Lighting and Appliance Evaluation – PY 2

Prepared for
Ameren Illinois

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1. Executive Summary

The Ameren Illinois Appliance Lighting and Appliance Program (L&A Program or program) offers upstream discounts on CFLs and rebates on dehumidifiers, room air conditioners, and ceiling fans. The Cadmus Group Inc's (Cadmus') evaluation of program year 2 (PY2) consisted of the seven primary tasks displayed in Table ES-1.

Table ES-1. Summary of Evaluation Approach (PY2)

Action	Impact	Process	Details
CFL User Survey	)	)	Lighting: Used for estimating CFL awareness, sales, and saturation.
Participant Retail Store Sales Analysis	)		Lighting and Appliances: Provides an unbiased assessment of program sales from database tracking .
Retailer and Manufacturer Interviews	)	)	Lighting: Supplier self-reported estimates of NTG, review program approach and opportunities for improvement.
Engineering Estimates of Appliance Savings	)		Appliances: Based on rebate applications and secondary research.
Stakeholder Interviews		)	Lighting and Appliances: Understand program approach and identify opportunities for improvement.
Secondary Program Research	)		Lighting: To gather information on hours-of-use correlated with CFL saturations, delta watts and NTG ratios seen elsewhere. Appliances: To gather information on NTG results seen elsewhere and evaluate default savings estimates.
Program Document Review		)	Lighting and Appliances: Understand program approach and identify opportunities for improvement.
Multistate Analysis	)		Lighting NTG Analysis and Benchmarking

The program encourages the purchase of high-efficiency lighting products, such as compact fluorescent lamps (CFLs) and ENERGY STAR®-rated dehumidifiers, ceiling fans, and room air conditioners. The lighting portion of the program is implemented through upstream buy-downs to manufacturers, marketed through retail stores at the customer's point-of-purchase (POP) and an online store that sells discounted CFLs. A variety of lights are discounted through the program, with an average incentive of $1.04 for standard, twister-type CFLs and $1.86 for specialty bulbs (such as flood lights, candle lights, three-way bulbs, etc.). The appliance portion of the program is incented through mail-in rebates. The program increased CFL sales over PY1 and successfully added appliance rebates during PY2. Gross savings were higher in PY2 than PY1. Table ES-2 summarizes the program's gross savings for PY2 and compares results to PY1.

Table ES-2. Program Gross Savings

Product	Total Program Sales	Realized Gross Energy Savings (kWh)	Realized Gross Demand Savings (kW)
Ceiling Fan	236	20,532	1.55
Room Air Conditioner	1,922	172,980	132.62
Dehumidifier	8,994	1,708,860	629.58
CFLs – PY2	1,004,338	38,451,904	2,153.31
Total - PY2	1,015,490	40,350,187	2,916.83
Total (CFLs) - PY1	815,403	32,631,000	1,840

Table ES-3 summarizes the program's *ex ante* gross savings, realized gross savings, and the realization rate. Cadmus calculated net savings using both the PY1 NTG ratio (prospective net savings) and the PY2 NTG ratio (retrospective net savings). Since appliances were not offered in PY1, the original default NTG values are used for those measures.

In PY1, Cadmus estimated the lighting NTG ratio based on comparing average CFL purchases per home in Ameren Illinois service territory to purchases in areas without CFL programs. An enhanced approach for this method is currently underway utilizing a statistical model involving ten program areas and four areas without programs. CFL User Survey data collected in all 14 areas plus site visit counts of installed CFLs are model inputs. The NTG estimate based on this approach is expected to be completed in January, 2011. Cadmus also evaluated NTG using a supplier interview approach. We interviewed program suppliers (both retailers and manufacturers) as well as non-participant retailers to gather opinions on how the program and Ameren Illinois' general marketing and advertising impacted sales during PY2. This NTG estimation approach was complete in November, 2010, and is discussed in a separate NTG Addendum.

Table ES-3. *Ex Ante* Gross Savings, Realized Savings, and Net Savings

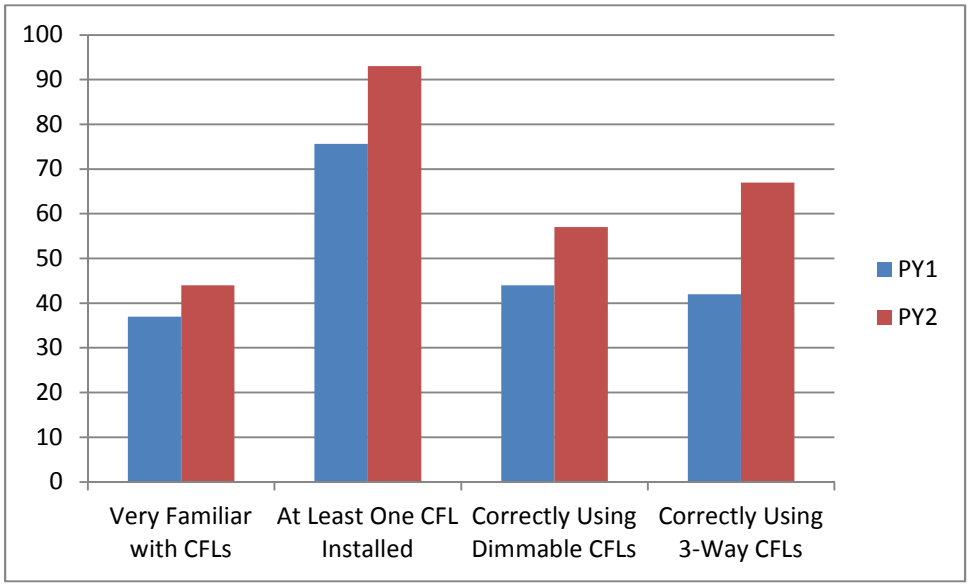
Measure	Ex Ante Gross Savings (kWh)	Realized Gross Savings (kWh)	Realization Rate	PY1 NTGR	Prospective Net Savings (kWh)	PY2 NTGR	Retrospective Net Savings (kWh)
Ceiling Fan	18,880	20,532	1.088	0.76	15,604	0.76	15,604
Room Air Conditioner	499,720	172,980	0.350	0.76	131,465	0.76	131,465
Dehumidifier	2,428,380	1,708,860	0.700	0.76	1,298,734	0.76	1,298,734
CFLs – PY2	41,032,887	38,451,904	0.937	1.00	38,451,904	TBD*	TBD
Total - PY2	43,727,443	40,350,187	0.923	0.99	39,946,685	TBD	TBD

* As discussed in the NTG Addendum, PY2 NTG based on Supplier Interviews was estimated to be 0.91, which would result in Retrospective Net Savings for CFLs-PY2 of 3,991,233 kWh, a Total PY2 NTG of 0.90, and Total PY2 Retrospective Net Savings of 36,437,036. Final resulting NTG and retrospective savings for the program year are dependent on all NTG analysis including the Multistate Analysis anticipated in January 2011.

The evaluation results show that Ameren Illinois's program is helping to transform the market; as the random survey of 502 of Ameren Illinois customers showed that those who are "very familiar" with CFLs has increased to 44 percent in PY2 versus 37 percent in PY1. Also, 93 percent of Ameren Illinois customers now have at least one CFL installed in their home, compared to 75.6 percent in PY1. Both of these findings were statistically significant at the 90 percent confidence level.

Ameren Illinois made efforts in PY2 to deepen customer's knowledge of CFLs. One recommendation made in PY1 was to educate customers on the importance of using the appropriate specialty CFLs in corresponding fixtures. Based on our PY2 telephone survey, 57 percent of those with CFLs in dimmable fixtures are using dimmable CFLs, up from 44 percent in PY1. Likewise, the percentage of respondents who incorrectly used regular CFLs in 3-way fixtures decreased from 58 percent in PY1 to 33.3 percent in PY2. Numerous trainings and store events were performed by Applied Proactive Technologies (APT). Figure ES-1 below illustrates the market changes from PY1 to PY2.

Figure ES-1. PY1 to PY2 CFL Market Changes



While more consumers are using CFLs, their satisfaction with CFLs in general dropped since PY1, and those concerned about the CFL use increased from 12 percent to 20 percent. Noted concerns are mercury content, fire hazards, lack of brightness, delayed start of bulb, short life span, ease of breakage, proper fit in fixtures, limited functionality in cold weather, and aesthetic concerns.

Retailers and manufacturers seemed pleased with the program and all indicated seeing definite sales increases due to the buy downs. One noted concern was the "on" and "off" nature of the incentives, which Ameren Illinois occasionally adjusts based on its budget progress. Stakeholders acknowledged that their regular meetings were used to determine which CFL incentives to turn "on" or "off" depending on Ameren Illinois budget. In particular, incentives on multiple bulb packages might be turned "off" when Ameren Illinois was nearing its budget limit. Stakeholders also reported that they originally tried to encourage mostly specialty CFL purchases by limiting the standard spiral incentives in the early months of PY2 to only single-packs. Consumer participation fell, so Ameren Illinois added the multi-pack spiral CFLs back in to ensure total CFL sales were robust. The share of specialty CFLs to the total bulb sales was approximately the same, at 17 to 18 percent of total sales for both years,

Recommendations

- ***Incorporate evaluation requirements into corporate retailer/manufacturer MOUs:*** Corporate retailers and manufacturers are not always cooperative in responding to interview requests and providing information on their CFL sales levels needed to calculate NTG ratios. Manufacturers in particular were unwilling to report their overall sales levels of CFLs and the share of sales that are program bulbs. Several corporate retailer contacts were unwilling to schedule an interview at all. Making it a requirement that suppliers cooperate with evaluation approaches will help ensure future evaluations' integrity.

- ***Continue focusing on consumer education.*** As reported by APT, store events and trainings have been effective in increasing consumer awareness and education about CFLs. Evidence of increases in those "very familiar" with CFLs is indicative of this effort, as is th***e reduction in consumers who improperly*** put standard CFLs in specialty fixtures. Cadmus recommends continuing to focus on education around bulb selection, color and mercury content, as well as the benefits of CFLs.
- ***Hire additional field staff for store education events.*** The number of retailers selling CFLs has increased considerably since PY1, and more retailers are expected to become involved for PY3. Stakeholders suggest that store events have been key drivers towards the education and sales of CFLs. Ameren Illinois needs to support these retailers with an increased numbers of field representatives to be able to maintain quality control and offer store events to keep up with increased goals for PY3. While participating stores increased from 122 to over 600 (including appliance retailers) from PY1 to PY2, the number of field representatives stayed the same.
- ***Improve visibility of store marketing materials.*** Ameren Illinois and its implementation contractors indicated that they are changing their signage to include splashes of red, which will make them stand out and be more visible. Cadmus agrees with this proposed change.
- ***Ameren Illinois should continue to promote proper disposal of CFLs, and consider offering a discount coupon for customers to recycle their CFLs at a local participating retailer***. Even with Ameren Illinois' efforts to educate and offer recycling options, the majority of respondents who had disposed of CFLs had done so by throwing them in the trash. The CFL survey also confirmed that the mercury content is becoming of greater concern among CFL users. Recycling incentives could be a future option to address an important potential CFL barrier.
- ***Expand the appliance program***. In order to meet the PY3 savings goals, Ameren Illinois will need to increase the number of appliances for which it offers incentives. Rather than replacing weather-dependent appliances with non-weather dependent appliances, Cadmus recommends leaving existing appliances (as long as they are cost-effective) and adding additional cost-effective appliances.
- ***Track appliance-specific data in database.*** While Ameren Illinois tracked the number of appliances sold in PY2 through the database, specifics such as size or efficiency levels were not documented. Cadmus was able to obtain some specific additional data on appliances sold after the fact; however, these data were not available for every appliance sold. We recommend incorporating appliance size and efficiency levels directly into the data tracking system.

2. Introduction

Program Description

The Residential Lighting and Appliance Program encourages the purchase of high-efficiency lighting products, such as compact fluorescent lamps (CFLs) and ENERGY STAR®-rated dehumidifiers, ceiling fans, and room air conditioners. The lighting portion of the program is implemented through upstream buy-downs to manufacturers, marketed through retail stores at the customer's point-of-purchase (POP) and includes an online store that sells discounted CFLs. A variety of lights are discounted through the program, with an average incentive of $1.04 for standard, twister-type CFLs and $1.86 for specialty bulbs (such as flood lights, candle lights, three-way bulbs, etc.). The appliance portion of the program is incented through mail-in rebates in the amounts listed in Table 1.

Table 1. Appliance Rebate Amounts

Appliance Type	Rebate
Ceiling Fan	$20
Dehumidifier	$25
Room Air Conditioner	$35

This report covers the program's second year (PY2).

Ameren Illinois launched the program in August 2008, and quickly ramped up to sell CFLs through 122 retail outlets and an online retailer. Since then, Ameren Illinois added more stores, and now has over 200 retailers selling program CFLs, and close to 400 retailers selling program appliances (added in PY2). The program also provided branded POP materials and customer and retailer education materials, offered in-store customer educational events, and trained retail sales staff. The Company offered general advertising through billboards, television and radio ads, and bill stuffers.

Ameren Illinois hired Conservation Services Group (CSG) as its overall implementation contractor for the residential program portfolio, including for the lighting and appliance (L&A) program. In turn, CSG subcontracted some of the L&A program activities to APT and Energy Federation Incorporated (EFI). APT's responsibilities include all program fieldwork:

- Negotiating Memorandums of Understanding (MOU's) with retailers and manufacturers;
- Training retail store employees;
- Developing point of sale materials and ensuring proper placement in retail stores;
- Monitoring and adjusting the MOUs; and
- Conducting lighting clinics for retail store customers.

EFI runs the CFL catalog and Internet order fulfillment process, reviews and pays qualified rebates, and tracks and pays incentives to manufacturers on CSG's behalf.

Evaluation Questions

Cadmus' evaluation of the L&A program's PY2 sought to answer the following key questions:

Impact Questions

1. What are the program's gross energy and demand savings?
2. What are the program's net energy and demand savings?
3. What are the market effects associated with program activities?

Process Questions

1. Has the program design changed from PY1? If so, how, why, and were the changes advantageous?
2. How effective were program implementation, design and processes, and marketing efforts?
3. What are retailer and manufacturer experiences and satisfaction with the program?
4. What were program staff experiences and satisfaction with the program?
5. What were customers' perceptions of CFLs and any issues associated with CFL use?

3. Evaluation Methods

Analytical Methods

The research activities that informed this evaluation are summarized in Table 2. This chapter contains a description of each major task and data source, and Chapter 4 outlines the analysis results.

Table 2. Summary of Evaluation Approach (PY2)

Action	Impact	Process	Details
CFL User Survey	)	)	Lighting: Used for estimating CFL awareness, sales, and saturation.
Participant Retail Store Sales Analysis	)		Lighting and Appliances: Provides an unbiased assessment of program sales from database tracking.
Retailer and Manufacturer Interviews	)	)	Lighting: Supplier self-reported estimates of NTG, review program approach and opportunities for improvement.
Engineering Estimates of Appliance Savings	)		Appliances: Based on rebate applications and secondary research.
Stakeholder Interviews		)	Lighting and Appliances: Understand program approach and identify opportunities for improvement.
Secondary Program Research	)		Lighting: To gather information on hours-of-use correlated with CFL saturations. Appliances: To gather information on NTG results seen elsewhere and evaluate default savings estimates.
Program Document Review		)	Lighting and Appliances: Understand program approach and identify opportunities for improvement.
Multistate Analysis	)		Lighting NTG Analysis and Benchmarking

CFL User Survey

Cadmus developed a residential customer telephone survey to estimate a number of important progress indicators, including:

- ***CFL Awareness***. These questions gathered data on the respondents awareness and familiarity with both standard and specialty CFL bulbs.
- ***CFL Satisfaction***. This section asked about participants' satisfaction with CFLs, including reasons for dissatisfaction.
- ***CFL Purchasing***. The questions focused on whether customers had purchased CFLs in the last six months and how many of those were installed, where they typically purchase CFLs and other lights, and how many CFLs are currently installed in their home.
- ***Concerns and Removal Rates of CFLs***. Questions in this section gathered information on customer concerns about CFL bulbs and what they did with bulbs no longer in use.
- ***Demographics***. This section captured household and respondent characteristics, including income, age, home type, home square-footage, and energy expenditures.

The CFL User Survey closely replicates the survey used in PY1 in order to track program market effects over time and these results are reported herein. Results from this survey will also be used as part of a multistate analysis in which these survey responses will be used as independent

variables in a statistical regression model, including same responses from participants in 13 other regions of the country. In addition, the survey will provide the opportunity for cross-sectional analysis, comparing Ameren Illinois' results to other areas of the country – to be complete in January 2011. The CFL User Survey is included in Appendix A.

Participant Store Retail Sales Analysis.

CSG tracks retail sales of incented CFLs in a database. Data from rebate applications for appliances are also tracked. These files tie payment requests to identified transactions and track:

- Program activity by product or product type
- Program activity on an aggregated basis of products rebated and dollars spent
- Program activity by various identified components (e.g., by product, by store chain, by manufacturer, by month)
- Ameren Illinois' estimated energy and demand savings

Cadmus reviewed the energy and demand savings assumptions in the database, and summarized and analyzed the transactions to compute relevant totals for PY2.

Lighting Retailer and Manufacturer Interviews

Lighting Retailer and Manufacturer Interviews form the basis for one estimate for PY2. Interview questions regarding estimated changes in CFL sales due to the program, the share of CFLs sold through the program, and total CFL sales overall are used to estimate NTG. In addition, the 15 participating retailers and manufacturers were asked about changes in customer awareness, stocking, and sales trends for CFLs, compared to one year ago. The Retailer Interview Guide is included in Appendix C and the Manufacturer Interview Guide is included in Appendix D.

Engineering Estimate of Appliance Savings

Cadmus independently developed engineering estimates of appliance savings for use in determining program impacts. The ENERGY STAR calculator was used to estimate savings using Peoria, Illinois as the reference location.

Stakeholder Interviews

To assess the program's effectiveness and implementation, Cadmus conducted interviews with a five stakeholders intimately familiar with the program. The five stakeholders came from Ameren Illinois, APT, CSG, and EFI. Details regarding interviewed stakeholders are provided in Table 3. The Stakeholder Interview Guide is included in Appendix B.

Table 3. Stakeholder Interviewees

Title	Organization
Energy Efficiency Advisor	Ameren Illinois
Program Manager, Residential Lighting & Appliances	APT
Director of Operations	APT
Program Director	CSG
President	EFI

Stakeholder interviews were conducted utilizing interview guides aimed at discussing the program's design, implementation and delivery, marketing efforts, implementation barriers, and communication.

Information obtained from stakeholders was used to inform the following evaluation elements:

- Determination of program progress
- Identification of changes during implementation
- Assessment of program marketing

Secondary Program Research

Cadmus also performed secondary research regarding net-to-gross (NTG) estimates for similar appliance rebate programs of room air conditioners, dehumidifiers, and ceiling fans. We contacted utilities currently offering programs, and searched through industry evaluation databases and conference papers for documentable evaluation results.

For lighting, Cadmus reviewed hours of use estimates and delta watts from other utility evaluation programs involving site visits and metering to inform future projected savings.

Program Document Review

Cadmus reviewed program documents consisting of rebate applications and marketing materials. We also reviewed APT's monthly activity reports, which provided an ongoing understanding of marketing and training events as well as progress in signing up participating retailers.

Multistate Analysis

The multistate analysis is a statistical regression analysis used to calculate NTG results by predicting the program's effect on net sales. After capturing CFL purchases and installations through the CFL User Survey and follow-up site visits from Ameren Illinois and thirteen other program and non-program areas of the United States, we will develop a regression model to predict CFL purchases while controlling for factors impacting CFL sales, such as income, education, home ownership, size of home, electricity rates, and the presence of big-box stores. The regression model isolates the program's effect on sales and establishes a modeled baseline of CFL purchases in the program's absence. The "lift" in purchases, as indicated by the program variable, is the effect attributable to program activities. This evaluation approach required the coordination of nine other utility groups to ensure consistent data collection and coordinated site

visits. The final output will include a benchmark comparison of the ten different utility programs involved. We anticipate availability of the results in January 2011.

Data Sources

The following data sources informed the impact and process evaluation:

- Final PY2 program database (provided by CSG)
- Information gathered through the CFL User Survey
- Information gathered through stakeholder interviews
- Information gathered through retailer and manufacturer interviews
- ENERGY STAR® Savings Calculator for Room Air Conditioning, Ceiling Fans, and Dehumidifiers[1]
- Marketing and informational materials (provided by Ameren Illinois)
- Monthly reports (provided by APT)

Sampling Plan

The following text details the sampling plan for the CFL User Survey and the Retailer and Manufacturer Surveys.

CFL User Survey

A total of 502 surveys were conducted in July 2010 by Tetra Tech Inc., a subcontractor to Cadmus, with randomly selected Ameren Illinois residential customers which included both purchasers and non-purchasers of CFLs. Of the 502 households that participated in the survey 353 (~70 percent) reported they had purchased CFL's during the previous six months (January – June 2010). The sample was designed achieve a precision level of at least ±5 percent at the 95 percent confidence. The other requirement was to recruit and schedule 100 households for site visits for the PY3 evaluation. Contacts were attempted with a total sample of 1,692 residential customers. Of those, 305 were not contacted because their telephone numbers did not work (see Table 4). Surveys were completed with 502 of the 1,692 households, resulting in a cooperation rate of 36.2 percent. For comparison purposes, the distribution of PY1 surveys are comparison states are also shown.

[1] http://www.energystar.gov/ia/business/bulk_purchasing/bpsavings_calc/CalculatorConsumerRoomAC.xls

Table 4. Final Distribution of Telephone Surveys

Disposition	Completes	Recruited for Site Visit	Hard Refusal	Non Working Number
Ameren Illinois – PY2				
Unaware	110	136	198	305
Non Purchaser	159			
Non User	27			
6-month Purchaser	353			
All	502			
Ameren Illinois - PY1				
Unaware	9	N/A	220	167
Non-Purchaser	66			
Non-User	71			
6 mo CFL Purchaser	109			
All	309			
Kansas - PY1*				
Unaware	28	175	824	860
Non-Purchaser	106			
Non-User	103			
3 mo CFL Purchaser	106			
All	525			
Pennsylvania - PY1				
Unaware	45	227	1042	639
Non-Purchaser	131			
Non-User	136			
3 mo CFL Purchaser	103			
All	653			
Georgia - PY1				
Unaware	53	203	1303	1585
Non-Purchaser	118			
Non-User	122			
3 mo CFL Purchaser	97			
All	579			

* PY2-comparison areas are different and will be discussed in the multistate study analysis.

Lighting Retailer and Manufacturer Interviews

Cadmus interviewed contacts at five retailers participating in the lighting program. For one of these retailers we interviewed a contact at the corporate level. For the other four retailers we interviewed two randomly selected store level contacts for each, for a total of nine retailer interviews. These five retail chains accounted for 97 percent of Ameren Illinois retail sales. Cadmus also conducted interviews with the six manufacturers of bulbs offered by the program through those retailers. Table 5 identifies the retailers and manufacturers interviewed.

Table 5. Lighting Retailer and Manufacturers Interviewed

Company	Type
Feit	Manufacturer
TCP	Manufacturer
Sylvania	Manufacturer
GE, Sam's Club	Manufacturer
GE, Ace Hardware	Manufacturer
Philips Lighting	Manufacturer
Ace	Retailer
Sam's Club	Retailer
Home Depot	Retailer
Menard's	Retailer
Lowe's	Retailer

4. Program Results

Impact Findings

Impact evaluation findings are presented in the following five subsections, with each covering lighting and appliances separately:

1. Per unit savings
2. Summary of program sales
3. Determination of gross savings
4. Determination of net savings
5. Summary of market effects (lighting only)

Per Unit Savings

Lighting

Lighting per unit savings were deemed by the Illinois Commerce Commission in the Order for docket 07- 0539. These estimates were included in Ameren Illinois tracking database, and therefore gross savings are the sum of those per unit savings for program bulbs sold. Cadmus also independently estimated gross lighting savings; that discussion and associated results are in Appendix F.

Coincidence Factor. Cadmus prepared coincidence factors for lighting based on hourly end-use load shapes. These hourly end-use load shapes were developed from engineering models for the Midwestern region of the United States, which we then calibrated to long-term weather conditions in Ameren's service area. The lighting coincidence factor is 0.000056 kW/kWh saved.[2]

Table 6 summarizes gross ex ante kWh and kW savings for the lighting portion of the program.

Table 6. Lighting Energy and Demand Savings

Per Unit Energy Savings (kWh)[3]	Total *Ex Ante* Gross Energy Savings (kWh)	Per Unit Demand Savings *(kW)*	Total *Ex Ante* Demand Savings (kW)
40.86	41,032,887	0.0023	2398

Appliances

Cadmus independently estimated energy savings for each type of appliance and multiplied each appliance's estimate by the number of units sold through the rebate program. Given that appliances were planned to be a small percentage of overall program results, the majority of evaluation resources focused on lighting. Should this portion of the program grow over time, we

[2] The Cadmus Group: Ameren Illinois Utilities Portfolio Cost Effectiveness Evaluation, December 30, 2009
[3] Weighted average energy savings from lighting program tracking database.

would recommend more rigorous evaluation approaches. Our specific assumptions and estimations for each appliance are detailed in the following paragraphs.

Air Conditioner Savings. Gross per-unit energy savings for ENERGY STAR® room air conditioners were determined through an engineering analysis based on the ENERGY STAR® savings calculator for room air conditioning.[4] Using Peoria, Illinois as a reference city, energy savings were assumed to be equivalent to a full year of energy consumption with full load cooling hours of 948. The calculator used the average purchased EER value from the program of 10.55, replacing a standard efficiency of 9.56 EER (these values were the average reported in rebate applications). The size used to determine the energy savings estimates was a 11,212 BTU/hr unit (the average of reported purchases). Peak demand savings were based on Ameren Illinois' original default peak demand savings.[5] The demand savings were adjusted by using a ratio of updated energy savings divided by the originally proposed energy savings (0.2 kW x 104 kWh / 260 kWh = 0.08 kW). The energy and peak demand savings are shown in Table 7.

Table 7. Per-Unit Gross Savings for Room Air Conditioners

Appliance	Gross Energy Savings (kWh/Year)	Gross Coincident Demand Savings (kW)
Room Air Conditioner	104	.08

Dehumidifier Savings. Gross per-unit energy savings for ENERGY STAR® dehumidifiers were determined through an engineering analysis based on the ENERGY STAR® savings calculator for dehumidifiers.[6] Savings were assumed to equal a full year of energy consumption with operating hours of 1,620. The calculator assumed an ENERGY STAR® dehumidifier replacing a standard dehumidifier. The ENERGY STAR® savings calculator evaluates multiple different sizes for dehumidifiers, ranging from 1-25 pints per day to 75-185 pints per day. An energy savings result for each specific size was calculated and weights were used to determine one gross savings estimate. The per-unit gross energy savings and weights based on actual program purchases[7] are shown in Table 8.

Table 8. Per-Unit Gross Energy Savings and Weights by Size for Dehumidifier

Size	1-25 Pints/Day	25-35 Pints/Day	35-45 Pints/Day	45-54 Pints/Day	54-75 Pints/Day	75-185 Pints/Day
Energy Savings	54	117	213	297	185*	374
Weights	0.01%	20.77%	1.33%	51.64%	26.23%	.02%

*While this value may appear out-of-line compared to the others, it is a computation based on the difference between the Federal Standard efficiency and ENERGY STAR standard efficiency, which has a lower spread than other dehumidifier sizes.

4 http://www.energystar.gov/index.cfm?fuseaction=find_a_product.showProductGroup&pgw_code=AC

5 Ameren EE DR Plan Appendices 11.15.07

6 http://www.energystar.gov/index.cfm?fuseaction=find_a_product.showProductGroup&pgw_code=DE

7 Sizes were not available for all dehumidifiers purchased since this information was not tracked in the database. After the fact Cadmus attempted to match model numbers through the ENERGY STAR website, however some models had since been discontinued and information was not readily available. Cadmus used information on size from the available units (approximately 75%) to calculate the weighted average size of dehumidifiers sold.

Peak demand savings were based on the original default peak demand savings.[8] The demand savings were adjusted using a ratio of updated energy savings divided by the originally proposed energy savings (0.1 kW x 229 kWh / 270 kWh = 0.08 kW). The energy and peak demand savings are shown Table 9.

Table 9. Per-Unit Gross Savings for Dehumidifiers

Appliance	Gross Energy Savings (kWh/Year)	Gross Coincident Demand Savings (kW)
Dehumidifier	229	.08

Ceiling Fan Savings. Gross per-unit energy savings for ENERGY STAR® ceiling fans were determined through an engineering analysis based on the ENERGY STAR® savings calculator for ceiling fans.[9] Using East North Central[10] as a reference area, energy savings were assumed to equal a full year of energy consumption, accounting for both ceiling fan operation (more efficient blades and motors) and lighting upgrades. Based on actual program purchases, Cadmus assumed the ENERGY STAR® ceiling fan with an average of 1.4 light bulbs of 15.7 average wattage replaced a standard ceiling fan with the same amount of 60 W incandescent bulbs. Peak demand savings were based on Ameren Illinois' original peak demand savings.[11] The demand savings were adjusted by using a ratio of updated energy savings divided by the originally proposed energy savings (0.006 kW * 87 kWh / 80 kWh = 0.0066 kW). The energy and peak demand savings are shown in Table 10.

Table 10. Per-Unit Gross Savings for Ceiling Fans

Appliance	Gross Energy Savings (kWh/Year)	Gross Coincident Demand Savings (kW)
Ceiling Fans	87	.0066

Summary of Program Sales

Lighting

Total program sales amounted to 1,004,338 CFLs: 5,246 through the online stores and 999,092 through retailers. Program sales took place through 236 different retailers throughout Ameren Illinois' service territory. Table 11 summarizes the number of CFLs sold and incentives paid through the different retail channels.

Table 11. CFLs Sold and Incentives Paid by Retail Channel

Store	Qty Sold	Incentives $
Dollar Stores	893	$1,116

8 Ameren EE DR Plan Appendices 11.15.07

9 http://www.energystar.gov/index.cfm?fuseaction=find_a_product.showProductGroup&pgw_code=CF

10 The Website http://certs.lbl.gov/pdf/lbnl1092e-puc-reliability-data.pdf indicates Ameren Illinois territory is in the East North Central region.

11 Ameren EE DR Plan Appendices 11.15.07

Consumer Electronics	3,008	$5,063
Farm Supply	3,854	$3,853
Drug Store	7,240	$4,299
Hardware Store	13,047	$12,604
Grocery Store	13,926	$13,729
Warehouse	269,402	$ 334,598
DIY Big Box	687,722	$806,460
Total	**999,092**	**$1,181,721**

Of the many types of CFLs sold through the program, the top three selling models from June 2009 to May 2010 were TCP's 14 W four packs (283,240 bulbs or 70,810 packs sold); Feit's 13 W, mini EST13T/3/ECO three packs (151,974 bulbs or 50,618 packs sold); and GE's 13 W eight packs (160,576 bulbs or 16,876 packs sold). See Figure 1.

Figure 1. Top Ten Selling Program Bulbs

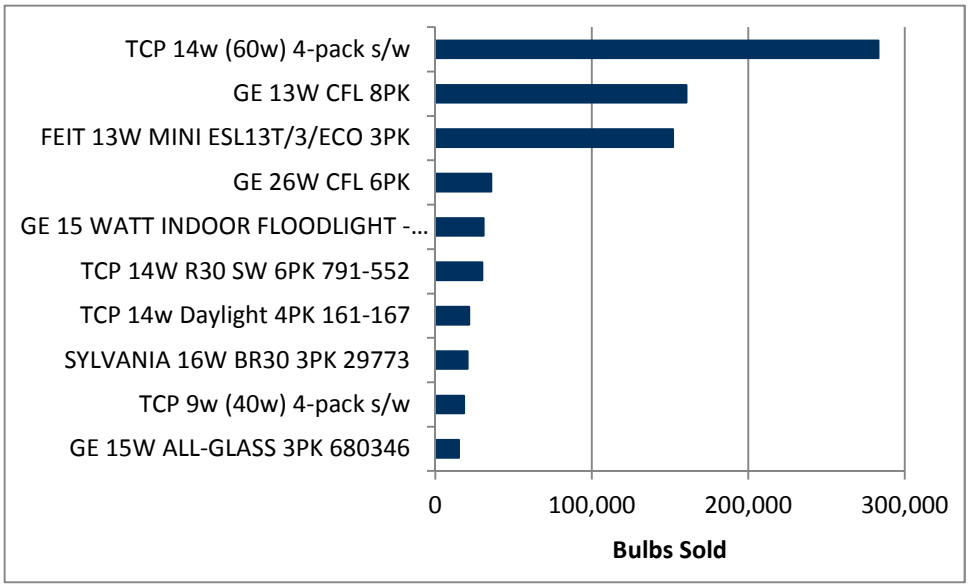


Figure 2 shows program CFL sales by month. Sales were relatively slow through September, 2009 picked up towards the end of 2009 and then dropped again after February 2010. According to program staff, Ameren Illinois focused its promotional efforts between October and January, when lighting sales already tend to be higher. Figure 3 shows the program's cumulative CFL sales.

Figure 2. CFL Sales by Program Month

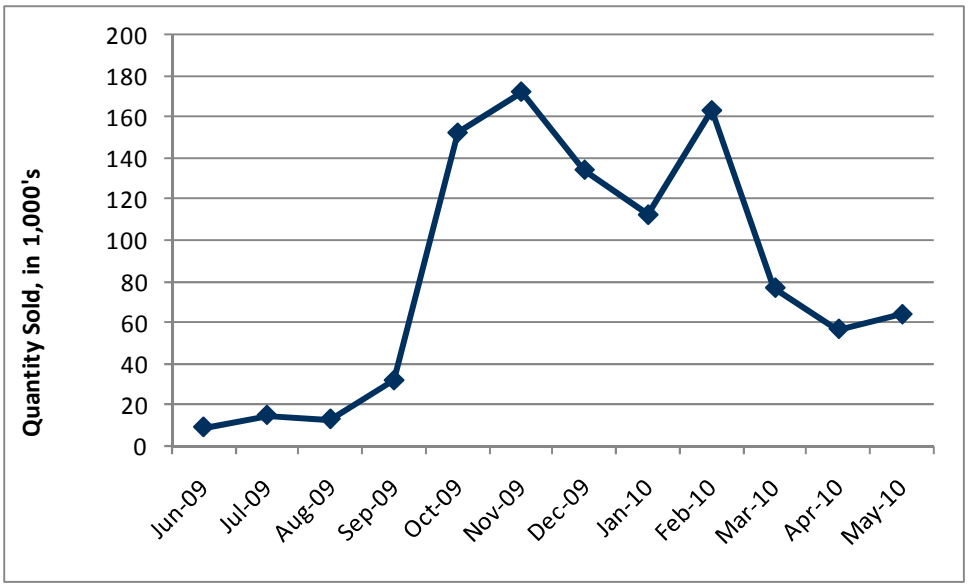
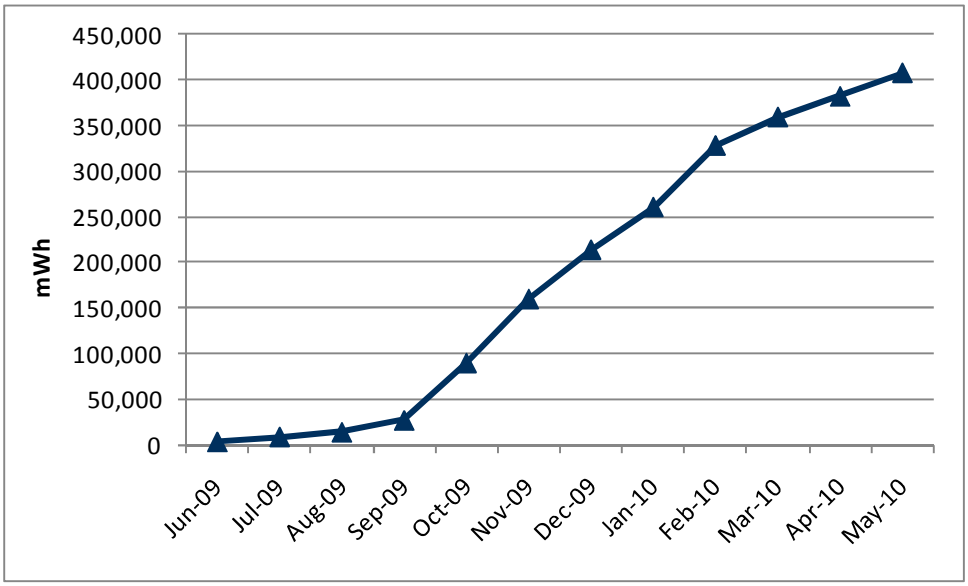


Figure 3. CFL Sales by Program Month (Cumulative)



As shown in Table 12, the majority of bulbs sold though the program were standard spiral bulbs. A total of 829,092 standard bulbs were sold, which accounts for approximately 83 percent of total bulb sales during the PY2 program year. Specialty bulbs accounted for approximately 17 percent of bulb sales for the program year, but represented a larger portion, 27 percent, of total incentives.

Table 12. Standard and Specialty Bulb Sales

Bulb Type	Qty Sold	Incentives $
Standard Bulbs	829,092	$865,040
Specialty Bulbs	175,246	$326,174
Grand Total	**1,004,338**	**$1,191,214**

Since the specialty bulb category encompasses a wide variety of bulb types, it is interesting to note the proportions within the specialty bulb grouping. Flood lights and spotlights account for 67 percent of total specialty bulb sales. A-lamps and globe-shaped bulbs represent the second largest categories, each accounting for approximately 15.6 percent of specialty bulb sales. The remaining bulb types collectively represent a meager 1.8 percent. The incentive percentages by bulb type are proportionately very similar to the bulb quantity percentages, see Table 13.

Table 13. Specialty Bulb Sales by Bulb Type

Specialty Bulb Type	Qty Sold	% of Total Bulbs	Incentives $	% of Total Incentives
3-Way Bulbs*	372	.21%	$663	.2%
A-Lamp Bulbs	27,362	15.61%	$50,877	15.6%
Bug Lights	16	.01%	$32	.01%
Candelabra Bulbs	434	.25%	$736	.23%
Dimmable Bulbs	1,224	.7%	$3,244	.99%
Fan Bulbs	1,018	.58%	$1,860	.57%
Globe Bulbs	27,346	15.6%	$41783	12.81%
Flood Lights and Spotlights	117,474	67.03%	$226,979	69.59%
Grand Total	**175,246**	**100%**	**$326,174**	**100%**

*Energy savings from 3-way bulbs are calculated based on the highest of the three wattage levels.

Appliances

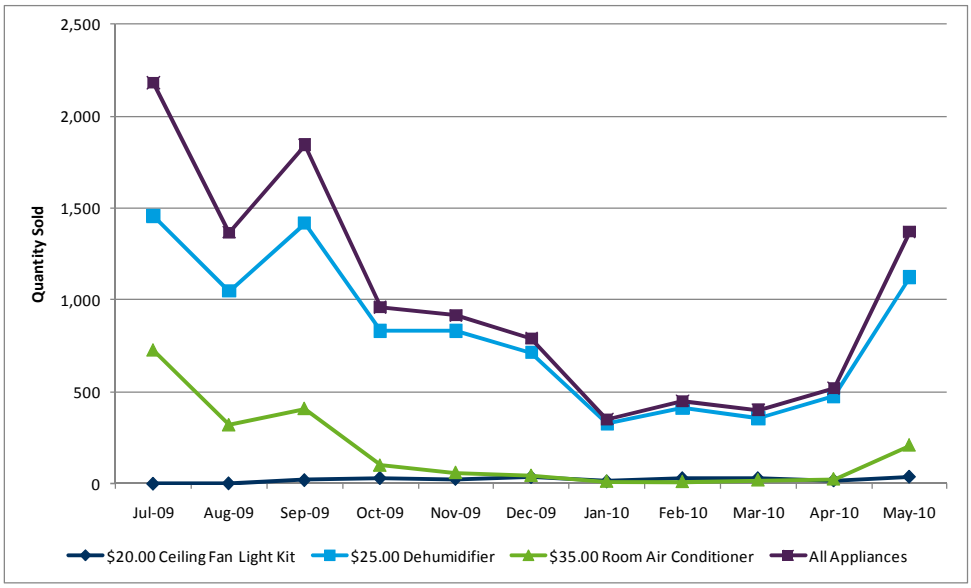
Total program sales equaled 11,152 appliances in PY2. Table 14 summarizes the number of appliances sold and amount of incentives paid by appliance type. Dehumidifiers were the highest selling appliance.

Table 14. Appliances Sold and Incentives Paid

Appliance	Qty Sold	Incentives $
$20.00 Ceiling Fan Light Kit	236	$4,720
$35.00 Room Air Conditioner	1,922	$67,270
$25.00 Dehumidifier	8,994	$224,850
Grand Total	**11,152**	**$296,840**

Figure 4 shows appliance sales by program month. Overall, sales decreased from July 2009 through January 2010. In April 2010, sales noticeably increased for both dehumidifiers and room AC. These sales patterns follow expectations, as sales of these appliances are largely weather-driven.

Figure 4. Appliance Sales by Program Month



Determination of Gross Savings

Lighting

Gross savings for lighting are determined from the following inputs:

- Average per-unit energy and demand savings
- Number of product sales
- Installation rate

Per-unit energy and demand savings, as well as product sales, were discussed in the previous two sections. Theoretically, installation rates should also be applied to the results. However, carrying over program sales from previous year's evaluation into future years requires continuous tracking and follow-up, which can be challenging if regulatory requirements and policies change over time. Therefore, Cadmus developed an installation rate adjustment to account for the difference in the present value of savings over the assumed nine-year life of a CFL. The installation rate adjustment was developed based on specific site visit data over a three year period in California,[12] which showed that within three years, 98 percent of CFLs are installed, and the remaining 2 percent do not get installed. Cadmus applied this same logic to Ameren Illinois' results by developing an algorithm to apply the rate at which installation occurs based on the initial year 1 installation rates.

According to this algorithm, 55 percent of those CFLs put into storage from year one are installed in year two, and 41 percent of those put into storage from year one are installed in year three. Applying this algorithm to Ameren Illinois, where the installation rate was 58 percent in

[12] KEMA, Inc., The Cadmus Group Inc., Itron, Inc., PA Consulting Group, Jai J. Mitchell Analytics, Draft Evaluation Report: Upstream Lighting Program. Prepared for the California Public Utilities Commission, Energy Division. December 10, 2009.

PY2, 55 percent of 42 percent - or 23 percent - are installed in year two, and 41 percent of 42 percent - or 17 percent - are installed in year three. Table 15 and Table 16 illustrate this approach and compares the net present value (NPV) of the CFLs savings (simplified by assuming savings equals the number of CFLs) over a nine year period. As shown, the difference is 6.3 percent. Therefore, Cadmus applied a 6.3 percent installation rate adjustment to gross savings.

Table 15. Expected CFL Installations from PY2 Program Bulbs

	Installation Rate	Bulbs
PY2 Bulbs Sold		1,004,338
PY2 Installation	58% of Bulbs Sold	589,546
Remaining Bulbs After PY2		414,792
PY3 Installation	55% of Remaining Bulbs After PY2	228,135
Remaining Bulbs After PY3		186,656
PY4 Installation	41% of Remaining Bulbs After PY2	170,065
Bulbs Never Installed		16,592
Total Installed	0.98	987,746

Table 16. Comparison of Actual Installation Impacts to Assumed First Year Installation

Scenario 1, Installation over 3 years					Scenario 2, Installation Assumed in 1st Year	Difference
	Year 1	Year 2	Year 3			
NPV				5,641,096	6,021,254	6.3%*
1	582,516			582,516	1,004,338	
2	582,516	232,002		814,518	1,004,338	
3	582,516	232,002	172,947	987,465	1,004,338	
4	582,516	232,002	172,947	987,465	1,004,338	
5	582,516	232,002	172,947	987,465	1,004,338	
6	582,516	232,002	172,947	987,465	1,004,338	
7	582,516	232,002	172,947	987,465	1,004,338	
8	582,516	232,002	172,947	987,465	1,004,338	
9	582,516	232,002	172,947	987,465	1,004,338	
10		232,002	172,947	404,949	0	
11			172,947	172,947	0	

*Calculated at 9% discount rate.

Realized gross energy savings are equal to per-unit energy savings multiplied by the number of sales and one minus the installation rate adjustment. Table 17 shows these results.

Table 17. PY-2 Gross and Realized CFL Savings

Number Sold	Gross Per Unit Energy Savings	Gross Per Unit Demand Savings	*Ex Ante* Gross Energy Saved (kWh)	*Ex Ante* Gross Demand Saved (kW)	Realized Gross Energy Saved (kWh)	Realized Gross Demand Saved (kW)
1,004,338	40.86	0.0023	41,037,251	2298	38,451,904	2153

Appliances

Gross savings for appliances are determined from the following inputs:

- Average per-unit energy and demand savings
- Number of product sales

Table 18 illustrates the results for each of the appliances.

Table 18. Gross Energy and Demand Savings, Appliances

Appliance	Number Sold	Gross Per Unit Energy Savings	Gross Per Unit Demand Savings	Gross Energy Saved (kWh)	Gross Demand Saved (kW)
Ceiling Fan	236	87	0.0066	20,532	1.55
Room AC	1,922	90	0.069	172,980	132.62
Dehumidifier	8,994	190	0.07	1,708,860	629.58
Total	**11,152**			**1,902,372**	**763.75**

Determination of Net Savings

Lighting

As discussed earlier, Cadmus' lighting NTG analysis is still underway utilizing two methods: 1) supplier interviews, which were completed in November and are discussed in a separate memo entitled NTG Addendum, and 2) a multistate regression model, to be complete by the end of January, 2011.

Appliances

To estimate the NTG ratio for appliances, Cadmus first performed secondary research to identify other rebate programs for dehumidifiers, ceiling fans, and room air conditioners. We found information on these specific rebate programs to be scarce. Room air conditioner rebates were

evaluated in California for the 2006-2008 time period,[13] and NTG ratios ranged from .26 to .48 depending on the year and specific utility. Cape Light Compact reported a NTG ratio of 1.0 for a similar program.[14] Cape Light Compact also reported a NTG ratio of 1.0 for dehumidifier rebates. The only ceiling fan program found was Hydro Ottawa, which reported freeridership of 45 percent.[15]

Since the secondary research yielded such limited data, and since the evaluation budget was allocated to the CFL portion of the program due to its much larger impacts, Cadmus recommends not changing the default assumption, and used an NTG ratio of .76 for appliance rebates.

Impact Evaluation Summary

A summary of PY2 per-unit gross energy savings, along with program participation and total program gross energy (kWh) and demand (kW) savings, is provided in Table 19. To facilitate comparison between the first and second years of program implementation, the table also shows the results for CFLs from the PY1 evaluation.

Table 19. PY2 Evaluated Participation and Gross Savings

Product	Total Program Sales	Realized Gross Energy Savings (kWh)	Realized Gross Demand Savings (kW)
Ceiling Fan	236	20,532	1.55
Room Air Conditioner	1,922	172,980	132.62
Dehumidifier	8,994	1,708,860	629.58
CFLs – PY2	1,004,338	38,451,904	2,153.31
Total - PY2	**1,015,490**	**40,350,187**	**2,916.83**
Total (CFLs) - PY1	**815,403**	**32,631,000**	**1,840**

PY2 showed an increase in CFL sales over PY1, plus a nominal amount of appliance sales.

Market Effects

Comparison of PY2 to PY1

Another measure of program effectiveness is whether or not market transformation is occurring. Cadmus tracked progress of market transformation by comparing certain PY2 telephone survey results to PY1 results. To fully understand program effects (above and beyond what would happen without the program) we would also need to compare results to areas without programs. This type of analysis will be performed in PY3; however, the following analysis is indicative of market changes - whether they are due to the program or not. Survey responses were tested for

[13] The Cadmus Group Inc., et al., Residential Retrofit High Impact Measure Report, prepared for the California Public Utilities Commission. February 8, 2010.

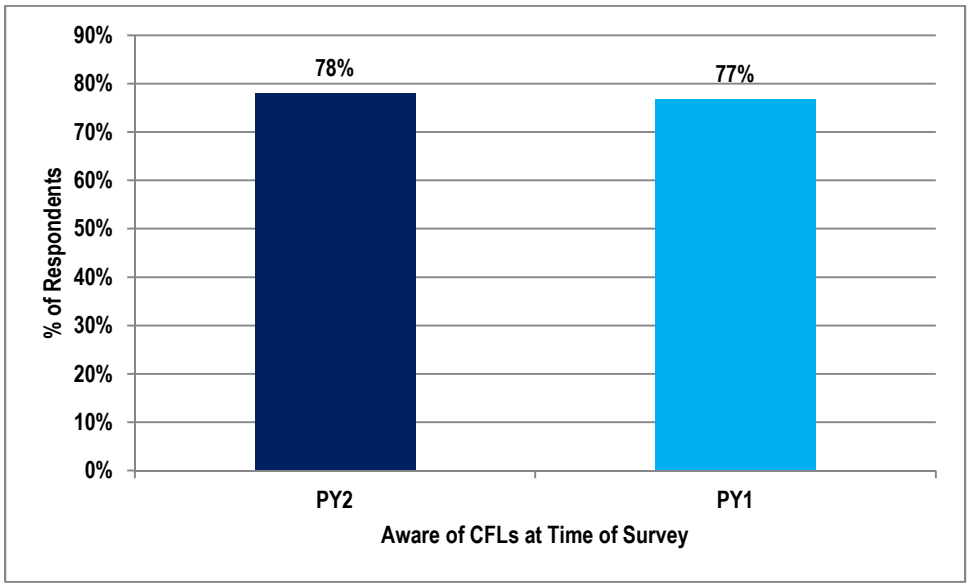
[14] Cape Light Compact, Annual Report on Energy Efficiency Activities, 2006.

[15] Navigant Consulting, Final Evaluation Report, Every Kilowatt Counts Program.

statistical significance at the 90 percent confidence level[16] and these results are reported throughout this section.

The Ameren Illinois PY2 CFL telephone survey asked a series of questions to assess customer familiarity with and experience using CFLs. These results were compared to results of the PY1 CFL telephone survey. Both data sets were unweighted, as the survey was conducted of a random population of customers. Figure 5 illustrates that CFL awareness is essentially the same in PY2 as it was in PY1.

Figure 5. CFL Awareness* – PY2 and PY1

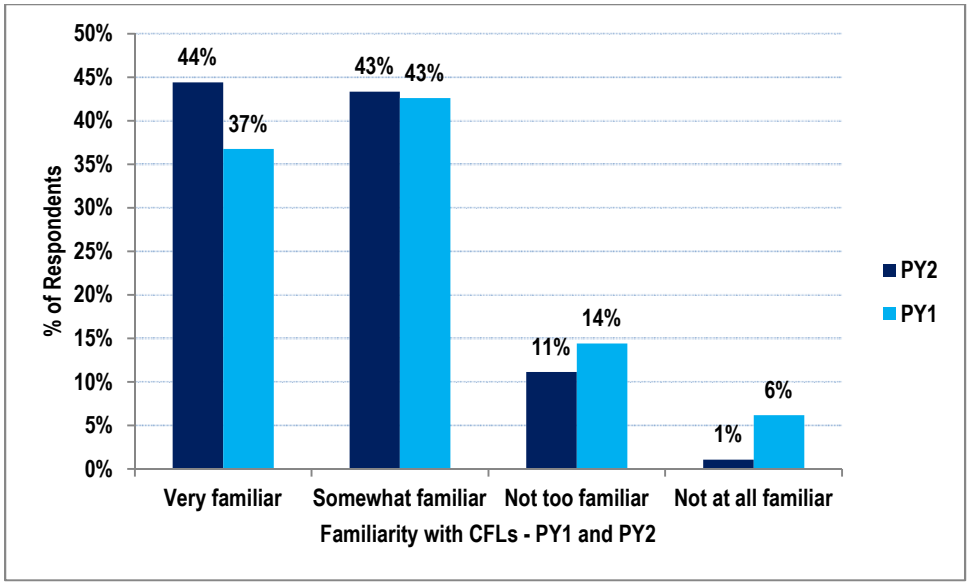


*Not statistically significant at the 90 percent confidence level
(PY1 n = 353, PY2 n = 500)

Respondents were also asked to rank their familiarity with CFLs on a scale from "very familiar" to "not at all familiar." Respondents who described themselves as "very familiar" increased to from 37 percent in PY1 to 44 percent in PY2. Respondents who described themselves as "somewhat familiar" with CFLs remained about the same from PY1 to PY2. Additionally, only 1 percent of PY2 respondents indicated that they were not at all familiar with CFLs, as compared to 6 percent in PY1. Figure 6 presents these findings. Additionally, respondents who indicated that they had CFLs installed at the time of the telephone surveys increased from 75.6 percent in PY1 to 93 percent in PY2; which is clearly indicative of positive market effects. These results are statistically significant at the 90 percent confidence level.

[16] The null is that the difference in means from PY2 respondents and PY1 respondents are the same. If data were found to be significant at the 90 percent confidence level, then this indicates a small probability (10 percent or less) that responses from both program years are the same.

Figure 6. Degree of Familiarity with CFLs* – PY1 and PY2



*Statistically significant at 90 percent confidence level.
(PY1 n = 291, PY2 n = 466)

PY2 telephone survey data show significant increases in the percentage of respondents who purchase CFLs from various retail outlets. PY2 respondents mostly purchased CFLs from large home improvement stores (44 percent) and mass merchandise stores (52 percent). These percentages increased from 38 percent and 48 percent in PY1, respectively. Table 20 presents these findings.

Table 20. CFL Purchases by Retail Channel – PY1 and PY2

	Households Purchasing Bulbs by Distribution Channel	
	PY2, % of n	PY1, % of n
N	415	86
Large Home Improvement	44%	38%
Membership Club	4%	5%
Mass Merchandise	52%	48%
Discount	3%	2%
Grocery	8%	4%
Drug	1%	0%
Small Hardware	13%	5%
Lighting Electronics	0%	0%
Other/Don't Know	11%	11%

Respondents from both program years also reported total CFL bulbs installed and in storage at the time of the telephone surveys. Respondents from PY2 reported 8.30 CFLs per household installed, which was not statistically significantly different from the 8.27 CFLs per household installed in PY1. Respondents also reported the number of CFL bulbs they had in storage at the time of the telephone surveys, with an average of 3.03 in storage in PY2 and 0.78 in storage in

PY1. It is worth noting that self-reported CFL purchase data are often difficult for respondents to recall, and therefore are often unreliable. Individual home lighting audits are typically a much better method to assess CFL penetration and saturation.

Respondents also were asked to discuss their CFL purchases in the six months prior to the AIU telephone survey for both program years. These results are shown in Table 22. CFL purchases per household increased between PY2 and PY1, although this difference was not found to be significant. In PY2, 58 percent of CFLs were installed and 42 percent were stored for later use. The installation rate in PY1 was estimated to be 75 percent. Table 21 summarizes all reported CFL purchases, installations, and stored bulbs.

Table 21. Summary of CFL Purchases by Installation and Storage – PY1 and PY2

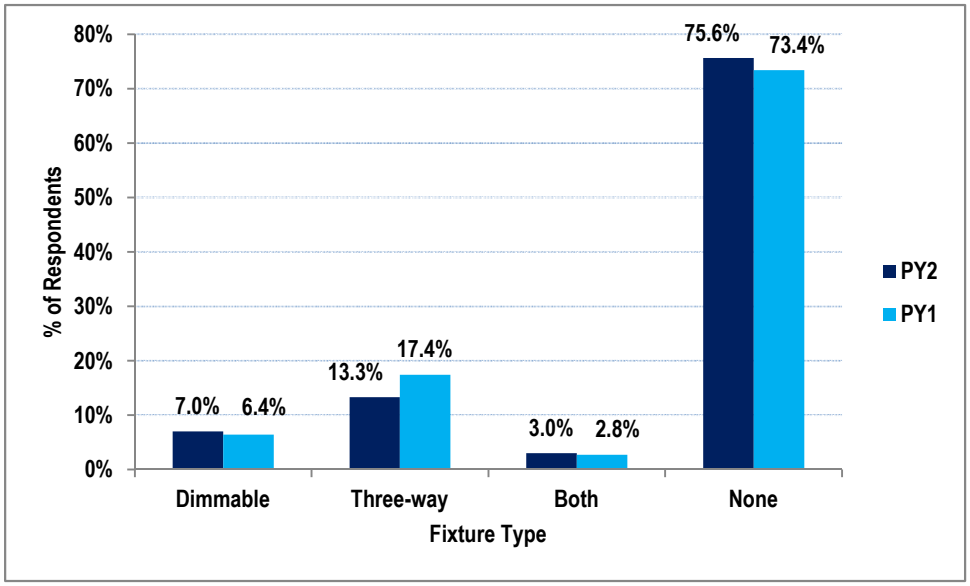
Survey Question	Program Year	Reported CFLs	Participants	Average
CFLs installed at time of survey	PY2	4,169	502	8.30
	PY1	2,507	303	8.27
CFLs in storage at time of survey	PY2	1,519	502	3.03
	PY1	237	303	0.78
CFLs purchased 6 months prior	PY2	2,178	502	4.33
	PY1	918	303	3.03

Table 22. CFL Purchased During Six Months Prior to Ameren Illinois Telephone Surveys

Ameren Illinois Telephone Survey	CFLs Purchased Over Six Months
PY2 (2010)	4.33
PY1 (2009)	2.60

Respondents also discussed their use of CFLs in specialty fixtures, such as dimmable and 3-way fixtures. As can be seen in Figure 7, about 75 percent of respondents from both PY1 and PY2 did not have CFLs installed in specialty light fixtures. This may be indicative of poor awareness of specialty CFL bulbs, and may further indicate insufficient marketing of these bulbs. There was no significant change in the percentage of respondents who had CFLs installed in dimmable fixtures.

Figure 7. Use of CFLs on Dimmable and 3-Way Fixtures* – PY1 and PY2



*Not statistically significant at the 90 percent confidence level.
(PY1 n = 218, PY2 n = 394)

One of the recommendations from the PY1 evaluation was to increase education about using the correct bulbs in specialty fixtures. This education seemed to be effective, as 57 percent of PY2 respondents with CFLs in specialty fixtures reported correctly using dimmable CFLs in dimmable fixtures compared to 44 percent of PY1 respondents, although the difference was not statistically significant.[17] Accordingly, the percent of PY2 respondents who used regular CFLs in dimmable fixtures fell to 43 percent in PY2 from 56 percent in PY1. Similarly, respondents who reported using correct 3-way CFLs in 3-way lighting fixtures increased from 42 percent in PY1 to 66.7 percent in PY2. And, the percentage of respondents who incorrectly used regular CFLs in 3-way fixtures decreased from 58 percent in PY1 to 33.3 percent in PY2. These results, which are presented in Table 23 and Table 24, indicate positive market effects from CFL education.

Table 23. Correct Use of CFLs in Dimmable Fixtures – PY1 and PY2

Correct Use of CFLs in Dimmable Fixtures	PY2, % of n (n=35)	PY1, % of n (n=18)
Use of Dimmable CFLs	57%	44%
Use of Regular CFLs	43%	56%

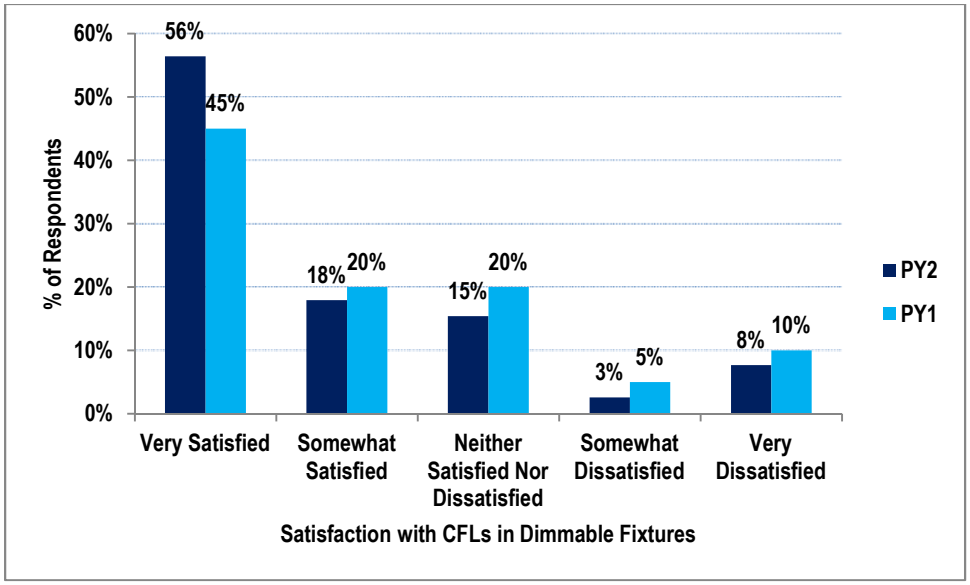
[17] These results are not statistically significant at the 90 percent confidence level.

Table 24. Correct Use of CFLs in 3-Way Fixtures – PY1 and PY2

Correct Use of CFLs in 3-Way Fixtures	PY2 (n=60)	PY1 (n=43)
Use of 3-way CFLs	66.7%	42%
Use of Regular CFLs	33.3%	58%

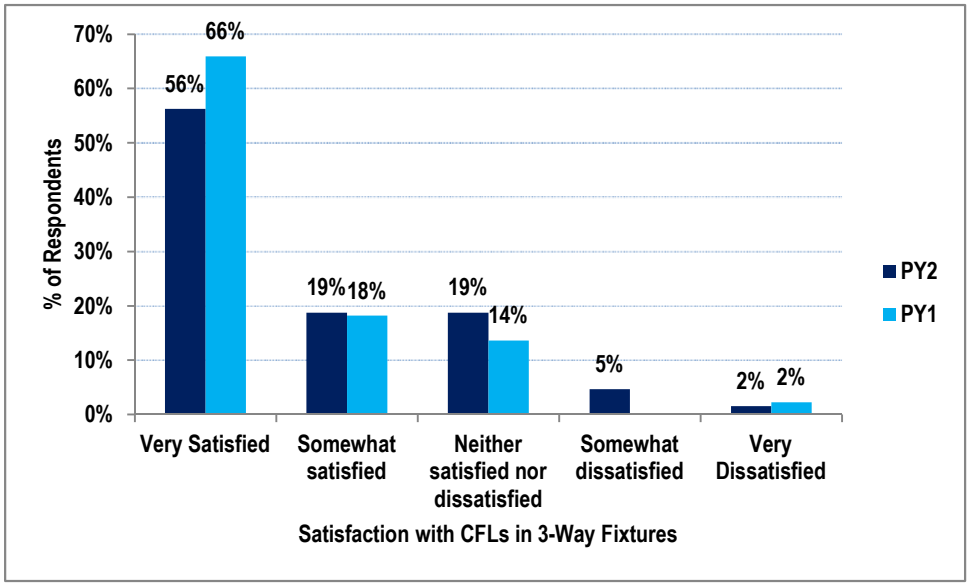
Respondents from both program years discussed their satisfaction with using CFLs in dimmable and 3-way light fixtures. Overall, respondents were satisfied with using CFLs in dimmable fixtures. Figure 8 shows that 56 percent of PY2 respondents and 45 percent of PY1 respondents are "very satisfied" with using CFLs in dimmable fixtures. These results are statistically significant at the 90 percent confidence level. This may be due to program effects or increased awareness of dimmable functionality of CFLs. For participants who use CFLs in 3-way fixtures, the percentage of respondents who indicated that they are "very satisfied" fell from 66 percent in PY1 to 56 percent in PY2 (also statistically significant at the 90 percent level). Participants who were either somewhat dissatisfied or very dissatisfied provided additional feedback regarding their dissatisfaction with 3-way CFLs. Among 20 respondents, seven indicated that 3-way CFLs are not bright enough and six others reported that there was a delay when turning on the CFLs. A handful of other respondents indicated that 3-way CFLs did not work as advertised, were aesthetically unappealing, and that there is very little difference between brightness levels. Figure 9 presents overall satisfaction findings for 3-way CFLs.

Figure 8. Satisfaction with CFLs in Dimmable Fixtures – PY1 and PY2



(PY1 n = 20, PY2 n =39)
Statistically significant at the 90 percent level

Figure 9. Satisfaction with CFLs in 3-Way Fixtures – PY1 and PY2



(PY1 n = 44, PY2 n = 64)
Statistically significant at the 90 percent level

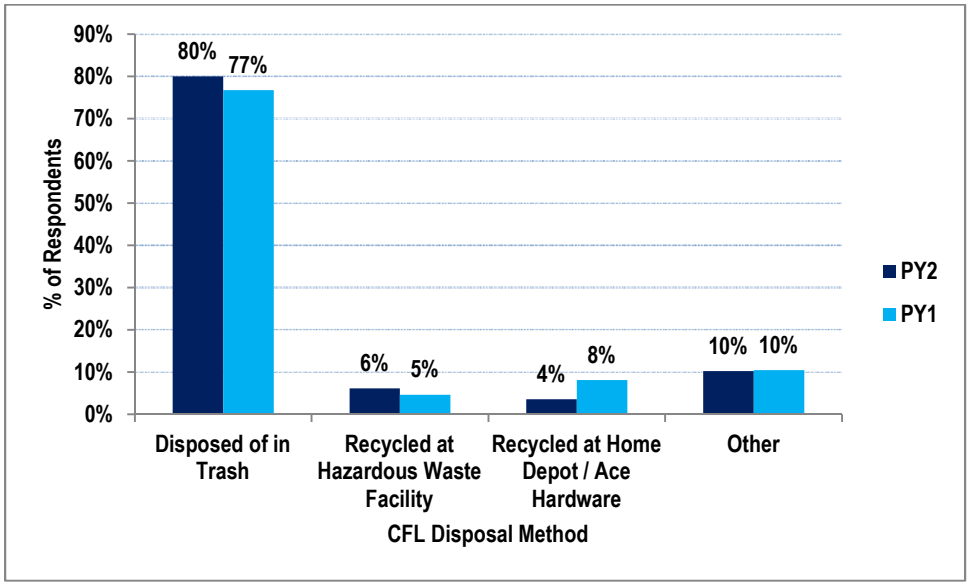
The Ameren Illinois PY1 and PY2 telephone survey also elicited feedback about respondents' concerns with CFLs in general. Respondents from both program years overwhelmingly indicated that they do not have any particular concerns with CFLs. However, as shown in Table 25, respondents who had no concerns with CFLs dropped from 88 percent in PY1 to 80 percent in PY2. In other words, PY2 respondents have more concerns with CFLs than respondents from PY1. In six categories, there are higher percentages of PY2 respondents than PY1 respondents who expressed concern. For example, the percentage of participants who cited mercury as a concern rose from three percent to five percent, and fire hazard concern rose from zero percent in PY1 to one percent in PY2. For non-safety concerns, higher percentages of PY2 respondents cited brightness, delayed start of bulb, and short life span as CFL concerns. Respondents also provided verbatim responses not included in the survey; of these five percent of PY2 respondents, many discussed personal safety and environmental concerns, including that CFLs easily shatter and that they add to pollution. Others shared concerns about proper fit in fixtures, limited functionality in cold weather, and aesthetic concerns.

Table 25. Concerns with CFLs – PY1 and PY2

CFL Concerns, % of n for Each Category	PY2 (n=398)	PY1 (n=293)
None	80%	88%
Mercury	5%	3%
Requires Special Disposal	5%	5%
Fire Hazard	1%	0%
Flickering	0%	0%
Light Color	1%	1%
Too Bright	0%	0%
Not Bright Enough	4%	1%
Delayed Start	4%	1%
Short Life	2%	1%
Expensive	2%	2%
Other	5%	3%

A higher percentage of PY2 respondents (52 percent) than PY1 (30 percent) reported that they had disposed of CFLs that were broken, burned out, or otherwise no longer useful. These results are significant at the 90 percent confidence level. Respondents were then asked to describe their disposal methods. In both program years, the majority of respondents disposed of CFLs by throwing them out with the trash. As can be seen in Figure 10, a slightly higher percentage of PY2 respondents reported throwing CFLs in the trash than PY1 respondents, although this difference is not statistically significant at the 90 percent confidence level. Overall, very few respondents from either program years disposed of CFLs through environmentally-safe means.

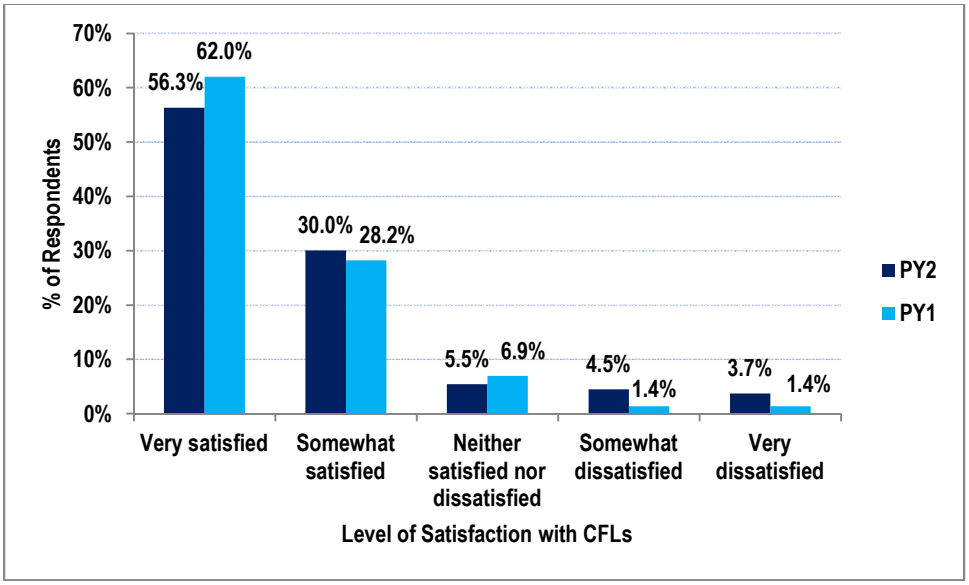
Figure 10. CFL Disposal Methods – PY1 and PY2



(PY1 n = 86, PY2 n = 195)

Ameren Illinois PY1 and PY2 respondents also discussed their overall satisfaction with CFLs. The percentage of respondents who reported being "very satisfied" with CFLs fell from 62 percent in PY1 to 56.3 percent in PY2. Respondents who reported being "very dissatisfied" increased slightly from PY1 to PY2. PY2 respondents who were generally dissatisfied provided additional feedback regarding their dissatisfaction. Of these 23 responses, six indicated that CFLs do not have a long life, and three participants each discussed poor light quality, improper fit in their light fixtures, lack of education regarding proper CFL disposal. Figure 11 presents these results.

Figure 11. Satisfaction with CFLs – PY1 and PY2



(PY1 n = 216, PY2 n = 403)

CFL Satisfaction – PY2

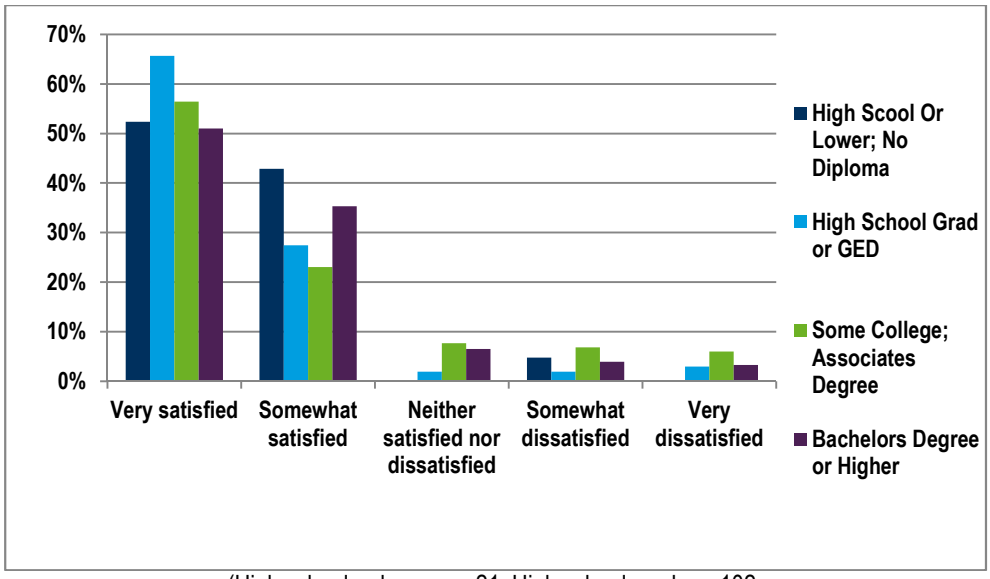
This section provides further analysis of PY2 telephone survey responses. Due to more robust demographic data collected during the PY2 telephone survey as compared to the PY1 telephone survey, we were able to analyze many responses by reported income, ethnicity, and educational attainment. These data also are unweighted. This information may be useful in program planning and design for PY3 and future years.

Ameren Illinois PY2 participants discussed their overall satisfaction with CFLs. As presented in Figure 11 above, 56.3 percent of PY2 participants reported that they were very satisfied overall with CFLs. Figure 11 also shows that 30 percent of PY2 participants were somewhat satisfied with CFLs. These responses were further analyzed by participants' education, income, and ethnicity.

Figures 12, 13, and 14 illustrate satisfaction levels by education, income, and ethnicity. Using these demographic data, a general profile can be constructed for Ameren Illinois PY2 participants who reported being somewhat or very dissatisfied with CFLs. With the exception of

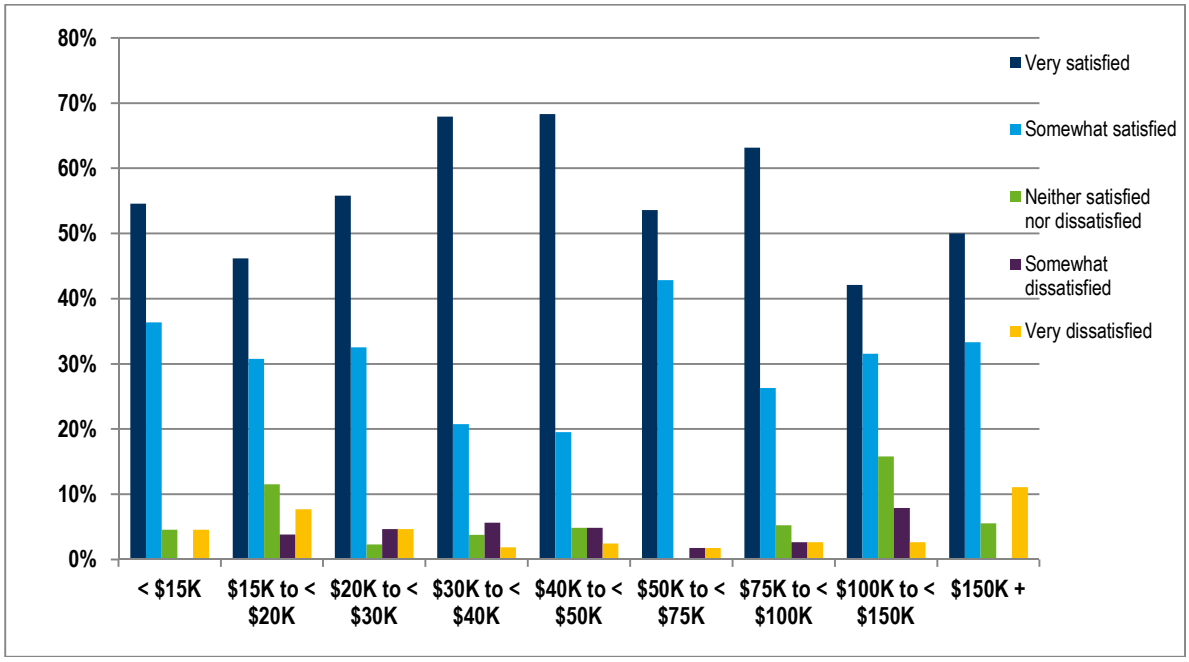
one PY2 participant, all of those who indicated that they were either somewhat dissatisfied or very dissatisfied described themselves as white. As shown in Figures 12 and 13, overall dissatisfaction with CFLs is more prevalent with higher educational attainment rather than income. Therefore, the Ameren Illinois PY2 survey data indicate that in general, those who are dissatisfied with CFLs tend to be white with at least some college education.

Figure 12. CFL Satisfaction by Educational Attainment – PY2



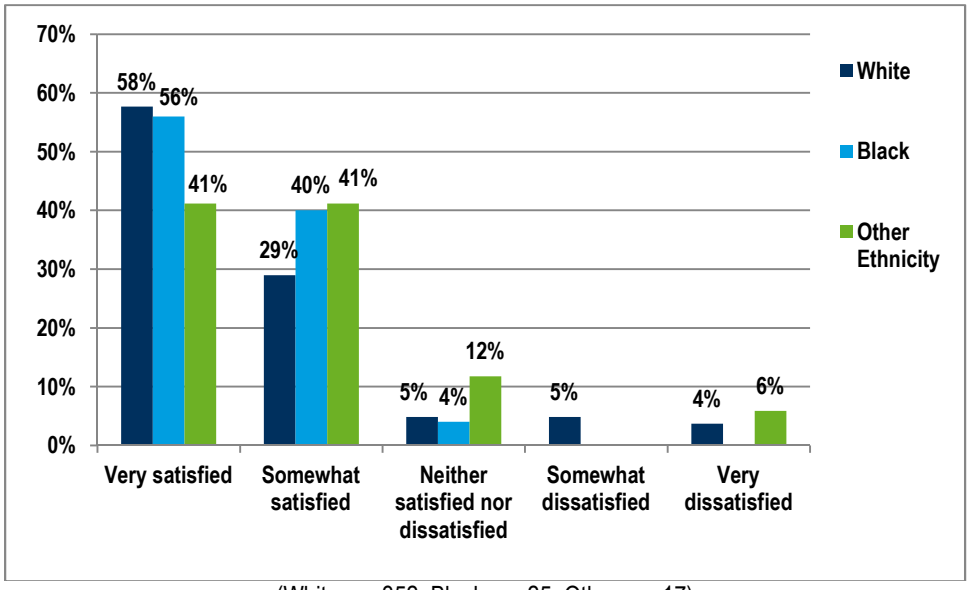
(High school or lower n = 21, High school grad n = 102,
Some college/associates degree n = 117, Bachelors degree or higher n = 153)

Figure 13. CFL Satisfaction by Income Range – PY2



(Less than $15,000 n = 22, $15,000 to less than $20,000 n = 26, $20,000 to less than $30,000 n = 43, $30,000 to less than $40,000 n = 53, $40,000 to less than $50,000 n = 41, $50,000 to less than $75,000 n = 56, $75,000 to less than $100,000 n = 38, $100,000 to less than $150,000 n = 38, $150,000 or more n = 18)

Figure 14. CFL Satisfaction by Ethnicity – PY2

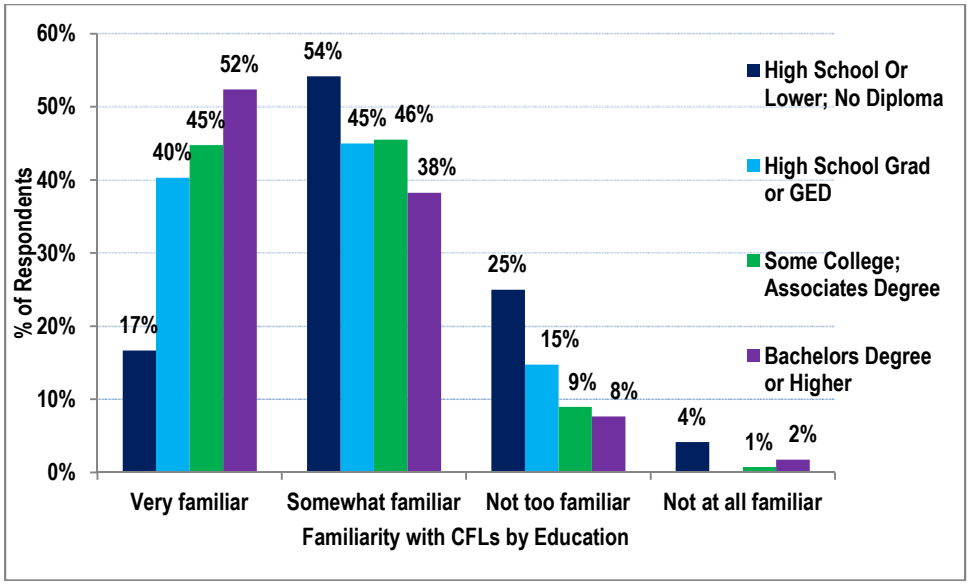


(White n = 352, Black n = 25, Other n = 17)

CFL Awareness and Familiarity – PY2

Familiarity with CFLs was analyzed based on respondents' education level, income, and ethnicity. More than half (52 percent) of respondents who earned at least a bachelor's degree reported that they are "very familiar" with CFLs. Only 17 percent of respondents with some high school education were "very familiar" with CFLs. However, 54 percent of this demographic described themselves as "somewhat familiar with CFLs. These findings are presented in Figure 15.

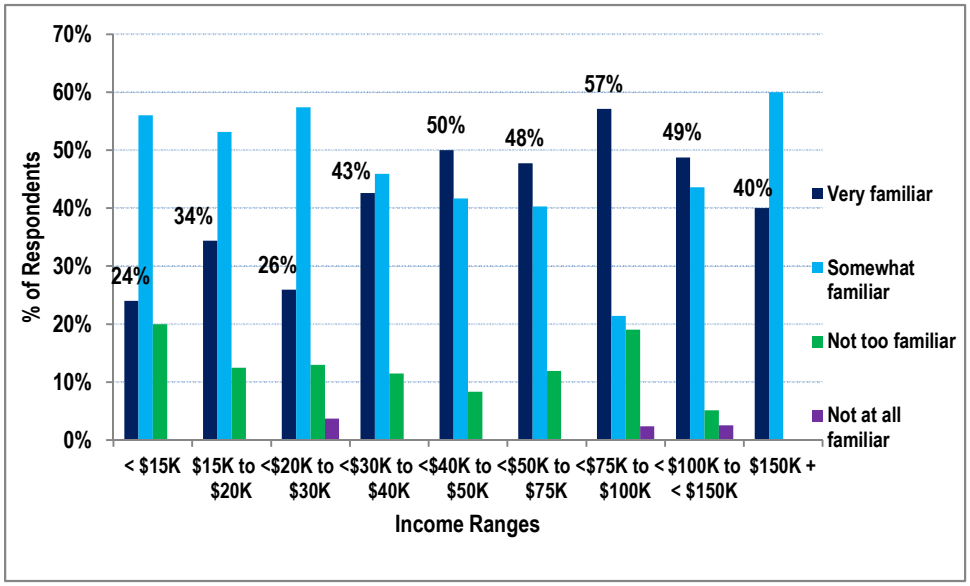
Figure 15. CFL Familiarity by Educational Attainment



(High school or lower n = 24, High school grad n = 129,
Some college/associates degree n = 134, Bachelors degree or higher n = 170)

Familiarity with CFLs also was analyzed across reported income ranges for PY2. The range of respondents' incomes was from less than $15,000 to $150,000 or more per annum. Seventy-four percent of respondents' income was less than $75,000 per annum. Five percent of respondents reported income greater than $150,000 per annum. Figure 16 shows that for those who are "very familiar" with CFLs, familiarity generally increases with income up to the $75,000 per annum, then decreases up to the less than $100,000 range. For the highest income range, all respondents were either "very familiar" or "somewhat familiar" with CFLs.

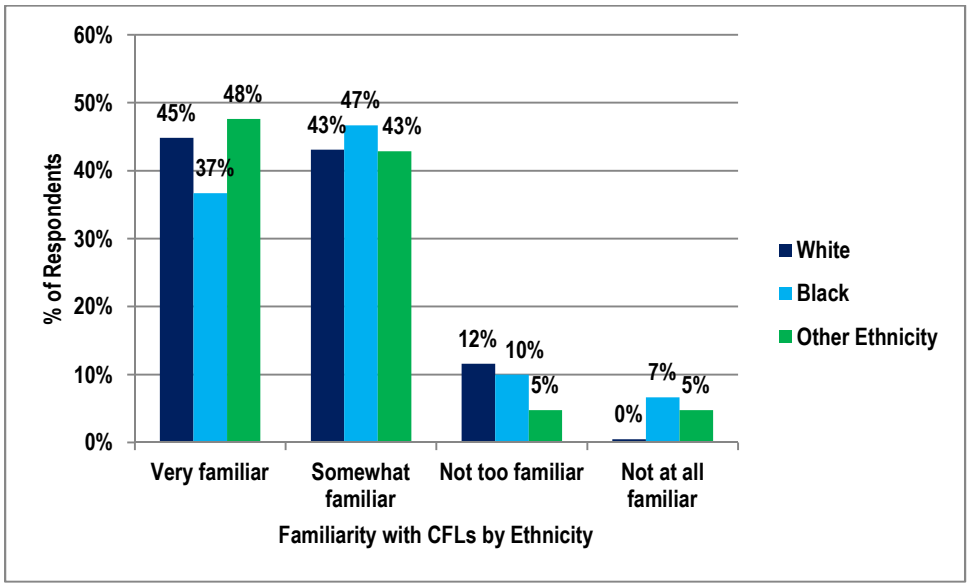
Figure 16. CFL Familiarity by Income Ranges



(Less than $15,000 n = 25, $15,000 to less than $20,000 n = 32, $20,000 to less than $30,000 n = 54, $30,000 to less than $40,000 n = 61, $40,000 to less than $50,000 n = 48, $50,000 to less than $75,000 n = 67, $75,000 to less than $100,000 n = 42, $100,000 to less than $150,000 n = 39, $150,000 or more n = 20)

PY2 survey participants described themselves as white, black, or "other" ethnicity (including Asian, Pacific Islander, American Indian, etc). Familiarity with CFLs varied somewhat by ethnicity, as shown in Figure 17, but generally speaking, blacks were less familiar with CFLs than either whites or other.

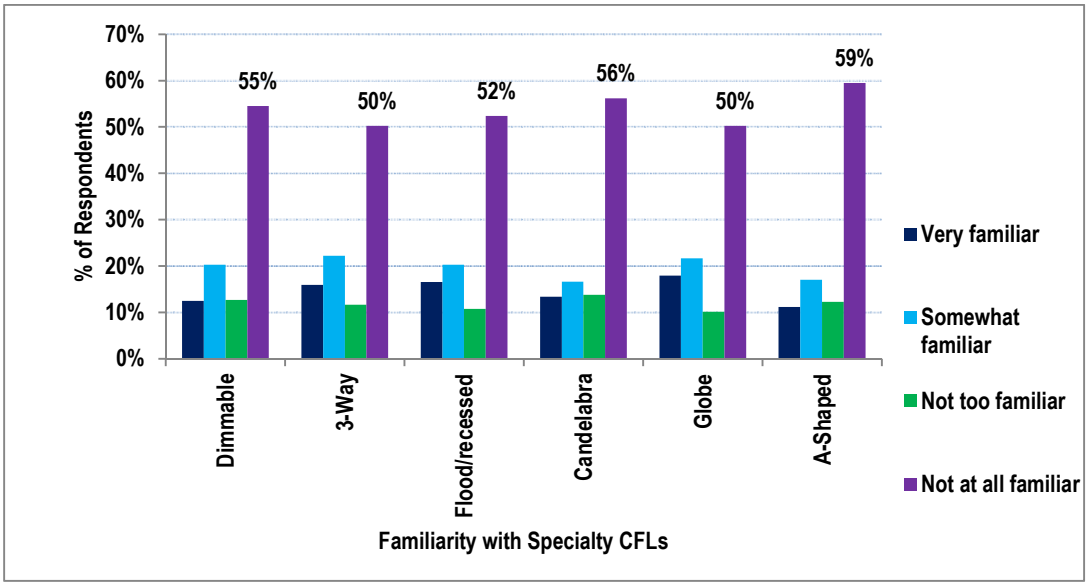
Figure 17. Familiarity with CFLs by Ethnicity – PY2



(White n = 406, Black n = 30, Other n = 21)

PY2 participants then were asked about their familiarity with a variety of specialty CFL bulbs. Across all bulb varieties mentioned in the telephone survey, at least half of the 464 respondents were not at all familiar with specialty CFL bulbs. As presented in Figure 18 about twenty percent of respondents reported being at least somewhat familiar with all specialty CFL bulbs mentioned in the telephone survey except candelabra and A-shaped CFLs. The lower levels of familiarity with specialty CFL bulbs indicate that stronger marketing and customer education may be necessary to increase saturation and penetration of these bulbs.

Figure 18. Familiarity with Specialty CFL Bulbs – PY2



(n = 464)

CFL Usage – PY2

In other areas of the country, evaluation results indicate lower use of CFLs among lower income, lower educated, and minority residencies. Cadmus found similar results when analyzing PY2 telephone survey data. PY2 survey data show that CFL usage varied somewhat by educational attainment, ethnicity, and income.

Analysis of education distribution among respondents showed that about two-thirds (67 percent) had at least some college education or an associate's degree. The remaining respondents had at least some high school education. Among respondents with at least a bachelor's degree, 90 percent have used CFLs, and 87 percent of respondents with at least some college education have used CFLs. About 80 percent of respondents who are high school graduates have used CFLs. Eighty-eight percent of respondents with some high school education but no degree reported that they have used CFLs. Table 26 presents these findings.

Ethnicity also seems to be a contributing factor to CFL usage. Table 27 shows that among respondents, 87 percent of whites and 83 percent of blacks reported using CFLs. Of those respondents who described themselves as "other" ethnicity, 81 percent reported having used CFLs in the interior or exterior of their home.

There was little variation is CFL usage when analyzed by respondent income. On average, 87 percent of respondents from all income ranges have used CFLs. The lowest percentage of respondents who have used CFLs was found in the income of range of $15,000 to less than $20,000. The highest percent of respondents who reported having used CFLs was found in the $100,000 to $150,000 income range. Figure 19 presents these results.

Table 26. CFL Usage by Educational Attainment PY2

High School or Lower; No Diploma	High School Grad or GED	Some College; Associates Degree	Bachelors Degree or Higher
88%	80%	87%	90%

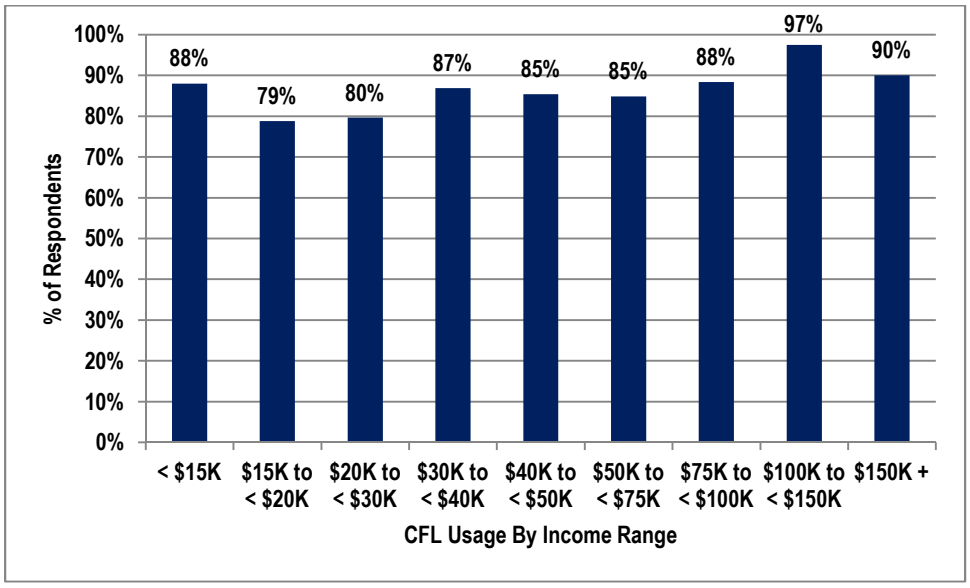
(High school or lower n = 24, High school grad or GED n = 128,
Some college or associates degree n = 136, Bachelor's degree or higher n = 170)

Table 27. CFL Usage by Ethnicity – PY2

White	Black	Other Ethnicity
87%	83%	81%

(White n = 408, Black n = 30, Other n = 21)

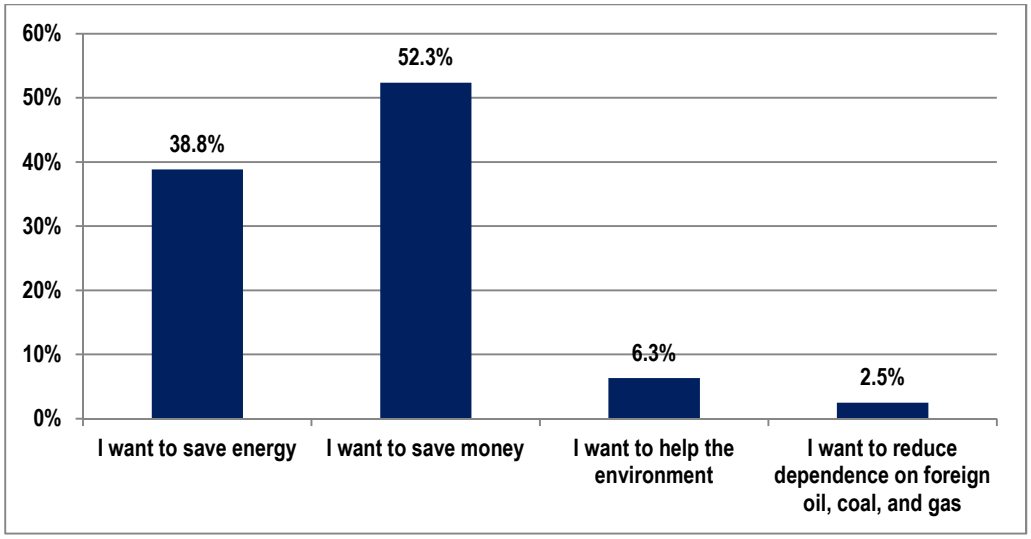
Figure 19. CFL Usage by Income Range – PY2



(Less than $15,000 n = 25, $15,000 to less than $20,000 n = 33, $20,000 to less than $30,000 n = 54, $30,000 to less than $40,000 n = 61, $40,000 to less than $50,000 n = 48, $50,000 to less than $75,000 n = 66, $75,000 to less than $100,000 n = 43, $100,000 to less than $150,000 n = 39, $150,000 or more n = 20)

PY2 telephone survey respondents also discussed why they are currently using CFLs. More than half (52.3 percent) indicated that they installed CFLs to save money. About 38.8 percent installed CFLs to save energy. Only a handful of participants reported that they installed CFLs to either help the environment or reduce dependence on foreign fossil fuel sources. These findings are presented in Figure 20.

Figure 20. Reasons for Using CFLs – PY2 (n = 363)



CFL Purchases

Telephone survey participants were asked to identify the types of stores where they typically purchase CFL bulbs. These participants most often cited mass merchandise stores, such as Wal-Mart or Target. The second most cited store type was home improvement stores such as Home Depot or Lowe's. Participants also discussed their proximity to large discount stores or home improvement stores. Most participants live within 30 minutes from the nearest store. Specifically, more than half (54 percent) are within a 14-minute drive to the nearest store and 35 percent reported living 15 to 30 minutes from the nearest store.

PY2 telephone survey respondents also discussed how they first heard about CFLs. Survey administrators did not prompt respondents; therefore, respondents discussed multiple ways that they first heard about CFLs. Forty percent of respondents most often cited traditional media marketing such as television, radio, newspaper, and magazine advertisements. About 17 percent of respondents also heard about CFLs through word of mouth - particularly from friends, family members, or co-workers. Respondents also discussed a variety of other ways they heard about CFLs that were not included in the telephone survey. These responses included free CFL samples from the utility, infomercials, or indirect marketing by associates at lighting or home improvement stores.

Ameren Illinois PY2 respondents were also asked whether they had purchased CFLs as part of an Ameren Illinois promotion or sponsored sale. It is notable that upstream lighting programs such as this one are designed to be transparent to the participant, and commonly they are not aware of participating in a program. For this reason, we only ask this question as an indicator of the degree of program awareness, rather than to calculate participation rate. However, survey responses indicate positive market effects and increased awareness from PY1 to PY2. In PY1, only seven (2.31 percent) survey respondents were aware (and/or remembered) that they purchased CFLs through an Ameren Illinois promotion. Twenty-seven (5.34 percent) PY2 respondents were aware that they purchased CFLs through an Ameren Illinois promotion. Awareness of purchasing Ameren Illinois program CFLs more than doubled in percent from PY1 to PY2.

To conclude the CFL purchases section, survey administrators asked respondents to discuss their bulb storage habits and their bulb removal habits. Three-fourths of respondents indicated that they typically keep a supply of bulbs on hand. The remaining respondents typically purchase bulbs as needed when installed bulbs burn out.

When asked whether or not they had ever removed a CFL after installation, just over 50 percent of the 375 respondents said they had. Survey administrators probed further to understand why. Respondents most frequently reported that they replaced CFLs because they had burned out (64 percent). Some respondents also provided other reasons expressed as non-survey verbatim responses. These included removing the bulbs because the respondent was relocating, poor aesthetics, and electrical/circuitry problems.

Process Evaluation

Retailer and Manufacturer Interviews

Findings of the retailer and manufacturer interviews are informative from a process perspective, as they provide insight into the program's operation from upstream participants, and also provide insights into ways the program affected the market. Cadmus collected information on reasons for participation, stocking and sales trends, pricing and promotion practices, program satisfaction, and opinions on the Energy Independence and Security Act. Table 28 shows a breakdown of survey respondents.

Table 28. Breakdown of Respondents by Type

Market Actor	Respondents
Manufacturer	6
Store-Level Retailer	8
Corporate Retailer	1
Total	**15**

Reasons for Participation

All respondents were asked their primary reason for being involved with the L&A program. The opportunity to increase sales of CFLs was a common reason given for participation. In general, retailers said that it was a corporate decision to become involved in the program. One interviewee responded:

> *"We like to educate our customers on new efficient technologies. When we are offering a promotion or discounted product, it drives the customers in, giving us the opportunity to introduce them to products that they may not know about. This helps us to sell more in the future."*

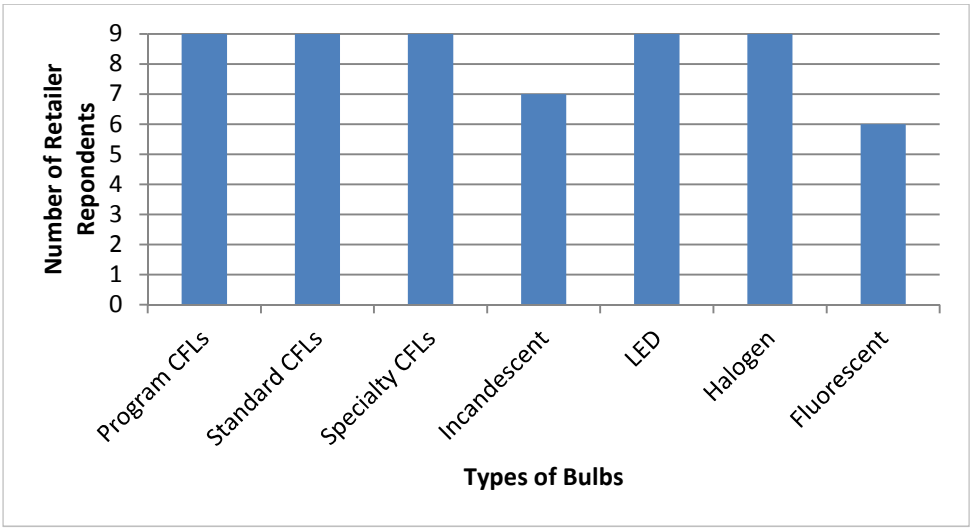
One manufacturer said:

> *"Rebates are a great way for us to be competitive, and participation in the program adds a lot of value for ratepayers."*

Stocking Patterns

Corporate and store-level retailers were asked what CFL lighting types they carried as part of the program. All nine participants carried CFLs before participating in the program. Figure 21 shows the types of lighting products stocked by participating retailers at the time of the survey. Interestingly, two of the nine retailers interviewed did not offer incandescent lights at all. This information did not affect savings estimates since incandescent lights are offered at other retailers.

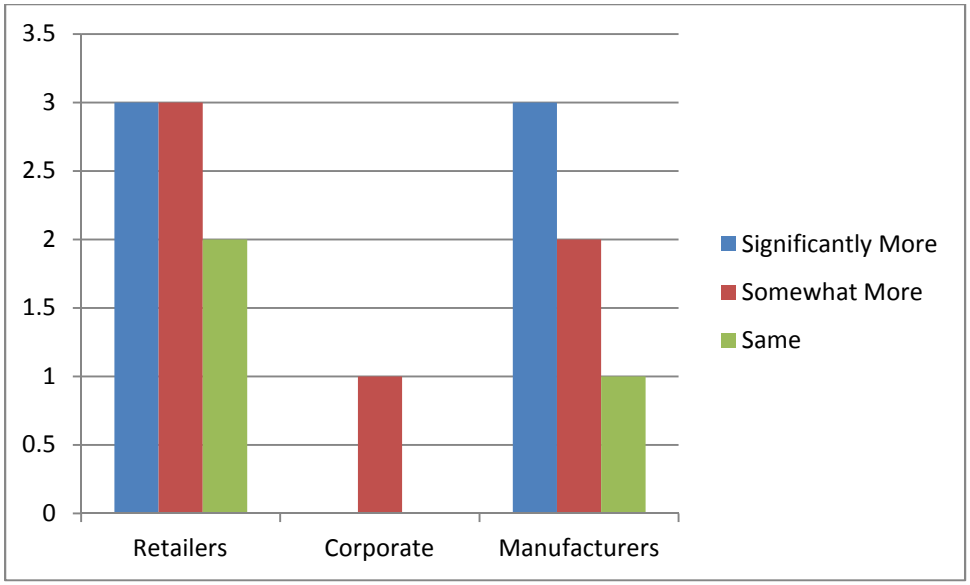
Figure 21. Types of Lights Stocked by Retailers



When asked "what percentage of the lighting products currently on their sales floor consist of CFLs", the average was 49 percent, while incandescent bulbs averaged 25 percent of the sales floor.

Retailers were then asked if their current stocking pattern is the same as last year (July 2009). Manufacturers were asked a similar question about the number of models they produce. Figure 22 below shows the results. Three-fourths of the retailers are stocking significantly more or somewhat more CFL models than they did last year, while one-fourth stayed the same. Five of six manufacturers are producing more CFLs than one year ago, and the corporate retailer is stocking somewhat more.

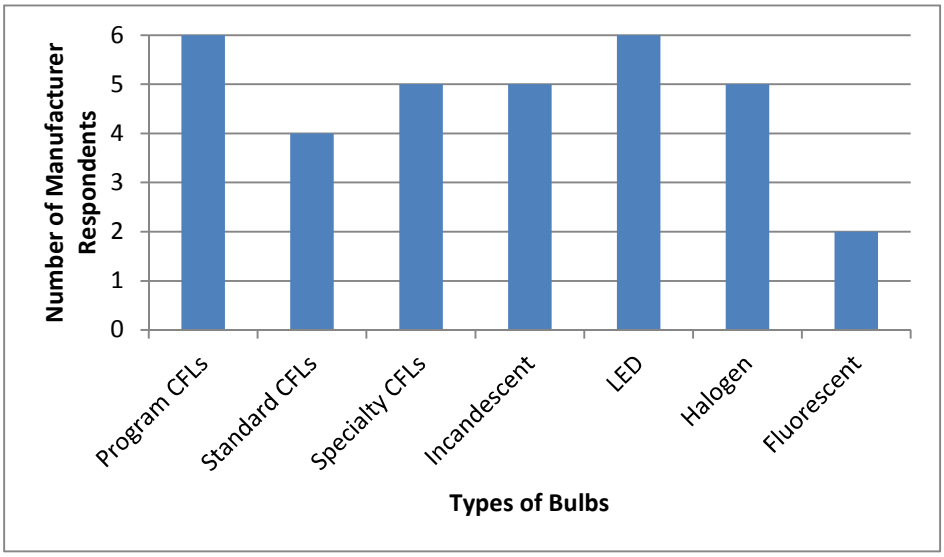
Figure 22. Stocking/Product Levels Relative to One Year Ago



Retailers were asked whether the number of different CFL models stocked had changed over the past year. Four of the eight respondents are stocking more CFL models than a year ago, two are carrying less, and the remaining three respondents are stocking the same amount.

Manufacturers were also asked what types of program and non-program bulbs they sell. All six respondents manufactured CFLs before the program. Figure 23 shows the types of lighting products manufactured by participants at the time of the survey. Four of the six manufacture non-program standard CFLs, and five of the six manufacture non-program specialty CFLs.

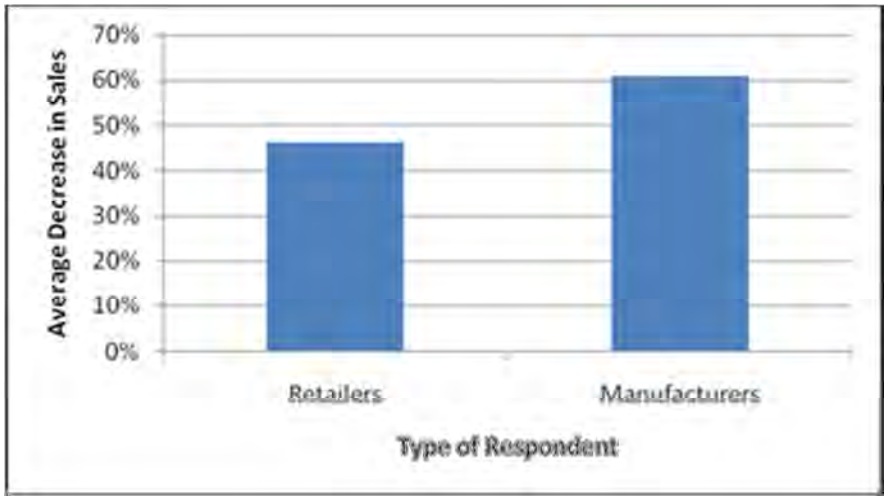
Figure 23. Types of Lights Manufactured



Sales Trends

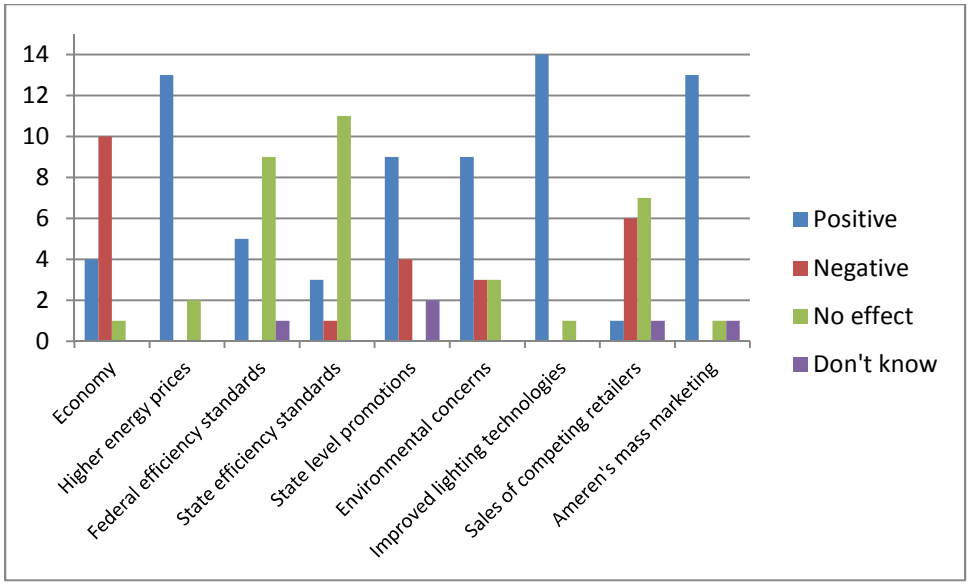
All retailers and manufacturers said they would sell CFLs without the Ameren Illinois program's support. On average, retailers have been selling CFLs for four years. All participants (both retailers and manufacturers) believe their CFL sales would decrease if the program was not available. Figure 24 shows the average decrease in CFL sales noted by the interviewees. Retailers on average estimated a decrease in sales by 45 percent, with the range of responses between twenty and seventy percent. Manufacturers estimated their sales would be 53 percent lower without the program, three estimated sales in the 20 to 40 percent range and three in the 80 to 100 percent range.

Figure 24. Respondent Estimates of Sales Decreases Without the Program



Respondents were read a list of factors that may or may not have had an effect on consumer demand for CFLs in Central and Southern Illinois. They were asked to rate each factor as a positive effect, a negative effect, or no effect. Figure 25 illustrates responses by factor.

Figure 25. Responses to Factors Affecting Consumer Demand



Predictably, the economy had the most perceived negative effect on CFL sales, possibly due to the higher cost of CFLs versus incandescent bulbs. Higher energy prices, improved lighting technologies, and Ameren Illinois' mass marketing of CFLs had the most perceived positive effect on CFL sales. While survey respondents believe Ameren Illinois' marketing efforts have influenced the market, new technologies and higher energy prices have also contributed. Most of those interviewed believe federal efficiency standards and state efficiency standards have had no effect, possibly because the general public is not aware of federal and state standards regarding efficiency.

On average, the retail stores interviewed reported sales of about 1,600 CFLs per month, compared to about 500 incandescent light bulbs per month.

Only two manufacturers were willing to report their CFL sales. One reported selling about 8,300 CFLs per month, and the other reported selling two million CFL bulbs through the program. No manufacturers could give figures on incandescent sales, but one said they "definitely sell fewer incandescent light bulbs than CFLs."

Pricing Trends

Participating retailers were asked about their pricing approaches. Two retailers reportedly base their prices on manufacturers' prices. The remaining six didn't know. A common response from those responding "no" or "don't know" was that the pricing decisions were corporate and they were not sure how bulbs were priced. The corporate respondent said they always offer standard CFLs at 99 cents.

All participants were asked if Ameren Illinois program CFL bulbs were priced lower than non-program bulbs. All responding retailers and the corporate retailer price program bulbs lower than non-program bulbs, while five out of the six manufacturers price program bulbs lower. Most (five of the six) retailers and the corporate retailer offer CFLs at $2 less than non-program bulbs.

Three manufacturers offer each program bulb at about $2 less, and two offer them at $1 cheaper. The remaining respondents could not give a dollar amount.

Respondents were then asked how these discounted prices affect the sales of other lighting products. Four retailers believe the discounts had a negative effect on sales of other CFLs. All manufacturers, one store retailer, and the corporate respondent said that the discounts had a positive effect, while the remaining three retail stores said it had no effect. One respondent said:

> *"The program bulbs open up another line of purchasing for customers. When a customer comes in and purchases a program CFL, they will be more likely to come in later and buy another, even if it isn't a program bulb."*

CFL Promotions

When asked about how they promoted CFLs in their stores, five of the nine store and corporate retailer participants reported performing independent marketing on top of Ameren Illinois' marketing. The remaining four used only signage provided by Ameren Illinois. Five run ads in local papers, one runs radio ads, three run television ads, and four of the five have their own in-store promotions including signage.

Respondents were asked to describe the market response to just their promotion efforts (outside of the price discounts). Four of the nine participants claimed sales remained the same as they would without promotions; the remaining five said the promotions caused CFL sales to increase, three by 20 to 30 percent, one by 80 to 90 percent, and one by 100 percent or more. Only two of responding participants also offer their own discounts in addition to Ameren Illinois' discounts and incentives.

A breakdown of the promotion types used by all participants is shown in Table 29.

Table 29. Breakdown of Promotions Used by Respondent Type

Types of Promotions	Number of Retailers	Total
Program Signs Only	4	**4**
Print Ads Only	1	**1**
Print Ads & In-Store signs	1	**1**
Print Ads, TV Ads, & In-store Signs	2	**2**
Print Ads, Radio Ads, TV Ads, & In-Store Signs	1	**1**
Total	**8**	**9**

Table 30 presents a breakdown of percentages of sales claimed through promotions by all respondents.

Table 30. Claimed CFL Sales Increase Through Promotions by Respondent Type

Effect of Promotion on Sales	Number of Retailers	Total
No Change	4	4
20%-30% Increase	3	3
80%-90% Increase	1	1
100% Increase or more	1	1
Total	**8**	**9**

Program Satisfaction

All respondents were asked about their satisfaction with aspects of the program overall. First, manufacturers were asked to rate their satisfaction with the incentives offered by Ameren Illinois on a scale of 0-10, where 0 is very dissatisfied and 10 is very satisfied. Five out of the six respondents rated the incentives to be a 10, while one rated them to be a 9.

All respondents were asked about their satisfaction level with program managers and other staff involved in the program. Overall, respondents are very satisfied with program staff. Manufacturers rated an average of 9 and retailers rated an average of 9.6.

For those not rating 10, when asked what could be changed to make the program better, manufacturers responded that the program should expand to include other products (LEDs, halogens, etc.), and that more stability is needed to make customers happier. For example, one manufacturer said:

> *"The program needs more consistency. For instance, the incentive levels go up and down and come and go. Sometimes it's APT's call, but for the sake of the consumer it would be nice to have a stable level of incentives."*

Respondents are satisfied with the program overall. Retailers (store and corporate) and manufacturers all rated the program as a 9. One retailer is "*very satisfied with the program, the program no room for improvement*", while one manufacturer claims the program is "*absolutely a success from our perspective. It would hurt the company not to participate.*"

Energy Independence and Security Act of 2007

Corporate and manufacturer participants were asked about their knowledge and opinion of the Energy Independence and Security Act (EISA), an energy bill passed in 2007 that calls for a gradual phase-out of inefficient lamps over time starting in 2012.

The corporate retailer believes that, in general, CFL sales will increase from the present to after 2014. They also believe CFL prices will decrease between now and 2014, then level off after 2014. In the near future, the corporate retailer plans to continue selling incandescent bulbs, CFLs, and LEDs, but is not planning to sell general service EISA-compliant halogen lamps. When asked if they think the price of general service EISA compliant halogen light bulbs will increase, decrease, or stay the same between now and 2014, the corporate retailer responded that the price will decrease.

When asked how their company is responding to EISA in terms of product stocking and marketing between now and January 2012, the corporate respondent said they are "*stocking up*

on all bulbs (CFLs and LEDs) to gear up for the law change. We will be increasing all our marketing as the legislation turns into law." They also see the EISA as a benefit to their company, because they "*will sell more and profit more on the efficient bulbs.*"

Manufacturers believe CFL sales will increase between now and 2014 because of EISA. Beyond 2014, however, only three believe sales will continue to increase. The other three believe sales will decrease or level out. Two manufacturers believe prices of CFLs will remain the same from now beyond 2014. Three respondents believe prices will continue to decrease from now beyond 2014, and the remaining respondent did not know. All six manufacturers plan to continue selling their current bulbs and also plan to begin incorporating EISA-compliant halogen lamps in the near future. When asked if they think the price of general service EISA compliant halogen light bulbs will increase, decrease, or stay the same between now and 2014, two manufacturers believe the price will increase, while the remaining four believe the price will decrease.

Survey respondents also were asked how their company is responding to EISA in terms of research and development, production levels, and marketing efforts between now and January 2012 for various bulb types. While two manufacturers did not wish to divulge their information, a breakdown of responses from the remaining four participants, by bulb type, is below:

- **Incandescent bulbs:** One manufacturer does not make incandescent light bulbs, one is working on lowering the wattage of these bulbs, one is decreasing production, and the remaining manufacturer will "*continue to be responsive to the consumer, by continuing to manufacture some incandescent light bulbs.*"
- **CFLs:** Two manufacturers are increasing production, while the other two are keeping production the same but increasing the variety and quality of CFL products.
- **LEDs:** Two manufacturers are increasing production, one is remaining the same, and one is working on increasing the quality of LEDs.
- **Halogen:** One manufacturer is not changing their halogen production practices, while the remaining three are increasing halogen bulb production.

Five manufacturers see the EISA as a benefit, one manufacturer said this is "*because it's good for the environment, and consumers will get better value with the increased lifespan of CFLs.*" The remaining manufacturer sees this bill as neither a benefit nor detriment to their business.

Stakeholder Interview Findings

Interviews with Ameren Illinois' L& A Program stakeholders further illuminated the functioning of the program in PY2. The findings of these interviews are summarized here.

Program Design and QA/QC

As presented in the program description portion of Chapter 2, Ameren Illinois' program design is similar to that employed in PY1, with the exception of the addition of appliance rebates. The program is a market transformation initiative intended to increase long-term availability and sales of energy-efficient lighting and appliances at retail outlets in Ameren Illinois' service territory. The program works in coordination with industry partners to educate customers on the benefits of these products, reduce market barriers, and create sustained demand for the products over time. The lighting portion of the program provides incentives to manufacturers to mark down CFL prices and, in addition, provides advertising materials, employee training, and

customer clinics, which all lead to increased sales and higher profits for retailers. The appliance program uses similar techniques to advertise and train retail employees; however, incentives are paid directly to consumers through mail-in rebates. Rebate forms and information are stocked visibly in participating retail outlets. Customers mail rebate forms to EFI, which processes and tracks the results.

Ameren Illinois, through its implementation subcontractor APT, conducted 5,887 visits to the 600+ lighting and appliance participating retail stores, trained 5,812 store and Ameren Illinois employees, and held 32 in-store lighting clinics during PY2. APT was responsible for securing retail and manufacturer participation in the program and performing QA/QC on store display and product pricing. APT initiated retailer involvement through an RFP that requested bids for incentives, bulbs offered, and marketing support in exchange for tracking, product placement, and POP displays. Once retailer proposals were received, APT's managers negotiated an MOU that outlined the number and type of CFLs to be sold in each store, and allocated budget, promotion, and advertising. APT continually tracks and monitors program progress though its ongoing retailer contacts to maintain up-to-date information on results. At each site visit, APT ensures that retailers are complying with MOU terms and looks for missing POP signs, stickers, or rebate forms, out-of-stock products, or other visible opportunities to improve opportunities to reach customers. APT employs four field representatives who are responsible for site visits, store events, and trainings. This is the same number employed in PY1, yet the number of retailers has more than doubled.

Ameren Illinois also continued to offer an Internet order option, through its subcontractor EFI, to provide opportunities for rural customers to purchase discounted CFLs.

Manufacturers send their sales reports and invoices for markdown incentives to EFI for payment and official tracking, which may occur 60-90 days after the sales. EFI provides a number of quality assurance checks regarding lighting invoices; in particular, they verify that:

- The correct product numbers are listed;
- Information is in the agreed-upon format;
- Incentive levels are correct;
- The dates match up correctly; and
- The amounts sold are within the allocation.

For appliances, EFI collects rebate forms, checks to ensure requests are for eligible products, and confirms that the request is from an Ameren Illinois electric customer by either comparing the account number to Ameren Illinois' customer information system or obtaining a copy of the electric bill from the applicant.

Product Offerings

Stakeholders stated their objective in PY2 was to make a variety of CFL products available in the retail outlets. This differs from an objective stated in the PY1 evaluation, which was to sell 50 percent specialty and 50 percent standard CFLs during PY2. According to one stakeholder, Ameren Illinois tried only offering incentives on specialty bulbs during the period June through September; however, estimated sales through that period showed only a 3 percent contribution toward their goals. As such, Ameren Illinois and its implementation contractors reverted back to their original strategy: "*rather, by training everyone involved, retail and customers, how to*

choose the bulb they need, it's really the customer demand driving the percentage sold. Customers needs don't change, we don't influence their needs. We make sure field representatives are trained on bulb selection and provide marketing materials to assist in explaining proper bulb choice and color." As a result, the sales mix was similar to PY1: 18 percent specialty and 82 percent standard spirals, and targeted program sales were met.

When asked about appliance offerings, interviewees reported understanding that cost-effectiveness must first drive the offerings and that it may not be possible to offer rebates on every appliance. One complaint about the product offerings of ceiling fans, dehumidifiers, and air conditioners were that they were all, to some extent, weather dependent. Also, notes from APT's field reports indicated some difficulties in identifying qualified ENERGY STAR products, particularly in ceiling fans. Indeed, APT's field representatives identified some products that were improperly labeled as ENERGY STAR. The weather significantly impacted sales: cooler and wetter than normal weather during the summer of 2009 resulted in fewer air conditioner sales however, due to relatively high humidity, sales of dehumidifiers increased and compensated. Lower relative sales of ceiling fans may be partially blamed on lack of qualified products. APT's field representatives worked with retailers to identify qualified products for stocking in stores. Over time, rebates on ceiling fans increased as products were made available.

Regular Communication

The stakeholders said communications between the four parties (Ameren Illinois, CSG, APT, and EFI) were regular and effective. Formal meetings are biweekly, in addition to frequent telephone and E-mail communication. APT prepares monthly written reports detailing sales statistics, current participating retailer lists, trainings held, site visits attended and the findings by field representatives, and customer promotional events held. EFI summarizes invoiced sales results and provides them to APT, CSG, and Ameren Illinois. During the biweekly meetings, the parties discuss whether modifications to retailer/manufacturer allocations are necessary, track budgets, and discuss other implementation issues. The MOU's allow Ameren Illinois and its subcontractors to add or remove products from those eligible at any time. This program design is attractive for program implementers, and as quoted by one stakeholder "*the utility enjoys being able to control the program so well.*"

All stakeholders commented on how well the program works. When asked their opinion of why it works so well, they stated that the key is having experienced implementers and regular communication.

Marketing Efforts

APT manages program marketing between the retail stores and the customers. In addition, Ameren Illinois conducts general marketing to all its customers through bill inserts, billboards, television, newspaper, and radio advertisements. These generally serve as the first line of communication to prospective customers. Specific lighting and appliance program marketing approaches include:

- POP displays at the retail stores;
- Training for retailer employees;
- Press releases;

- Ameren Illinois stickers on CFL products;
- Hang down signs from ceiling fans ("wobblers" on room A/C's);
- Counter cards for rebate forms;
- Community relations events;
- Lighting displays in retail stores to show different CFL colors and to compare them to incandescent bulbs;
- Electric meters in retail stores to demonstrate usage differences between incandescent and CFL bulbs;
- Comparators in retail stores to show lumen differences between the two types of bulb;
- Lighting clinics in retail stores to explain to customers about specialty lights and color differences, and to help customers identify the best product for their needs; and
- Promotion through the ActOnEnergy.com Website, which was designed specifically for branding and promoting all of Ameren Illinois' energy-efficiency programs.

Ameren Illinois also advertised CFL recycling locations in 2010. A total of 125 locations across Ameren Illinois territory were available for CFL recycling: Ace Hardware, True Value, Springfield Electric, and county health departments. The recycling capability was advertised at lighting clinics, in bill inserts and on the Website.

Payment and Invoicing

EFI is responsible for paying incentives to manufacturers and rebates to consumers. At the end of each two week tracking period, manufacturers send incentive applications to EFI, who verify results to ensure accuracy and compliance with allocations. EFI enters both the manufacturer incentive and rebate amounts into the program database, and issues incentive checks. All checks are issued within two to four weeks of receipt. Once EFI pays the incentive applications, sales data and EFI's invoice are submitted to CSG through a file transfer process Website. CSG pays EFI for the manufacturer incentives, plus a commission based on the percentage of sales. EFI is usually paid within 30 to 45 days.

CSG pays APT on a monthly basis for time and expenses within the contractually agreed-upon budget, within 30 days of invoicing. AIU pays CSG for its time and expenses, also within 30 days of its invoice. All stakeholders reported satisfaction with the payment process and timing.

PY3 Proposed Program Changes

Program goals increase significantly in PY3; thus, Ameren Illinois and its contractors and subcontractors are making plans to further increase the number of retailer outlets participating in the program. Interviewees mentioned that they plan to change the colors of their POP signage, adding splashes of the color red to increase visibility. Ameren Illinois also decided to replace dehumidifier appliances with air purifiers. According to one stakeholder, "*We wanted to reduce the dependency on weather*" for appliance sales. One additional change is the decision to eliminate ceiling fans from the program due to low qualified product availability and the low response rate in PY2.

5. Conclusions and Recommendations

The following conclusions and recommendations are offered based on findings presented in the previous chapters.

Conclusions

The program increased CFL sales over PY1 and added appliance rebates during PY2. Gross savings in PY2 were higher than PY1.

Table 31 summarizes the program's gross savings for PY2 and compares results to PY1.

Table 31. Program Gross Savings

Product	Total Program Sales	Realized Gross Energy Savings (kWh)	Realized Gross Demand Savings (kW)
Ceiling Fan	236	20,532	1.55
Room Air Conditioner	1,922	172,980	132.62
Dehumidifier	8,994	1,708,860	629.58
CFLs – PY2	1,004,338	38,451,904	2,153.31
Total - PY2	1,015,490	40,350,187	2,916.83
Total (CFLs) - PY1	815,403	32,631,000	1,840

Evidence of market transformation is occurring, as the random survey of Ameren Illinois customers showed that those who are "very familiar" with CFLs has increased to 44 percent in PY2 versus 37 percent in PY1.[18] Also, 93 percent of Ameren Illinois customers now have at least one CFL installed in their home, compared to 75.6 percent in PY1.[19]

Ameren Illinois made efforts in PY2 to deepen customer's knowledge of CFLs. One recommendation made in PY1 was to educate customers on the importance of using the appropriate specialty CFLs in corresponding fixtures. Based on our telephone survey, 57 percent of those with CFLs in dimmable fixtures are using dimmable CFLs, up from 44 percent in PY1. Likewise, the percentage of respondents who incorrectly used regular CFLs in 3-way fixtures decreased from 58 percent in PY1 to 33.3 percent in PY2. Numerous trainings and store events were performed by APT.

Consumer satisfaction with CFLs in general dropped since PY1, and those with concerns about the use of CFLs increased from 12 percent to 20 percent. Noted concerns are mercury content,

[18] The difference is statistically significant at the 90 percent confidence level.
[19] The difference is statistically significant at the 90 percent confidence level.

fire hazards, brightness, delayed start of bulb, short life span, ease of breakage, proper fit in fixtures, limited functionality in cold weather, and aesthetic concerns.

Retailers and manufacturers seemed pleased with the program and all indicated seeing definite sales increases due to the program. One noted concern was the "on" and "off" nature of the incentives, which Ameren Illinois regularly adjusts based on its budget progress. Stakeholders acknowledged that their regular meetings were used to determine which CFL incentives to turn "on" or "off" depending on their budget. In particular, incentives on multiple bulb packages might be turned "off" when Ameren Illinois was nearing its budget limit. Stakeholders also reported that they originally tried to encourage mostly specialty CFL purchases by limiting the standard spiral incentives in the early months of PY2. They felt this was not successful and added the spiral CFLs back in to ensure total CFL sales were robust. The share of specialty CFLs to the total bulb sales was approximately the same, at 17 percent of total sales for both years,

Recommendations

- ***Incorporate evaluation requirements into corporate retailer/manufacturer MOUs:*** Corporate retailers and manufacturers are not always cooperative in responding to interview requests and providing information on their CFL sales levels needed to calculate NTG ratios. Manufacturers in particular were unwilling to report their overall sales levels of CFLs and the share of sales that are program bulbs. Several corporate retailer contacts were unwilling to schedule an interview at all. Making it a requirement that suppliers cooperate with evaluation approaches will help ensure the future evaluations' integrity.

- ***Consider making the incentives available year-round with select partners***. Several CFL programs across the country follow this model. To meet the more aggressive PY3 goals and budget, Ameren Illinois may need to offer more incentives throughout the program year.

- ***Continue focusing on consumer education.*** As reported by APT, store events and trainings have been effective in increasing consumer awareness and education about CFLs. Evidence of increases in those "very familiar" with CFLs is indicative of this effort, as is the reduction in consumers who improperly put standard CFLs in specialty fixtures. Cadmus recommends continuing to focus on this important aspect of the program.

- ***Hire additional field staff for store education events.*** The number of retailers selling CFLs has increased considerably since PY1, and more retailers are expected to become involved for PY3. Stakeholders suggest that store events have been key drivers in the education and sales of CFLs. Ameren Illinois needs to support these retailers with increased numbers of field representatives to be able to maintain quality control and offer store events to keep up with increased goals for PY3. While participating stores increased from 122 to over 600 (including appliance retailers) from PY1 to PY2, the number of field representatives stayed the same.

- ***Improve visibility of store marketing materials.*** Ameren Illinois and its implementation contractors indicated that they are changing their signage to include splashes of red,

which will make them stand out and be more visible. Cadmus agrees with this proposed change.

- ***Ameren Illinois should continue to promote proper disposal of CFLs, and consider offering a discount coupon for customers to recycle their CFLs at a local participating retailer***. Even with Ameren Illinois' efforts to educate and offer recycling options, the majority of respondents who had disposed of CFLs had done so by throwing them in the trash. The CFL survey also confirmed that the mercury content is becoming a greater concern among CFL users. Education about mercury as well as recycling incentives could be a future option to address an important potential CFL barrier.
- ***Expand the appliance program***. In order to meet the PY3 savings goals, Ameren Illinois will need to increase the number of appliances for which it offers incentives. Rather than replacing weather-dependent appliances with non-weather dependent appliances, Cadmus recommends leaving existing appliances (as long as they are cost-effective) and adding additional cost-effective appliances.
- ***Track appliance-specific data in database.*** While Ameren Illinois tracked the number of appliances sold in PY2 through the database, specifics such as size or efficiency levels were not documented. Cadmus was able to obtain some specific additional data on appliances sold after the fact; however, these data were not available for every appliance sold. We recommend incorporating appliance size and efficiency levels directly into the data tracking system.

Appendix A. CFL User Survey

Multi-state CFL Evaluation

Ameren Illinois Utilities

NOTE:

1. Questions were asked of all respondents unless indicated otherwise.
2. Open-ended responses are captured in the file "Ameren IL CFL Open Ends.xls"
3. A code of -8 means the respondent answered, "Don't know"
4. A code of -9 means the respondent Refused to answer the question.

Awareness of Energy Saving Light Bulbs

S1 I'd like to ask you a few questions about your awareness of different types of light bulbs. Before this call today, had you ever heard of compact fluorescent light bulbs, or CFLs?

1 Yes

2 No

-8 Don't know

-9 Refused

[ASK S2 IF S1 = 2, -8, -9 OTHERWISE, SKIP TO S3]

S2 Compact fluorescent light bulbs – also known as CFLs – usually do not look like regular incandescent bulbs. The most common type of compact fluorescent bulb is made with a glass tube bent into a spiral, resembling soft-serve ice cream, and it fits in a regular light bulb socket. Before today, were you familiar with CFLs?

1 Yes

2 No

-8 Don't know

-9 Refused

[ASK S3 IF S1 =1 OR S2=1, OTHERWISE SKIP TO BUY1]

S3 Would you say that you are very familiar, somewhat familiar, not too familiar, or not at all familiar with CFLs?

1 Very Familiar

2 Somewhat Familiar

3 Not Too Familiar

4 Not At All Familiar

-8 Don't know

-9 Refused

Q1 Have you or anyone else in your household ever purchased or been given any compact fluorescent light bulbs or CFLs to use in a home?

1 Yes, I Have

2 Yes, Someone Else Has *[Ask To Speak To That Person And Repeat Intro]*

3 No

-8 Don't know

-9 Refused

[IF Q1 = 2, RESTART INTERVIEW WITH CORRECT RESPONDENT. OTHERWISE, CONTINUE.]

S4 *[SKIP THIS QUESTION IF S3=4]* While most CFLs are spiral shaped, CFLs also come in other shapes and some have special features. I'm going to read you a list of different types of CFLs. For each type, please tell me if you are very familiar, somewhat familiar, not too familiar, or not at all familiar with that type of CFLs. *[RANDOMIZE ORDER OF A THROUGH F]*

[READ IF NECESSARY WITH EACH ITEM] Are you very familiar, somewhat familiar, not too familiar, or not at all familiar with this type of CFLs?

1 Very Familiar

2 Somewhat Familiar

3 Not Too Familiar

4 Not At All Familiar

-8 Don't know

-9 Refused

S4A Dimmable CFLs. This refers to a CFL that can be used with a dimmer switch to adjust the level of brightness

S4B 3-way CFLs. This refers to a CFL that has the ability to shine at 3 different levels of brightness in a 3-way lamp

S4C Flood or recessed lighting CFLs

S4D Candelabra CFLs. This refers to a CFL with a small base for use in a decorative fixture, such as a chandelier.

S4E Globe CFLs. This refers to a CFL that has a round shape and might be used in a fixture, such as a vanity light

S4F A-shaped CFLs. This refers to a covered CFL that is made to look and feel like a traditional incandescent or regular light bulb.

CFL Use and Satisfaction

USE1 Have you EVER used a compact fluorescent light bulb, or CFL, on the interior or exterior of your home?

1 Yes

2 No

-8 Don't know

-9 Refused

[IF USE1 = 2, -8, -9, GO TO INTRO PRECEDING Q BUY1.]

USE2 Do you currently have CFLs installed on the interior or exterior of your home?

1 Yes

2 No

-8 Don't know

-9 Refused

USE3 Approximately how long ago did you FIRST use a compact fluorescent light bulb?

[RECORD NUMBER OF YEARS OR MONTHS, NOT A RANGE. IF LESS THAN ONE YEAR, RECORD MONTHS.IF "DON'T KNOW," PROBE: Is it less than or more than five years ago? WORK FROM THERE TO GET AN ESTIMATE]

__ *[RECORD RESPONSE]*

-8 Don't know

-9 Refused

USE3A RECORD MONTHS

USE3B RECORD YEARS

USE4 *[IF USE2 = YES]* Please tell me which of the following statements most accurately describes why you currently use CFLs at your home. *[RANDOMIZE AND READ]*

1 I want to save energy.

2 I want to save money.

3 I want to help the environment.

4 I want to reduce dependence on foreign oil, coal, or gas.

-8 Don't know

USE5 How satisfied are you with the compact fluorescent light bulbs currently in your home or, if you have no CFLs installed right now, the ones you have used in the past? Would you say….?

1 Very satisfied

2 Somewhat satisfied

3 Neither satisfied nor dissatisfied

4 Somewhat dissatisfied

5 Very dissatisfied

-8 Don't know

-9 Refused

USE6. *[IF USE5 > 2]* Why are you not satisfied?

[DO NOT READ, ALLOW MULTIPLE RESPONSE] [IF RESPONDENT SAYS "BRIGHTNESS" ASK TO CLARIFY IF TOO BRIGHT OR NOT BRIGHT ENOUGH; IF RESPONDENT SAYS "DID NOT LIKE" ASK WHAT ABOUT THE CFL THEY DIDN'T LIKE]

1 Mentioned

	0 Not Mentioned
USE6_1	Burned out
USE6_2	Broke/stopped working
USE6_3	Not bright enough
USE6_4	Too bright
USE6_5	Delay in light coming in
USE6_6	Light color
USE6_7	Flickering
USE6_8	Fit in fixture
USE6_9	Appearance
USE6_10	Mercury/disposal hazard
USE6_11	Other or non-specific health concerns
USE6_12	Savings less than expected
USE6_13	Other *[SPECIFY]*
USE6_14	Don't know
USE6_15	Refused

Purchases of Lighting Products

BUY1 Now I have a few questions about where you buy your light bulbs.

Where do you buy incandescent, or regular light bulbs? *[DON'T READ, RECORD UP TO THREE RESPONSES]*

1 Mentioned

0 Not Mentioned

-1 CATI Error

BUY1_1 Grocery store or supermarket, such as County Market, or Kroger

BUY1_2 Warehouse store, such as Sam's Club

BUY1_3 Home improvement store, such as Home Depot or Lowe's

BUY1_4 Hardware store, such as TrueValue or ACE Hardware

BUY1_5 Mass merchandise or discount department store, such as a Wal-Mart, K-Mart, or Target

BUY1_6 Drugstore, such as CVS

BUY1_7 Convenience store, such as 7-Eleven

BUY1_8 Specialty lighting or electrical store

BUY1_9 Home furnishing store, such as a Bed, Bath, and Beyond, Linens and Things, or Pottery Barn

BUY1_10 Mail order catalogs

BUY1_11 Through the Internet

BUY1_12 Bargain store, such as Family Dollar

BUY1_13 Office supply store, such as Office Depot or Staples

BUY1_14 Any other types of stores I did not mention? *[Specify]*

BUY1_15* Do not buy incandescents

[IF Q1 = 3, -8, -9 SKIP TO BUY3]

BUY2 Where do you buy **CFLs**? *[DON'T READ, RECORD UP TO THREE RESPONSES]*

1 Mentioned

0 Not Mentioned

BUY2_1 Grocery store or supermarket, such as County Market, or Kroger

BUY2_2 Warehouse store, such as Sam's Club

BUY2_3 Home improvement store, such as Home Depot or Lowe's

BUY2_4 Hardware store, such as TrueValue or ACE Hardware

BUY2_5 Mass merchandise or discount department store, such as a Wal-Mart, K-Mart, or Target

BUY2_6 Drugstore, such as CVS

BUY2_7 Convenience store, such as 7-Eleven

BUY2_8 Specialty lighting or electrical store

BUY2_9 Home furnishing store, such as a Bed, Bath, and Beyond, Linens and Things, or Pottery Barn

BUY2_10 Mail order catalogs

BUY2_11 Through the Internet

BUY2_12 Bargain store, such as Family Dollar

BUY2_13 Office supply store, such as Office Depot or Staples

BUY2_14 Any other types of stores I did not mention? *[Specify]*

BUY3 Approximately how many minutes, on average, does it take you get to the nearest large discount store or home improvement store such as WalMart, Home Depot, or Lowes? Is it….*[IF RESPONDENT SAYS THEY DO NOT SHOP AT THAT THOSE STORES, SAY, "That's okay. But if you did, about how long would it take you to get there?"]*

1 0-14 minutes

2 15-29 minutes

3 30-59 minutes

4 60-90 minutes

5 More than 90 minutes

-8 Don't know

-9 Refused

Climate Change Attitudes/Efficacy

GW1 I am now going to ask you some questions about global warming, climate change, and the environment.

Based on your understanding of the facts, is the earth's average temperature currently rising as a result of human activity?

1 Definitely yes

2 Probably yes

3 Probably no

4 Definitely no

-8 Don't know

-9 Refused

GW2 With which one of these statements about the environment and the economy do you most agree—*[RANDOMIZE AND READ]*

1 Protection of the environment should be given priority, even at the risk of curbing economic growth OR

2 Economic growth should be given priority, even if the environment suffers to some extent?

-9 Refused

GW3 I'm going to read you a list of energy-related concerns. As I read each one, please tell me if you personally worry about this problem a great deal, a fair amount, only a little, or not at all. First, how much do you personally worry about – *[READ AND RANDOMIZE]*

1 A great deal

2 A fair amount

3 Only a little

4 Not at all

-8 Don't know

-9 Refused

GW3A Global warming

GW3B Running out of fossil fuels such as coal, oil, and natural gas

GW3C Dependence on other countries for oil

GW4 Please tell me if you strongly agree, agree, disagree, or strongly disagree with each of the following statements? *[RANDOMIZE AND READ]*

1 Strongly agree

2 Agree

3 Disagree

4 Strongly Disagree

-8 Don't know

-9 Refused

GW4A Over the next few months I expect to take measures to reduce how much energy my household uses.

GW4B I can't do much more than I'm already doing to reduce the amount of energy my household uses.

GW4C It is too expensive for me to reduce my household energy use.

GW4D I believe my actions have an influence on global warming and climate change.

Early Adopter Behavior

EA1 Please tell me if you strongly agree, agree,disagree, or strongly disagree with each of the following statements? *[RANDOMIZE AND READ]*

1 Strongly agree

2 Agree

3 Disagree

4 Strongly Disagree

-8 Don't know

-9 Refused

EA1A I am skeptical of new technology. I like to wait until a new technology Is proven before I buy it.

EA1B I always like to have the latest gadget.

EA1C I am comfortable learning about how new technologies work.

Customer Demographics

DEM1 Now I have a few questions for statistical purposes only.

What type of home do you live in? Is it a . . .?

1 Single-family detached house

2 Single-family attached house (townhouse, row house, or duplex)

3 Apartment building with 2-4 units

4 Apartment building with 5 or more units

5 Mobile home or house trailer

6 Other *[Specify]*

-8 Don't know

-9 Refused

[ASK Q DEM2 IF Q DEM1 = 1, 2. OTHERWISE, SKIP TO DEM3.]

DEM2 When was your home built? Please stop me when I get to the appropriate category.

1 1930s or earlier

2 1940s

3 1950s

4 1-80s

5 1-90s

6 1980s

7 1990s

8 2000 or later

-8 Don't know

-9 Refused

DEM3 Do you or members of your household own this home or do you rent?

1 Own/Buying

2 Rent/Lease

3 Occupied Without Payment Of Rent

4 Other *[Specify]*

-8 Don't know

-9 Refused

DEM4 Approximately how many square feet is your home?

1 Less than 1,400

2 1,400 – 1,999

3 2,000 – 2,499

4 2,500 – 3,499

5 3,500 – 3,999

6 4,000 – 4,999

7 5,000 or more

-8 Don't know

-9 Refused

DEM5 How many rooms are in your home, not counting bathrooms?

__ *[Record Response]*

66 10 or more

-8 Don't know

-9 Refused

DEM6 What is the highest level of education that the head of household has completed so far?

[READ CATEGORIES, IF NECESSARY.]

1 Less Than Ninth Grade

2 Ninth To Twelfth Grade; No Diploma

3 High School Graduate (Includes GED)

4 Some College, No Degree

5 Associates Degree

6 Bachelors Degree

7 Graduate Or Professional Degree

-8 Don't know

-9 Refused

DEM7 Counting yourself, how many people normally live in this household on a full time basis? Please include everyone who lives in your home whether or not they are related to you and exclude anyone who is just visiting or children who may be away at college or in the military.

__ *[RECORD NUMBER OF PEOPLE]*

-8 Don't know

-9 Refused

DEM8 Are you satisfied or dissatisfied with your standard of living, that is, all the things you can buy or do? Would you say that you are…?

1 Very satisfied

2 Somewhat satisfied

3 Neither satisfied nor dissatisfied

4 Somewhat dissatisfied

5 Very dissatisfied

-8 Don't know

-9 Refused

DEM9 Do you pay your electric bill directly to your electric company, or is your electricity included in your rent or condo fee?

1 Pay Directly To Electric Company

2 Electricity Included In Rent Or Condo Fee

3 Paid For In Some Other Way

-8 Don't know

-9 Refused

DEM10 Is your home…

1 All electric

2 Gas and electric

3 Some other combination of energy sources

-8 Don't know

-9 Refused

DEM11 Please tell me the primary language spoken in your home. *[PROMPT IF NECESSARY]*

1 English

2 Spanish

3 Mandarin

4 Cantonese

5 Tagalog

6 Korean

7 Vietnamese

8 Russian

9 Japanese

10 Other *[Specify]*

-8 Don't know

-9 Refused

DEM12 Do you consider yourself to be Spanish, Hispanic, or Latino?

1 Yes

2 No

-8 Don't know

-9 Refused

DEM13 Do you consider yourself to be . . .?

[SELECT ONE RESPONSE ONLY. IF MIXED RACE OR MULTIPLE RACES, RECORD IN 'OTHER']

1 White

2 Black or African-American

3 American Indian, Native Hawaiian, Pacific Islander, or Alaska Native

4 Asian

5 Other *[Specify]*

-8 Don't know

-9 Refused

DEM14 Which category best describes your total household income in 2009 before taxes? Please stop me when I get to the appropriate category.

1 Less than $15,000

2 $15,000 to less than $20,000

3 $20,000 to less than $30,000

4 $30,000 to less than $40,000

5 $40,000 to less than $50,000

6 $50,000 to less than $75,000

7 $75,000 to less than $100,000

8 $100,000 to less than $150,000

9 $150,000 or more

-8 Don't know

-9 Refused

Recruit For On-Site Survey

R1 Within a few weeks we will be offering people $50 to allow a trained technician to visit their home. The visit should take about an hour, during which time a technician will gather information on the lighting products used in your home. *[BY SAYING YES, YOU ARE SIMPLY AGREEING TO BE RE-CONTACTED TO SET UP AN APPOINTMENT. DURING THE VISIT, THERE WILL BE NO ATTEMPT TO SELL YOU ANYTHING]*

Would you be interested in being a part of this type of visit?

1 Yes

2 No *[CONTINUE TO ADDITIONAL QUESTIONS]*

3 Don't know/Refused

R1A *[IF R1=3]* That is OK, you do not have to decide now. Would it be OK if I take your name and have someone call you when we are scheduling these visits?

1 Yes

2 No *[CONTINUE TO ADDITIONAL QUESTIONS]*

R2 *[IF YES]* Can I confirm your name? *[RECORD]*

R3 *[IF YES]* Can I confirm your address, city, state and zipcode? *[RECORD]*

R4 *[IF YES]* And is the number we called today the best number to call you about a visit? *[RECORD]*

Purchase Questions

[ASK IF USE2=1, ELSE SKIP TO PUR12]

PUR1 Now I just have a few more questions to ask you.

About how many CFLs are currently installed on the inside or outside of your home?

__ *[RECORD RESPONSE]*

-8 Don't know

-9 Refused

PUR2 Are you currently storing any CFLs at your home? This could be in your closet, your pantry, your garage, or anywhere at your home.

1 Yes

2 No *[Skip to PUR4]*

-8 Don't know

-9 Refused

PUR3 How many CFLs are you storing at your home?

__ *[RECORD RESPONSE]*

-8 Don't know

-9 Refused

PUR4 How did you first learn about CFLs? *[DO NOT READ. SELECT ALL THAT APPLY. PROBE ONCE FOR ADDITIONAL RESPONSES]*

1 Mentioned

0 Not Mentioned

PUR4_1 Through the local utility or electric company

PUR4_2 Through an energy audit in my home

PUR4_3 Through an ad or story in TV, radio newspaper, magazine, sponsor other than local electric company

PUR4_4 Retail store display or ad

PUR4_5 Friend or family member

PUR4_6 Work; co-worker; promotion in the workplace

PUR4_7 Other *[Specify]*

PUR4_8 Don't know

PUR4_9 Refused

PUR5 Approximately how many CFLs – in total – did you buy or receive in the last 6 months to use in a home? If a package contained multiple CFLs, please count each CFL bulb separately.

__ *[RECORD RESPONSE][IF "0" SKIP TO PUR9]*

-8 Don't know *[Skip to PUR9]*

-9 Refused *[Skip to PUR9]*

PUR6 How many of these were installed and how many were put into storage?

__ *[RECORD RESPONSE]*

-8 Don't know

-9 Refused

PUR6A Number of CFLs Installed

PUR6B Number of CFLs Storage

PUR7 Did you buy or receive any of the CFLs we just discussed as part of an Ameren IL promotion or sponsored sale? There might have been a sign at the store mentioning Ameren.

1 Yes

2 No (Skip to PUR9)

-8 Don't know

-9 Refused

PUR8 How many of the *[SHOW PUR5]* bulbs you purchased or received in the last year were part of the Ameren IL promotion or sponsored sales?

__ *[RECORD RESPONSE]*

-8 Don't know

-9 Refused

PUR9 Do you usually keep a supply of light bulbs on hand, or do you tend to buy replacements as bulbs burn out?

1 Keep a supply on hand

2 Buy replacements as bulbs burn out

3 Both

-8 Don't know

-9 Refused

PUR10 Have you ever installed and then later removed a CFL from the interior or exterior of your home?

1 Yes

2 No *[Skip to OTH1]*

-8 Don't know *[Skip to OTH1]*

-9 Refused *[Skip to OTH1]*

PUR11 Why did you remove the bulb(s)? *[DO NOT READ. SELECT ALL THAT APPLY. PROBE ONCE FOR ADDITIONAL RESPONSES]*

1 Mentioned

0 Not Mentioned

PUR11_1 Burned out

PUR11_2 Broke/stopped working

PUR11_3 Bulb is too bright

PUR11_4 Bulb is not bright enough

PUR11_5 Delay in light coming on

PUR11_6 Did not work with dimmer switch

PUR11_7 Doesn't fit properly

PUR11_8 Stuck out of fixture

PUR11_9 Light color

PUR11_10 Interference with radio, TV, other electronic devices

PUR11_11 Other *[Specify]*

PUR11_12 Don't know

PUR11_13 Refused

Other Bulb Purchases

OTH1 Now I have a few questions about some other types of light bulbs you may have purchased recently.

How many incandescent light bulbs – in total – did you buy in the last six months to use in a home? Please try to estimate the total number of incandescent light bulbs, as opposed to packages.

__ *[RECORD RESPONSE]*

-8 Don't know

-9 Refused

OTH2 During the six months, how many other types of bulbs – besides regular incandescent light bulbs and CFLs – did you purchase? This might include halogen bulbs, long fluorescent tubes, and other types of specialty light bulbs. *[RECORD NUMBER OF BULBS. IF "DON'T KNOW," PROBE: "Is it less than or more than 5 bulbs?" AND WORK FROM THERE TO GET AN ESTIMATE]*

__ *[RECORD RESPONSE]*

-8 Don't know

-9 Refused

OTH3 Do you currently have any CFLs installed in dimmable or three-way fixtures? (By dimmable, I mean lighting fixtures where you can control the amount of light given off by the map by using a dimming switch. By three-way, I mean lighting fixtures that have a regular switch but also let you adjust the amount of light to two or three different levels, besides on and off)

1 Dimmable

2 Three-way

3 Both

4 None *[Skip to OTH10]*

-8 Don't know

-9 Refused

OTH4 *[ASK IF OTH3 = 1 OR 3, ELSE SKIP TO OTH7]* Are the CFLs you are using in dimmable fixtures made to work in dimmable fixtures, or are they just regular CFLs?

1 Made for dimmable fixtures

2 Regular CFLs

3 Other *[Specify]*

-8 Don't know

-9 Refused

OTH5 On a scale of 1 to 5, with 1 being very dissatisfied and 5 being very satisfied, how satisfied are you with the CFLs you are currently using in dimmable fixtures?

__ *[RECORD RESPONSE]*

-8 Don't know

-9 Refused

OTH6 *[ASK IF OTH5 < 5, ELSE SKIP TO OTH7]* In what ways are you not completely satisfied with the CFLs you are currently using in dimmable fixtures? *[RECORD RESPONSE VERBATIM]*

[RECORD RESPONSE]

[ASK OTH7 IF OTH3 = 2 OR 3 ELSE SKIP TO OTH10]

OTH7 Are the CFLs you are using in three-way fixtures made to work in three-way fixtures, or are they just regular CFLs?

1 Made for three-way fixtures

2 Regular CFLs

3 Other *[Specify]*

-8 Don't know

-9 Refused

OTH8 On a 1 to 5 scale, with 1 being very dissatisfied and 5 being very satisfied, how satisfied are you with the CFLs you currently using in three-way fixtures?

__ *[RECORD RESPONSE]*

-8 Don't know

-9 Refused

[ASK OTH9 IF OTH8 < 5 ELSE SKIP TO OTH10]

OTH9 In what ways are you not completely satisfied with the CFLs you currently using in three-way fixtures?

__ *[RECORD RESPONSE]*

-8 Don't know

-9 Refused

OTH10 Do you have any other concerns with the use or operation of CFLs? *[DO NOT READ. ALLOW MULTIPLE RESPONSE]*

1 Mentioned

0 Not Mentioned

OTH10_1 None

OTH10_2 Mercury

OTH10_3 Requires special disposal/Must be recycled

OTH10_4 Fire hazard

OTH10_5 Flickering

OTH10_6 Color of light

OTH10_7 Too bright

OTH10_8 Not bright enough

OTH10_9 Slow start-up/Delay coming on

OTH10_10 Burn out too soon/short life

OTH10_11 Expensive

OTH10_12 Other *[Specify]*

OTH10_13 Don't know

OTH10_14 Refused

OTH11 Do you have any concerns with the disposal of CFLs? *[DO NOT READ. ALLOW MULTIPLE RESPONSE]*

1 Mentioned

0 Not Mentioned

OTH11_1 None

OTH11_2 Mercury

OTH11_3 Requires special disposal/Must be recycled

OTH11_4 Fire hazard

OTH11_5 Other *[Specify]*

OTH11_6 Don't know

OTH11_7 Refused

OTH11_8* Unsure how to dispose of CFLs

OTH12 Have you ever disposed of any CFLs that have broken, burned out, or are no longer useful?

1 Yes

2 No *[Skip to ANP1]*

-8 Don't know *[Skip to ANP1]*

-9 Refused *[Skip to ANP1]*

OTH13 How did you dispose of them? *[DO NOT READ. ALLOW MULTIPLE RESPONSE]*

OTH13_1 Threw away in trash

OTH13_2 Recycled / dropped off at hazardous waste center

OTH13_3 Recycled / dropped off at Home Depot or Ace Hardware

OTH13_4 Other *[Specify]*

OTH13_5 Don't know

OTH13_6 Refused

ARP Non-Participant Screening

ANP1 Now I have a few questions about appliances.

Have you gotten rid of an operating refrigerator or freezer in your home over the past year -- since April 2009?

1 Yes, refrigerator(s)
2 Yes, freezer(s)
3 Yes, both appliances
4 No *[THANK AND TERMINATE]*
-8 Don't know *[THANK AND TERMINATE]*
-9 Refused *[THANK AND TERMINATE]*

ANP1R *[IF ANP1 = 1 OR 3]* How many refrigerators did you get rid of?

__ *[RECORD RESPONSE]*
-8 Don't know
-9 Refused

ANP1F *[IF ANP1 = 1 OR 3]* How many freezers did you get rid of?

__ *[RECORD RESPONSE]*
-8 Don't know
-9 Refused

ANP2 Did the appliance(s) work?

1 Yes
2 No *[THANK AND TERMINATE]*

3 Not all appliances worked, but some did
-8 Don't know *[THANK AND TERMINATE]*
-9 Refused *[THANK AND TERMINATE]*

ANP3 Did you have the *[REFRIGERATOR, FREEZER]* picked up through the Ameren Illinois Utilities program where a contractor for Ameren picks up and recycles old, operating refrigerators and freezers and you received $35 for your participation?

1 Yes *[THANK AND TERMINATE]*
2 No
3 Not all appliances were recycled through the program, but some were
-8 Don't know *[THANK AND TERMINATE]*
-9 Refused *[THANK AND TERMINATE]*

Appliance Characteristics

ANP4_1 *[IF ONE APPLIANCE DISCARDED]* Now I'm going to ask you some specific questions about the *[REFRIGERATOR, FREEZER]* you got rid of. *[SKIP TO ANP5]*

[IF MORE THAN ONE APPLIANCE DISCARDED] Was the most recent working appliance you got rid of a refrigerator or a freezer?

1 Refrigerator *[SAY: Thank you. Please answer the following questions with only that [REFRIGERATOR, FREEZER] in mind]*
2 Freezer *[SAY: Thank you. Please answer the following questions with only that [REFRIGERATOR, FREEZER] in mind]*
-8 Don't know *[THANK AND TERMINATE]*
-9 Refused *[THANK AND TERMINATE]*

ANP5 At the time you discarded it, approximately how old was the *[REFRIGERATOR, FREEZER]?*

__ *[RECORD YEARS]*

-8 Don't know

-9 Refused

ANP6 For most of 2009, where did you have the *[REFRIGERATOR, FREEZER*] in your home? *[READ LIST]*

1 Kitchen
2 Garage
3 Porch/patio
4 Basement
5 Other *[Specify]*
-8 Don't know
-9 Refused

ANP7 How would you describe the condition of the *[REFRIGERATOR, FREEZER]* you got rid of?

Would you say …? *[READ, RECORD ONE RESPONSE ONLY.]*

1 It worked and was in good physical condition.
2 It worked but needed repairs or had some problems *[EXAMPLE: IT WOULDN'T DEFROST].*
-8 Don't know
-9 Refused

ANP8 Did you replace the *[REFRIGERATOR, FREEZER]?*

1 Yes
2 No *[SKIP TO ANP12]*
-8 Don't know *[SKIP TO ANP12]*
-9 Refused *[SKIP TO ANP12]*

ANP9 What did you replace it with?

1 A brand new ENERGY STAR *[REFRIGERATOR, FREEZER]*
2 A brand new non-ENERGY STAR *[REFRIGERATOR, FREEZER]*
3 A used *[REFRIGERATOR, FREEZER]* to replace it.
-8 Don't Know *[SKIP TO ANP12]*
-9 Refused *[SKIP TO ANP12]*

ANP10 Did you buy your replacement appliance from …? *[READ LIST]*

1 A National Retailer or big box store, such as Sears, Home Depot, or Best Buy
2 A locally-owned appliance dealership or store
3 Individual
-8 Don't know
-9 Refused

[IF ANP9= 3, THEN ASK ANP11]

ANP11 What would you estimate the age of your replacement appliance to be?

__ *[RECORD YEARS]*
-8 Don't know
-9 Refused

ANP12 How did you get rid of your old [refrigerator, freezer]?

[DON'T READ, BUT PROMPT IF NEEDED: "Did you give it away or sell it?"]

1 Took it to a recycler or scrap dealer.
2 Took it to the dump or threw it away.
3 Sold it to a friend, acquaintance or relative.
4 Sold it to a used refrigerator/freezer dealer.
5 Sold it via garage sale, estate sale, or newspaper ad.
6 Sold it when you moved to new occupant.
7 Gave it away to a friend or family member.
8 Left it out on the curb with a "free" sign on it.
9 Hired someone to pick it up (for junking or dumping).
10 Dealer I bought a new one from took it away.
11 Left it behind when moved (for new occupant).
12 Other *[Specify]*
-8 Don't know
-9 Refused

DEM15 *[INTERVIEWER: DO NOT READ.]*

Gender:

1 Female
2 Male
-8 Don't know

Appendix B. Stakeholder Interview Guide

[This interview guide is to be used for interviewing program management staff at AmerenIU, program delivery staff at Conservation Services Group (CSG) and staff at Applied Proactive Technologies. Not all questions are applicable to all people being interviewed.]

Thank you for taking the time to talk with us today about the program.

As you know, The Cadmus Group, Inc., is evaluating the program on behalf of AmerenIU. The purpose of this interview is to gather information on program processes, operations, and activities since the program's inception. Please note that this is not an audit, and that your comments will be kept confidential. Our goal is to create a complete description of the program from all perspectives so that we can identify what is working well and what can potentially be improved. Because of your role in program implementation, your perspective is very important to us, and we appreciate your taking the time to share it with us.

We expect this interview to take less than an hour of your time.

Introduction

1. What is your role in the Ameren IU Lighting & Appliance program? (probe for: title, responsibilities, number of staff supervising/assisting) For how long have you had this role?

2. Which program aspects (design, marketing, delivery, administration, customer response) are you most familiar with?

3. What do you believe are the program's primary goals? Do you have any metrics you track that are associated with these goals?

4. Would you say that these goals are currently being met? Why or why not?

5. In general terms, will you please walk me through the your part of the delivery of Ameren IU's Lighting Program? (probe for marketing, contact with retail stores, promotional materials, tracking results, interaction with other program stakeholders)

Program Delivery

PY2 Implementation

6. What changes were made in PY2 in your program and why? [Probe for how appliances were incorporated, any new lighting retailers added, other changes?].

7. How do you control the rate at which program CFLs are sold?
8. How did you decide the allocation of spiral vs. specialty CFLs to the program?
9. Did you have any limits on appliance rebates? How are they determined?

PY2 Marketing Changes

10. Has anything changed with the program marketing for lighting in PY2?
11. Are appliances marketed differently than lighting?
12. What is your strategy for identifying the retailers for the appliance portion of the program?
13. What methods have you used for marketing the program to these retailers? (phone calls, canvassing, business associations, or other)?
14. How effective would you say those methods have proved to be?
15. What marketing materials do you use? (ask for copies of marketing materials)
16. How effective are these marketing materials?
17. Do you market directly to consumers? (What approaches are used?)
18. How effective would you say those methods have been?
19. Were any other trade allies or market players involved in marketing? How?

Market Feedback

20. What has been the response of the retailers to this program?
21. Do you think customers are generally aware of the program?

Products

22. How are particular appliances determined to be eligible for the program?
23. How were the incentive amounts determined?
24. At what point in the purchase cycle are the appliance incentives paid (i.e. to consumers, to retailers, or manufacturers)?
25. How are customers made aware of the discounts or incentives?

26. Do eligible products (lights or appliances) have any identifying information on their package?
27. How is data collected on product purchases? What information is collected? Have there been any difficulties with data tracking?
28. Do you feel the incentives offered by the Program are sufficient for attracting participants?
29. Are you satisfied with the range of products that are eligible for incentives?

Payment and Invoicing

30. How are all the stakeholders (Ameren) or ("you" if a contractor) paid for their (your) part in the program?
31. Generally, how long after you [or "the contractor" if speaking with Ameren employee] submit(s) the invoice(s) are you paid for a project?
32. If there are problems with an invoice, how are they generally resolved?

Overall program

33. Other than the tracking we discussed earlier, what other reporting is required by the program?
34. Is that amount of reporting sufficient?
35. What areas of program delivery would you say work really well?
36. What areas do you believe do not work well?
37. What ideas do you have for improving these areas?
38. Is there anything else, specifically you would change about the program?
39. Have there been any changes to program design since implementation began?
40. If yes, what are the reasons for these changes?
41. Do you foresee any changes that will occur in program design over the next year?
42. If yes, what are the changes and why?
43. Overall, do you feel the program has been successful so far?
44. Do you feel that the program will be successful in the future?

Thank you for your time! Can we call you again in a year to ask you some additional questions about the program?

Appendix C. Retailer Survey

The Ameren Illinois Lighting & Appliance Program

Retailer Survey

Hello, my name is [interviewer name], and I'm calling on behalf of the Ameren Illinois Utilities regarding your company's participation in manufacturing energy efficient light bulbs promoted through the Ameren Illinois' Act On Energy Lighting Program.

[If have contact name ask] May I speak to _____. [If no contact information available ask] May I speak with someone in your company who deals with marketing and selling lighting products such as light bulbs?

1 Yes

2 No [Attempt to get respondent; if respondent not available, ask if anyone else at the establishment makes purchasing or stocking decisions. IF NOT a good time to talk, SET UP CALL BACK APPOINTMENT OR OFFER TO LET THEM CALL US BACK AT 1-800-XXX-XXXX]

I'm not selling anything; I'd just like to ask your opinion about Ameren Illinois' Act On Energy Lighting Program, which was coordinated by APT. I can assure you that your responses will be kept confidential and your individual responses will not be revealed to anyone.

Section 1. Respondent Information

Intro. According to our records, your store participated in Ameren Illinois' Lighting Program over the past year, as coordinated by APT. This program pays lighting manufacturers incentives for compact fluorescent lighting so that they can provide these products to retailers at discounted prices.

RI1. Are you familiar with your store's participation in the program?

1 Yes ***[SKIP TO RI3]***
2 No

D Don't Know
R Refused

RI2. Would anyone else be familiar with this program?

1 Yes ***[SKIP BACK TO RI1]***
2 No **[TERMINATE]**
D Don't Know **[TERMINATE]**
R Refused **[TERMINATE]**

[IF ASKED ABOUT TIME, SAY, this interview will take about 15 minutes. Is now a good time? , ELSE GO TO RI3]

1 Yes
2 No **[ATTEMPT TO RESCHEDULE]**

RI3. I'd like to start by asking you what was your primary reason for getting involved with Ameren Illinois' Lighting & Appliance Program? _____

D. Don't Know
R. Refused

RI4. Did you have any other reasons for getting involved with the Ameren Illinois Lighting & Appliance program?

1 Yes

i) What were these?_____

2 No

D. Don't Know
R. Refused

Section 2. Stocking

For these first questions, we're going to review your ***stocking*** patterns for light bulbs.

ST1. Which of the following lighting types has your store stocked that are part of Ameren Illinois' Lighting & Appliance program, as coordinated by APT: (ALLOW MULTIPLE ANSWERS)

1. Standard ENERGY STAR compact fluorescent bulbs, or CFLs, that are 42 watts or less? By "standard ENERGY STAR compact fluorescents" I mean bulbs with the ENERGY STAR label that are not dimmable or reflectors, and that have just one light level.
2. Specialty CFLs, such as dimmable, 3-way, spotlights, or reflector CFLs?
D. Don't Know
R. Refused

[IF ST1=D or R, ASK FOR SOMEONE MORE FAMILIAR WITH THE PROGRAM]

ST2. Which of the following CFL lighting types does your store stock that are NOT part of Ameren Illinois' Lighting and Appliance program: (ALLOW MULTIPLE ANSWERS)

1. Standard ENERGY STAR compact fluorescent bulbs that are 42 watts or less? (IF ASKED, SAY: By "standard ENERGY STAR compact fluorescents" I mean CFLs with the ENERGY STAR label that are not dimmable or reflectors, and that have just one light level.)
2. Specialty CFLs, such as dimmable, 3-way, spotlights or reflector CFLs?
4. Other (SPECIFY) _____
D. Don't Know
R. Refused

ST3. Did you carry ENERGY STAR CFL bulbs prior to participating in the Ameren Illinois Lighting & Appliance Program?

1. Yes
2. No
D. Don't Know
R. Refused

ST4. Which of the following types of non-CFL lighting do you stock on a regular basis:

1. Incandescent bulbs
2. Halogens
3. LED lights
4. Other (SPECIFY) _____
D. Don't Know
R. Refused

ST5. According to your best estimate, what percentage of the lighting products currently on your sales floor can be attributed to the following lighting types:

1. CFLs _____%
2. LEDs _____%
3. Incandescent bulbs _____%
4. Other _____%

(SHOULD ADD UP TO 100%)

ST6. Is the current stocking pattern you described similar to the stocking pattern this time last year (July 2009)?

1. Yes ***[SKIP TO ST8]***
2. No
D. Don't Know ***[SKIP TO ST8]***
R. Refused ***[SKIP TO ST8]***

ST7. How does it differ? (PROBE: QUANTITIES AND/OR TYPES OF BULBS OFFERED; ALSO PROBE FOR PERCENT INCREASE OR DECREASE TODAY AS COMPARED TO THE SAME TIME LAST YEAR; PROBE FOR REASON WHY)

_____ (OPEN-END) **[ASK IF ST1 = 1 or 2 or ST2 =1 or 2, ELSE SKIP TO ST9]**

ST8. In the last year, has the number of ENERGY STAR CFL light bulbs that your store makes changed? Are you selling:

1. Significantly more
2. Somewhat more
3. Same
4. Somewhat less
5. Significantly less
D. Don't Know
R. Refused

[ASK IF ST1 =1 or 2]

ST9. How has participating in the program affected the number of *model*s of ENERGY STAR CFL light bulbs that your store carried in the last year? Are you carrying:

1. Significantly more
2. Somewhat more
3. Same
4. Somewhat less
5. Significantly less
D. Don't Know
R. Refused

Section 3. Sales Trends

Next, I'd like to shift focus to lighting ***sales*** trends at your store.

[ASK SECTION IF ST1= 1]

For the next few questions, think about ***standard ENERGY STAR*** CFL bulbs that are 42 watts or less.

TR1. Would your store stock ***standard ENERGY STAR*** CFLs without the support of Ameren Illinois Lighting & Appliance Program?

1. Yes
2. No

D. Don't Know
R. Refused

TR2. If the Ameren Illinois incentives were not available, do you think your sales of ***standard ENERGY STAR*** CFL bulbs would be about the same, lower, or higher?

1. Same
2. Lower
3. Higher
D. Don't Know ***[SKIP TO TR8]***
R. Refused ***[SKIP TO TR8]***

TR3. Why do you think this is?

(RECORD RESPONSE) _____

D. Don't Know
R. Refused

TR4. By what percentage do you estimate your store's sales of ***standard ENERGY STAR*** CFLs would be [TR2 higher/lower] during the past 12 months if the Ameren Illinois program incentives were not available? Would it be…

1 Less than 10%
2 10% to less than 20%
3 20% to less than 30%
4 30% to less than 40%
5 40% to less than 50%
6 50% to less than 60%
7 60% to less than 70%
8 70% to less than 80%
9 80% to less than 90%
10 90% or more
D. Don't Know
R. Refused

TR5. Just so I understand, your sales of standard CFLs would be [% from TR4] [HIGHER/LOWER] if the Ameren program was not available?

1 Yes

2 No

TR5a. Clarify actual answer

[ASK NEXT SECTION (TR6 – TR7) IF ST1 = 2]

TR6. [ASK if TR2 =1, 2, or 3] Earlier you mentioned that you estimate your sales without Ameren Illinois' program would have been [higher, lower, or same] as with the program. Would your answer be the same for **specialty** ENERGY STAR CFLs?

1. Yes ***[SKIP TO TR8]***
2. No
D. Don't Know ***[SKIP TO TR8]***
R. Refused ***[SKIP TO TR8]***

TR7. How do they differ? **[PROBE FOR ANSWERS TO QUESTIONS TR1-TR5 FOR SPECIALTY ENERGY STAR CFLS]** _____

TR8. I'm going to read you a list of factors that may or may not have had an effect on consumer demand for ENERGY STAR CFLS. For each one, please tell me if the factor had a positive effect, a negative effect or no effect on consumer demand for this type of ENERGY STAR product. **[INTERVIEWER NOTE: IF 'BOTH POSITIVE AND NEGATIVE' PROBE ONCE TO GET AT THE NET EFFECT AS POSITIVE OR NEGATIVE]**

	TR8 Impact *1 Positive* *2 Negative* *3 No Effect* *D Don't Know* *R Refused*	**TR9 Impact** *1 Small* *2 Moderate* *3 Large* *D Don't Know* *R Refused*
a. The economy	TR8a	TR9a.1_____
b. Higher energy prices	TR8b	TR9b.1_____
c. New federal standards to improve the energy efficiency of light bulbs	TR8c	TR9c.1_____
d. State standards for lighting	TR8d	TR9d.1_____
e. State level Promotional Activities	TR8e	TR9e.1_____
f. Environmental concerns	TR8f	TR9f.1_____
g. New or improved energy efficient lighting technologies	TR8g	TR9g.1_____
h. The sales of competing retailers	TR8h	TR9h.1_____
i. The Ameren Illinois' mass marketing of ENERGY STAR Lights & Appliances	TR8i	TR9i.1_____

FOR EACH TR7 POSITIVE/NEGATIVE EFFECT, ASK TR8

TR9. And would you say the effect of **[INSERT ITEM TR8]** on consumer demand was a small [positive/negative] effect, a moderate effect, or a large effect?

1 Small
2 Moderate
3 Large
D Don't Know
R Refused

TR10. Did you have an expectation that CFL sales would increase through your participation in the Ameren Illinois program?

1. Yes
2. No ***[SKIP TO TR13]***
D. Don't Know ***[SKIP TO TR13]***
R. Refused ***[SKIP TO TR13]***

TR11. Has your expectation of increased sales through the program been met?

1. Yes
2. No
D. Don't Know ***[SKIP TO TR13]***
R. Refused ***[SKIP TO TR13]***

TR12. Why do you say that?

_____ (OPEN-END)

TR13. Considering data you might have available or your personal knowledge, what would you estimate the total ***sales*** of all CFLs to be for your company over the course of a year?[If can't estimate year, ask to estimate month]

Time Period	$ per Time Period	Units per Time Period
Average month	TR13.1	TR13.2
OR		
Year	TR13.1	TR13.2

D. Don't Know
R. Refused

TR14. In the past 12 months, What percent of your total CFL sales would you estimate are CFLs purchased through the Ameren Illinois Lighting & Appliance Program, would it be….? **[READ LIST. STOP WHEN RESPONDENT SELECTS AN ANSWER]**

1 Less than 10%

2 10% to less than 20%

3 20% to less than 30%

4 30% to less than 40%

5 40% to less than 50%

6 50% to less than 60%

7 60% to less than 70%

8 70% to less than 80%

9 80% to less than 90%

10 90% or more
D. Don't Know
R. Refused

TR15. What would you estimate is the total ***sales*** of incandescent bulbs for your store over the course of a year? **[TRY TO GET UNITS, IF NECESSARY GET DOLLARS; IF CAN'T ESTIMATE PER YEAR, ASK PER MONTH.]**

1. _____ ($ per month) and/or _____ (units per month)
2. _____ ($ per year) and/or _____ (units per year)

D. Don't Know
R. Refused

Section 4: CFL Pricing

PR1. How do you determine the price you charge for the **[IF ST1 = 1 or 2 then insert "Ameren Illinois program"]** CFLs you sell?
(RECORD RESPONSE)_____

D. Don't Know
R. Refused

PR2. ***[ASK IF ST2 = 1]*** You said earlier that you sell standard ENERGY STAR CFLs that are not part of the Ameren Illinois Program. Are the Ameren Illinois program CFLs typically lower-priced than other, non-Ameren Illinois CFLs?
1. Yes
2. No ***[SKIP TO PO1]***
D. Don't Know ***[SKIP TO PO1]***
R. Refused ***[SKIP TO PO1]***

PR3. On a per-bulb basis, on average how much **[LOWER/HIGHER (FROM PR2)]** are the Ameren Illinois-program CFLs than the other CFLs that you sell?
(RECORD ESTIMATE IN $/BULB)_____

PR4. Have the discounted prices of the Ameren Illinois program bulbs impacted the sale of other compact fluorescent bulbs you sell?

1. Yes
2. No ***[SKIP TO PO1]***
D. Don't Know ***[SKIP TO PO1]***
R. Refused ***[SKIP TO PO1]***

PR5. How has it impacted the sale of other CFLs? Was it a positive effect, negative effect?

1 Positive Effect

2 Negative Effect

3 No Effect ***[SKIP TO PO1]***

4 Both Positive and Negative

D Don't Know ***[SKIP TO PO1]***

R Refused ***[SKIP TO PO1]***

PR6. What caused this **[POSITIVE/NEGATIVE/BOTH]** effect? _____ (OPEN-END; PROBE: SALES INCREASED/DECREASED, MANUFACTUER MORE/FEWER MODELS, PRODUCTION COSTS DECREASED, OTHER CFL PRICES INCREASED/DECREASED, OTHER)

D Don't Know
R Refused

Section 5: Point-Of-Purchase (POP) Promotions

PO1. Now I would like to ask you a few questions about how you promote the CFLs in your store. Does your store partake in any independent marketing or promoting of ENERGY STAR CFLs **[IF ST1 =1 or 2, then insert "without Ameren Illinois Lighting & Appliance Program involvement"]**?

1. Yes
2. No ***[SKIP TO PO4]***
D. Don't Know ***[SKIP TO PO4]***
R. Refused ***[SKIP TO PO4]***

PO2. What independent marketing or promoting do you do? **[DO NOT READ]**

1. Print ads
2. Radio ads
3. TV ads
4. Other [SPECIFY: _____]
5. Do not promote

D. Don't Know

R. Refused

PO3. How often do you do this? Would you say it was always, very often, sometimes, or not very often?

1. Always
2. Very Often
3. Sometimes
4. Not Very Often

D. Don't Know

R. Refused

PO4. ***[Ask if PO1 = 1]***When your store promotes ENERGY STAR CFLs, do your sales of these products…?

1. Increase significantly
2. Increase somewhat
3. Stay the Same

D. Don't Know
R. Refused

PO5. If increase or decrease, by how much – as a percentage of sales? Would it be… **[READ LIST. STOP WHEN RESPONDENT SELECTS AN ANSWER]**

1 Less than 10%

2 10% to less than 20%

3 20% to less than 30%

4 30% to less than 40%

5 40% to less than 50%

6 50% to less than 60%

7 60% to less than 70%

8 70% to less than 80%

9 80% to less than 90%

10 90% or more
D. Don't Know
R. Refused

PO6. In addition to the discounted light bulbs you received through the program, did you offer any of your own discounts on these same CFLs?

1. Yes, Please describe _____.**[PROBE FOR $ AMOUNT]**
2. No

D. Don't Know
R. Refused

Section 8. Program Satisfaction

Finally I would like to find out your level of satisfaction with APT and the Ameren Lighting & Appliance Program

PS1. Using a scale of 0 to 10 where 10 = very satisfied and 0 = very dissatisfied, how satisfied have you been with Ameren Illinois' and APT's approach to allocate the discounted bulbs to participating stores?

Record Response:_____

PS2. (IF SATISFACTION RATING IS 0-5) Why do you say that?

_____

PS3. Again using a scale of 0 to 10 where 10 = very satisfied and 0 = very dissatisfied, how satisfied have you been with the program tracking and verification process – that is, APT's approach to ensure the incentivized CFLs are being sold by retailers and are properly labeled and promoted?

Record Response:_____

PS4. (IF SATISFACTION RATING IS 0-5) Why do you say that?

_____

PS5. Using this same satisfaction scale, how satisfied have you been with manufacturer's prices for the Ameren Illinois' CFLs?

Record Response:_____

PS6. (IF SATISFACTION RATING IS 0-5) Why do you say that? For which bulb types are you unsatisfied with the prices?

_____

PS7. Using the same satisfaction scale, how satisfied were you with Ameren Illinois' mass marketing of CFLs in the past year?

Record Response:_____

PS8. (IF SATISFACTION RATING IS 0-5) Why do you say that?

_____

PS9. Using the same satisfaction scale, how satisfied have you been with APT's coordination with you on product placement and promotions?

Record Response:_____

PS10. (IF SATISFACTION RATING IS 0-5) Why do you say that?

_____

PS11. Using the same satisfaction scale, how satisfied have you been with APT's program managers and other APT staff involved in this program during the past year?

Record Response:_____

PS12. (IF SATISFACTION RATING IS 0-5) Why do you say that?

_____

PS13. Using the same scale, how would you rate your level of satisfaction with the program in general?

Record Response:_____

PS14. (IF SATISFACTION RATING IS 0-5) Why do you say that?

_____

PS15. In what way could the program be improved?

_____

PS16. Are you planning to participate in the program going forward?

1. Yes
2. No
D Don't Know
R Refused

PS17. Why do you say that? _____

PS18. Do you have any other comments or questions about Ameren Illinois' Lighting and Appliance Program?

_____

Section 9. Firmagraphics

Now I have a few questions about your store characteristics.

F1. Would you consider this store independently-owned, a franchise, or part of a corporation?

1. Independently-owned
2. Franchise
3. Corporate Owned
4. Other (SPECIFY)_____

F2. What is the square footage (of the store's sales area)? Your best estimate is fine.

(RECORD RESPONSE) _____

F3. How many employees work at this particular store location?

(RECORD RESPONSE) _____

F4. Which category would you place your store? Is it a … (READ RESPONSES)

1. Mass Merchandiser (such as Target or Walmart)
2. Discount Store (such as Big Lots or a 99¢ store)
3. Large Home Improvement (such as Home Depot or Lowe's)
4. Hardware (such as ACE Hardware)
5. Grocery (such as Schnucks or Dierbergs)
6. Drug Store (such as CVS or Walgreens)
7. Other (SPECIFY)_____

F5. What is your name and job title? (RECORD) _____

F6. How many years has your store been selling CFLs?

1. 1
2. 2
3. 3
4. 4
5. 5
6. More than five

D. Don't Know

R. Refused

[THANK AND TERMINATE]

Appendix D. Corporate Retailer Survey

The Ameren Illinois Lighting & Appliance Program

Corporate Retailer Survey

Hello, my name is [interviewer name], and I'm calling on behalf of the Ameren Illinois Utilities regarding your company's participation in selling energy efficient light bulbs promoted through Ameren Illinois' Act On Energy Lighting Program. [If have contact name ask] May I speak to _____. [If no contact information available ask] May I speak with someone in your company who deals with marketing and selling lighting products such as light bulbs?

1 Yes

2 No [Attempt to get respondent; if respondent not available, ask if anyone else at the establishment makes purchasing or stocking decisions. IF NOT a good time to talk, SET UP CALL BACK APPOINTMENT OR OFFER TO LET THEM CALL US BACK AT 1-800-XXX-XXXX]

I'm not selling anything; I'd just like to ask your opinion about tAmeren Illinois'Act On Energy Lighting Program which is coordinated by APT. This survey pertains to sales and store locations in Central and Southern Illinois; anything about 60 miles and further south of Chicago. I can assure you that your responses will be kept confidential and your individual responses will not be revealed to anyone.

Potential Questions

Who is doing this study? Ameren Illinois Illinois Utilities, which is a regulated electric utility that is running several energy efficiency programs throughout Illinois.

Why are you conducting this study? This study will help Ameren Illinois improve its program and other similar energy efficiency programs.

If accused of sales call. I am not selling anything. I would simply like to learn about your

Section 1. Respondent Information

Intro. According to our records, your store participated in Ameren Illinois' Lighting Program over the past year, as coordinated by APT. This program pays lighting manufacturers incentives for compact fluorescent lighting so that they can provide these products to retailers at discounted prices.

RI5. Are you familiar with your store's participation in the program?

1 Yes ***[SKIP TO RI3]***
2 No

D Don't Know
R Refused

RI6. Would anyone else be familiar with this program?

1 Yes ***[SKIP BACK TO RI1]***
2 No **[TERMINATE]**
D Don't Know **[TERMINATE]**
R Refused **[TERMINATE]**

[IF ASKED ABOUT TIME, SAY, this interview will take about 15 minutes. Is now a good time? , ELSE GO TO RI3]

1 Yes
2 No **[ATTEMPT TO RESCHEDULE]**

RI7. I'd like to start by asking you what was your primary reason for getting involved with Ameren Illinois's Lighting & Appliance Program? _____

D. Don't Know
R. Refused

RI8. Did you have any other reasons for getting involved with the Ameren Illinois Lighting & Appliance program?

1 Yes

i) What were these?_____

2 No

D. Don't Know
R. Refused

Section 2. Stocking

For these first questions, we're going to review your ***stocking*** patterns for light bulbs.

ST10. Which of the following lighting types has your company stocked in Central and Southern Illinois that are part of Ameren Illinois's Lighting & Appliance program, as coordinated by APT: (ALLOW MULTIPLE ANSWERS)

1. Standard ENERGY STAR compact fluorescent bulbs, or CFLs, that are 42 watts or less? By "standard ENERGY STAR compact fluorescents" I mean bulbs with the ENERGY STAR label that are not dimmable or reflectors, and that have just one light

level.
2. Specialty CFLs, such as dimmable, 3-way, spotlights, or reflector CFLs?
D. Don't Know
R. Refused

[IF ST1=D or R, ASK FOR SOMEONE MORE FAMILIAR WITH THE PROGRAM]

ST11. Which of the following CFL lighting types does your company stock in Central and Southern Illinois that are NOT part of Ameren Illinois' Lighting and Appliance program: (ALLOW MULTIPLE ANSWERS)

1. Standard ENERGY STAR compact fluorescent bulbs that are 42 watts or less? (IF ASKED, SAY: By "standard ENERGY STAR compact fluorescents" I mean CFLs with the ENERGY STAR label that are not dimmable or reflectors, and that have just one light level.)
2. Specialty CFLs, such as dimmable, 3-way, spotlights or reflector CFLs?
4. Other (SPECIFY) _____
D. Don't Know
R. Refused

ST12. Did your stores in Central and Southern Illinois carry ENERGY STAR CFL bulbs prior to participating in the Ameren Illinois Lighting & Appliance Program?

1. Yes
2. No
D. Don't Know
R. Refused

ST13. Which of the following types of non-CFL lighting do you stock in your Central and Southern Illinois stores on a regular basis:

1. Incandescent bulbs
2. Halogens
3. LED lights
4. Other (SPECIFY) _____
D. Don't Know
R. Refused

ST14. According to your best estimate, what percentage of the lighting products currently in your stores in Central and Southern Illinois can be attributed to the following lighting types:

1. CFLs _____%
2. LEDs _____%
3. Incandescent bulbs _____%
4. Other _____%

(SHOULD ADD UP TO 100%)

ST15. Is the current stocking pattern you described similar to the stocking pattern this time last year (July 2009)?

1. Yes ***[SKIP TO ST8]***
2. No

D. Don't Know ***[SKIP TO ST8]***
R. Refused ***[SKIP TO ST8]***

ST16. How does it differ? (PROBE: QUANTITIES AND/OR TYPES OF BULBS OFFERED; ALSO PROBE FOR PERCENT INCREASE OR DECREASE TODAY AS COMPARED TO THE SAME TIME LAST YEAR)

_____ (OPEN-END)**[ASK IF ST1 = 1 or 2 or ST2 =1 or 2, ELSE SKIP TO ST9]**

ST17. In the last year, has the number of models of ENERGY STAR CFL light bulbs carried in your Central and Southern Illinois stores gone up, down, or remained the same.

1. Up/Carrying more
2. Down/Carrying less
3. Same/Carrying the same (e.g. it hasn't affected the stock)
D. Don't Know
R. Refused

[ASK IF ST1 =1 or 2]

ST18. How has participating in the program affected the number of *model*s of ENERGY STAR CFL light bulbs that your Central and Southern Illinois stores carried in the last year? Are you carrying:

1. Significantly more
2. Somewhat more
3. Same
4. Somewhat less
5. Significantly less
D. Don't Know
R. Refused

Section 3. Sales Trends

Next, I'd like to shift focus to lighting ***sales*** trends for your company.

[ASK SECTION IF ST1= 1]

For the next few questions, think about ***standard ENERGY STAR*** CFL bulbs that are 42 watts or less.

TR16. Would your store(s) stock ***standard ENERGY STAR*** CFLs in Central and Southern Illinois without the support of Ameren Illinois Lighting & Appliance Program?

1. Yes
2. No ***[SKIP TO ST8]***
D. Don't Know
R. Refused

TR17. If the Ameren Illinois incentives were not available, do you think your sales of ***standard ENERGY STAR*** CFL bulbs in Central and Southern Illinois would be about the same, lower, or higher?

1. Same
2. Lower
3. Higher
D. Don't Know ***[SKIP TO ST8]***
R. Refused ***[SKIP TO ST8]***

TR18. Why do you think this is?

(RECORD RESPONSE) _____

D. Don't Know
R. Refused

TR19. By what percentage do you estimate your company's sales of ***standard ENERGY STAR*** CFLs in Central and Southern Illinois would be **[TR2 HIGHER/LOWER]** during the the past year if the Ameren Illinois program incentives were not available? Would it be…

1 Less than 10%
2 10% to less than 20%
3 20% to less than 30%
4 30% to less than 40%
5 40% to less than 50%
6 50% to less than 60%
7 60% to less than 70%
8 70% to less than 80%
9 80% to less than 90%
10 90% or more
D. Don't Know
R. Refused

TR20. Just so I understand, you would sell [% FROM TR4] [MORE/LESS] standard CFLs in Central and Southern Illinois if the program was not available?

1 Yes

2 No

TR20a. Clarify actual answer

[ASK NEXT SECTION (TR6 – TR7) IF ST1 = 2]

TR21. **[ASK if Error! Reference source not found. =1, 2, or 3]** Earlier you mentioned that you estimate your sales without Ameren Illinois' program would have been [higher, lower, or same] as with the program. Would your answer be the same for **specialty** ENERGY STAR CFLs?

1. Yes ***[SKIP TO TR8]***
2. No
D. Don't Know ***[SKIP TO TR8]***
R. Refused ***[SKIP TO TR8]***

TR22. How do they differ? **[PROBE FOR ANSWERS TO QUESTIONS TR1-TR5 FOR SPECIALTY ENERGY STAR CFLS]** _____

TR23. I'm going to read you a list of factors that may or may not have had an effect on consumer demand for ENERGY STAR CFLS in Central and Southern Illinois. For each one, please tell me if the factor had a positive effect, a negative effect or no effect on consumer demand for this type of ENERGY STAR product. **[INTERVIEWER NOTE: IF 'BOTH POSITIVE AND NEGATIVE' PROBE ONCE TO GET AT THE NET EFFECT AS POSITIVE OR NEGATIVE]**

	TR8 Impact *1 Positive* *2 Negative* *3 No Effect* *D Don't Know* *R Refused*	**TR9 Impact** *1 Small* *2 Moderate* *3 Large* *D Don't Know* *R Refused*
a. The economy	TR8a	TR9a.1_____
b. Higher energy prices	TR8b	TR9b.1_____
c. New federal standards to improve the energy efficiency of light bulbs	TR8c	TR9c.1_____
d. State standards for lighting	TR8d	TR9d.1_____
e. State level Promotional Activities	TR8e	TR9e.1_____
f. Environmental concerns	TR8f	TR9f.1_____
g. New or improved energy efficient lighting technologies	TR8g	TR9g.1_____
h. The sales of competing retailers	TR8h	TR9h.1_____
i. The Ameren Illinois's mass marketing of ENERGY STAR Lights & Appliances	TR8i	TR9i.1_____

FOR EACH TR7 POSITIVE/NEGATIVE EFFECT, ASK TR8

TR24. And would you say the effect of **[INSERT ITEM TR8]** on consumer demand was a small [positive/negative] effect, a moderate effect, or a large effect?

1 Small
2 Moderate
3 Large
D Don't Know
R Refused

TR25. Did you have an expectation that CFL sales in Central and Southern Illinois would increase through your participation in the Ameren Illinois program?

1. Yes
2. No ***[SKIP TO TR13]***
D. Don't Know ***[SKIP TO TR13]***
R. Refused ***[SKIP TO TR13]***

TR26. Has your expectation of increased sales through the program been met?

1. Yes
2. No
D. Don't Know ***[SKIP TO TR13]***
R. Refused ***[SKIP TO TR13]***

TR27. Why do you say that?

_____ (OPEN-END)

TR28. Considering data you might have available or your personal knowledge, what would you estimate the total ***sales*** of all CFLs to be for your company in Central and Southern Illinois over the course of a year?[If can't estimate year, ask to estimate month]

Time Period	$ per Time Period	Units per Time Period
Average month	TR13.1	TR13.2
OR		
Year	TR13.1	TR13.2

D. Don't Know ***[SKIP TO PR1]***
R. Refused ***[SKIP TO PR1***

TR29. What percent of your total CFL sales in Central and Southern Illinois would you estimate are CFLs purchased through the Ameren Illinois Lighting & Appliance Program, would it be….?
[READ LIST. STOP WHEN RESPONDENT SELECTS AN ANSWER]

1 Less than 10%

2 10% to less than 20%

3 20% to less than 30%

4 30% to less than 40%

5 40% to less than 50%

6 50% to less than 60%

7 60% to less than 70%

8 70% to less than 80%

9 80% to less than 90%

10 90% or more
D. Don't Know
R. Refused

TR30. What would you estimate is the total ***sales*** of incandescent bulbs in Central and Southern Illinois for your company over the course of a year? **[TRY TO GET UNITS, IF NECESSARY GET DOLLARS; IF CAN'T ESTIMATE PER YEAR, ASK PER MONTH.]**

1. _____ ($ per month) and/or _____ (units per month)
2. _____ ($ per year) and/or _____ (units per year)

D. Don't Know
R. Refused

Section 4: CFL Pricing

PR7. How do you determine the price you charge for the **[IF ST1 = 1 or 2 then insert "Ameren Illinois program]** CFLs you sell?
(RECORD RESPONSE)_____

D. Don't Know
R. Refused

PR8. ***[ASK IF ST2 = 1]*** You said earlier that you sell standard ENERGY STAR CFLs that are not part of the Ameren Illinois Program. Are the Ameren Illinois program CFLs typically lower-priced than other, non-Ameren Illinois CFLs?

1. Yes
2. No ***[SKIP TO PO1]***

D. Don't Know ***[SKIP TO PO1]***
R. Refused ***[SKIP TO PO1]***

PR9. On a per-bulb basis, on average how much **[LOWER/HIGHER (FROM PR2)]** on average are the Ameren Illinois-program CFLs than the other CFLs that you sell?
(RECORD ESTIMATE IN $/BULB)_____

PR10. Have the discounted prices of the Ameren Illinois program bulbs impacted the sale of other compact fluorescent bulbs you sell?

1. Yes
2. No ***[SKIP TO PO1]***

D. Don't Know ***[SKIP TO PO1]***
R. Refused ***[SKIP TO PO1]***

PR11. How has it impacted the sale of other CFLs? Was it a positive effect, negative effect?

1 Positive Effect

2 Negative Effect

3 No Effect ***[SKIP TO PO1]***

4 Both Positive and Negative

D Don't Know ***[SKIP TO PO1]***

R Refused ***[SKIP TO PO1]***

PR12. What caused this **[POSITIVE/NEGATIVE/BOTH]** effect? _____ (OPEN-END; PROBE: SALES INCREASED/DECREASED, MANUFACTUER MORE/FEWER MODELS, PRODUCTION COSTS DECREASED, OTHER CFL PRICES INCREASED/DECREASED, OTHER)

D Don't Know
R Refused

Section 5: Point-Of-Purchase (POP) Promotions

PO7. Now I would like to ask you a few questions about how you promote the CFLs in your stores. Do your stores partake in any independent marketing or promoting of ENERGY STAR CFLs **[IF ST1 =1 or 2, then insert "without Ameren Illinois Lighting & Appliance Program involvement"]**?

1. Yes
2. No ***[SKIP TO PO4]***
D. Don't Know ***[SKIP TO PO4]***
R. Refused ***[SKIP TO PO4]***

PO8. What independent marketing or promoting do you do? **[DO NOT READ]**

1. Print ads
2. Radio ads
3. TV ads
4. Other [SPECIFY: _____]
5. Do not promote

D. Don't Know

R. Refused

PO9. How often do you do this? Would you say it was always, very often, sometimes, or not very often?

1. Always
2. Very Often
3. Sometimes
4. Not Very Often

D. Don't Know

R. Refused

PO10. ***[Ask if PO1 = 1]***When your company promotes ENERGY STAR CFLs, do your sales of these products…?

1. Increase
2. Stay the Same
3. Decrease

D. Don't Know
R. Refused

PO11. If increase or decrease, by how much – as a percentage of sales? Would it be… **[READ LIST. STOP WHEN RESPONDENT SELECTS AN ANSWER]**

1 Less than 10%

2 10% to less than 20%

3 20% to less than 30%

4 30% to less than 40%

5 40% to less than 50%

6 50% to less than 60%

7 60% to less than 70%

8 70% to less than 80%

9 80% to less than 90%

10 90% or more
D. Don't Know
R. Refused

PO12. In addition to the discounted light bulbs you received through the program, did you offer any of your own discounts on these same CFLs?

1. Yes, Please describe _____.**[PROBE FOR $ AMOUNT]**
2. No

D. Don't Know
R. Refused

Section 8. Program Satisfaction

Finally I would like to find out your level of satisfaction with APT and the Ameren Illinois Lighting & Appliance Program

PS19. Using a scale of 0 to 10 where 10 = very satisfied and 0 = very dissatisfied, how satisfied have you been with Ameren Illinois' and APT's approach to allocate the discounted bulbs to participating stores?

Record Response:_____

PS20. (IF SATISFACTION RATING IS 0-5) Why do you say that?

_____

PS21. Again using a scale of 0 to 10 where 10 = very satisfied and 0 = very dissatisfied, how satisfied have you been with the program tracking and verification process – that is, APT's approach to ensure the incentivized CFLs are being sold by retailers and are properly labeled and promoted?

Record Response:_____

PS22. (IF SATISFACTION RATING IS 0-5) Why do you say that?

_____

PS23. Using this same satisfaction scale, how satisfied have you been with manufacturer's prices for the Ameren Illinois' CFLs?

Record Response:_____

PS24. (IF SATISFACTION RATING IS 0-5) Why do you say that? For which bulb types are you unsatisfied with the prices?

_____

PS25. Using the same satisfaction scale, how satisfied were you with Ameren Illinois' mass marketing of CFLs in the past year?

Record Response:_____

PS26. (IF SATISFACTION RATING IS 0-5) Why do you say that?

_____

PS27. Using the same satisfaction scale, how satisfied have you been with APT's coordination with you on product placement and promotions?

Record Response:_____

PS28. (IF SATISFACTION RATING IS 0-5) Why do you say that?

_____

PS29. Using the same satisfaction scale, how satisfied have you been with APT's program managers and other APT staff involved in this program during the past year?

Record Response:_____

PS30. (IF SATISFACTION RATING IS 0-5) Why do you say that?

_____

PS31. Using the same scale, how would you rate your level of satisfaction with the program in general?

Record Response:_____

PS32. (IF SATISFACTION RATING IS 0-5) Why do you say that?

_____

PS33. In what way could the program be improved?

_____

PS34. Are you planning to participate in the program going forward?

1. Yes
2. No
D Don't Know
R Refused

PS35. Why do you say that? _____

PS36. Do you have any other comments or questions about Ameren Illinois' Lighting and Appliance Program?

_____

Section 9. Firmagraphics

Now I have a few questions about your store characteristics.

F7. How many employees work for your company?

(RECORD RESPONSE) _____

F8. Which category would you place your stores? Are they … (READ RESPONSES)

1. Mass Merchandiser (such as Target or Walmart)
2. Discount Store (such as Big Lots or a 99¢ store)
3. Large Home Improvement (such as Home Depot or Lowe's)
4. Hardware (such as ACE Hardware)
5. Grocery (such as Schnucks or Dierbergs)
6. Drug Store (such as CVS or Walgreens)
7. Other (SPECIFY)_____

F9. What is your name and job title? (RECORD) _____

F10. How many years has your company been selling CFLs?

1. 1
2. 2
3. 3
4. 4
5. 5
6. More than five

D. Don't Know
R. Refused

Section 9. EISA

E1.___In December 2007 Congress passed an energy bill called the Energy Independence and Security Act. One component of the bill calls for a gradual phase-out of inefficient lamps over time starting in 2012. Are you familiar with this upcoming regulation change? [IF NECESSARY: The phase-out begins for 100 Watt general service lamps on January 1, 2012, for 75-Watt lamps starting in 2013, and for 60 and 40 Watt lamps in 2014.]

1. Yes
2. No [ASK TO SPEAK TO SOMEONE WHO IS FAMILIAR]

D. Don't Know

R Refused

E2. I'd like to ask you about what you see as the impact of this legislation on CFL sales and prices during different future time periods.

a. From now through January 1, 2012, Do you think CFL sales will increase, decrease or stay the same?
   i. Increase
   ii. Decrease
   iii. Same
   A1. Why? _____
b. From now through January 1, 2012, Do you think CFL prices will increase, decrease or stay the same?
   i. Increase
   ii. Decrease
   iii. Same
   B1. Why? _____
c. For the years 2012 through 2014, do you think CFL sales will increase, decrease or stay the same?
   i. Increase
   ii. Decrease
   iii. Same
   C1. Why? _____

d. For the years 2012 through 2014, do you think CFL prices will increase, decrease, or stay the same?

i. Increase

ii. Decrease

iii. Same

D1. Why? _____

e. Beyond 2014, do you think CFL sales will increase, decrease, or stay the same?

i. Increase

ii. Decrease

iii. Same

E1. Why? _____

f. Beyond 2014, do you think CFL prices will increase, decrease, or stay the same?

i. Increase

ii. Decrease

iii. Same

F1. Why? _____

E3. Between now and 2014, do you think the price of general service EISA-compliant halogen light bulbs will increase, decrease, or stay the same?

a. Increase

b. Decrease [IF DECREASE, ask how much? _____

c. Same

E3A. Why? _____

E4. Which of the following products does your company sell or plan to sell in the near future?

a. Incandescents

b. CFLs

c. LEDs

d. General service EISA-compliant halogen lamps

E5. For each of these products you've just identified, please tell me how your company is responding to EISA in terms of product stocking and marketing between now and January 2012?

[PROBE FOR INCREASE, DECREASE, OR SAME IN EACH CELL]

Bulb Type	Incandescent	CFLs	LEDs	Halogen
Stocking				
Marketing				

E6. Will your EISA response change as time goes on? [PROBE FOR TRANSITION TIME VS. AFTER FULL IMPLEMENTATION]

a. Yes [IF YES, How? _____]
b. No

E6. Are there any other ways in which your company is responding to EISA?

_____

E7. Do you see EISA as a benefit or detriment to your business?

a. Benefit
b. Detriment
c. Neither

E8. Why do you say that?

_____

_____

[THANK AND TERMINATE]

Appendix E. Manufacturer Survey

The Ameren Illinois Lighting & Appliance Program

Manufacturer Survey

Hello, my name is [interviewer name], and I'm calling on behalf of the Ameren Illinois Utilities regarding your company's participation in manufacturing energy efficient light bulbs promoted through the Ameren Illinois' Act On Energy Lighting Program.

[IF HAVE CONTACT NAME ASK] May I speak to _____. **[IF NO CONTACT INFORMATION AVAILABLE ASK]** May I speak with someone in your company who deals with your lighting products such as light bulbs?

1 Yes

2 No [Attempt to get respondent; if respondent not available, ask if anyone else at the establishment makes purchasing or stocking decisions. IF NOT a good time to talk, SET UP CALL BACK APPOINTMENT OR OFFER TO LET THEM CALL US BACK AT 1-800-XXX-XXXX]

I'm not selling anything; I'd just like to ask your opinion about Ameren Illinois' Act On Energy Lighting Program, coordinated by APT. This survey pertains to sales and store locations in Central and Southern Illinois; anything about 60 miles and further south of Chicago.

I can assure you that your responses will be kept confidential and your individual responses will not be revealed to anyone.

Potential Questions

Who is doing this study? Ameren Illinois Illinois Utilities, which is a regulated electric utility that is running several energy efficiency programs throughout Illinois.

Ameren Illinois

Why are you conducting this study? This study will help Ameren Illinois improve its program and other similar energy efficiency programs.

If accused of sales call. I am not selling anything. I would simply like to learn about your

Section 1. Respondent Information

Intro. According to our records, your company participated in Ameren Illinois' Lighting Program over the past year, as coordinated by APT. This program buys down the manufacturing costs of compact fluorescent lights so that manufacturers can provide these products to retailers at discounted prices.

RI9. Are you aware of your company's participation in this program?

RI9a. Yes ***[SKIP TO RI11]***
RI9b. No
D (Don't Know)
R (Refused)

RI10. Would anyone else be familiar with this program?

RI10a. Yes ***[SKIP BACK TO RI9]***
RI10b. No **[TERMINATE]**
D (Don't Know) **[TERMINATE]**
R (Refused) **[TERMINATE]**

[IF ASKED how much time it would take, say this interview will take about 15 minutes. Is now a good time? , ELSE SKIP TO RI3]

1 Yes
2 No **[ATTEMPT TO RESCHEDULE]**

RI11. I'd like to start by asking you what was your primary reason for getting involved with Ameren Illinois' Lighting & Appliance Program? _____

D. Don't Know
R. Refused

RI12. Did you have any other reasons for getting involved with the Ameren Illinois Lighting & Appliance program?

RI12a. Yes

i) What were these?_____

RI12b. No
D. (Don't Know)
R. (Refused)

Section 2. Sales Trends

My next questions concern which bulbs you sell in Illinois through Ameren Illinois' program.

ST19. Which of the following lighting types has your company sold that are part of Ameren Illinois' Lighting & Appliance program, as coordinated by APT: (ALLOW MULTIPLE ANSWERS)

RI12c. Standard ENERGY STAR compact fluorescent bulbs, or CFLs, that are 42 watts or less. By "standard ENERGY STAR compact fluorescents" I mean bulbs with the ENERGY STAR label that are not dimmable or reflectors, and that have just one light level.
RI12d. Specialty CFLs, such as dimmable, 3-way, spotlights, or reflector CFLs?
D. Don't Know
R. Refused

[IF ST1=D OR R, ASK FOR SOMEONE WHO IS MORE FAMILIAR WITH THE PROGRAM AND START AGAIN]

ST20. Which of the following CFL lighting types does your company sell that are NOT part of Ameren Illinois' Lighting and Appliance program: (ALLOW MULTIPLE ANSWERS)

1. Standard ENERGY STAR compact fluorescent bulbs that are 42 watts or less? (IF ASKED, SAY: By "standard ENERGY STAR compact fluorescents" I mean CFLs with the ENERGY STAR label that are not dimmable or reflectors, and that have just one light level.)
2. Specialty CFLs, such as dimmable, 3-way, spotlights or reflector CFLs?
3. Other (SPECIFY) _____
D. Don't Know
R. Refused

ST21. Did you manufacture ENERGY STAR CFL bulbs prior to participating in the Ameren Illinois Lighting & Appliance Program?

1. Yes
2. No
D. Don't Know
R. Refused

ST22. Which of the following types of non-CFL lighting do you manufacture?

1. Incandescent bulbs
2. Halogens
3. LED lights
4. Other (SPECIFY) _____
D. Don't Know
R. Refused

ST23. According to your best estimate, what percentage of the lighting products you currently manufacture are….:

1. CFLs _____%
2. LEDs _____%
3. Incandescent bulbs _____%
4. Other _____%

(SHOULD ADD UP TO 100%)

ST24. How does it differ? (PROBE: QUANTITIES AND/OR TYPES OF BULBS OFFERED; ALSO PROBE FOR PERCENT INCREASE OR DECREASE TODAY AS COMPARED TO THE SAME TIME LAST YEAR)

_____ (OPEN-END)

ST25. Is the current pattern you described similar to the manufacturing pattern this time last year (July 2009)?

1. Yes ***[SKIP TO ST8]***
2. No
D. Don't Know ***[SKIP TO ST8]***
R. Refused ***[SKIP TO ST8]***

ST26. How does it differ? (PROBE: QUANTITIES AND/OR TYPES OF BULBS OFFERED; ALSO PROBE FOR PERCENT INCREASE OR DECREASE TODAY AS COMPARED TO THE SAME TIME LAST YEAR)

_____ (OPEN-END)

ST27. In the last year, has the number of models of ENERGY STAR CFL light bulbs that your company makes changed? Are you manufacturing:.

1. Significantly more
2. Somewhat more
3. Same
4. Somewhat less
5. Significantly less
D. Don't Know
R. Refused

[ASK IF ST19 =1 or 2]

ST28. How has participating in the program affected the number of *model*s of ENERGY STAR CFL light bulbs that you manufactured in the last year? Are you…[READ LIST]

1. Carrying more
2. Carrying less
3. Carrying the same (e.g. it hasn't affected the stock)
D. Don't Know
R. Refused

Section 3. Sales Trends

Next, I'd like to shift focus to lighting ***sales*** trends for your company.

For the next few questions, think about ***standard ENERGY STAR*** CFL bulbs that are 42 watts or less.

TR31. Would your company sell ***standard ENERGY STAR*** CFLs at retailers in Central and Southern Illinois without the support of Ameren Illinois Lighting & Appliance Program?

1. Yes
2. No ***[SKIP TO TR8]***
D. Don't Know ***[SKIP TO TR8]***
R. Refused ***[SKIP TO TR8]***

TR32. If the Ameren Illinois incentives were not available, do you think your sales of ***standard ENERGY STAR*** CFL bulbs in Southern Illinois would be about the same, lower, or higher?

1. Same
2. Lower
3. Higher
D. Don't Know ***[SKIP TO TR8]***
R. Refused ***[SKIP TO TR8]***

TR33. Why do you think this is?

(RECORD RESPONSE) _____

D. Don't Know
R. Refused

TR34. By what percentage do you estimate your company's sales of ***standard ENERGY STAR*** CFLs in Central and Southern Illinois would be **[**ERROR! REFERENCE SOURCE NOT FOUND. **HIGHER/LOWER]** during the past year if the Ameren Illinois program incentives were not available? Would it be…

1 Less than 10%
2 10% to less than 20%
3 20% to less than 30%
4 30% to less than 40%
5 40% to less than 50%
6 50% to less than 60%
7 60% to less than 70%
8 70% to less than 80%
9 80% to less than 90%
10 90% or more
D. Don't Know
R. Refused

TR35. Just to clarify, you are saying that your standard CFL sales would be [% FROM TR34] [HIGHER/LOWER] during the past year if the program was not available?

1. Yes

2. No

TR35a. Clarify actual answer

[ASK NEXT SECTION (TR6 – TR7) IF ST19 = 2]

TR36. [ASK if **Error! Reference source not found.** =1, 2, or 3] Earlier you mentioned that you estimate your sales in Central and Southern Illinois without Ameren Illinois' program would have been **[HIGHER, LOWER, OR SAME]** as with the program. Would your answer be the same for **specialty** ENERGY STAR CFLs?

1. Yes ***[SKIP TO TR8]***
2. No
D. Don't Know ***[SKIP TO TR8]***
R. Refused ***[SKIP TO TR8]***

TR37. How do they differ? **[PROBE FOR ANSWERS TO QUESTIONS TR31-TR6 FOR SPECIALTY ENERGY STAR CFLS]** _____

TR38. I'm going to read you a list of factors that may or may not have had an effect on consumer demand for ENERGY STAR CFLs in Central and Southern Illinois. For each one, please tell me if the factor had a positive effect, a negative effect or no effect on consumer demand for this type of ENERGY STAR product. **[INTERVIEWER NOTE: IF 'BOTH POSITIVE AND NEGATIVE' PROBE ONCE TO GET AT THE NET EFFECT AS POSITIVE OR NEGATIVE]**

	TR8 Impact *1 Positive* *2 Negative* *3 No Effect* *D Don't Know* *R Refused*	**TR9 Impact** *1 Small* *2 Moderate* *3 Large* *D Don't Know* *R Refused*
a. The economy	TR8a	TR8a.1_____
b. Higher energy prices	TR8b	TR9b.1_____
c. New federal standards to improve the energy efficiency of light bulbs	TR8c	TR9c.1_____
d. State standards for lighting	TR8d	TR9d.1_____
e. State level Promotional Activities	TR8e	TR9e.1_____
f. Environmental concerns	TR8f	TR9f.1_____
g. New or improved energy efficient lighting technologies	TR8g	TR9g.1_____
h. The sales of competing retailers	TR8h	TR9h.1_____
i. The Ameren Illinois' mass marketing of ENERGY STAR Lights & Appliances	TR8i	TR9i.1_____

FOR EACH TR8 POSITIVE/NEGATIVE EFFECT, ASK TR9

TR39. And would you say the effect of **[INSERT ITEM TR8]** on consumer demand was a small [positive/negative] effect, a small effect, moderate effect, or a large effect?

1 Small
2 Moderate
3 Large
D Don't Know
R Refused

TR40. Did you have an expectation that CFL sales in Central and Southern Illinois would increase through your participation in the Ameren Illinois program?

1. Yes
2. No ***[SKIP TO TR13]***
D. Don't Know ***[SKIP TO TR13]***
R. Refused ***[SKIP TO TR13]***

TR41. Has your expectation of increased sales through the program been met?

1. Yes
2. No
D. Don't Know ***[SKIP TO TR13]***
R. Refused ***[SKIP TO TR13]***

TR42. Why do you say that?

_____ (OPEN-END)

TR43. Considering data you might have available or your personal knowledge, what would you estimate the total ***sales*** of all CFLs to be for your company over the the last 12 months in Central and Southern Illinois?[If can't estimate year, ask to estimate month]

Time Period	$ per Time Period	Units per Time Period
Average month	TR13.1	TR13.2
OR		
Year	TR13.1	TR13.2

D. Don't Know ***[SKIP TO TR15]***
R. Refused ***[SKIP TO TR15]***

TR44. What percent of your total CFL sales in Central and Southern Illinois (all areas 60 miles and further south of Chicago) would you estimate are CFLs purchased through the Ameren Illinois Lighting & Appliance Program, would it be….? [READ LIST. STOP WHEN RESPONDENT SELECTS AN ANSWER]

1 Less than 10%

2 10% to less than 20%

3 20% to less than 30%

4 30% to less than 40%

5 40% to less than 50%

6 50% to less than 60%

7 60% to less than 70%

8 70% to less than 80%

9 80% to less than 90%

10 90% or more
D. Don't Know
R. Refused

TR45. What would you estimate is the total ***sales*** of incandescent bulbs for your company over the past 12 months in Central and Southern Illinois?[Try to get units, if unable, get $. If can't estimate per year, ask per month.]

1. _____ ($ per month) and/or _____ (units per month)
2. _____ ($ per year) and/or _____ (units per year)

D. Don't Know
R. Refused

Section 4. CFL Pricing

PR13. ***[ASK IF ST20 = 1]*** You said earlier that you manufacture standard ENERGY STAR CFLs that are not part of the Ameren Illinois Program. Are the Ameren Illinois program CFLs typically lower-priced than other, non-Ameren Illinois CFLs?

1. Yes
2. No ***[SKIP TO PR15]***
D. Don't Know ***[SKIP TO PR15]***
R. Refused ***[SKIP TO PR15]***

PR14. On a per-bulb basis, on average how much **[LOWER/HIGHER (FROM PR2)]**on average are the Ameren Illinois-program CFLs than the other CFLs that you sell?
(RECORD ESTIMATE IN $/BULB)_____

PR15. Have the discounted prices of the Ameren Illinois program bulbs impacted the sale of other compact fluorescent bulbs for your company?

1. Yes
2. No ***[SKIP TO PR18]***
D. Don't Know ***[SKIP TO PR18]***
R. Refused ***[SKIP TO PR18]***

PR16. How has it impacted the sale of other CFLs? Was it a positive effect, negative effect?

1 Positive Effect

2 Negative Effect

3 No Effect ***[SKIP TO PR18]***

4 Both Positive and Negative

D Don't Know ***[SKIP TO PR18]***

R Refused ***[SKIP TO PR18]***

PR17. What caused this [positive/negative/both] effect? _____ (OPEN-END; PROBE: SALES INCREASED/DECREASED, STOCK MORE/FEWER MODELS, OTHER CFL PRICES INCREASED/DECREASED, OTHER)

D Don't Know
R Refused

PR18. In addition to the incentives received through the program, did you offer any of your own discounts on these same CFLs?

1. Yes, Please describe _____.**[PROBE FOR $ AMOUNT]**
2. No
D. Don't Know
R. Refused

Section 5. Program Satisfaction

Finally I would like to find out your level of satisfaction with the Ameren Illinois Lighting & Appliance Program

PS37. Using a scale of 1 to 10 where 10 – very satisfied and 0 = very dissatisfied, how satisfied have you been with Ameren Illinois' incentives for the CFLs?

Record Response:_____

PS38. **[IF SATISFACTION RATING IS 0-5]** Why do you say that?

_____

PS39. Using the same satisfaction scale, how satisfied have you been with APT's program managers and other staff involved in this program during the past year?

Record Response:_____

PS40. **[IF SATISFACTION RATING IS 0-5]** Why do you say that?

_____

PS41. Using the same scale, how would you rate your level of satisfaction with the program in general?

Record Response:_____

PS42. **[IF SATISFACTION RATING IS 0-5]** Why do you say that?

_____

PS43. In what way could the program be improved?

_____

PS44. Are you planning to participate in the program going forward?

1. Yes
2. No
D Don't Know
R Refused

PS45. (IF YES) Why do you say that? _____

PS46. Is there anything else you would like to share about the program?

_____

Section 6: EISA

E1. EISA impacts: In December 2007 Congress passed an energy bill called the Energy Independence and Security Act. One component of the bill calls for a gradual phase-out of inefficient lamps over time starting in 2012. Are you familiar with this upcoming regulation change? [IF NECESSARY: The phase-out begins for 100 Watt general service lamps on January 1, 2012, for 75-Watt lamps starting in 2013, and for 60 and 40 Watt lamps in 2014.]

1. Yes
2. No [ASK TO SPEAK TO SOMEONE WHO IS FAMILIAR]

D. Don't Know

R Refused

E2. I'd like to ask you about what you see as the impact of this legislation on CFL sales and prices during different future time periods.

a. From now through January 1, 2012, Do you think CFL sales will increase, decrease or stay the same?
   i. Increase
   ii. Decrease
   iii. Same
   A1. Why? _____
b. From now through January 1, 2012, Do you think CFL prices will increase, decrease or stay the same?
   i. Increase
   ii. Decrease
   iii. Same
   B1. Why? _____
c. For the years 2012 through 2014, do you think CFL sales will increase, decrease or stay the same?
   i. Increase
   ii. Decrease
   iii. Same
   C1. Why? _____
d. For the years 2012 through 2014, do you think CFL prices will increase, decrease, or stay the same?
   i. Increase
   ii. Decrease

iii. Same

D1. Why? _____

e. Beyond 2014, do you think CFL sales will increase, decrease, or stay the same?

i. Increase

ii. Decrease

iii. Same

E1. Why? _____

f. Beyond 2014, do you think CFL prices will increase, decrease, or stay the same?

i. Increase

ii. Decrease

iii. Same

F1. Why? _____

E3. Between now and 2014, do you think the price of general service EISA-compliant halogen light bulbs will increase, decrease, or stay the same?

a. Increase

b. Decrease [IF DECREASE, ask how much? _____

c. Same

E3A. Why? _____

E4. Which of the following products does your company manufacture or plan to manufacture in the near future?

a. Incandescents

b. CFLs

c. LEDs

d. General service EISA-compliant halogen lamps

E5. For each of these products you've just identified, please tell me how your company is responding to EISA in terms of research and development, production levels, and marketing efforts between now and January 2012?

[PROBE FOR INCREASE, DECREASE, OR SAME IN EACH CELL]

Bulb Type	Incandescent	CFLs	LEDs	Halogen
R&D				
Production				
Marketing				

E6. Will your EISA response change as time goes on? [PROBE FOR TRANSITION TIME VS. AFTER FULL IMPLEMENTATION]

c. Yes [IF YES, How? _____]
d. No

E6. Are there any other ways in which your company is responding to EISA?

_____

E7. Do you see EISA as a benefit or detriment to your business?

a. Benefit
b. Detriment
c. Neither

E8. Why do you say that?

_____

Those are all my questions; can I record your name and job title? (RECORD)

_____

[THANK AND TERMINATE]

Appendix F: Lighting Per-Unit Energy Savings Calculations

Lighting

While lighting per-unit energy savings were deemed as part of the ICC Order in docket number 07-0539, Cadmus also independently estimated the per-unit energy savings to inform future planning estimates. This analysis required the following inputs:

- An estimate of the wattage displaced by program-discounted products (delta watts)
- An estimate of the average daily hours-of-use (HOU)

Delta Watts. As shown in Table 32, the weighted average wattage of CFLs sold through the Ameren Illinois program was 14.5 watts (W).

Table 32. CFL Wattage and Amount Sold

CFL Wattage	Total Number Sold
7	264
9	44,793
11	11,339
13	380,111
14	375,287
15	67,507
16	20,745
18	2,687
19	9,346
20	3,817
23	33,488
25	1,152
26	49,052
27	2,576
28	31
30	618
33	178
42	1,347
Total	**1,004,338**
Weighted Average	**14.5**

Using typical replacement wattages as shown in Table 33, we computed a lumen-equivalent replaced incandescent wattage, on average, of 62.7, or an incandescent-to-CFL wattage ratio of 4.32.

Table 33. Incandescent-to-CFL Replacement Wattages

CFL Wattage	Incandescent Wattage	Delta Watts
12 or less	40	28-31
13-17	60	43-47
18-20	75	55-57
22-28	100	72-78
29-42	150	108-121

Given the upstream nature of the program, there was no reliable method for collecting actual wattage data for incandescent light bulbs replaced by the program CFLs. Two recent evaluations in other regions attempted to estimate delta watts through primary research using two different methods:

1. The most recent 2006-2008 California Upstream Lighting Evaluation[20] conducted lighting inventories at approximately 1,200 homes and found that the average incandescent wattage of 61.7 was being replaced by average CFL program wattage of 17.2 watts (incandescent-to-CFL ratio of 3.6). In this study, technicians completed a full inventory of lighting wattages in the home and assumed the replaced wattage was equal to the corresponding wattage of similar room and lamp type bulbs that were not replaced.
2. A 2010 study for Duke Energy[21] used self-reported information by program participants for both replacement and purchased wattages and found that the average incandescent wattage of 66.7 was replaced by average CFL program wattage of 15.7 watts, resulting in an incandescent-to-CFL ratio of 4.25.

Although manufacturers recommend an approximate 4:1 ratio for incandescent-to-CFL wattage, a number of Websites suggest that a 3:1 ratio might provide a higher consumer satisfaction with the quantity of light.[22] However, incandescent packaging now typically recommends the lumen equivalent wattage as shown in Figure 26. Thus a shopper is likely to follow the recommended packaging unless they specifically determine the replacement CFL is too dim.

[20] KEMA, Inc., The Cadmus Group Inc., Itron, Inc., PA Consulting Group, Jai J. Mitchell Analytics, Draft Evaluation Report: Upstream Lighting Program. Prepared for the California Public Utilities Commission, Energy Division. December 10, 2009.

[21] TekMarketWorks., Draft Report Ohio Residential Smart Saver CFL, Prepared for Duke Energy, June 2010.

[22] See recent Websites for both Consumer Reports (http://www.consumerreports.org/cro/magazine-archive/october-2009/home-garden/compact-fluorescents/how-to-choose/compact-fluorescents-how-to-choose.htm) and Flex Your Power (http://www.fypower.org/res/tools/products_results.html?id=100195).

Figure 26. Example of CFL Packaging with Equivalent Incandescent

The Ameren Illinois value of 4.32 for the incandescent-to-CFL ratio is close to Duke Energy's value of 4.25 but higher than the California study of 3.6. The average Ameren Illinois program CFL wattage is lower than in California (14.5 vs. 17.2) and slightly lower than in Ohio (14.5 vs. 15.7). These differences could warrant a higher ratio for Ameren Illinois. However further research may be warranted to determine if customers actually replace 60 W incandescent light bulbs with the 13 W CFLs as designed. Cadmus believes it appropriate to discount the incandescent-to-CFL ratio to at least 4.0 to account for some customers replacing incandescent with higher lumen CFLs.[23]

Average Daily Hours of Use. Cadmus performed a separate analysis to independently estimate HOU for Ameren Illinois. For this analysis, Cadmus reviewed recent large-scale metering efforts in California and Massachusetts. The California effort showed that HOU is negatively correlated with CFL saturation: as CFL saturation increases, HOU decreases. Residential customers, therefore, tend to first replace their highest use fixtures with CFLs, and then replace their lower use fixtures. For example, as shown in Table 34, HOU dropped from approximately 2.3 hours a day in 2005 to 1.9 hours per day in the most recent California Study.

Table 34. Change of HOU Over Time

Study	Year of Metering	Saturation (% of Sockets with CFLs)	Average Daily HOU
CLASS *	2003-2004	9.0%	2.3
Draft Evaluation Report: Upstream Lighting Program	2008-2009	20.4%	1.9

*RLW Analytics, California Lighting and Appliance Efficiency Saturation Study (CLASS), 2005.

[23] The CFL User Survey received verbatim responses from some customers notably dissatisfied with their CFLs due to "poor light quality".

Cadmus also considered regional factors that could affect HOU calculations. A 2008 metering study in New England,[24] for example, found a daily average HOU of 2.8 hours per day. However, the saturation in homes was unknown, but was possibly more similar to California's later study (since New England had also been operating CFL programs for a number of years). Therefore, the difference in HOU is presumably due to more winter lighting hours compared to California.

Cadmus developed a spreadsheet to predict HOU based on latitude and CFL saturation, calibrating between two time series points in California in order to estimate change due to saturation, and again calibrating between California and Massachusetts in order to estimate change due to latitude. Using this model, we found that HOU was more sensitive to latitude than saturation. Cadmus estimated HOU for Ameren Illinois' to be 2.74 hours per day. The inherent HOU value in Ameren Illinois deemed savings calculation is 2.3 hours per day.

Summary per Unit Energy Savings. Table 35 compares Cadmus estimates of per-unit energy savings to Ameren Illinois' estimates. The following formula was used:

$$\frac{(CFL\ Watt * Watt\ Ratio - CFL\ Watt) * HOU * 365}{1{,}000} =$$

$$\frac{(14.5\ Watt * 4 - 14.5\ Watt) * 2.74\ hours * 365\ days}{1{,}000} = 43.5\ kWh$$

Table 35. Per Unit Lighting Energy and Demand Savings Comparison

Ex Ante Per Unit Energy Savings*	Realized Per Unit Energy Savings
40.86	43.5

*Weighted average energy savings from lighting program tracking database.

[24] Nexus Market Research, RLW Analytics, Inc., and GDS Associates, Residential Lighting Markdown Impact Evaluation, Prepared for Markdown and Buydown Sponsors in Connecticut, Massachusetts, Rhode Island, and Vermont, January 2009.

THE CADMUS GROUP, INC.

Date: November 29, 2010

To: Karen Kansfield, Ameren Illinois and Jennifer Hinman, ICC Staff

From: Jane Colby

Re: Net-to-Gross Addendum

Determination of Net Lighting Savings

A number of different approaches for estimating NTG from upstream lighting programs have been used in utility program evaluations. For PY1, Cadmus compared average CFL purchases per household in Ameren Illinois service territory to other states without CFL programs. The net increase in CFL sales per customer in the Ameren service territory relative to areas without programs predicted the total CFL sales resulting from the Ameren program. Cadmus recommends this comparison area approach because it considers both freeridership and spillover, and does not require participant recollection of the program.[1] However, the method requires consistent survey data collection to be conducted at the same time, which can be costly and requires considerable coordination among participants.

Cadmus is currently coordinating CFL surveys and follow-up site visits with nine participating utilities in order to conduct a NTG analysis similar to the comparison area approach, but that incorporates a statistical regression model to isolate program effects on CFL purchases from other factors. These results are anticipated to be available in January 2011.

In the meantime, Cadmus applied another method to evaluate NTG for PY2, the Supplier Self-Report Approach. This approach relies primarily on information collected from in-depth interviews with area retailers and CFL manufacturers. We asked these market actors a series of questions designed to estimate the percentage of all CFLs these stores and manufacturers would have sold in absence of the program.

Eight retail stores (two from each of four retail chains), two corporate retailers (one participating and one non-participating), and six manufacturers were interviewed. The non-participating retail chain was asked to quantify any increase or decrease in CFL sales that occurred in their stores due to general marketing and advertising by Ameren Illinois. This supplier NTG approach accounts for both freeridership and spillover, because participating retailers were asked about lift in total CFL sales from the program (not just program CFLs), and the non-participating retail chain was asked specifically about spillover effects. Spillover occurring in other non-participating retail outlets was not counted. The interview guides for each of the retailers, the

[1] For small dollar purchases, such as light bulbs, that may have occurred several months prior to program participation and did not require a rebate application, it is difficult for participants to recall their purchase motivations or the impact of advertising on their decision.

corporate retailer, and the manufacturers were included in the Appendices of the Draft Lighting and Appliances report. The interview guide for the non-participating corporate retailer is included in this addendum as Appendix A. The site visit data collection form is included in this addendum as Appendix B. Following are the three key questions asked of both participants and non-participants to estimate NTG:

1. If the Ameren Illinois' incentives [or advertising and promotion for non-participants] were not available, do you think your sales of standard ENERGY STAR CFL bulbs in Southern Illinois would be about the same, lower, or higher?
2. [If higher or lower] By what percentage do you estimate your company's sales of CFLs in Central and Southern Illinois would be [higher/lower] during the past year if the Ameren Illinois program incentives [or program advertising for the non-participant] were not available?
3. What percent of your total CFL sales in Central and Southern Illinois would you estimate are CFLs that were purchased through the Ameren Illinois Lighting & Appliance Program?

Table 1 shows the average and range of responses to questions 1, 2, and 3 for the interviewed retailers. The interviewed retailers were store representatives from retail chains, together selling approximately 97 percent of the program bulbs. Since one manufacturer did not respond to question 3, we were not able to use their data in the NTG calculations.

Table 1. Survey Responses

Question #	Average Response	Response Range
Q1	all said lower	
Q2	30 to less than 40%	less than 10% to 70%
Q3	40 to less than 50%	less than 10% to 90%

By assessing responses to these questions, we calculated NTG as follows:

1. Obtained Sales Data from Tacking Database. This gives an estimate of the "No. of Bulbs Sold Through the Program."
2. "Estimated Actual Sales." As these data were not provided by the retailers, we had to estimate indirectly as follows:

$$\boldsymbol{Actual\ Sales} = \frac{\boldsymbol{Number\ of\ Bulbs\ Sold\ Through\ the\ Program\ (from\ tracking\ database)}}{\%\ \boldsymbol{Program\ CFLs\ (Question\ \#3)}}$$

3. Estimate "Sales w/o Program" using:

$$\boldsymbol{Sales\ w/o\ Pgm} = \boldsymbol{Actual\ Sales\ x\ (1 - \%\ Sales\ Would\ Be\ Lower\ w/o\ Pgm\ (Question\ \#2))}$$

4. Estimate "Lift" using:

$$\boldsymbol{Lift\ in\ ENERGY\ STAR\ CFLs\ =\ Actual\ Sales - Sales\ Without\ Program}$$

5. Estimate "Number of CFLs Sold Through Non-Participating Retailers" using

$$\boldsymbol{Number\ of\ CFLs\ Sold\ Through\ the\ Non-Participating\ Retailer = 4.6\ \times 1,200,000\ \times 0.316 \times 0.67}$$

   Where the 4.6 (average CFLs purchased per customer during the program year) was estimated using the recent data collected from site visits. This converted to total number of CFLs as multiplied by number of Ameren Illinois residential customers. Finally, during the site visits conducted as part of PY1 evaluation, participants reported 31.6 percent of their purchased CFLs over the program year were purchased through mass merchandise stores. Of the mass merchandise stores in Ameren Illinois territory, we estimate 67 percent of stores belong to the non-participant retailer interviewed.[2]

6. Estimate NTG as:

$$\frac{\sum \boldsymbol{Lift\ in\ ENERGY\ STAR\ CFL\ Sales\ for\ Each\ Retailer\ (participants\ and\ non-participants)}}{\boldsymbol{No.\ of\ Bulbs\ Sold\ Through\ the\ Program\ (from\ tracking\ database)}}$$

We weighted inputs from participating retailers based on the share of program bulbs sold through that retailer chain. Although most retailers said their answers were the same for either standard or specialty CFLs, one retailer reported different estimates and those inputs were used to calculate a separate "lift" for standard and specialty CFLs for that retailer.

To ensure the responses were internally consistent and reliable, we repeated their response back to them as in the following question:

> *Just so I understand, you would sell [%] [MORE/LESS] standard CFLs in Central and Southern Illinois if the program was not available?*

In order to respect the confidentiality of the various stores, Table 2 illustrates the calculations with simulated random sales data. In this example, the total "Sales Through the Pgm" is 220 bulbs. As the stores interviewed are responsible for 97% of the sales, the total no. of bulbs is adjusted to 227. The total participant lift is estimated at 228 bulbs. The non-participating retailers sold 9 bulbs, of which 20% are due to the program (2 bulbs). The total lift (participants and non-participant) is 228+2=230 bulbs. NTG is the total lift divided by the total sales through the program, or 230/227=1.01.

[2] Estimated using the store locator on websites for Kmart, Target, and WalMart.

Table 2: Simulated Data Example

Example Data					181.8181818		
Store	W/O Pgm Sales would have been? Column A	By how much? Column B	% of your CFL sales through Pgm? Column C	No. of Bulbs Through Pgm Column D	Actual Sales (D/C) Column E	Sales W/O Pgm (E*(1-B)) Column F	Lift (E-F) Column G
1	Lower	0.60	0.55	100	182	73	109
2	Lower	0.40	0.55	80	145	87	58
3	Lower	0.05	0.35	20	57	54	3
4	Lower	0.20	0.25	10	40	32	8
5	Lower	0.50	0.10	10	100	50	50
Total				220	524	296	228

CFLs purchased per customer during program year from site visits	4.6
Res Customers in AIU service territory	10
Share purchased from nonpart retailer estimated during site visits	21%
Total CFLs from non part retailer	10
Percentage Sales Lift from Interview with non part retailer	20%
Total CFLs at non part retailer caused by AIU program	2

Share of Market	97%	NTG	1.01

Table 3 illustrates the aggregated results using actual data. NTG is estimated at 0.91.

Table 3. NTG Calculations with Aggregated Results

Store	W/O Pgm Sales would have been?	By how much?	% of your CFL sales through Pgm?	Sales through Pgm	Actual Sales	Sales W/O Pgm	Lift
Total				974,136	2,651,426	1,975,673	675,753
CFLs purchased per customer over program year from Site Visits							4.6
Res Customers in AIU service territory							1,200,000
Share purchased from nonpart retailer estimated during site visits							21%
Total CFLs from non part retailer interviewed							1,168,694
Percent Lift from Interview with non part retailer							20%
Total CFLs at non part retailer caused by AIU program							233,739
Share of Market				97%		NTG	0.91
Sales Thru Program				1,004,263			

Cadmus made the following conservative assumptions in calculating this estimate:

- While we interviewed one representative from a large, non-participating retail chain, we did not interview all non-participant retailers. The 31.6 percent estimate of the non-participant sales share is based on customer reported purchases in the mass merchandise retail channel. We then multiplied the 31.6 percent by 0.67 to account for estimated share belonging to our non-participant interviewee out of mass merchandise stores in Ameren Illinois service territory. This is also conservative because some mass merchandisers are not active CFL sellers. Other non-participating retailers also may have spillover, but this was not counted. Had we applied the estimated lift to all mass merchandiser sales, the NTG estimate would be 1.02.
- Across the board we used the conservative end of the estimate for questions 2 and the midpoint for question 3. Had we used the least conservative end of both questions, the NTG would be 1.37. Had we used the midpoint for both questions the NTG would be 1.05. Had we used the most conservative end of both questions, the NTG would be 0.77.

By combining these assumptions to apply all the least conservative estimates, we calculate a NTG of 1.54. The overall range for the NTG estimate therefore, is 0.77 to 1.54, with our recommended value of 0.91.

Appendix A: Interview Guide for the Non-participating Corporate Retailer

The Ameren Illinois Lighting & Appliance Program

Non-Participant Retailer Survey

Hello, may I speak to _____.

Hello, my name is [interviewer name], and I'm calling on behalf of the Ameren Illinois regarding your company's participation in selling energy efficient light bulbs promoted through the Ameren Illinois' Act On Energy Lighting Program. I think _____ at APT talked to you about the information we are collecting. Is now a good time to talk?

If no, reschedule.

If yes, continue….

We are collecting information from retailers currently participating in Ameren Illinois' lighting program to determine and report to the Illinois Commerce Commission, the net effect of Ameren's program on the CFL market. I assure you that all information is kept confidential and only reported in summary for retailers we interview as a whole.

Section 1. Stocking

I have a few questions about your light bulb sales in Central and Southern Illinois during the time period ***prior*** to your involvement with the **Ameren Illinois' Lighting & Appliance program.**

ST1. First can you tell me, which of the following light bulb types did your retail stores in Central and Southern Illinois stock during the period June 2009 through May 2010 (the year prior to your involvement in Ameren Illinois' Lighting & Appliance Program): [ALLOW MULTIPLE ANSWERS]

1. Standard ENERGY STAR compact fluorescent bulbs, or CFLs? By "standard ENERGY STAR compact fluorescents" I mean bulbs with the ENERGY STAR label that are bare spiral and have just one light level.
2. Specialty CFLs, such as covered spiral, dimmable, 3-way, spotlights, or reflector CFLs?

ST2. Which of the following types of non-CFL light bulbs did you stock on a regular basis during that same time period of June 2009 through May 2010?

1. Incandescent bulbs
2. Halogens
3. LED lights
4. Other (SPECIFY) _____

Section 2. Sales Trends

Although you were not participating in Ameren Illinois' program by offering discounted CFLs during the period June 2009 through May 2010, I'd like to ask your opinion on whether you think customer demand for CFLs in your store was affected by the general marketing and advertising performed by Ameren Illinois.

TR1. If Ameren Illinois had not been marketing and advertising ENERGY STAR CFLs to its customers during the period of June 2009 through May 2010, do you think your sales of ***standard ENERGY STAR*** CFL bulbs in Central and Southern Illinois during that time would be about the same, lower, or higher?

1. Same
2. Lower
3. Higher

TR2. Why do you think this is?

(RECORD RESPONSE) _____ [IF TR1=1, SKIP TO TR5]

TR3. By what percentage do you estimate your store's sales of ***standard ENERGY STAR*** CFLs would have been [0 higher/lower] during the period June 2009 through May 2010 if Ameren Illinois had not been marketing and advertising CFLs to its customers? Would it be…

1 Less than 10%
2 10% to less than 20%
3 20% to less than 30%
4 30% to less than 40%
5 40% to less than 50%
6 50% to less than 60%
7 60% to less than 70%
8 70% to less than 80%
9 80% to less than 90%
10 90% or more

TR4. Just so I understand, your sales of standard CFLs would be [% from TR3]

1. Yes
2. No

TR4a. Clarify actual answer

TR5. **[ASK if ST1=2]** Earlier you mentioned that you estimate your sales without Ameren Illinois' program would have been [higher, lower, or same] as with the program. Would your answer be the same for **specialty** ENERGY STAR CFLs?

1. Yes ***[SKIP TO TR7]***
2. No

TR6. How do they differ? **[REPEAT QUESTIONS TR1-TR4 FOR SPECIALTY ENERGY STAR CFLS]**

_____

TR7. Considering data you might have available or your personal knowledge, what would you estimate the total ***sales*** of all ***CFLs*** to be for your stores over the course of the year prior to your involvement in Ameren Illinois' program? [If can't estimate year, ask to estimate a typical month]

Time Period	Number of CFLs per Time Period
Year OR	TR7.1
Average month	TR7.2

D. Don't Know [If don't know reiterate that we are required to have this information and it will only be reported on summary basis without any store names. Offer to give them time to look it up or call back or give you a range].

TR8. Just to confirm, is this an estimate of the number of **individual** CFLs or **packages** of CFLs sold?

1. Individual
2. Packages [Ask them to use their best estimate of average package size to convert it to number of CFLs]

TR8a. _____# CFLs

TR9. What proportion of individual CFL s sold in your stores in Central and Southern Illinois during this period (June 2009-May 2010) were standard versus specialty CFLs?

1. Standard _____%
2. Specialty _____%

[SHOULD ADD TO 100%]

Section 4: CFL Pricing

PR1. How do you determine the price you charge for the CFLs you sell?
(RECORD RESPONSE)_____

PR2. In the year prior to your participation in the Ameren Illinois Lighting Program, did you offer any discounts on the price of any CFLs to be competitive with Ameren Illinois' discounts to other retailers?

1. Yes
2. No ***[SKIP TO PR5]***

PR3. On a per-bulb basis, on average by how much did you discount the CFLs? (RECORD ESTIMATE IN $/BULB)_____

PR4. What percentage your total bulb sales in Central and Southern Illinois for the year June 2009 through May 2010 **[FROM TR7]** were sales of the CFL bulbs you discounted?

_____ %

PR5. For the following types of bulbs, if your store carries them, will you estimate the average selling price in Central and Southern Illinois during the period June 2009 through May 2010?

PR5a. 13 W Standard ENERGY STAR CFL $/bulb _____ or N/A

PR5b. 23 W Standard ENERGY STAR CFL $/bulb _____ or N/A

PR5c. 15 W Dimmable Floodlight $/bulb ____ or N/A

PR5d. 14 W Non-dimmable floodlight $/bulb ____ or N/A

Section 4. Firmagraphics

Now I have a few questions about your store characteristics.

F1. How many stores do you operate in Central and Southern Illinois?

(RECORD RESPONSE) _____

F2. What is your name and job title? (RECORD) _____

F3. How many years has your company been selling CFLs in Central and Southern Illinois?

1. 1
2. 2
3. 3
4. 4
5. 5
6. More than five

[THANK AND TERMINATE]

Appendix B: Site Visit Data Collection Form

Room	Room #	All Bulbs							CFL Bulbs Only		Notes
		Fixture Group #	Fixture Type	Number of bulbs/ Socket	Bulb Type	Bulb Shape	Socket Type	Control Type	When Obtained	Where did you purchase the CFL? (store or type of store)	
(See code list)	#		C=Ceiling-mounted L=Floor/table lamp T=Torchiere W=Wall-mounted R=Recessed S=Suspended F=Ceiling Fan K=Track Lighting HW=Hard Wired PI=Plug-in G=Garage Door U=Under counter O=Other (describe)	#	I=Incandescent CFL=CFL F=Fluorescent LED=LED H=Halogen O=Other [Specify] E=Empty ***If bulb is burned out enter "BO" next to bulb type (i.e. "CFL BO)***	T=Twist/Spiral G=Globe A=A-lamp B=Bullet/Torpedo Bug=Bug light S=Spotl/Reflctr/Flood C=Circline Tub=Tube O=Other [Specify]	S=Screw P=Pin G=GU Can=Candelabra O=Other [Specify]	OF=On-Off Dim=Dimmable 3W=3-way MSS = Motion Sensor w/ Activation Switch MS=Motion or Photo Sensor without switch O=Other [Specify]	1=2008 or earlier 2=1st half 2009 (Jan - June) 3=2nd half 2009 (July-Dec) 4=2010 8=DK	Enter in code if known Write store name if unsure of code or ask participant for store description if needed to determine code DK=Don't know	REF=Homeowner refusal to access

In-Home Observation Codes

Room Types	
Bedroom	Numbered by frequency of use.
Basement	
Bathroom	Numbered by frequency of use.
Closet	Numbered by frequency of use.
Dining	Formal/separate dining room
Foyer	entry space
Garage	
Hallway	
Kitchen	Including attached dining/nook area
Office/Den	
Living space	Includes family room and living room, number in order of use
Storage	Any bulbs that are not currently installed
Outdoor	
Utility	Utility/laundry room
Other	Please specify

Store Types		
Code	**Explanation**	**Examples**
HI	Home Improvement	Home Depot, Lowes
MM	Mass Merch or discount department store	Walmart, K-Mart, Target
HW	Hardware	ACE
WH	Warehouse	Costco, Sam's Club
G	Grocery	Safeway, Kroger
D	Drugstore	Walgreen's, Rite Aid, CVS
C	Convenience store	7-Eleven, Circle K
SL	Specialty lighting or electrical store	
HF	Home furnishing store	Bed, Bath, and Beyond, Pottery Barn
U	Utility company	
B	Bargain store	Dollar Store, Family Dollar
OS	Office supply store	Office Depot, Staples
NP	Not Purchased	provided by family member
O	Other	

Control Types	
OF	On-Off
Dim	Dimmable
3W	3-way
MSS	Motion/Photo Sensor with on/off switch
MS	Motion or Photo Sensor (no switch)
O	Other

Fixture Types	
C	Ceiling-mounted
L	Floor/table lamp
T	Torchiere
W	Wall–mounted
R	Recessed
S	Suspended
F	Ceiling fan
K	Track lighting
HW	Other hard-wired
PI	Other plug-in
G	Garage door
U	Under Counter
O	Other (describe)

Socket Types	
S	Medium Screw Base
P	Pin Base
GU	GU - Base
C	Candelabra/Small Screw Base
O	Other

Bulb Shapes	
T	Twister/Spiral
G	Globe
A	A-lamp
B	Bullet/Torpedp
Bug	Bug Light
S	Spot/Reflector/Flood
C	Circline
Tub	Tube
O	Other

Bulb Types	
I	Incandescent
CFL	Compact Fluorescent Lamp
F	Fluorescent
LED	Light Emitting Diode
H	Halogen
O	Other
E	Empty Socket
BO	Burned Out

When Obtained (CFLs Only)	
1	2008 or earlier
2	1st half of 2009 (Jan - June)
3	2nd half of 2009 (July - Dec)
4	2010
8	Don't Know

Date: February 15, 2011

To: Karen Kansfield, Ameren Illinois and Jennifer Hinman, ICC Staff

From: The Cadmus Group and NMR Group

Re: Lighting Net-to-Gross Addendum—Multistate Study

This memorandum supplements the PY2 Lighting and Appliances evaluation.

Summary

The multistate modeling effort relies on data from telephone and on-site surveys, conducted in areas with longstanding compact fluorescent lamp (CFL) programs, newer or smaller programs, and no CFL programs, through June 2010. Site visit data were collected from 1,523 households across 15 different areas.

After modeling specification attempts with other model types, the evaluation team of NMR Group and The Cadmus Group chose a zero-inflated negative binomial (ZINB) model for predicting CFL purchases. ZINB is an appropriate model for count data (e.g., number of CFLs purchased), when many cases fall at zero, and the non-zero observations exhibit a fair degree of variability. Compared to a related model (a negative binomial regression model), ZINB has the benefit of not treating all zeros the same.

The procedure first runs a logistic model, sorting out differences in why someone may have zero purchases during a time period. Our analysis led the multistate modeling team to conclude zeros in the data represented two separate populations:

- CFL users who happened not to have purchased during the observation time (i.e., the not-always zero group); and
- Households that will likely never purchase CFLs (i.e., the always zero group).

The zero-inflation portion of the model uses a logistic regression to identify persistent non-purchasers, who can be thought of as never considering a CFL purchase. For those not identified as persistent non-purchasers, the probability of each possible count (including zero) is modeled as a negative binomial distribution. The ZINB is a nonlinear procedure, and its interpretation differs from ordinary least-squares models.

In this report, we report a base case and three alternative scenarios; however, numerous models, testing a large number of plausible independent variables, were analyzed for goodness of fit. The final base case includes a logistic model, with coefficients predicting that:

1) Households with higher education levels have a greater probability of purchasing any CFLs.
2) Households who received the revisit site inventories were also more likely to purchase CFLs.
3) Households with a greater CFL saturation at the beginning of 2010 and those who do not like to have new technology were less likely to buy any CFLs.

The negative binomial portion of the model predicts the number of bulbs the home is likely to purchase. The number of bulbs incented per household by the program had a significant and positive effect on CFL purchases. Other factors influencing the number of CFL purchased included:

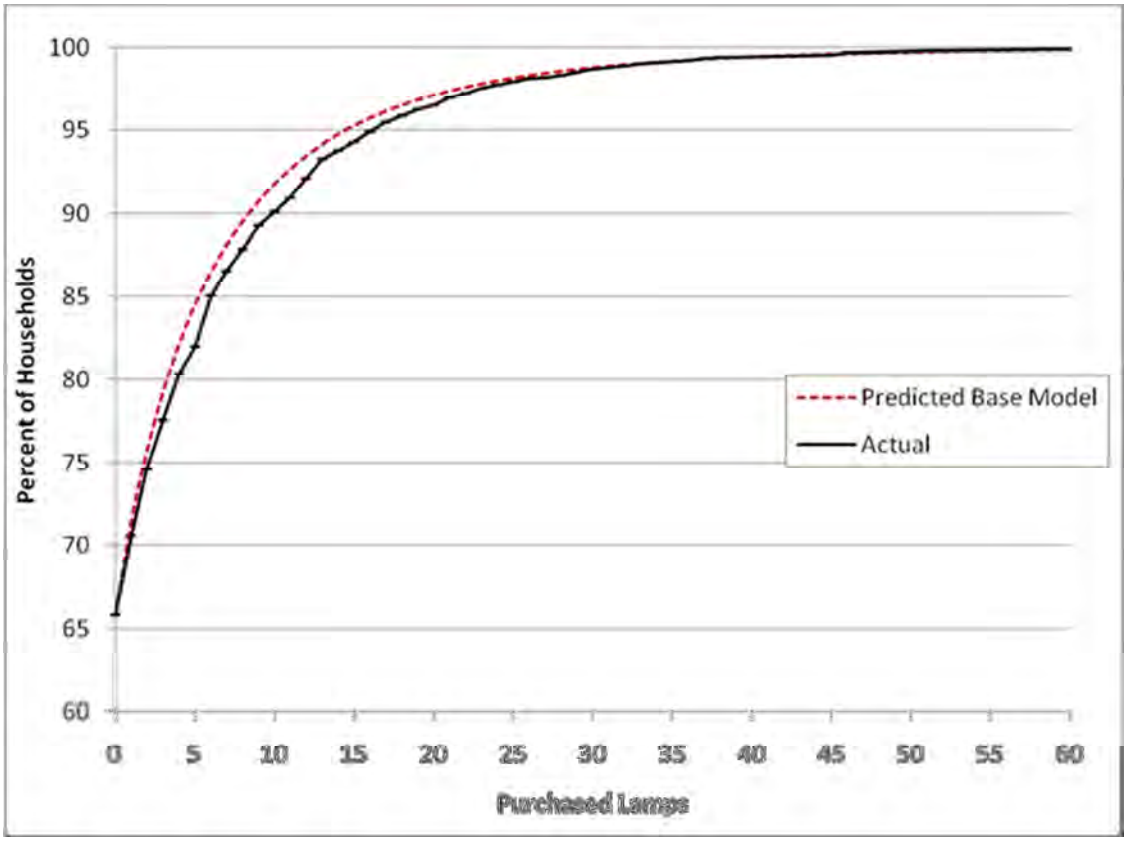
1) Whether or not a participant owns their own home (with owners showing propensity to purchase a greater number of CFLs in 2010).
2) The larger the participant's home the more CFLs they purchased in 2010.
3) Participants who responded that they do not seek the latest technology (measured on a five point scale ranging from strongly agree to strong disagree) purchased more CFLs in 2010 than those who prefer the newest technology.
4) Households with a higher saturation of CFLs at the beginning of 2010 also were likely to buy fewer CFLs.
5) Those in areas with longer running programs were less likely to buy more CFLs.
6) Households who purchased CFLs at Big Box stores were more likely to buy more CFLs.
7) Finally, two dummy variables associated with data collection were evident in the model. Those households visited in both 2009 and 2010 purchased fewer CFLs in 2010 than households visited only in 2010. Also, those areas where site inspectors did not require residents to guess their purchase period when they responded "don't know" to the question of "was the bulb purchased in the first half of 2010, the last half of 2009, first half of 2009, or 2008 and earlier" were likely to have lower CFL purchases. This could be because those asked to "guess" when bulbs were purchased, tended to guess more recently (a common memory bias); those allowed to "not know" were eliminated from the model if greater than 25 percent were unknown, and set to zero for unknown bulbs if the unknowns were less than 25 percent.

Various model specifications were tested, and quality of fit was evaluated through a variety of techniques:

- Maximum likelihood R^2;
- Predicted compared to actual values for purchases (P/A) in the program scenario; and
- The probability of significance test for each variable.

We also looked at the coefficient sign and variables to make sure they made logical sense. Figure 1 compares the CFL purchase distributions from the predicted base model to actual reported site visit results; these represent the distribution of purchases across all 15 areas.

Figure 1. Predicted vs. Actual CFL Purchase Distributions



To compute net-to-gross (NTG), we calculated the model's average "lift" in CFL purchases due to the program, based on the fitted model's predicted purchases per household with the program and the predicted purchases per household without the program (i.e., with the number of incented bulbs per household set to zero). These calculations *predicted* each Ameren Illinois household purchased an average 2.06 in the first half of 2010. The predicted non-program scenario suggests 1.77 CFLs would have been purchased in the program's absence. Subtracting the without-program estimates from the predicted program scenario yields an estimated "lift" in CFL purchases of 0.29 CFLs per household. Dividing the net program purchase estimates by the 0.39 incented CFLs per household yields a NTG of 0.75 for the base case, based on predicted data.

.

$$Ameren\ Illinois\ NTG = \frac{2.06 - 1.77}{0.39} = 0.75$$

Our best-fit model produced a 0.75 NTG for Ameren Illinois, with a range of other plausible models NTG results ranging from 0.54 to 0.77. Overall, we believe the model predicts CFL purchases well for the 15 areas, but it may not capture all factors influencing NTG for Ameren Illinois.

For instance, while Ameren Illinois is a relatively new program area, it had saturations and penetrations rivaling long-term programs. This could be due to spillover and/or leakage from ComEd's longer-running program. Another interesting trend was Ameren Illinois was one of three areas with consistently lower NTG ratios. One similarity between the three areas exists in that all had been economically struggling, even before the current recession. While the model attempted to capture economic effects through its county unemployment variable, it may not capture the long-term malaise occurring in these three areas, which could explain lower purchase rates.

The earlier Lighting and Appliances Report dated December 21, 2010 included an alternate method for estimating NTG, which used supplier interviews asking retailers to estimate program lift they noticed from the program. The NTG ratio calculated using this method under a range of assumptions was between 0.77 and 1.54, with a reasonably conservative result calculated at 0.91. If we simply average the two "base case" results, the resulting NTG is 0.83. Table 1 shows resulting net savings, applying both prospective and retrospective NTG ratios and using the average 0.83 NTG retrospectively.

Table 1. Ex Ante Gross Savings, Realized Savings, and Net Savings

Measure	Ex Ante Gross Savings (kWh)	Realized Gross Savings (kWh)	Realization Rate	PY1 NTGR	Prospective Net Savings (kWh)	PY2 NTGR	Retrospective Net Savings (kWh)
Ceiling Fan	18,880	20,532	1.088	0.76	15,604	0.76	15,604
Room Air Conditioner	499,720	172,980	0.350	0.76	131,465	0.76	131,465
Dehumidifier	2,428,380	1,708,860	0.700	0.76	1,298,734	0.76	1,298,734
CFLs – PY2	41,032,887	38,283,684	0.933	1.00	38,283,684	0.83	31,775,458
Total - PY2	43,727,443	40,186,056	0.919	0.99	39,729,486	0.83	33,221,261

Modeling Approach

Areas Included in the Analyses

Sponsors of the Multistate Model Study include:

- Ameren Illinois;
- Ameren Missouri;
- ComEd;
- Consumers Energy in Michigan (CE);
- Dayton Power and Light (DPL);
- EmPower Maryland;
- The five program administrators of the Massachusetts ENERGY STAR® Lighting Program (the Cape Light Compact [Cape Light], NSTAR, National Grid [NGrid-MA], Unitil, and Western Massachusetts Electric [WMECO]);
- National Grid in Rhode Island (NGrid-RI);
- The New York State Energy Research and Development Authority (NYSERDA); and
- The Salt River Project (SRP).

The analyses draws on data collected from 1,523 households across 15 different areas taking part in on-site saturation surveys. We use the term "program administrators (PAs)" because various parties supporting this effort include:

- Electric utilities
- Energy service organizations
- Public service commissions
- State agencies

NMR Group and The Cadmus Group comprised the evaluation team performing the modeling and analysis.

The multistate modeling effort relies on data from telephone and on-site surveys, conducted in areas with: longstanding compact fluorescent lamp (CFL) programs, newer or smaller programs, and no CFL programs through June 2010. The 10 PAs funded data collection in 11 program areas and four non-program areas (Table 2). PAs and evaluators chose these four non-program areas to complement 11 program areas' demographic, social, and economic characteristics.

Table 2. Participating Areas, Sample Sizes, and Survey Dates

Area	Abbreviation	Years Supporting CFLs****	On-Site Sample Size
Program Areas			
Ameren Illinois (part Illinois)	AIU	1.5	92
Ameren Missouri (part Missouri)	AUE	0.5	87
ComEd (part Illinois)	ComEd	5.0	98
Consumers Energy (part Michigan)	Consumers	0.5	99
Dayton Power and Light (part Ohio)	DPL	1.0	72
EmPower Maryland (most Maryland)	EmPower	2.0	79
Massachusetts (entire state)*	MA	12.0	150
New York City**	NYC	11.0	100
New York State***	NYS	11.0	200
Rhode Island (entire state)*	RI	12.0	100
Salt River Project (part Arizona)	SRP	2.0	101
Non-program Areas			
Houston, Texas (Harris County)	Houston	0.0	100
Indiana (central portion)	IN	0.0	67
Kansas (entire state)	KS	0.0	95
Pennington County, SD (portion)	SD	0.0	93
TOTAL			1,523

* Surveyed the entire state, even though some portions may be served by municipal utilities not taking part in the ENERGY STAR Lighting Program.

** Surveyed separately from the remainder of the state due to its unique demographic and economic characteristics.

*** State minus New York City and Nassau and Suffolk Counties.

**** At the beginning of 2010

Development of Program Variables

Program variables were the statistical models' key components guiding calculation of net-to-gross (NTG) ratios. The team began developing these variables by reviewing CFL program plans and documents, prior evaluation reports, and program summaries, compiled by the Consortium for Energy Efficiency (CEE), the U.S. Department of Energy (DOE), and ENERGY STAR to locate CFL programs in each state and gather information on CFL program activity through 2010 in each area.

Specifically, we searched for:

- Data on program budgets;
- Numbers of CFLs incented;

- The percentage of budget allocated to incentives, marketing and advertising, and overhead;
- The percentage of CFLs with specialty features; and
- The method of support (e.g., retail coupons, catalog, and/or upstream approaches).[1]

The team successfully collected this information for all programs for 2009 and 2010, and verified data with the PAs. We tested these program variables in the model individually and in combination, but the only program variable found to be statistically significant in the 2010 CFL purchase model presented below was the number of bulbs supported by the program, per household in the state.

The team also collected information on when the current program and any of its predecessor programs had been launched. These data were entered into the models. However, we did not consider them to be "current program variables" as they captured the *cumulative impact of prior program activity* on current purchases, not impacts of the 2010 program on purchases.

Modeling Procedures

Drawing on experiences gained from earlier modeling attempts, the current multistate modeling team chose to use the zero-inflated negative binomial regression (ZINB) to model CFL purchases.[2] The ZINB is a method of analyzing count data (e.g., the number of CFLs) with many cases falling at zero and with a fair degree of variability in the data. Compared to a related model (a negative binomial regression model), ZINB has the added benefit of not treating all zeros the same.

The procedure first runs a logistic model, sorting out differences in why someone may have zero purchases during a time period. Our analysis led the multistate modeling team to conclude zeros in the data represented two separate populations: CFL users who happened not to have made purchases during the observation time (i.e., the not-always zero group); and households likely to never purchase CFLs (i.e., the always zero group).

After using logistic regression to sort out reasons for zero purchases, the model uses a negative binomial regression to estimate the probability of each count (including zeros) for participants in the not-always zero group. ZINB is a nonlinear procedure, and its interpretation differs from ordinary least squares models.

The team developed model specifications to include the program variables described above, together with variables for:

[1] Specialty features primarily included: dimmable and three-way capabilities, colored bulbs, small screw bases, and shapes other than the usual spiral.

[2] Prior efforts made clear ordinary least squares regression did not accurately reflect data distribution, with many people reporting "zero" purchases. Likewise, earlier attempts at using the negative binomial regression model—which is similar to, but simpler than, the ZINB—suffered from poor model fit.

- Demographic, economic, and social characteristics;
- History of CFL use;
- Various measures of environmental opinions and early adoption behavior; and
- So-called dummy variables to denote:
    - Variations in data collection (e.g., revisit to homes that had taken part in the 2009 modeling effort).
    - Program design (e.g., NYSERDA's program focuses more on marketing than incentives).
    - Variations in data collection approaches (e.g., how site technicians address "don't know" responses to on-site survey questions) and outlying CFL purchase behavior (e.g., unusually high purchase rates in Houston and Pennington County, SD).

The team excluded variables found to be excessively collinear with other model variables or that had little statistical effect on CFL purchases.[3] The models presented are parsimonious in that their every variable has a statistically significant net effect on CFL purchases (at the 0.05 level of significance); removing any variables would reduce the model's predictive capability. In short, they represent the best models yielded by the analyses.

Model Results

The model's logistic portion indicates which households will likely never purchase CFLs versus those more likely to be purchasers. It only looks at households not purchasing CFLs in 2010. A negative coefficient means the chance of purchasing zero CFLs was less in homes with higher values of that independent variable (i.e., conversely, the chance of purchasing more than zero CFLs was higher) A positive coefficient means the chance of purchasing zero CFLs was greater in homes having a higher value of that variable (i.e., conversely, the chance of purchase for more than zero CFLs was lower).

The model's negative binomial portion is limited to those buying CFLs and zero purchasers more likely to buy; it estimates how many CFLs these households purchased in 2010. **Table 3** shows the base case model variables and their coefficients. This model was chosen as the base case because it provided the best predictability across all areas modeled and made intuitive and theoretical sense, considering the logic of CFLs programs and household purchasing behaviors.

[3] Collinearity was determined by the tolerance statistic and the variance inflation factor.

Table 3. Base Case Model

Logistic (Inflated)	Coefficient	P>|z|
Intercept	-0.254	-0.842
Some college or higher education	-0.494	0.0015
Revisit (yes coded 1; to account for potential impact of our first visit as evidenced in some MA, NY, Houston data	-0.494	0.0015
CFL Saturation at Beginning of 2010	0.015	<.0001
Like to have new technology (1 to 5, descending scale)	0.306	0.004
Negative Binomial	Coef	P>|z|
Intercept	0.941	0.0002
2010 Bulbs supported/household	0.39	<.0001
CFL Saturation at the beginning of 2010	-0.014	<.0001
Purchase Bulbs at Big Box Store	0.405	0.0026
Years supporting CFLs through buydowns	-0.034	0.001
Data Collection Protocol treatment of Don't Know	-0.77	<.0001
Homeowner	0.36	0.0029
Size of home (by 2K sqft, ascending scale)	0.387	<.0001
Likes to have new technology (1 to 5, descending scale)	0.174	0.0052
Revisit household	-0.347	0.0171

The base-case model's logistic portion predicts that:

1) Households with higher education levels have a greater probability of purchasing any CFLs.

2) Households who received the revisit site inventories were also more likely to purchase CFLs.

3) Households with a greater CFL saturation at the beginning of 2010 and those who do not like to have new technology were less likely to buy any CFLs, presumably because they already purchased CFLs and did not need them when asked (e.g., until their current CFLs burn out or they exhaust their stock of stored CFLs).

The model's negative binomial portion predicts the number of bulbs a household is likely to purchase. The number of bulbs the program incented per household had a significant and positive effect on CFL purchases. Other factors influencing the number of CFL purchased included:

1) Whether or not a participant owns their own home (with owners showing propensity to purchase a greater number of CFLs in 2010).

2) The larger the participant's home the more CFLs they purchased in 2010.

3) Participants who responded that they do not seek the latest technology (measured on a five point scale ranging from strongly agree to strong disagree) purchased more CFLs in 2010 than those who prefer the newest technology.

4) Households with a higher saturation of CFLs at the beginning of 2010 also were likely to buy fewer CFLs than those with a lower CFL saturation; similarly to the model's logistic portion, this implies those with high levels of saturation simply did not need to buy CFLs because they already had so many.

5) Those in areas with longer running programs were less likely to buy more CFLs; this variable indicates the cumulative impact of older programs: households in those areas have more CFLs because of the long program history; therefore, they did not need to buy as many in 2010 compared to places with newer programs.

6) Households who purchased CFLs at Big Box stores were more likely to buy more CFLs, presumably due to the larger package size typically sold at these stores versus grocery or lighting specialty stores.

7) Finally, two dummy variables associated with data collection were evident in the model. Those households visited in both 2009 and 2010 purchased fewer CFLs in 2010 than households visited only in 2010. Also, those areas where site inspectors did not require residents to guess their purchase period when they responded "don't know" to the question of "was the bulb purchased in the first half of 2010, the last half of 2009, first half of 2009, or 2008 and earlier" were likely to have lower CFL purchases. This could be because those asked to "guess" when bulbs were purchased, tended to guess more recently (a common memory bias); those allowed to "not know" were eliminated from the model if greater than 25 percent were unknown, and set to zero for unknown bulbs if the unknowns were less than 25 percent.

Model Diagnostics

Various model specifications were tested, and quality of fit was evaluated through a variety of techniques:

- Maximum likelihood R^2;
- Predicted compared to actual values for purchases (P/A) in the program scenario; and
- The probability of significance test for each variable.

We also looked at the coefficient sign and variables to make sure they made logical sense.[4] Figure 1 compares the CFL purchase distributions from the predicted base model to actual

[4] For instance, the variable, "area electricity rate"—defined as average cents per kWh for the residential customer class of each program area—was found to be significant in an alternative model specification, and the resulting model showed it was a good fit, according to the tested diagnostics. However, the coefficient sign was negative, counter-intuitively indicating higher electricity prices were associated with lower bulb purchases. When we replaced this variable with an "East Coast" variable, the model fit was even better, indicating the electricity price

reported site visit results; these represent the distribution of purchases within the Ameren Illinois territory.

Figure 2. Ameren Illinois Cumulative Predicted vs. Actual CFL Purchases

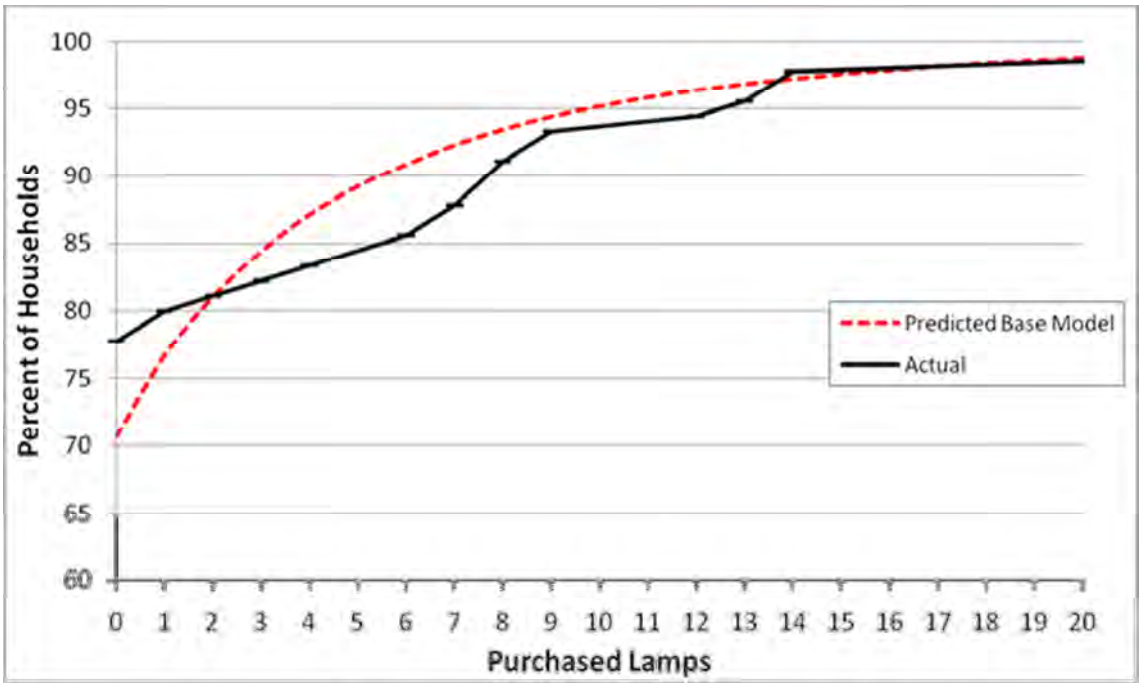
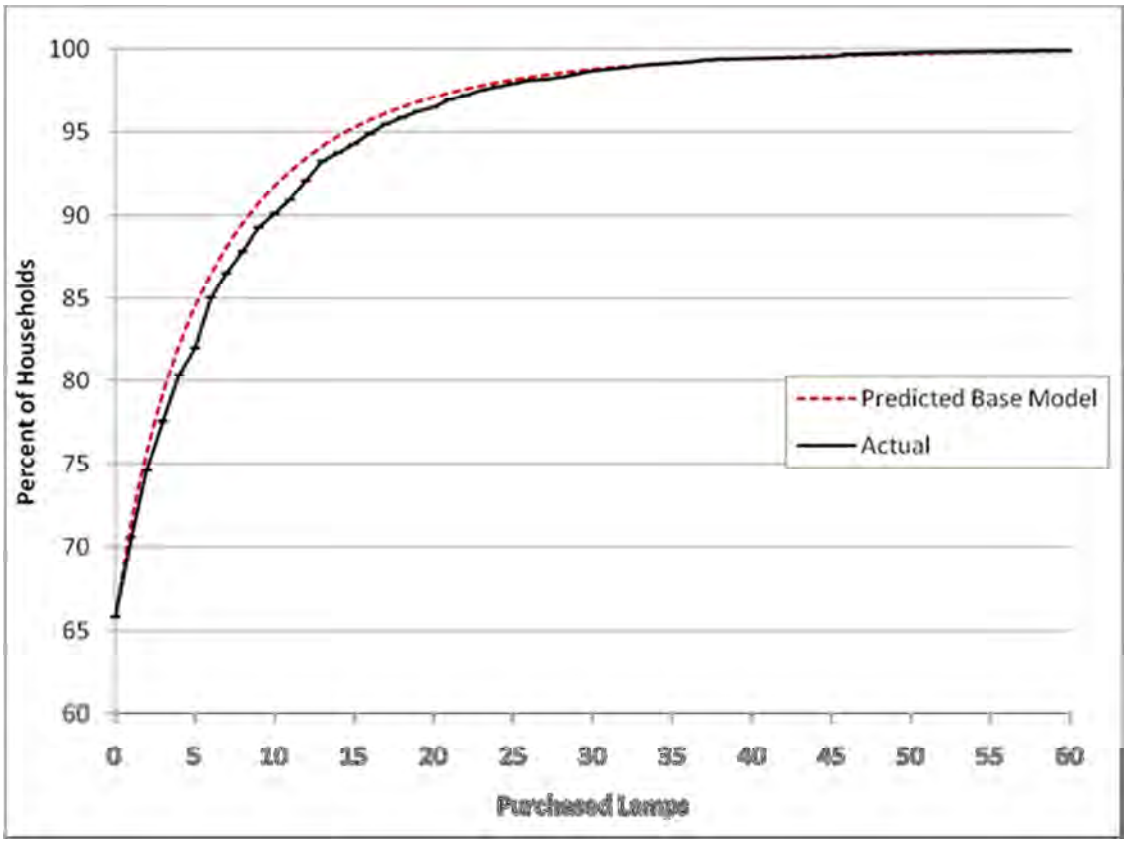


Figure 3 presents a similar graph, showing results for the entire 15 areas combined.

variable acted as a proxy for the country's region. The region in question—the East Coast—has the highest rates in the model, but also has the model's oldest CFL programs. This relationship was eventually replaced with the "years supporting programs" variable, which provided yet a better model fit, and showed a more theoretically sound relationship than electricity price or a regional variable.

Figure 3. Cumulative Predicted vs. Actual for All Areas



NTG Calculations

To develop actual NTG estimates, we used a fitted model to predict purchases per household in the program's presence: that is, using actual bulbs supported per household by program in 2010 (Row A, Table 3). We then used the same fitted model to predict purchases, assuming the program had not supported any bulbs in 2010 (Row B).

These calculations *predicted* each Ameren Illinois household purchased an average 2.06 in the first half of 2010. The predicted non-program scenario suggested 1.77 CFLs would have been purchased in the program's absence. Subtracting without-program estimates from the predicted program scenario yielded an estimate of net predicted program purchases of 0.29 (Row C). Dividing the net program purchase estimates by the incented CFLs per household 0.39 (Row D) yielded NTG of 0.75 in Row E, based on predicted data.

Table 4. NTG Calculation

Input	Value
A. Per-household purchases with program predicted	2.06
B. Per-household purchases without program	1.77
C. Net program purchases per household predicted	0.29
D. Incented CFLs per household	0.39
E. Total NTG	0.75

Sensitivity Analysis

A 0.75 NTG estimate was calculated for Ameren Illinois. While this model yielded the "best fit" across all areas, it underestimated Ameren Illinois purchases by 15 percent (predicted/actual purchases were 0.85). The evaluation team also analyzed many other variable combinations, but chose to report four other modeled "scenarios" testing possible model limitations:

- **No Control States**. In this scenario, we completely removed all four control states from the model (testing the impact if we assumed control states were all contaminated by program spillover). In this case, the Ameren Illinois NTG ratio increased to 0.77, along with slight increases in other areas, and the average P/A for all areas was 1.07, higher than in our base case model.

- **No Years of Support Variable**. In this case, we removed the variable regarding years the PA supported a CFL program in the model's logistic portion, indicating the number of years the program had been offered in that area. In this case, the P/A averaged 1.07, higher than in our base case model. The Ameren Illinois NTG ratio decreased to 0.54, and NTG ratios of all areas dropped similarly to Ameren Illinois.

- **Combination No Control States and No Years of Support**. We removed both control states and Years of Support Variable for this scenario. Overall, P/A averaged 1.06, and the NTG Ratio for Ameren Illinois was 0.71.

- **Setting Saturation to Zero in "No Program" Scenario**. The likelihood of zero purchases was modeled through the logistic and negative binomial portions of the model and found to be highly significant throughout the specification process. Since higher CFL saturations were associated with longer-running programs (see Figure 6, later in this summary), including the CFL saturation variable while modeling to predict CFL purchases without a program could underestimate the program effect (because CFL saturations would be higher due to historical program activity). Since the Program Scenario of this variation was identical to the base case, the resulting P/A diagnostic was the same; however, many calculated NTG ratios were nonsensical, ranging from negative 4.3 to positive 1.05, indicating saturation was a key variable.

In most scenarios, we found the relative NTG ratios between different program areas remained fairly constant. Figure 4 shows NTG ratios across the 11 areas for the base case and the first two sensitivity analyses discussed above.

Figure 4. NTG Ratios—Base Case and Sensitivities

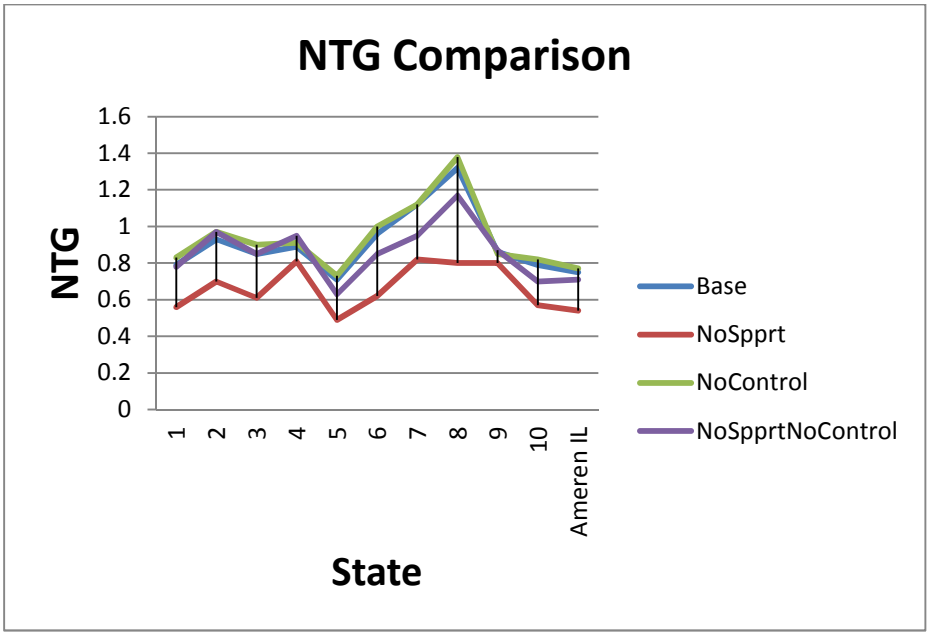


Figure 5 shows the cumulative predicted purchases compared to actuals for all scenarios and for all site visits among the 15 areas.[5]

[5] The model where saturation was set to zero is excluded from this figure due to its extreme values relative to the other four.

Table 5 shows the NTG ratio and average P/A for each sensitivity analysis in each area.

Figure 5. Cumulative Predicted vs. Actual for All Areas by Scenario

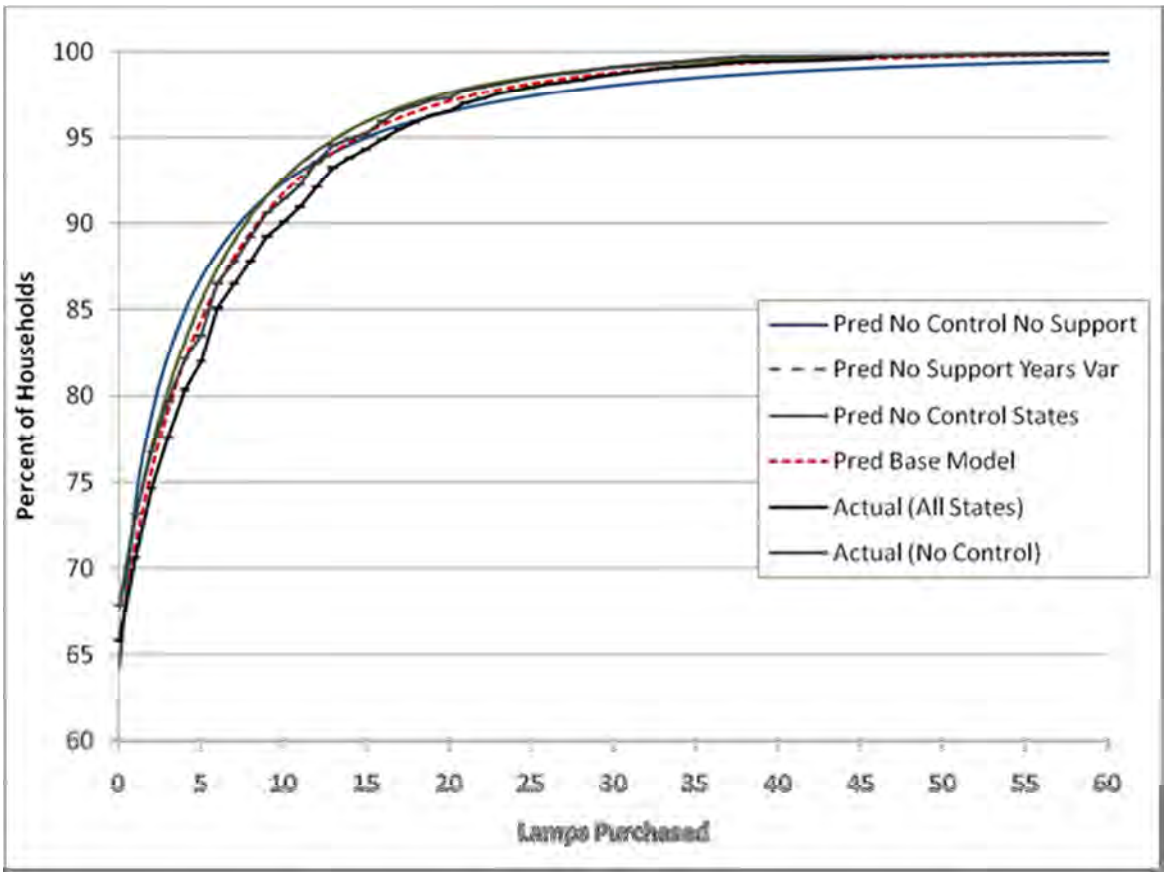


Table 5. Base Case and Sensitivity NTG Ratios and P/A

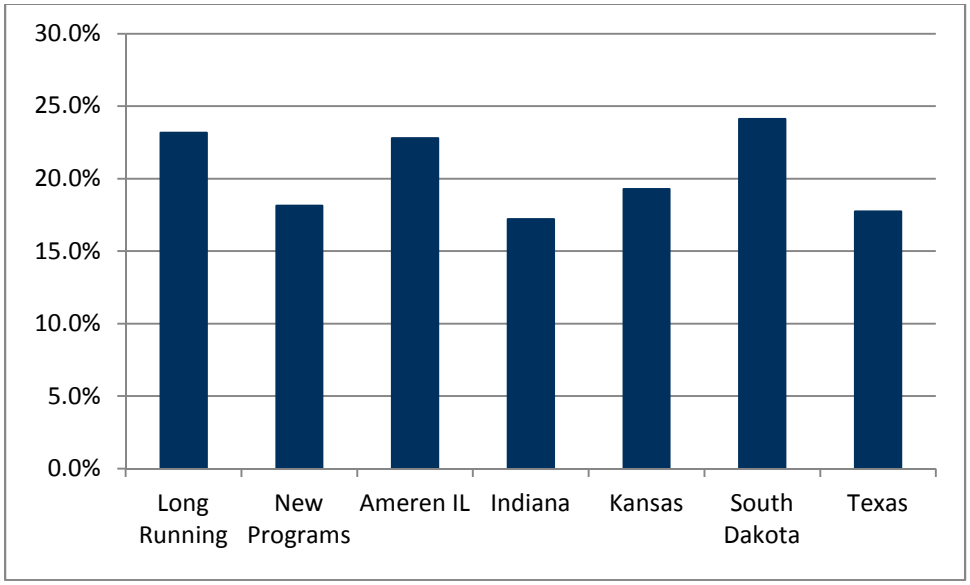
Area	Base Case	No Years of Support	No Control State States	No Years of Support /No Control States	Saturation Zero in No Program Case
1	0.79	0.56	0.83	0.78	-0.04
2	0.93	0.7	0.97	0.97	0.41
3	0.85	0.61	0.9	0.85	0.27
4	0.89	0.81	0.91	0.95	-1.4
5	0.71	0.49	0.73	0.63	-3.7
6	0.96	0.62	1	0.85	0.09
7	1.12	0.82	1.12	0.95	-4.3
8	1.32	0.8	1.38	1.17	1.05
9	0.86	0.8	0.85	0.87	-4.2
10	0.79	0.57	0.82	0.7	-3.6
Ameren Illinois	0.75	0.54	0.77	0.71	-1.7
Average P/A	1.025	1.074	1.06	1.06	1.025

Comparative Statistics

This section summarizes information collected in each area. To preserve confidentiality, we grouped multistate sponsors into those with newer programs (less than five years) and those with longer-running programs. Figure 6 shows average CFL saturations in new program areas, long-running program areas, Ameren Illinois, and each of the comparison areas; this equals the total number of CFLs installed in all homes, divided by the number of installed bulbs.

Interestingly, while nonprogram areas tended to have lower average saturations, they did not have the lowest. Only Indiana had lower average saturations than new program areas (Texas and the new progam areas were equal). South Dakota's saturation was higher than the average of long-running program areas, but this was partly due to the small size of many homes in the area. The Ameren Illinois service area had higher-than-average saturations of the newer program areas.

Figure 6. Average CFL Saturation



We also compared market penetration among program and nonprogram areas, as shown in Figure 7. Market penetration is the percentage of homes visited with at least one CFL installed. Again, Ameren Illinois market penetration was close to the average for the long-running program areas, and was higher than all nonprogram areas

Figure 7. Market Penetration

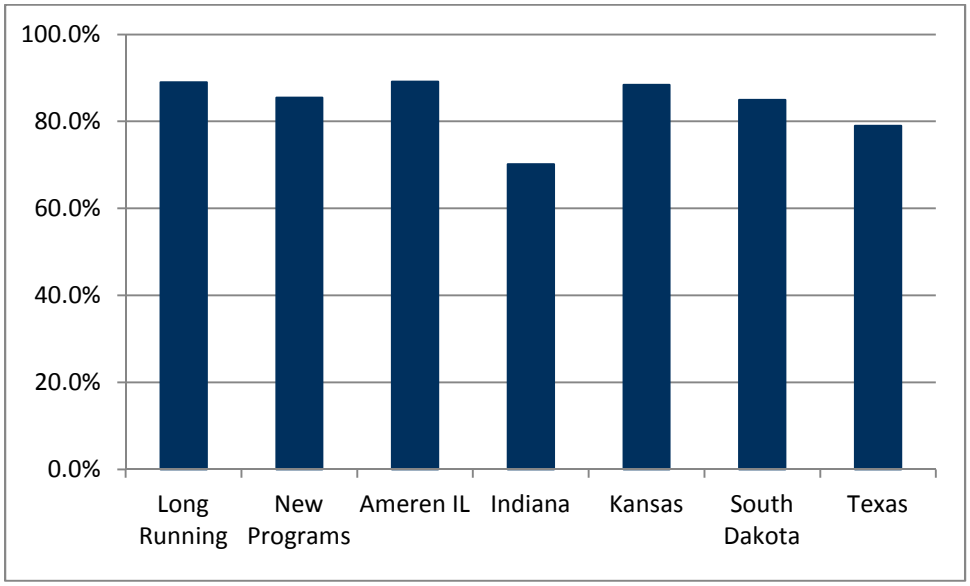
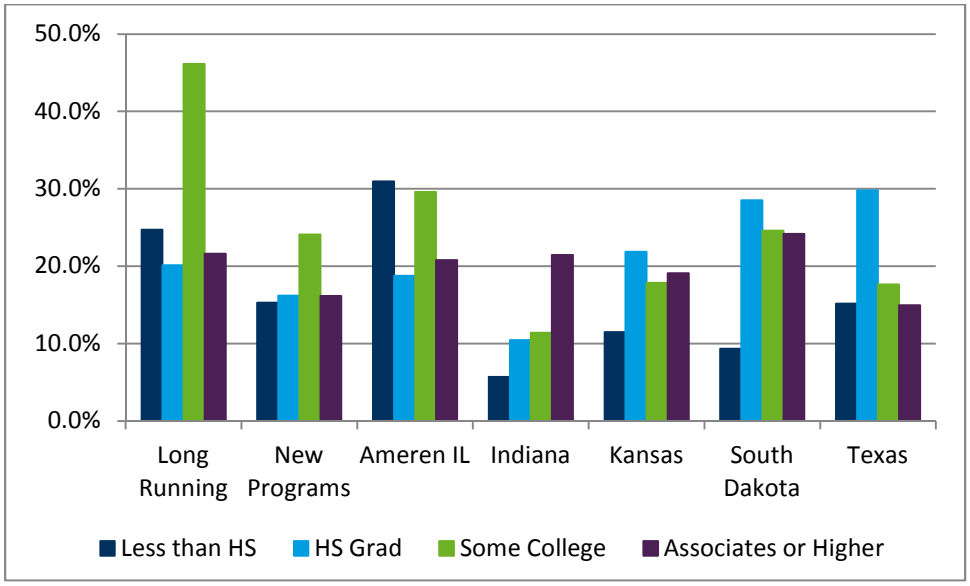


Figure 8 shows our analysis of saturation levels in each area, by education level. Ameren Illinois residents with less than a high school education had a higher CFL saturation than those of similar education levels in most other areas.

Figure 8. Saturation Levels by Education



Prior to the site visit, participants were asked whether they were familiar with CFLs. Lower familiarity typically has been associated with lower CFL saturations; however, Ameren Illinois participants who reported being "*not familiar*" with CFL technology had CFL saturations almost as high as those who were familiar (Figure 9). This could be due to a different family member answering the survey than the one typically purchasing light bulbs, or, in a rental situation, a landlord installing the bulbs.

Figure 9. Average Saturation by CFL Familiarity

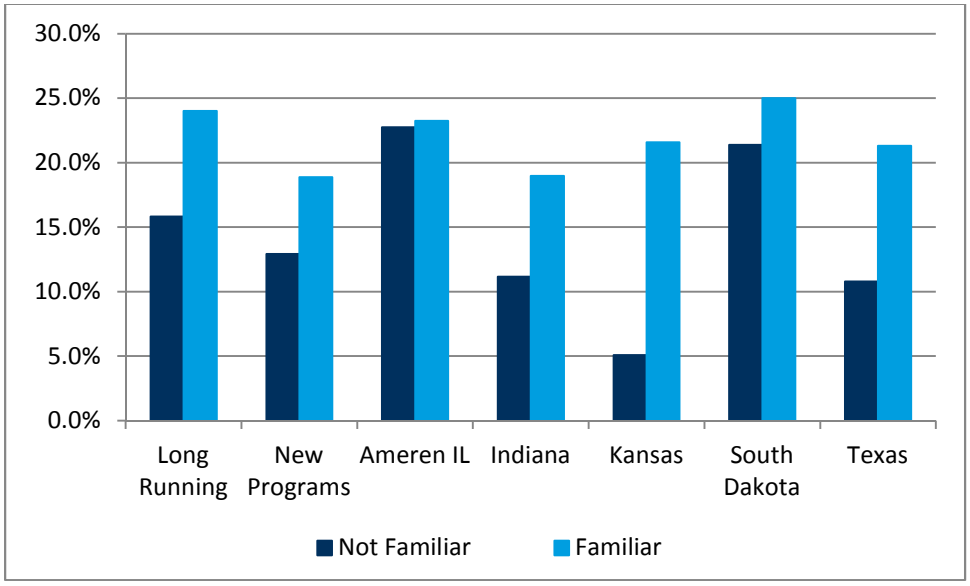


Figure 10 shows average saturations for each area according to homeownership status. While it may be expected CFL saturation would be higher for those owning their homes, rental homes were, on average smaller, and may have experienced higher saturation but fewer actual numbers of installed CFLs.

Figure 10. Average Saturation by Homeownership Status

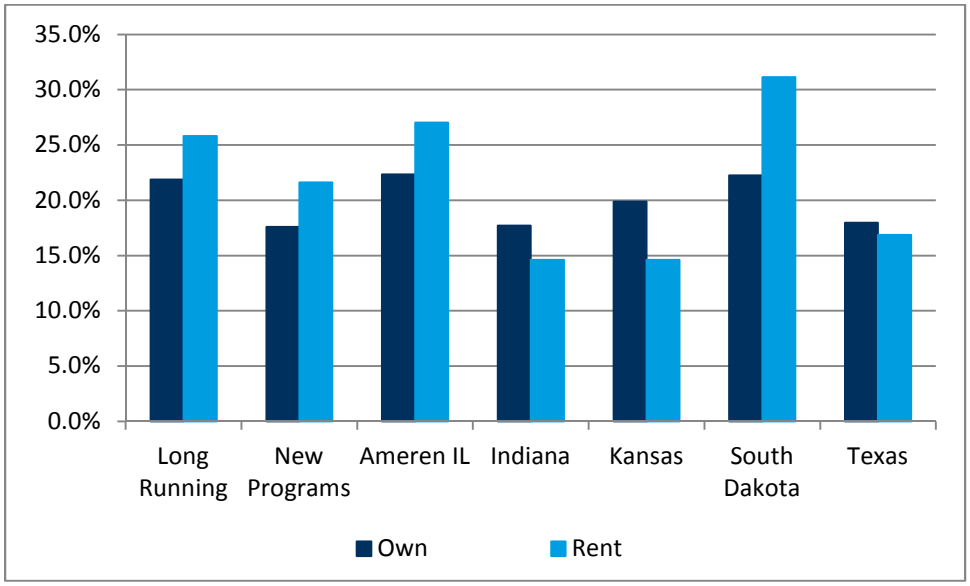


Figure 11 shows CFL saturations, according to how residents answered the question: "*Based on your understanding of the facts, is the earth's average temperature currently rising as a result of human activity?*" According to this analysis, no overall CFL saturation patterns emerged related to question responses, although, in many areas, those responding "probably no" or "definitely no" had lower saturations.

Figure 11. Average Saturation of Climate Change Attitudes

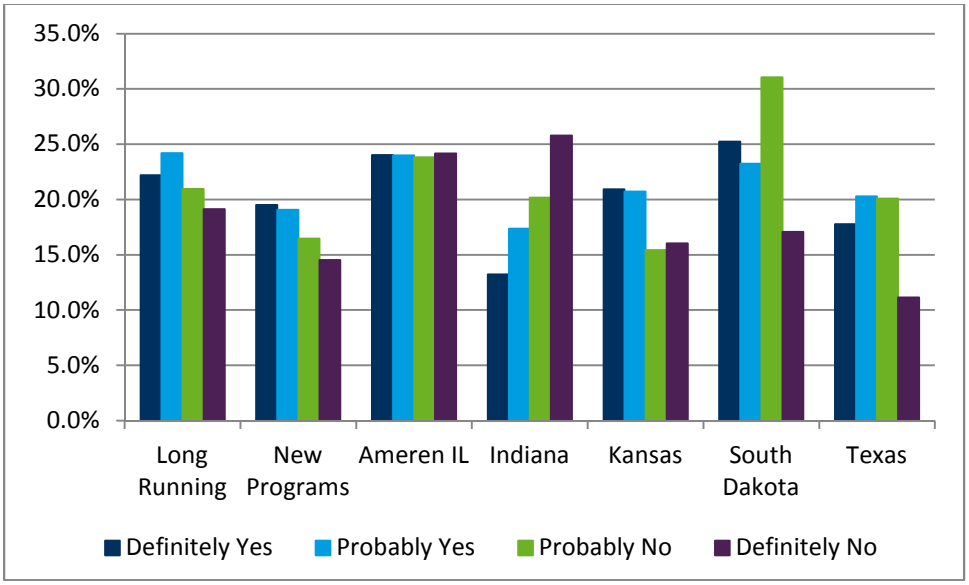


Figure 12 shows results comparing CFL saturations to resident's answers to the following question:

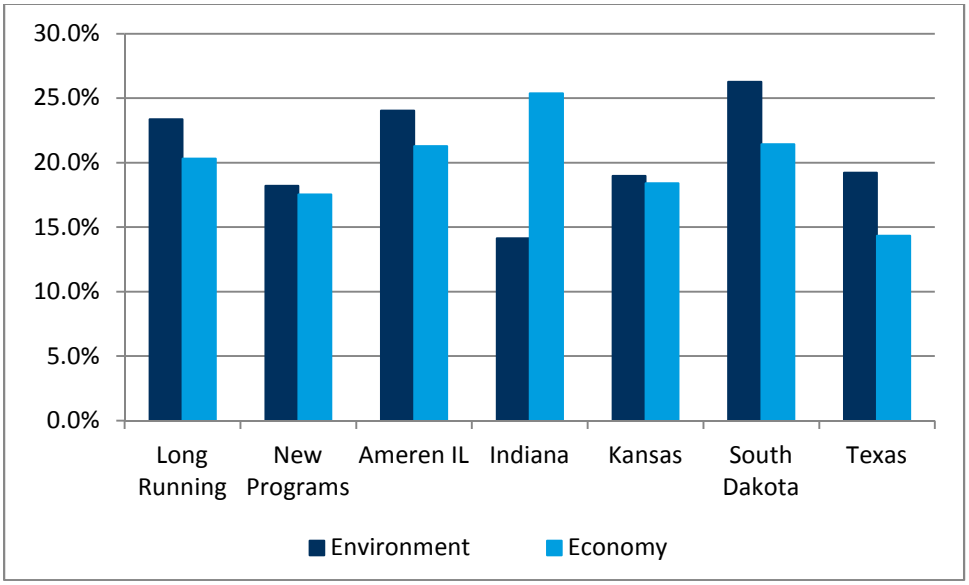
"*With which one of these statements about the environment and the economy do you most agree:*

1 *Protection of the environment should be given priority, even at the risk of curbing economic growth, OR*

2 *Economic growth should be given priority, even if the environment suffers to some extent?*"

For all areas except Indiana, those choosing the environment had a higher average CFL saturation than those choosing economy.

Figure 12. CFL Saturation by Economy vs. Environment Choice



Our next comparisons describe how program activity related to CFL purchases, saturations, and NTG results for each program area. To preserve confidentiality, areas compared in this analysis have been referred to as A, B, C, etc. In this analysis, the two areas New York City and New York State were combined because the two areas share a program budget.

Figure 13 compares overall program budgets and incentives-only budgets per total incented CFLs during Ameren Illinois' PY2 time period, June 2009 through May 2010. Ameren Illinois program spending per incented CFL was about the median of all areas, but lower than average for the group as a whole. It should be noted utilities may include different costs in "overhead" budgets; for instance, regulatory or management costs may be allocated differently.

Figure 13. Total Program and Incentives Budget per Incented CFL

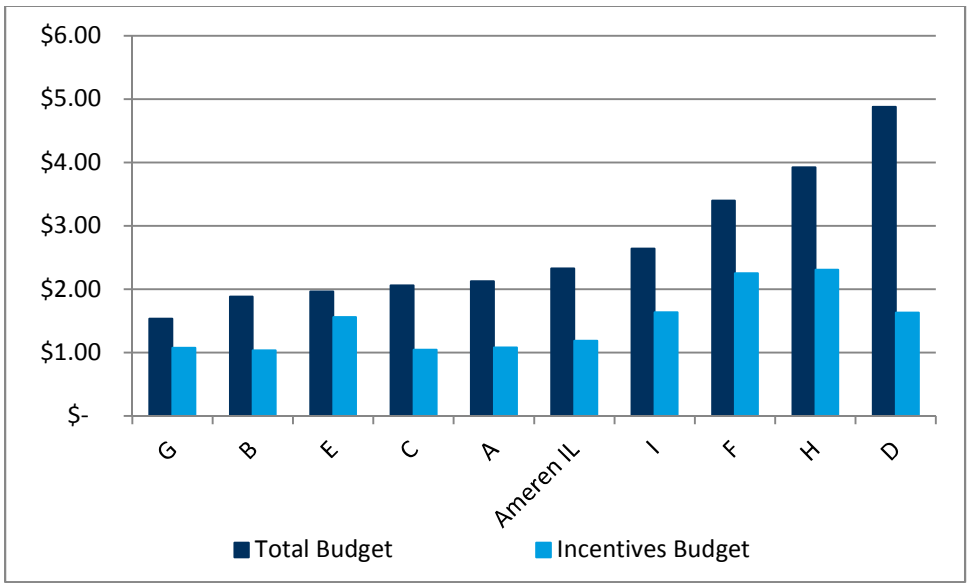


Figure 14 shows the total program budget and incentives budget per CFL purchased. CFL purchases included incented CFLs and any CFLs purchased outside of the program (i.e., the total number of CFL purchases identified during site visits as purchased during the last half of 2009 or first half of 2010). Again, Ameren Illinois is among the lowest areas in terms of dollars spent per CFL purchased in the area.

Figure 14. Total Program Budget and Incentives Budget per Total CFL Purchased

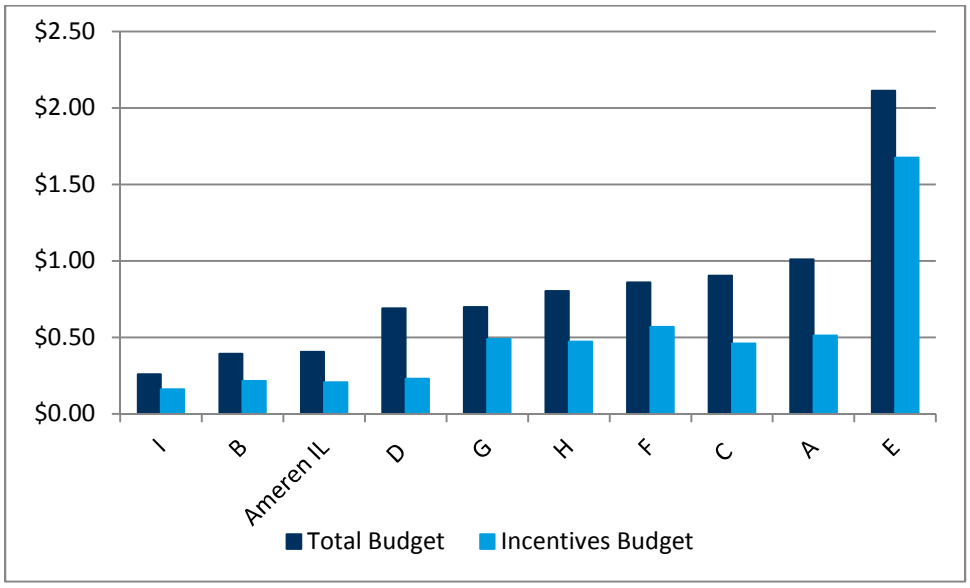


Figure 15 and Figure 16 show total CFLs purchased in each area during early 2010, on a per household basis, and, for the program areas, the final NTG ratio. In comparing the charts, NTG ratios tended to be higher among program areas with higher numbers of total CFLs purchased. Ameren Illinois was among the lowest in CFL purchases per houshold and NTG ratios.

Figure 15. PY2 CFL Purchases per Household

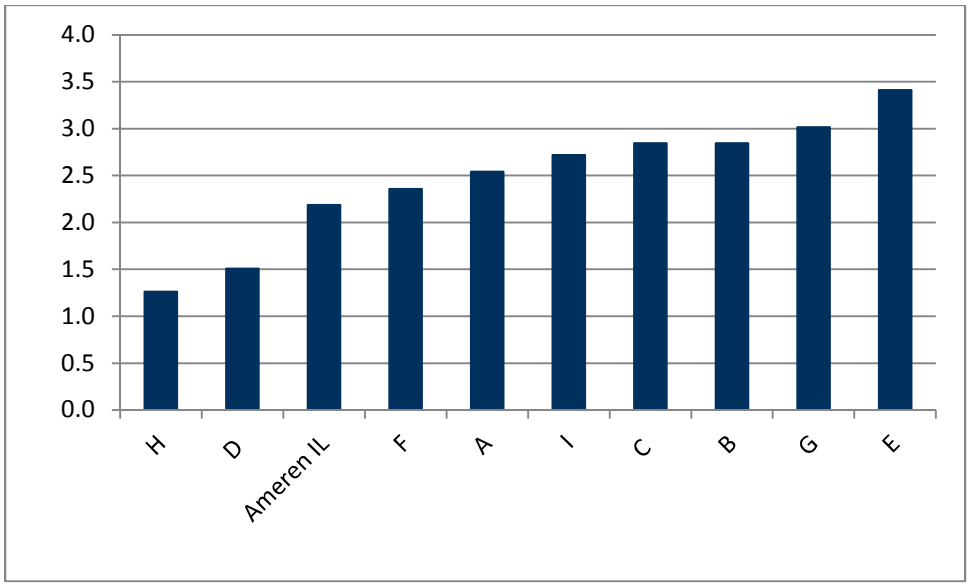
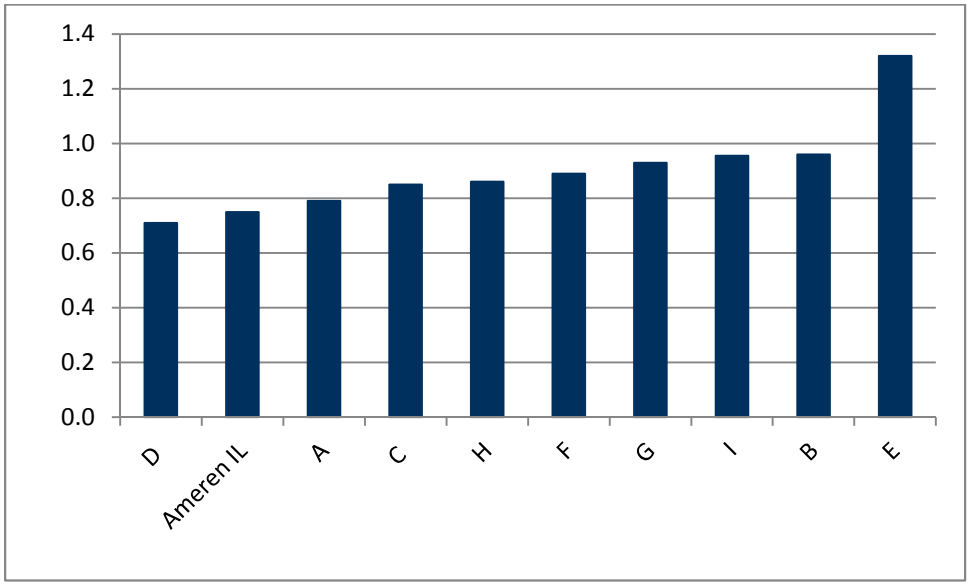


Figure 16. Base Case NTG Ratios



Net Program Savings

Our best fit model produced a 0.75 NTG for Ameren Illinois, with a range of other plausible model NTG ratios occurring between 0.54 and 0.77. While overall, we believe the model has served as be a good predictor of CFL purchases for the 15 areas, it may not have captured all factors influencing NTG for Ameren Illinois.

For instance, while Ameren Illinois is a relatively new program area, it had saturations and penetrations rivaling long-term programs (see Figure 6 and Figure 7). This could be due to spillover and/or leakage from ComEd's longer-running program.

Another interesting trend was Ameren Illinois was one of three areas consistently having the lower relative NTG ratios in all scenarios. One similarity between the three areas was they had all been economically struggling, even before the current recession. While the model attempted to capture economic effects through its county unemployment variable, it may not have captured the long-term malaise occurring in these three areas, which could explain lower purchase rates relative to other areas.

The earlier Lighting and Appliances Report dated December 21, 2010 included an alternate method for estimating NTG, which used supplier interviews asking retailers to estimate program lift they noticed from the program. The NTG ratio calculated using this method, under a range of assumptions, fell between 0.77 and 1.54, with a reasonably conservative result calculated at 0.91. Upon averaging these two "base case" results, the NTG would be 0.83. Table 6 shows the resulting net savings, applying both prospective and retrospective NTG ratios and using the average 0.83 NTG retrospectively.

Table 6. Ex Ante Gross Savings, Realized Savings, and Net Savings

Measure	Ex Ante Gross Savings (kWh)	Realized Gross Savings (kWh)	Realization Rate	PY1 NTGR	Prospective Net Savings (kWh)	PY2 NTGR	Retrospective Net Savings (kWh)
Ceiling Fan	18,880	20,532	1.088	0.76	15,604	0.76	15,604
Room Air Conditioner	499,720	172,980	0.350	0.76	131,465	0.76	131,465
Dehumidifier	2,428,380	1,708,860	0.700	0.76	1,298,734	0.76	1,298,734
CFLs – PY2	41,032,887	38,283,684	0.933	1.00	38,283,684	0.83	31,775,458
Total - PY2	43,727,443	40,186,056	0.919	0.99	39,729,486	0.83	33,221,261

Application of NTG in Multistate Areas

This section discusses how the NTG calculation is used in other program areas. NTG results can be used in several ways. Primarily, it can inform planning estimates going forward. It can also be used in concert with other NTG methodologies to calculate net program savings retrospectively

or prospectively in future programs. Table 7, below, lists other areas including the multistate sponsor areas, and some specifics as to how evaluated NTG results are used.

Table 7. Application of NTG Results Across Areas

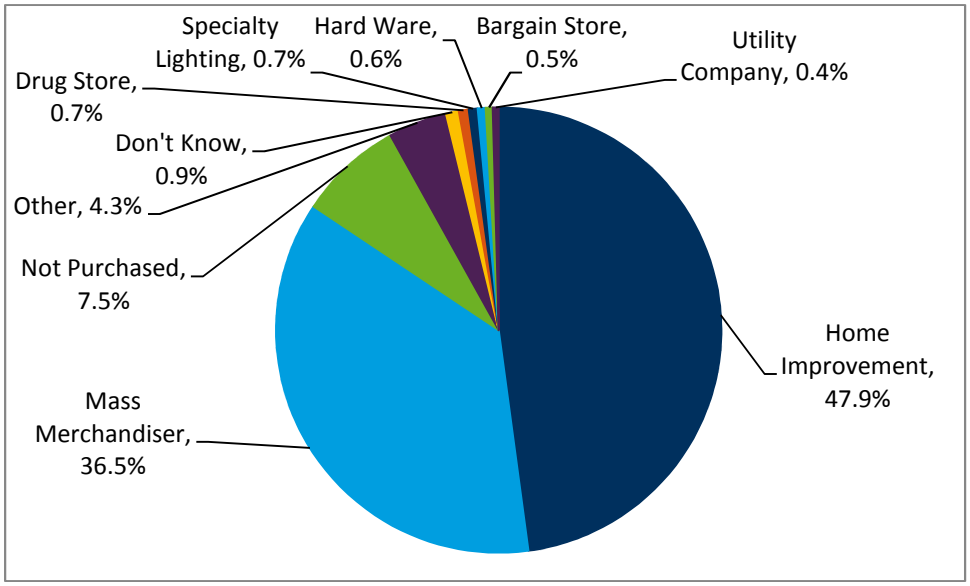
NYSERDA	Obtain the NTG estimate, and use it both in planning and evaluation retrospectively, although with consideration and possible adjustment based on additional information on the method's strengths and weaknesses.
Rhode Island	Obtain NTG estimates from more than one method, and discuss the findings in light of other information. Based on the discussion, they determine the weight to apply to each method, and use it for evaluation retrospectively. They also use results to inform planning estimates.
Massachusetts	Historically, obtain NTG estimates from more than one method, and discuss the findings in light of other information. Based on the discussion, they determine the weight to apply to each method, and use it for evluation retrospectively. They also use results to inform planning estimates. *For the 2010 program year*, the evaluators are using a Delphi panel to help select the most appropriate NTG ratio from among numerous estimation methods.
Ohio	NTG is used for planning purposes only.
Michigan	The NTG calculated for this period is used prospectively in calculating net savings for the next year.
Arizona	SRP uses NTG for two purposes: calculation of net program savings, and planning for future years. As SRP is not regulated, the results are informative to company management only.
Missouri	The NTG determined through this, and combined with other methods, is applied retroactively. They also use results to inform planning estimates.
Maryland	Maryland reviews NTG calculations retrospectively for evaluation purposes, however a definite policy about its application has not been articulated at this time.
Iowa	NTG is always assumed to be 1.0 under the assumption that free-ridership and spillover will balance each other.
Pennsylvania	NTG used for planning purposes only.

Appendix: Site Visit Details

This summary discusses individual results from Ameren Illinois site visits. Participants were asked at which stores they typically purchased CFLs (Figure 17). Home improvement stores (such as Lowes or Home Depot) and mass merchandise stores (such as Target or Wal-Mart) were the most common sources. Of the second-largest category (mass merchandise stores), it should be noted there were no Ameren Illinois retail partners in PY2.

As this category is so large, it is likely in-service territory spillover has occurred. Spillover may occur because general CFL and energy-efficiency advertising by Ameren Illinois leads consumers to buy CFLs where they typically shop, and retailers' possible price discounts offer competitive products with participating retailers.

Figure 17. Stores at which CFLs are Typically Purchased



Participants were asked their opinions on several environmental questions. A large majority of respondents (72 percent) stated they believed the earth's average temperature was rising most likely due to human activity (Figure 18). Sixty-six percent also thought: "*protection of the environment should be given priority, even at the risk of curbing economic growth*" (Figure 19). These questions captured attitudes that could influence CFL purchases and be tested as independent variables in the multistate analysis.

Figure 18. Opinion on if the Earth's Average Temperature is Rising due to Human Activity (N=82)

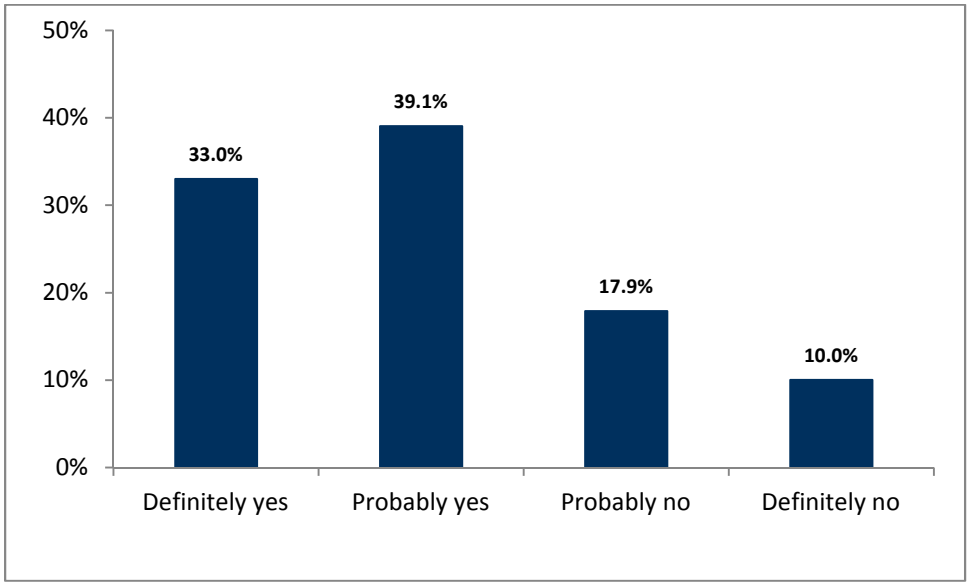
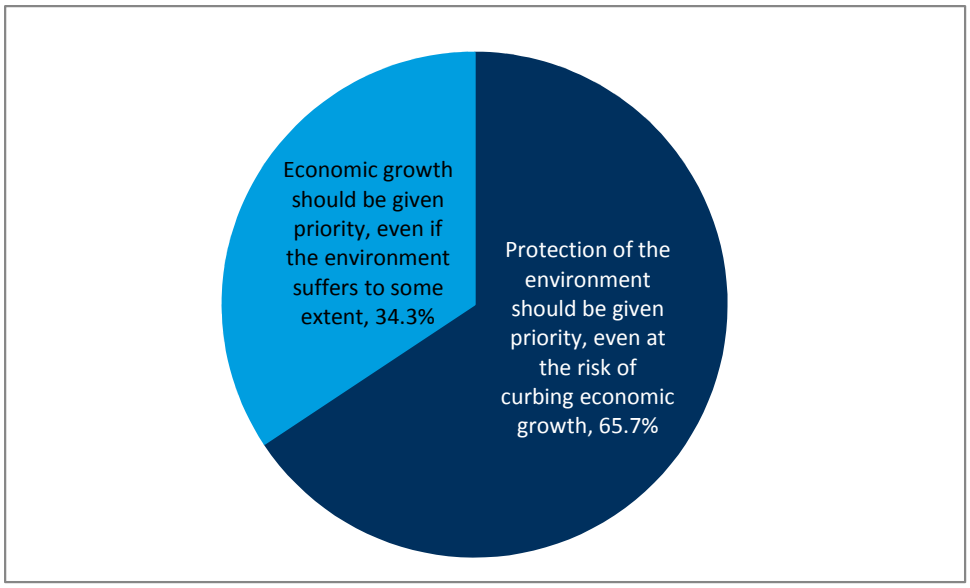


Figure 19. Statement with which Respondents Most Agreed (N=83)



When asked about their comfort with new technologies, over half of respondents (67 percent) agreed: "*I am skeptical of new technology. I like to wait until a new technology is proven before I buy it.*" Thirty-six percent, however, agreed: "*I always like to have the latest gadget*." Ninety percent agreed: "*I am comfortable learning about how new technologies work*" (Table 8). While

healthy skepticism about new technologies was evident, the majority was comfortable learning about new technologies—a positive response when trying to persuade households to adopt new, energy-efficient technologies.

Table 8. Level to which Respondents Agree with the Following Statements

Level of Agreement	I am skeptical of new technology. I like to wait until a new technology is proven before I buy it	I always like to have the latest gadget	I am comfortable learning about how new technologies work
Strongly Agree	17.2%	13.1%	27.3%
Agree	49.7%	22.5%	62.6%
Disagree	26.3%	51.4%	9.6%
Strongly Disagree	6.9%	13.0%	0.6%
Total Respondents	**91**	**89**	**92**

While homes' most common room types were bedrooms (2.7 on average), basements, followed by garages, had the most sockets per room (8.9 and 6.8, on average). Garages more often have fluorescent lamps installed, which would count as one socket for each tube, which may explain the relatively high number of sockets compared to other rooms. Table 9 shows the average number of rooms in Ameren Illinois homes, and the average number of sockets per room.

Table 9. Number of Rooms and Sockets in a Typical Home (Total Homes Visited N=92, Total Number of Sockets N=5,134)

Room Type	Average Number of Rooms with Sockets per Home*	Average Sockets per Room
Bedroom	2.7	3.7
Basement	0.5	8.9
Bathroom	1.8	4.8
Closet	1.3	1.2
Dining	0.5	4.6
Foyer	0.4	2.8
Garage	0.6	6.8
Hallway	1.1	2.1
Kitchen	1.0	6.2
Office/Den	0.4	3.4
Living Space	1.3	5.5
Outdoor	0.8	4.7
Utility	0.7	2.4
Other	0.3	3.0
Total	**13.5**	**4.3**

* Any room with sockets was included in that particular category. If there were no sockets (such as in a closet without a light), the room was not recorded.

The survey identified 5,134 sockets on site.[6] As shown in Table 10, the majority of these (78.9 percent) were medium, screw-based, followed by pin-based sockets, and then small

[6] This included empty sockets and sockets with an installed, burned-out bulb.

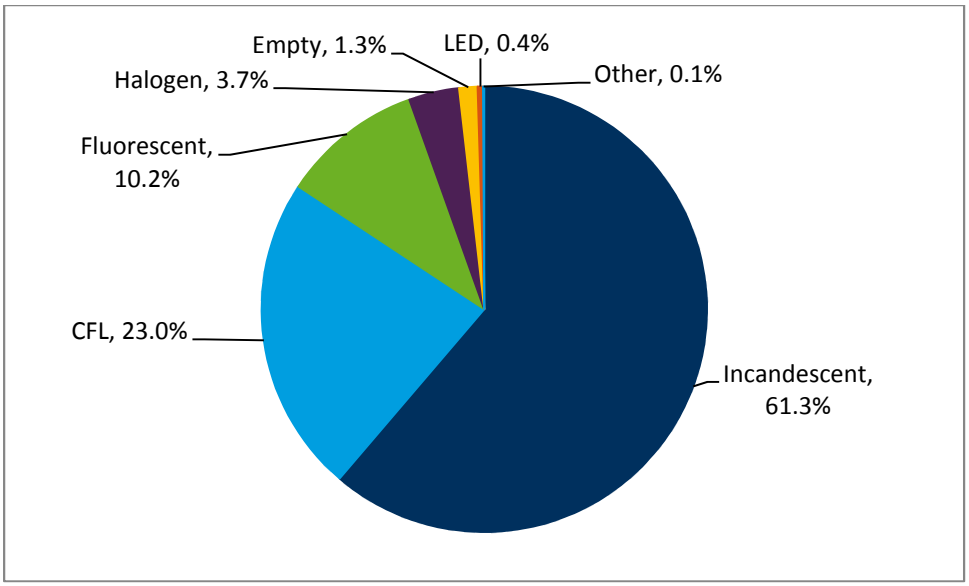
screw-based sockets. Of all sockets catalogued, 23 percent had CFLs installed in them. The majority of installed CFLs were medium, screw-based. Less than 2 percent (1.3 percent) of all sockets did not have a bulb installed (Table 10). Figure 20 shows saturations for each bulb type. At 61 percent, incandescent bulbs made up the largest percentage, followed by CFLs at 23 percent, and fluorescent bulbs at 10.2 percent. Among bulbs in storage, only CFLs were counted. Of 250 CFLs found in storage, homes had an average of 2.7 uninstalled CFLs each.

Table 10. Bulbs per Socket Type

Socket Type	Total		CFLs		Empty Sockets	
	#	%	#	%	#	%
Total Sockets	5,134	100.0%	1,183	23.0%	69	1.3%
Medium Screw Base	4,052	78.9%	1,180	29.1%	56	1.4%
Pin Base	625	12.2%	3	0.5%	6	1.0%
Small Screw Base	433	8.4%	0	0.0%	7	1.6%
Other*	23	0.4%	0	0.0%	0	0.0%

*There were six GU-based sockets on-site.

Figure 20. Percent of Bulb Type[7] (Site Visits N=92, Total Sockets N=5,134)

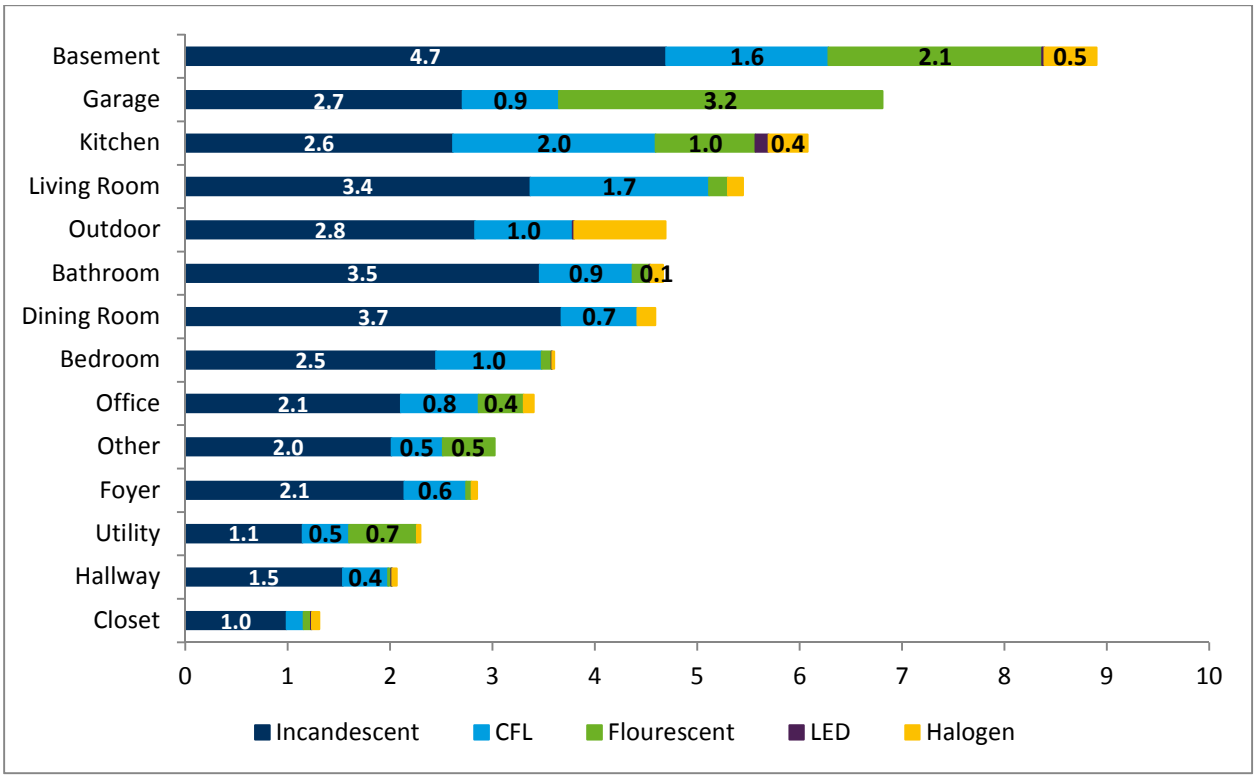


Among room types, basements had the greatest average number of installed bulbs, followed by garages, and then kitchens. Basements also had the highest average number of incandescent bulbs (4.7), followed by dining rooms (3.7).

[7] This includes all installed bulbs and empty sockets.

Kitchens had the highest average number of CFLs (2.0), followed by living rooms (1.7), and then basements (1.6). While LEDs and halogens were not as common, 0.1 LEDs were installed in kitchens on average; 0.9 halogens were found outdoors, and 0.4 were found in kitchens, on average (Figure 21).

Figure 21. Average Number of Bulbs per Room Type (Total Installed Bulbs N=5,065)



Of 1,433 CFLs on-site, 35.6 percent were reportedly purchased before 2009; 37.4 percent were purchased in 2009; and 14.0 percent were purchased during the first seven months of 2010 (Table 11).

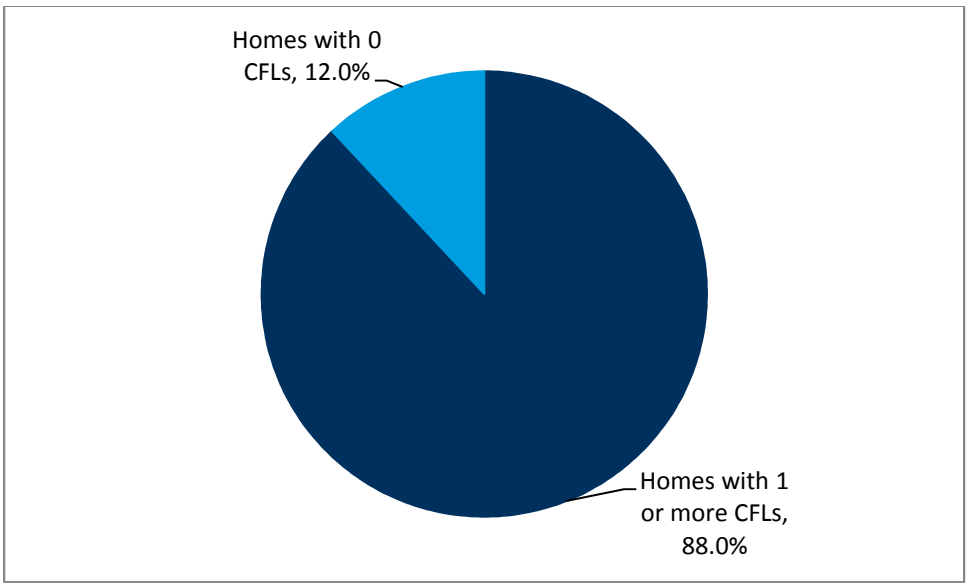
Table 11. CFLs by Purchase Date

Purchased	Before 2009	First Half of 2009	Second Half of 2009	2010*	Don't Know
Total CFLs Purchased (1,433)	35.6%	21.5%	15.9%	14.0%	12.9%
Average CFLs Purchased per Home	5.6	3.3	2.5	2.2	2.0

* Site visits occurred in July and August 2010; this category only represents purchases through the beginning of August 2010.

CFL penetration was 88 percent (Figure 22).

Figure 22. CFL Penetration (Site Visits N=92)



The following figures display CFL saturation from several different approaches.

Figure 23 shows CFL saturation by socket type. Among all sockets, CFL saturation was 22.9 percent. Among all medium, screw-based sockets, CFL saturation increased to 29.0 percent, and dropped to 0.5 percent for pin-based sockets. Although saturation among pin-based sockets was lower than for medium, screw-based sockets, the number of sockets without CFLs was highest among medium, screw-based sockets, as these were the majority of sockets found on site.

The presence of LED bulbs, another energy-efficient technology, was nearly nonexistent. Of 92 site visits, 21 installed LEDs were on site. The installation rate among all CFLs purchased and on site was 82 percent.

Figure 24 adds another layer of data, showing CFL saturations by base and control types. For just medium, screw-based sockets with an on/off control type, saturation increased to 30.9 percent.

Figure 23. CFL Saturation by Socket Type (Total Sockets N=5,134)

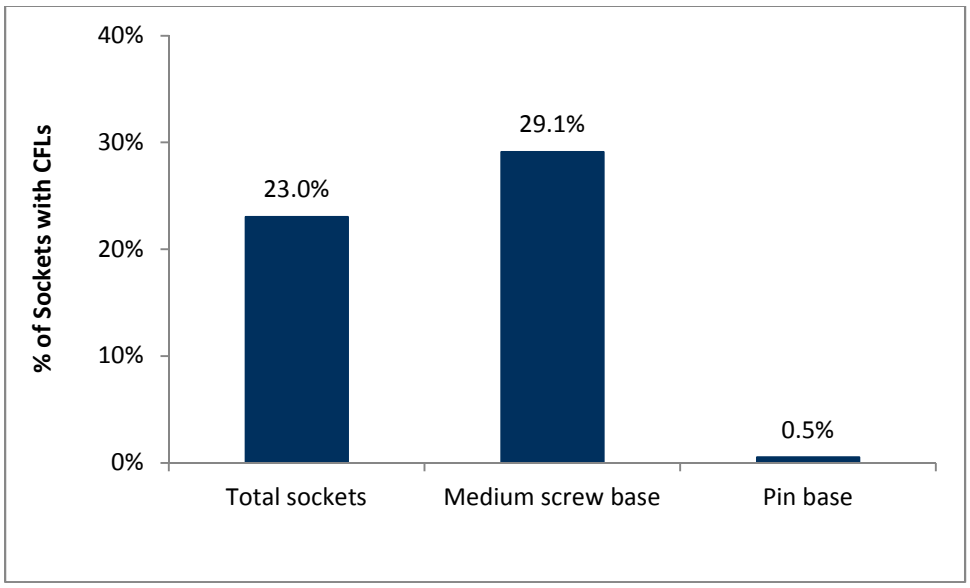
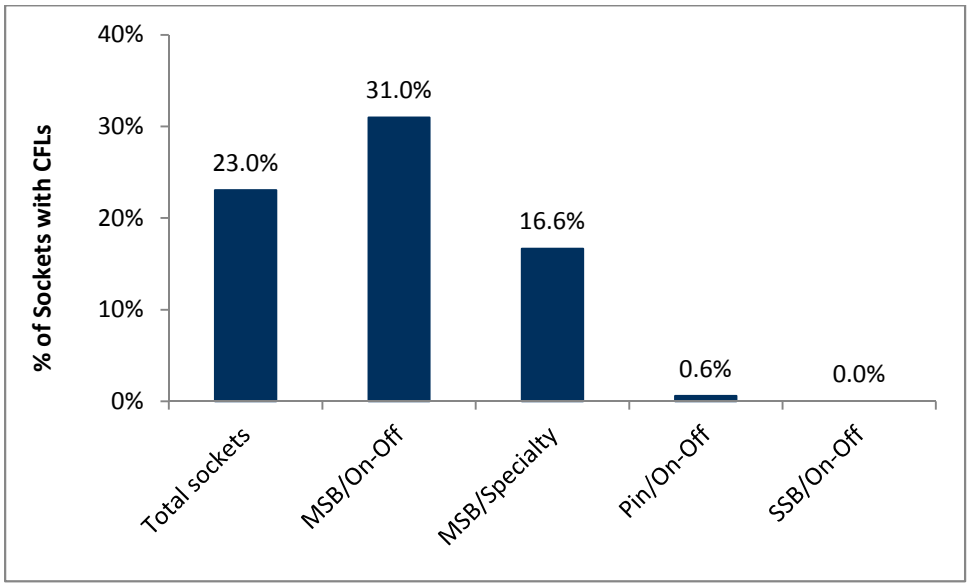


Figure 24. CFL Saturation by Socket/Control Type (Total Sockets N=5,134)



By room type, CFL saturation was greatest in kitchens and living spaces (32 percent and 31 percent), followed by bedrooms (28 percent) and office/dens (23 percent; Figure 25). Among fixture types, CFL saturation was highest for ceiling fans (36 percent), followed by torchieres (32.3 percent) and lamps (both table lamps and floor lamps: 31.1 percent; Figure 26). As these results indicate, residents installed CFLs in their highest-use areas first.

Figure 25. CFL Saturation by Room Type (Total Sockets N=5,134)

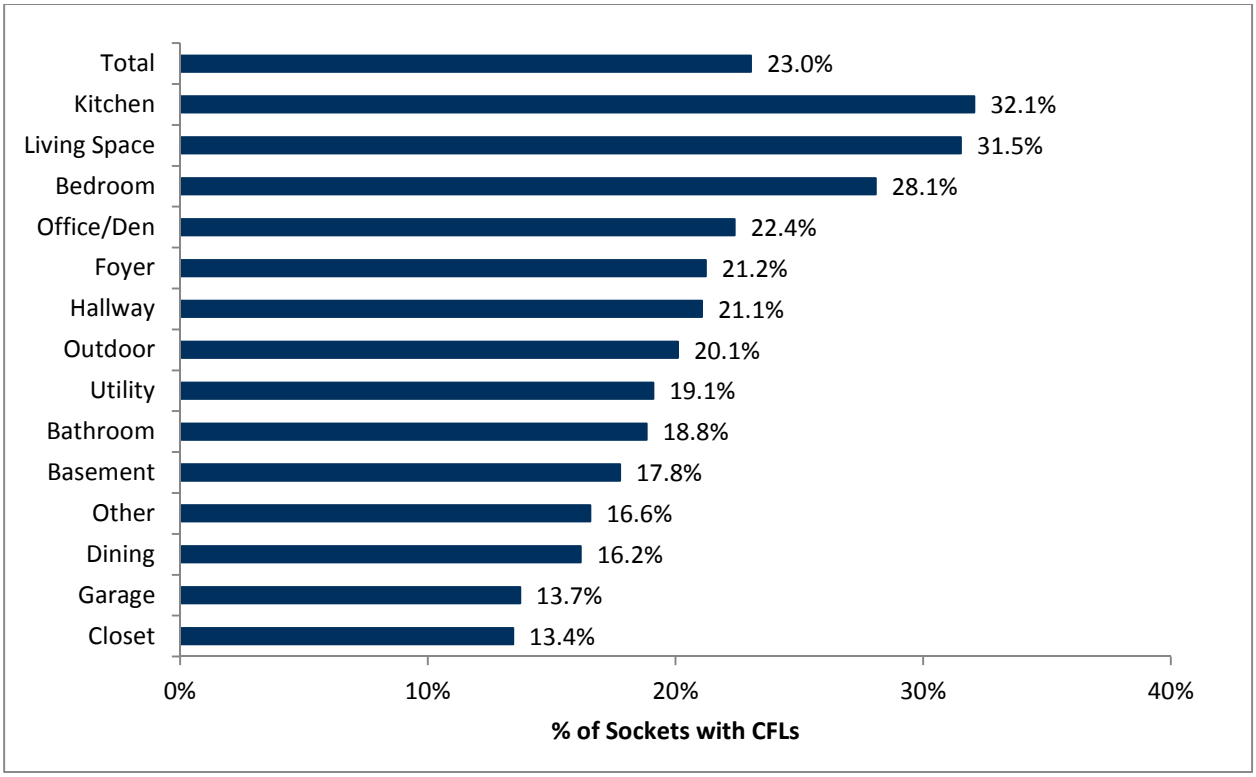
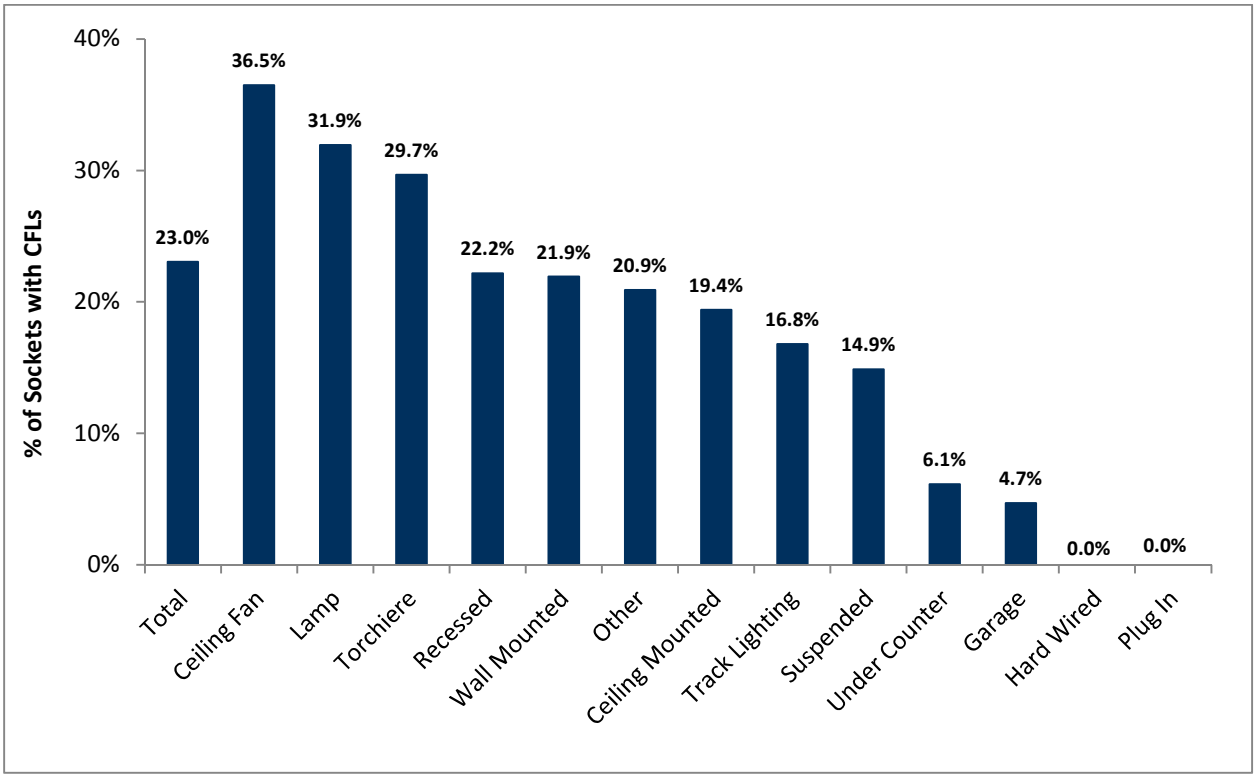


Figure 26. CFL Saturation by Fixture Type* (Total Sockets N=5,134)



* The lamp category includes both table lamps and floor lamps.