

The evaluation team collected data in PY6 to estimate CFL installation rates, free ridership, spillover, and an overall NTGR for the Residential CFL Distribution Program, as shown in Table 11. Appendix A provides additional information on the analysis completed to develop these estimates.

Table 11. CFL Distribution Future Planning Values

Measure	Year	ISR	Free Ridership	Spillover	NTGR
60W replaced by 14W CFL	Year 1	59%	0.48	0.15*	0.67
	Year 2	13%			
	Year 3	11%			
	Final	84%			

* We estimated spillover using the self-reported installed measures from sampled participants. Measures included two refrigerators, a water heater, a clothes washer, and a dehumidifier. As the clothes washer and water heater are most likely saving gas, we converted the spillover savings to btu in order to report it as a percentage. The sample spillover savings totaled 467 kWh and 50 therms. Assuming the sample is representative of the population results in total spillover of 106,253 kWh and 11,370 therms.

A. Appendix—Data Collection Instruments

AIC PY6 CFL Dist Interview Guide-2.p

Ameren Illinois CFL Survey_FINAL_08061

B. Appendix—Inputs for Future Planning

Based on participant data collected in PY6, the evaluation team estimated CFL installation rates, NTGR, and spillover for the Residential CFL Distribution Program for future planning purposes.

CFL Installation Rates

The evaluation team analyzed participant telephone surveys to assess installation rates. Questions asked participants to identify how many CFLs, received from representatives, they installed in their homes at the time of the survey. Based on 63 responding participants, the evaluation team estimated an average of three CFLs installed per home, for a 49% installation rate at the time of the survey's completion.

For participants who reported not installing any of the CFLs provided, the survey asked why they chose not to do so. Six of these 16 participants stated they planned to install the CFLs later. Ten of the 16 participants indicated that they would not install the bulbs and provided the following rationale:

- Already have efficient lighting installed (six respondents)
- Safety concerns (one respondent)
- Misplaced the CFLs (one respondent)
- No reason not to install (two respondents)

Based on these 10 respondents, the evaluation team estimated that, of 70 surveyed participants, 14.3% would never install CFLs provided through the program. The evaluation used this value to reduce the final lifetime in-service rate provided in the TRM, from 98.8% total CFLs installed to 84.5%. The evaluation team then distributed the final lifetime in-service rate of 84.5% across the 3 years, in proportion to installation rates estimated in the TRM. Table 12 provides the resulting projected installation rates for future application.

Table 12. CFL Distribution Projected In Service Rates

Measure	Year 1	Year 2	Year 3	Final Lifetime In-Service Rate
60W replaced by 14W CFL	59%	13%	11%	84%

PY6 NTG Research

CFL Free Ridership

The evaluation team based the assignment of free ridership ratios for direct-install CFLs on survey responses collected by field representatives. Free ridership ratios based on survey responses are assigned using a Bass curve based on diffusion of innovation product adoption concepts. Zero pre-installed CFLs correspond to an assigned free ridership score of 0% and 14 or more CFLs correspond to a free ridership level of 100%. This allows higher credit for savings to participants with the lowest pre-existing use of CFLs and lower savings to those with a history of CFLs. The inflection point of the curve is seven CFLs, which is the typical level of CFL penetration among these participants. Free ridership levels by CFL count shown in Table 13. This approach to estimating free ridership is consistent with the field of product adoption and diffusion research and represents a standard approach within the field of product adoption research. It also recognizes that the more CFLs a

home has, the less likely the addition of new AIC CFLs will have an impact on product adoption and use behaviors.

Table 13. CFL Pre-Installation Free Ridership Determined by Diffusion of Innovation Production Adoption

Number of Pre-Installed CFLs	Free Ridership Reinstallation	Number of Customers Reporting Pre-Installed CFLs
0	0%	87
1	0%	0
2	5%	68
3	10%	0
4	20%	83
5	30%	0
6	40%	110
7	50%	0
8	60%	71
9	70%	0
10	80%	162
11	90%	0
12	95%	0
13	98%	0
14 or more	100%	0

In addition to applying the pre-installation free ridership percentage, the evaluation team determined a planned-purchase free ridership percentage, based on respondents' reported intentions to purchase CFLs on their own if they had to pay full costs ($3.00 per bulb). Table 14 shows the percentages used in the analysis and the number of respondents in each category.

Table 14. CFL Planned-Purchase Free Ridership

On a scale of 0 to 10, where 0 is strongly disagree and 10 is strongly agree, how much do you agree with the following statement: "If I had not received the free CFLs from Ameren, I would have paid $3 per bulb, so $18 for the 6-pack of bulbs, to purchase the CFLs on my own."	Planned-Purchase Free Ridership	Number of Customers Responding
0	0%	59
1	10%	22
2	20%	39
3	30%	44
4	40%	27
5	50%	39
6	60%	18
7	70%	23
8	80%	41
9	90%	33
10	100%	215
Don't Know	50%	21

Table 15 cross-references the number of participants with free ridership results in Table 13 and Table 14. Using a weighted average, the evaluation team combined the pre-installation percentage with the planned-purchase percentages (shown in Table 13 and Table 14). Past actions (i.e., the pre-installation free ridership percentages) received twice as much weight as the planned action percentages (i.e., planned-purchase free ridership). From these per-participant weighted averages, the team calculated an overall average, weighted by across all 581 respondents. A 48% free ridership level resulted at ±8% absolute precision.

Table 15. Number of Participants Cross-Referenced by Pre-Installed CFLs and Planned-Purchase Free Ridership

Number of Pre-Installed CFLs	Free Ridership Pre-Installation	Participants with Pre-Installed CFLs	Number of Participants per Planned-Purchase Free Ridership											Average FR Planned-Purchase FR Score	
			0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%		
0	0%	87	26	6	5	7	1	15	1	0	2	4	20	43%	
2	5%	68	7	4	9	7	6	9	4	0	4	1	17	51%	
4	20%	83	5	3	7	5	7	8	5	5	7	5	26	63%	
6	40%	110	2	3	6	15	7	11	3	8	13	8	34	67%	
8	60%	71	4	2	5	5	3	6	2	6	6	9	23	68%	
10	80%	162	15	4	7	5	3	11	3	4	9	6	95	75%	
Avg Pre-Installed FR	**41%**	**(2/3) Weight**	**48%**									**(1/3) Weight**		**63%**	**Avg Planned-Purchase FR**
			^Final Freeridership Ratio for Program^												

CFL Spillover

To estimate spillover, the evaluation team used the participant phone surveys to ask participants about energy efficient actions taken since participating in the program. The team then asked respondents to rate the importance of receiving the free CFLs in relation to their decisions to purchase subsequent energy efficient equipment.

The evaluation team considered measures attributable to program spillover only if the respondent's answer to the question could be considered *important* (i.e., the highest rating of the four possible answers of important: *somewhat important*, *not too important*, and *not at all important*). To avoid double-counting savings already claimed by a concurrent program, the team eliminated responses indicating the respondent received an incentive through another AIC program.

Four survey respondents reported installing additional energy efficient measures where participation in the Residential CFL Distribution Program was *important* to their purchase decisions. The measures included a water heater, dehumidifier, clothes washer, and two refrigerators, each identified as ENERGY STAR.

The evaluation team applied deemed savings estimates consistent with the Illinois TRM to the water heater, dehumidifier, clothes washer, and two refrigerator measures, arriving at total survey sample spillover savings. By converting program and spillover savings to BTUs, the team could combine gas and electric savings to create a spillover percentage applied to electric savings.

The analysis then divided the sample spillover savings by the program gross savings derived from the survey sample, as follows:

$$Spillover\ \% = \frac{\sum[Spillover\ measure\ BTU\ savings\ for\ all\ survey\ respondents]}{\sum[Gross\ program\ measure\ BTU\ \ for\ all\ survey\ respondents]}$$

This yielded a program-level spillover estimate of 15%[3]. While our approach used a standard spillover battery of questions consistent with other programs, we are uncertain whether this program provided education and energy efficiency that would result in this type of spillover. Additional process evaluation that was outside the budget and scope of this evaluation would be required to confirm the likelihood of this level of spillover. As a result, these results are uncertain.

[3] * We estimated spillover using the self-reported installed measures from sampled participants. Measures included two refrigerators, a water heater, a clothes washer, and a dehumidifier. As the clothes washer and water heater are most likely saving gas, we converted the spillover savings to btu in order to report it as a percentage. The sample spillover savings totaled 467 kWh and 50 therms. Assuming the sample is representative of the population, results in total spillover of 106,253 kWh and 11,370 therms.

Table 16 presents the details.

Table 16. Participant Spillover Analysis

Program Measure	Sample Spillover Savings (kwh or therms)	Program Spillover Savings* (kWh or therms)	Participant Spillover BTU Savings	Total Survey Sample Program BTU Savings	Spillover
ENERGY STAR Water Heater (therms)	46.8	10,647	4,678,883	43,178,026	15%
ENERGY STAR Dehumidifier (kWh)	183	41,634	624,422		
ENERGY STAR Clothes Washer (therms)	3.18	723	317,675		
ENERGY STAR Refrigerator (kWh)	142	32,310	484,573		
ENERGY STAR Refrigerator (kWh)	142	32,310	484,573		
All		**106,253 kWh 11,370 therms**	**6,590,126**	**43,178,026**	**15%**

* We estimated total program spillover by multiplying the sample spillover savings by the number of program participants (25,026) and then dividing by the survey sample participants (110 – 41 of which did not fully complete the survey because they did not remember receiving the CFLs.

Combining free ridership of 48% with spillover of 15% resulted in a program NTGR of 67%.

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