



Multifamily Properties Program Evaluation – PY 2

Prepared for
Ameren Illinois

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1. Executive Summary

The Ameren Illinois Multifamily Program is offered to privately-owned, market-rate, multifamily buildings with three or more dwelling units in Ameren Illinois' service territory. The program has two components, offering the following upgrades to qualifying buildings:

- The Common-Area Lighting Program offers incentives for installation of energy-efficient lighting in common-areas including:
 - Upgrades and retrofits of lighting fixtures
 - Replacement of incandescent bulbs with compact fluorescent bulbs (CFLs)
 - Installation of occupancy sensors
 - Replacement/retrofit of inefficient exit sign lighting
- The In-Unit Energy Efficiency Program offers free CFLs and water conservation measures (efficient showerheads, faucet aerators, and pipe insulation) for installation in resident units, along with an informational brochure for residents on measures installed.

The program launched in November 2008. This evaluation examines the program's performance in Program Year 2 (PY2), which ran from June 2009 through May 2010. Conservation Services Group (CSG) implements the program in the Ameren Illinois service territory.

The program includes both gas- and electricity-saving measures; however, this report contains only results on kWh and kW savings. Therm savings will be presented separately in a summary memo of gas results.

The Cadmus Group Inc's (Cadmus') evaluation of Program Year 2 (PY2) consisted of the five primary tasks displayed in Table ES-1.

Table ES-1. Summary of Evaluation Tasks for PY2

Action	Impact	Process	Details
Database Review and Impact Calculations	√		Calculate gross and net savings by multiplying default estimates by number of installed measures.
Document Review	√	√	Review program documentation including records of marketing outreach, customer applications, and all verification documentation on a sample of buildings enrolled in the program.
Participant Survey	√	√	Verify installation of materials and assess program marketing and outreach, along with the application process, delivery, and incentives.
Evaluability Assessment		√	Review program materials for consistency, practicality, and clarity to allow for easier and more cost-effective future evaluations.
Stakeholder Interviews		√	Interview program management and implementation staff to provide insight into program design, marketing, and delivery.
Site Visits	√	√	Verify measure installation.

Table ES-2 shows the program's progress in the second year.

Table ES-2. PY2 Achievements

Metric	Actual
Net MWh Savings	2,742
Net kW Demand Savings	262
Participating Multifamily Facilities	134

Program participation nearly doubled during PY2, as shown in Table ES-3. A total of 134 properties participated in PY2, a 94 percent increase from the previous year, mostly driven by installation of in-unit measures. 91 percent of participating properties installed in-unit measures only (122 out of 134 participants).

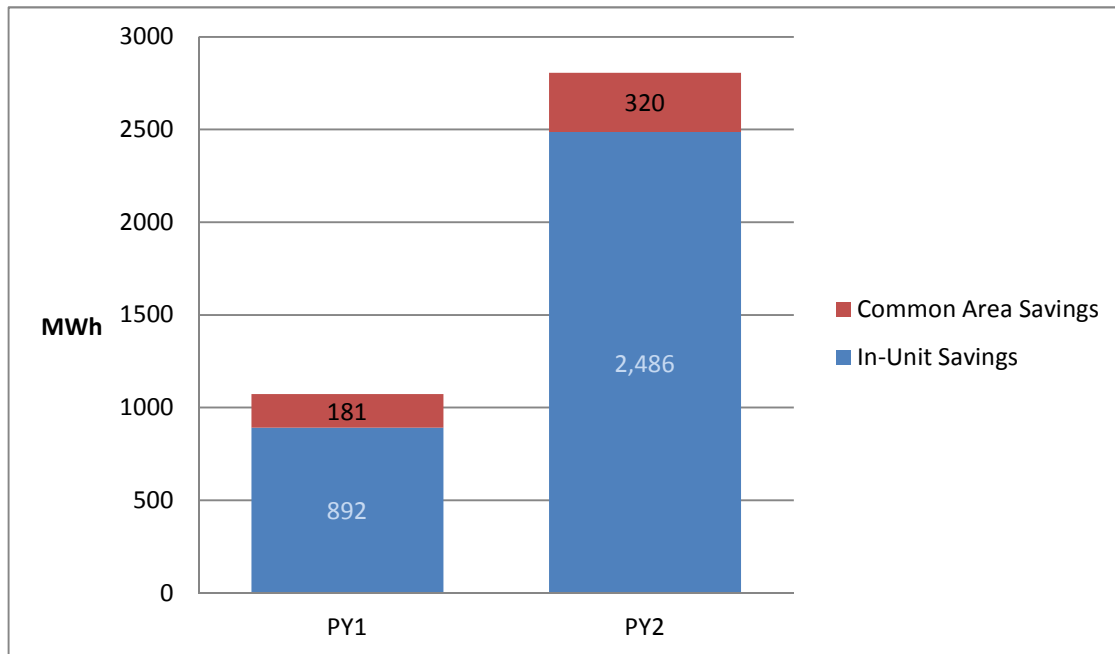
Table ES-3. Participating Buildings

Multifamily Program	Number of PY1 Sites	Number of PY2 Sites	% Change from PY1
Common-Area Lighting Only	3	2	-33%
In-Unit Only*	59	122	+107%
Both Common-Area and In-Unit*	7	10	+43%
Total Number of Facilities	69	134	+94%

*Includes both gas and electrically heated properties

Program trends continue to show that common-area installations are not as popular as in-unit installations, as shown in Figure ES-1, which depicts gross energy savings by measure location for PY1 and PY2.

Figure ES-1. Gross Program Energy Savings by Measure Location



Cadmus reviewed program documentation for a sample of projects where in-unit measures were installed, and for all common-area projects. This review revealed problems with completeness, legibility, and accuracy of program documentation; however, no adjustments to the program database are recommended as a result of the review, because the site visits (discussed below) found installed measures consistent with application forms. However, we recommend improving the documentation process for PY3.

Site visits were performed at a sample of participant facilities to confirm measure installation. Analysis of data from site visits resulted in a program realization rate of 103 percent, indicating that slightly more measures were found on the site visits than were recorded in the application materials. However, because the verified savings are within the precision levels prescribed by the sampling approach (plus or minus 10 percent), Cadmus does not recommend any true-up to the program database.

Cadmus conducted analysis based on the results of customer surveys with building owners and property managers to determine a program net-to-gross (NTG) ratio. Because the in-unit measures were provided free-of-charge to building owners and managers, a NTG ratio of 1.0 was assumed for those installations. For the common-area measures, however, a rebate was provided, so Cadmus determined freeridership for those measures. Through this analysis, the weighted average NTG ratio for the program as a whole was determined to be 0.98. The low rate of freeridership suggests that although participation in the common-area component of the program is comparatively low, the customers who do install common-area measures are highly influenced by the rebates.

Table ES-4 describes the *ex ante* and realized gross savings, realization rates for in unit versus common area measures, and examines net savings under two different scenarios: with the current PY2 NTG ratio of 98 percent (Retrospective) and the PY1 NTG ratio of 76 percent (Prospective). A prospective net total savings of 2,132 MWh was calculated.

Table ES-4. Summary of Gross Savings, Realization Rates, and Prospective and Retrospective 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)
In Unit Measures							
15 watt CFL	1,154,227	1,154,227	1.0	0.76	877,213	1.0	1,154,227
20 watt CFL	114,445	114,445	1.0	0.76	86,978	1.0	114,445
23 watt CFL	28,228	28,228	1.0	0.76	21,453	1.0	28,228
Faucet Aerator	191,511	191,511	1.0	0.76	145,548	1.0	191,511
Pipe Insulation	107,169	107,169	1.0	0.76	81,448	1.0	107,169
Showerhead 2.0 gpm	890,691	890,691	1.0	0.76	676,925	1.0	890,691
Common Area Measures							
4-foot T8 (32w lamps with electronic ballast and reflector)	19,649	19,649	1.0	0.76	14,933	0.8	15,719.20
4-foot T8 (32w lamps with electronic ballast)	14,740	14,740	1.0	0.76	11,202	0.8	11,792
Integral CFL (>13 watts screw-in)	165,451	165,451	1.0	0.76	125,743	0.8	132,361
LED Exit Sign (new fixture or LED retrofit)	7,034	7,034	1.0	0.76	5,346	0.8	5,627
Modular CFL (<=18 watts, pin-based electronic ballast fixture)	112,513	112,513	1.0	0.76	85,510	0.8	90,010
Modular CFL (>18 watts, pin-based electronic ballast fixture)	0	0	1.0	0.76	-	0.8	-
Occupancy Sensor	210	210	1.0	0.76	160	0.8	168
Total	2,805,868	2,805,868	1.0	0.76	2,132,460	0.98	2,741,948

For the process evaluation, Cadmus conducted a participant survey with building owners and property managers, stakeholder interviews, a review of program materials, and an evaluability assessment. The participant survey revealed a high level of participant satisfaction with the program and gave insight into why building managers and owners chose to participate, as well as informing our NTG analysis. The stakeholder interviews, which were conducted with Ameren

program staff and implementation staff, indicated that the program stakeholders are satisfied with the program's PY2 achievements, although different views existed among stakeholders as to how customers are initially qualified. The review of program materials examined the documents that a customer would encounter in applying for incentives for common-area measures, and identified areas where updates or improvements are needed. The evaluability assessment identified areas for improvement in the program's data tracking process.

Cadmus offers the following recommendations for consideration by Ameren Illinois:

- ***Put more emphasis on marketing for common-area measures.*** If more common-area installations are complete, the program will be more cost-effective and leverage the marketing and site visit dollars invested. While it is understandable that the upfront investment and concerns about the economy are participation barriers, additional marketing could overcome the resistance. Follow-up calls by CSG or leads to trade allies could be one marketing approach. Also consider making formal presentations to the building owners emphasizing cost savings and other benefits, such as “green” marketing. Some common-area participants suggested they had difficulty locating eligible equipment. The eligible measures form could be made more “customer friendly” and offer suggestions of where and what products to purchase.
- ***Focus on defining the program so all stakeholders have the same understanding of how the program works and how to optimize eligibility.*** It was apparent from the interviews that stakeholders did not all have the same understanding of how the program operates, and specifically how eligible customers are identified and optimized. Better definition could provide some program benefits and ensure their proper use. Given the wide variety of facility size among participants, Ameren Illinois could evaluate whether there are special efficiencies or advantages to concentrating on a specific type, size, or age of building complex to promote the program.
- ***Change applications, materials request, and post-installation forms to an electronic format.*** The current documents were confusing due to penmanship, notes entered on sides of sheet, rows not totaled, and items being crossed out – all of which decrease the program evaluability. Moving to an electronic, Web-based application will increase accuracy and efficiency.
- ***Update the Website address links for program information.*** The CEE1 Website and the Act on Energy Website have valuable information for consumers; however, both sites are not easily navigated. When listing the CEE1 Website as a resource for additional information, include what page the resource is on. This will increase ease of use. For the Act On Energy Website, include a heading for multifamily program information. Again, this will increase usability and perhaps increase program participation.
- ***Implement a naming convention for program participant files.*** Multiple methods were used when naming program files. In some cases, the multiple naming conventions made evaluating the documents arduous. The method that was most useful was site id_dwelling name. This naming convention allowed Cadmus to quickly match sites with post review information, thus increasing our evaluation efficiency.
- ***Implement ongoing quality control checks for the program documentation.*** Due to initially missing and illegible data forms identified in our documentation review process,

Cadmus recommends that Ameren Illinois and CSG develop a quality control system that ensures all the forms are in place and legible before rebates are paid or results are counted in the tracking database.

2. Introduction

Program Description

The Ameren Illinois Multifamily Program is offered to privately-owned, market-rate, multifamily buildings with three or more dwelling units in Ameren Illinois' service territory. The program has two components, offering the following upgrades to qualifying buildings:

- The Common-Area Lighting Program offers incentives for installation of energy-efficient lighting in common-areas including:
 - Upgrades and retrofits of lighting fixtures
 - Replacement of incandescent bulbs with compact fluorescent bulbs (CFLs)
 - Installation of occupancy sensors
 - Replacement/retrofit of inefficient exit sign lighting
- The In-Unit Energy Efficiency Program offers free CFLs and water conservation measures (efficient showerheads, faucet aerators, and pipe insulation) for installation in resident units, along with an informational brochure for residents on measures installed.

The program launched in November 2008. This evaluation examines the program's performance in Program Year 2 (PY2), which ran from June 2009 through May 2010. Conservation Services Group (CSG) implements the program in the Ameren Illinois service territory.

PY2 offered the same selection of common-area and in-unit measures to qualified customers as did PY1. Initially, there were plans to implement more complex HVAC and building shell measures in PY2, but this was delayed since Ameren Illinois was taking more time to determine appropriate incentives and measures, and because the higher than expected participation in the HVAC program made these additions a lower priority given the company's limited budget.

Program Delivery

The program focuses its marketing on management companies holding multiple properties, typically utilizing cold calls and in-person visits to prospective properties. When contacting a potential participant, CSG explains the program and its benefits, requirements, and costs to the building decision maker. While the program originally intended to also reach out to electrical contractors and other trade allies, these efforts have mostly been abandoned because customers prefer to use their own maintenance personnel.

Once a building owner or manager decides to participate in the program, they can request and receive a free common-area lighting assessment from CSG. This walkthrough assessment determines existing opportunities for a building to reduce energy usage by installing new lighting measures, and lets customers know the corresponding rebate amount. After approval of a building's Request for Reservation of Incentive Funds application, the participants can install common-area lighting upgrades and apply to CSG for incentives with the Incentive Funds Application. Common-area lighting projects are inspected by CSG staff after installation. They perform a quality inspection of 100 percent of measures installed for small projects and a random sample from larger projects. The decision to inspect all or a sample is made by CSG staff on a case by case basis, with "large" or "small" being used as general guidelines.

In addition to installing efficient common-area lighting, or as a separate project, building owners or managers can retrofit tenant units with CFLs and hot water conservation measures. The in-unit measures are offered at no cost, and are shipped to the property after CSG receives a Materials Request Form. The property staff installs these measures in the resident units, reports their installation to CSG, and returns any unused measures. CSG inspects 100 percent of these projects or properties; the inspection consists of spot-checking a random sample of units to verify the quantities installed and the property staff's reporting accuracy. As additional quality control, CSG reconciles inventory for each in-unit project based on what the property received, what the property manager reported as installed, and what remained after the installation.

Evaluation Questions

Cadmus' PY2 evaluation was designed to build on our findings from the PY1 evaluation, and examines the second year of program implementation from both the impact and process perspectives. We sought to address the following questions:

Impact Questions

1. What are the total gross energy and demand savings generated by the program?
2. What is the program's net-to-gross (NTG) ratio?
3. Does the project database reflect real and working measures?

Process Questions

1. Has the program's design changed since inception? If so, how and why? Are future program design changes expected?
2. How effective were marketing efforts and program implementation processes?
3. Does quality communication occur between and among program staff and implementation staff?
4. Are implementation efforts on track to meet future program targets?

3. Evaluation Methods

Analytical Methods

The PY2 evaluation of the Multifamily Program includes an impact evaluation and a process evaluation. Table 1 provides an overview of the evaluation methods.

Table 1. Summary of Evaluation Tasks for PY2

Action	Impact	Process	Details
Database Review and Impact Calculations	Y		Calculate gross and net savings by multiplying default estimates by number of installed measures.
Document Review	Y	Y	Review program documentation including records of marketing outreach, customer applications, and all verification documentation on a sample of buildings enrolled in the program.
Participant Survey	Y	Y	Verify installation of materials and assess program marketing and outreach, along with the application process, delivery, and incentives.
Evaluability Assessment		Y	Review program materials for consistency, practicality, and clarity to allow for easier and more cost-effective future evaluations.
Stakeholder Interviews		Y	Interview program management and implementation staff to provide insight into program design, marketing, and delivery.
Site Visits	Y	Y	Verify measure installation.

Program Database Review

Cadmus received copies of the program database maintained by CSG. The database extract was in Microsoft Excel format and included records of all projects completed during PY2 (June 2009 - May 2010). Common-area and in-unit measures were listed on separate tabs. Each entry represented a bundle of measures installed on a certain date at a certain property. The database did not contain information at the unit level. If additional measures were installed at a later date, those installations were recorded in a separate entry. Because CSG is required to provide updates to Ameren Illinois on a regular basis for billing purposes, corrections to the database also were recorded as separate entries with negative quantities.

Cadmus checked the PY2 database for errors and data quality. We also checked the savings values to ensure they were consistent with savings estimates recommended in the PY1 evaluation. We conducted extensive analysis during the PY1 evaluation, including an engineering review of measure savings estimates and a comparison of the database to the monthly reports CSG provided to Ameren Illinois. Since the engineering estimates had not changed, the PY2 review included only a review of the program database in comparison to program forms, and site visits to compare actual installations to application forms.

Program Documentation Review

Cadmus reviewed all program documents, which consist of informational materials, application forms, and marketing materials, including the Act On Energy Website. Our review focused on correctness, comprehensiveness, and ease of understanding. We also reviewed completed program applications, installation records, audit documents, and incentive paperwork for facilities enrolled in the program during PY2. Data gleaned from these documents were checked

for completeness and were compared to the database for consistency. The full document review protocol is included in Appendix A. Our review followed this process:

Common-area document review protocol

- Review request for reservation of incentive funds for completeness
- Review terms and conditions for completeness
- Review multifamily common-area lighting application for complete data entries
- Review invoices and cut sheets to ensure that numbers listed match what was claimed by the customer
- Record total quantity of each measure installed for the program year

In-unit document review protocol

- Review the program participation agreement and materials request form for completeness
- Record total quantity of each measure installed for the program year

Evaluability Assessment

PY1's evaluability assessment was conducted to ensure CSG collected appropriate data, and that important program definitions were being applied consistently. PY2's evaluability assessment expanded on the information gathered in PY1 by including a review of program materials for consistency, practicality, and clarity. The aim of conducting a review of this nature is to prevent future errors due to confusing documentation practices.

Participant Survey

Cadmus developed a participant survey, which was conducted by TetraTech in August 2010. The survey was designed to collect information from participating building owners and managers about the following topics:

- Measure installation and selection decisions
- Measure purchasing decisions
- Exposure to program marketing
- Experience with application process
- Measure and program satisfaction
- Freeridership and spillover
- Building characteristics

Data collected through the participant survey informed both the process and impact components of this evaluation. The complete participant survey instrument is provided in Appendix B.

Stakeholder Interviews

Cadmus conducted stakeholder interviews with three members of the program management and implementation staff. The interviews assessed three program areas:

- Marketing
- Energy audits and installations
- Payment and invoicing

Interviewees also were asked to give their opinions about the program in general. The information collected through these interviews informed the process evaluation.

Interviews were conducted in July and September 2010, and followed the interview guide attached in Appendix C. Because the interviewees had diverse program responsibilities, ranging from management to program delivery, the interviews provided a multifaceted view of the program's functioning.

Site Visits for Verification

Cadmus partner Mad Dash conducted site visits to 15 participating properties to verify that the measures were installed as reported. Cadmus prepared a site visit manual documenting proper site visit protocols and instructions to field staff for determining which units to verify. This manual and the site visit data collection form are included in Appendix D. Results from the site visits were compared to the post-installation data collection form, either on a unit-by-unit basis or on a whole-building basis for the common area.

Data Sources

Cadmus collected data from the following sources; these data were used to assess the program's delivery and impacts:

- A database extract provided by CSG at the completion of PY2
- Copies of common-area and in-unit project application forms from CSG
- Site visit data collected by Mad Dash
- Marketing and informational materials provided by CSG
- Program stakeholders (implementers, program manager)
- Participant surveys

Sampling Plan

Participant Surveys

Cadmus surveyed a random sample of 35 participants, in addition to conducting an oversampling of participants who installed common-area measures. The sample size was specified so that by combining participant survey results from PY2 and PY3, a sample size of 70 would be achieved over the two years, and combined PY2-PY3 results would be reported with 90 percent confidence and ± 10 percent precision. For PY2, we collected surveys from 10 of the 12 multifamily projects that installed common-area measures. Thus, the confidence and precision for this segment is 90 percent ± 10 percent in PY2 alone.

Document Review

The sample sizes for the common-area and in-unit participants were determined separately to achieve at least 90 percent confidence with ± 10 percent precision. Because there were only 12 participating common-area properties, a census was taken. The appropriate sample size of 44 different properties for the in-unit participants (out of a total of 132 participants) were chosen at random.

Site Visits

Fifteen properties were chosen for the verification study. These 15 participants were recruited from the participant surveys, and participation was subject to property manager/owner availability. In order to achieve at least 90 percent confidence with ± 10 percent precision for in-unit installations from the site visits, six units from each property (for a total of 90 units) were targeted for verification. The unit sampling pattern was documented in the site visit manual, and is reproduced as Table 2.

Table 2. Unit Sampling Pattern

Number of Total Units in complex	Number of Units to Visit per Complex	Visit Every ____ Unit
1-6	All	All
7-12	Minimum of 6 units	2 nd
13-18	Minimum of 6 units	3 rd
19-24	Minimum of 6 units	4 th
25-30	Minimum of 6 units	5 th
31-36	Minimum of 6 units	6 th
37+	Minimum of 6 units	The number of units divided by 6 (e.g., if you have 60 units, visit every 10 th unit.)

If a tenant refused to allow entry for inspection, then the manual instructed the inspector to skip that unit and inspect the next unit.

4. Program Results

This program evaluation is separated into two subsections. First, the impact results summarize the program's installations and savings for PY2. This includes feedback from our reviews of measure savings assumptions, the database, program tracking, and documentation collected on each project. The section that follows focuses on process evaluation findings.

Impact Findings

Summary of Program Participation

Program participation nearly doubled during PY2, as shown in Table 3. A total of 134 properties participated in PY2, a 94 percent increase over the previous year. Ninety-one percent of participating properties installed in-unit measures only (122 out of 134 participants).

Table 3. Participating Buildings

Multifamily Program	Number of PY1 Sites	Number of PY2 Sites	% Change from PY1
Common-Area Lighting Only	3	2	-33%
In-Unit Only*	59	122	+107%
Both Common-Area and In-Unit*	7	10	+43%
Total Number of Facilities	69	134	+94%

*Includes both gas and electrically heated properties

As the table above indicates, common-area installations were not as popular as in-unit installations, perhaps because the common area installations require customers to pay a percentage of the cost, while the in-unit installations are free.

Program Gross Savings

Cadmus reviewed the common area savings tracked in the database by comparing the database values to calculated savings. Cadmus calculated common-area lighting savings for each measure bundle using the following formula:

$$\text{Annual kWh Savings} = (kW_{\text{existing}} - kW_{\text{new}}) \times \text{Annual Operating Hours} \times \text{Quantity Installed}$$

This formula applies to all common area measures except for occupancy sensors, which have a fixed value of 210 kWh as reviewed by Cadmus in 2010. The database values were consistent with the Cadmus savings calculations.

For in-unit measures, which were reviewed during the PY1 evaluation, Cadmus recommends using the same values as those used in PY1 and listed in Table 4. According to the Final Order in ICC Docket # 07-0539, lighting savings estimates were deemed in the amounts tracked by Ameren Illinois in the program database. Our results present the gross savings as calculated using these values.

Table 4. In-Unit Measures Gross Savings

Measure	kWh Savings
15 watt CFL	38.40
20 watt CFL	47.00
23 watt CFL	65.80
Faucet Aerator	36.90
Pipe Insulation	51.40
Showerhead 2.0 gpm	264.30

Cadmus calculated demand savings by multiplying energy savings by the appropriate end use coincidence factor listed in Table 5. The coincidence factors were calculated directly from hourly end-use load shapes. Hourly end-use load shapes were developed from engineering models for the Midwestern region of the United States, which were then calibrated to long-term weather conditions in Ameren's service area.

Table 5. Coincidence Factors

Multifamily End Use	Coincidence Factor*
In-Unit Lighting (existing)	0.000056
Common Area Lighting	.00016
Water Heat (existing)	0.0001245781

*The Cadmus Group Inc: Ameren Illinois Utilities Portfolio Cost-Effectiveness Evaluation, December 30, 2009.

Total gross savings for PY2 is 2,806 MWh, with 10 percent of the savings attributed to common-area lighting measures and 90 percent from in-unit measures. Both types of measures grew significantly in PY2, as shown in Figure 1.

Figure 1. Gross Program Savings by Measure Location

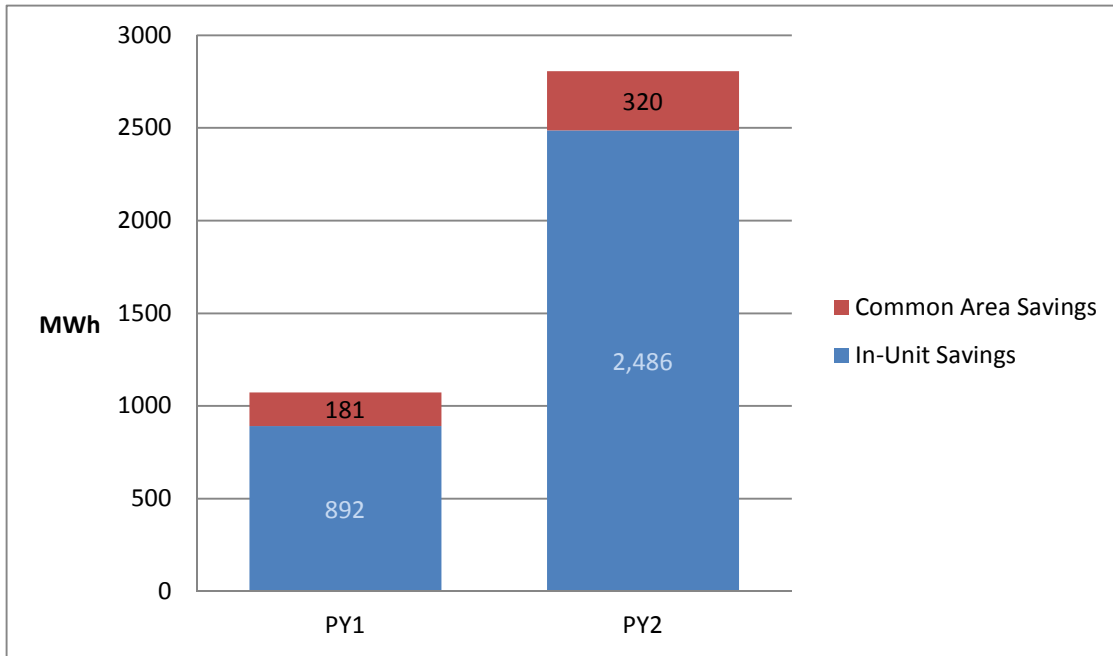


Table 6 details common-area measure installations, including the measure type, quantity installed, and gross kWh and kW savings.

Table 6. Common-Area Measure Distribution and Gross Savings

Measure	Quantity Installed	Gross kWh Savings	Gross kW Savings
4-foot T8 (32w lamps with electronic ballast and reflector)	132	19,649	3.14
4-foot T8 (32w lamps with electronic ballast)	124	14,740	2.36
Integral CFL (>13 watts screw-in)	436	165,451	26.47
LED Exit Sign (new fixture or LED retro-fit)	24	7,034	1.13
Modular CFL (<=18 watts, pin-based electronic ballast fixture)	614	112,513	18.00
Modular CFL (>18 watts, pin-based electronic ballast fixture)	0	0	0.00
Occupancy Sensor	1	210	0.03
Total	1,331	319,597	51.14

The measure most often installed for common areas was the low-wattage modular CFL. The majority of the common-area lighting savings came from modular and integral CFL installations.

Measures installed in individual units included lighting and hot water conservation measures. Table 7 shows the measure types, quantity installed, and gross kWh and kW savings for in-unit measure installations. Note that only electric water heating measures were counted.

Table 7. In-Unit Measure Distribution and Gross Savings

Measure	Quantity Installed	Gross kWh Savings	Gross kW Savings
15 watt CFL	30,058	1,154,227	64.64
20 watt CFL	2,435	114,445	6.41
23 watt CFL	429	28,228	1.58
Faucet Aerator	5,190	191,511	23.86
Pipe Insulation	2,085	107,169	13.35
Showerhead 2.0 gpm	3,370	890,691	110.96
Total	43,567	2,486,271	220.8

As shown, showerhead and CFL installations generated significant kWh savings for the program.

Program Documentation Review

Cadmus evaluated program documentation to ensure the database accurately reflected the documentation associated with each property. Our program forms review revealed some issues that made it challenging to completely verify documentation and installations. However, we do not recommend revising the database results, because the site visits (discussed below) found installed measures consistent with application forms. We do recommend improving the documentation process for PY3.

Among the issues we discovered during our application review were missing illegible and incomplete applications, as well as incorrect installation records. After follow-up discussions with CSG, missing forms were provided.

In-Unit Document Review

The in-unit application consists of a program participation agreement and a materials request form. After customers have completed these forms, CSG completes a post-installation form for each project. The program participation form outlines the program's terms and conditions, and requires the participant to sign and date it as acknowledgment. The materials request form includes participant contact information, installation site address, and utility account information. The materials request form also requires that participants list the project order details, including the type, number, and location of measure installed, and the existing wattage of lighting measure being replaced. Examples of the in unit documents are included in Appendix E.

Cadmus reviewed the project documentation, focusing on the materials request form and post installation form to ensure consistency with the database. Cadmus also looked at the program participation agreements to check whether contact information, utility account number, and signature were filled out. The initial review of the documents received made it clear that some key documents were missing. These were later found and provided to Cadmus by CSG.

Numerous applications had the following issues:

- Information crossed out
- Information covered up by Post-It notes
- Totals on the data collection form either not entered, crossed out, or incorrect
- Illegible writing on both the application and data collection forms

- Notes on side of applications (which made the review confusing)
- Inconsistency with data entry
- Multiple updates and revisions to applications

Many of the applications were difficult to read due to poor handwriting, which significantly increased the time it took to complete the document review. In addition, some customers revised the application page instead of filling out a new one.

For example, the following errors and problems were found on one materials request form reviewed:

1. The number of bathroom aerators was entered in the kitchen aerator column
2. A box was placed around the first six entries in the bathroom aerator column with a note "Need to Record"
3. The top six rows of entries for both CFLs and showerheads were crossed off with a note "Already in core app"
4. Totals for items installed in the building were crossed out twice, with the third entry circled
5. A line through one of the rows noted it as a duplicate

On another application a customer combined columns, which led to confusion in the review process. The customer changed the kitchen aerator column to read bathroom aerator, which meant there were two bathroom aerator columns. The two columns - which both had bathroom aerator data entered - were summed both horizontally and vertically. The data that was summed horizontally included arrows, and totals were entered in the pipe insulation column.

Common-Area Document Review

The common-area application included the following forms: terms and conditions, request for reservation of incentive funds, and incentive application (including a summary of project-as-completed form). CSG also completes a post-installation form for common-area projects.

The terms and conditions form outlines the legal rights and duties of both Ameren Illinois and the customer upon participation in the program. The customer's signature and date on this document is their acknowledgement of the program requirements.

The request for reservation of incentive funds form is completed by the potential program participant. This document includes the customer contact information, site address, utility account number, contractor contact information (if applicable), payment information, signature, and date.

The customer also completes the incentive application, which includes contact information, utility account number, contractor information (if applicable), and payment information. In addition, the application includes the project-as-completed form, which documents the following:

- Existing equipment description and wattage
- New equipment description and wattage

- Location of new equipment
- Hours of operation
- Quantity of proposed fixtures
- Total proposed incentive

The review of the common-area incentive applications and project-as-completed forms revealed similar issues with readability as the in-unit applications. Through the review of the common-area applications forms, some of the following issues were found:

- Site visit form totals did not match post-installation form totals
- One property was missing information on the post-installation form
- Line items on the project-as-completed form were crossed off, but totals for building were not updated
- Site visit form states both gas and electric, but post-installation form states electric only
- Project file names were not consistent

Our document review indicates that Ameren Illinois and CSG should work to improve their documentation process to allow for better verification. The documents reviewed were confusing due to penmanship, notes entered on sides of sheet, rows not totaled, and items being crossed out. Some forms were missing for the projects we reviewed. Cadmus recommends moving the application and post-installation verification forms to an electronic, Web-based platform in order to increase accuracy and efficiency.

Site Visits

Cadmus' subcontractor Mad Dash visited 15 sites for measure verification. Only one of these sites installed common-area lighting. For that site, the common-area measures had a 100 percent match rate between the measures found during the visit and the measures recorded on the common-area summary of project-as-completed form.

For in-unit properties, the site visits targeted 90 separate units spread over 15 properties. Of 89 inspected units, 82 were comparable to data found in post-installation forms provided by CSG (entitled "Multifamily In-Unit Energy Efficiency Post-Installation Data Collection" form). The remaining units were either unlabeled on the site visit data collection sheet or the unit number did not match that recorded on the CSG post-installation form. The post-installation forms were used for our document review, because the program database did not provide data at the unit level.

Rather than comparing the site visit data and post-installation data on a measure-by-measure basis, Cadmus compared the total savings for the 82 matching units discussed above to enable a comparison weighted by savings rather than by numbers of measures. The total gross savings from each source was calculated based on the number of measures documented and the corresponding savings; results are presented in Table 8.

Table 8. Site Visit Verification Results: Verified Gross Savings and Recorded Savings

Facility Number	Savings Calculated Using Site Visit Data (kWh)	Savings Calculated Using Post-Installation Form Data (kWh)
1	811	817
2	1,784	2,160
3	1,583	1,583
4	4,861	4,898
5	4,658	4,777
6	576	691
7	2,518	2,518
8	3,664	3,735
9	998	691
10	3,563	3,410
11	2,647	2,609
12	1,459	1,382
13	2,196	2,266
14	2,695	1,344
15	724	790
Total	34,739	33,672

The overall realization rate of 103 percent indicates that slightly more measures were found during the site visits than were recorded in the application materials. Because the verified savings are within the precision levels prescribed by the sampling approach (plus or minus 10 percent), Cadmus does not recommend any true-up to the tracking database results. Thus, the gross savings detailed above in Table 7 and Table 8 remains unadjusted and represents the total program gross savings. Program savings are summarized in Table 9.

Table 9. Summary of Program Gross Energy and Demand Savings

Program Component	Number of Measures	Gross kWh Savings	Gross kW Savings
Common-Area Lighting	1,331	319,597	51
In-Unit Energy Efficiency	43,567	2,486,271	221
Total	44,898	2,805,868	272

Determination of Net Savings

Because the in-unit measures were provided free-of-charge to building owners and managers, a NTG ratio of 1.0 is assumed for those installations. Because rebates are provided for common-area measures, Cadmus conducted an analysis of the NTG ratio for common-area installations based on information collected in the participant survey.

The participant survey asked participant owners and managers who installed common-area measures six questions in order to determine whether and to what degree each participant could be considered a freerider. These questions were:

FR1: Prior to learning about the program, would you have installed energy-efficient lighting without this program?

FR2: Prior to installing the energy-efficient lighting had you ever purchased the same energy saving item for installation anywhere in your complex?

FR3: Did the energy-efficient lighting you purchased before have the same level of efficiency, or was it more efficient, or less efficient than what was just installed through the program?

FR4: If the rebates for energy-efficient lighting had not been available through the program, would you have purchased and installed the same amount of energy-efficient lighting on your own, or would you have installed fewer or none?

FR5: Would you have purchased and installed the energy efficient lighting at a later time if Ameren Illinois' Multifamily program were not available?

FR6: Was it in your budget to upgrade lighting before you received rebates through Ameren Illinois' program?

Survey results were placed in a decision-making matrix to determine each participant's freeridership score. The matrix assigned a percentage score to each, from 0 percent freerider to 100 percent freerider. Example scoring patterns based on the questions included in the final freeridership scoring matrix are shown below in Table 10. If the participants did not plan to upgrade their equipment, they were not freeriders. Customers who were 100 percent freeriders had prior plans to install the common-area measure upgrades, were not influenced by the program, and would have installed the equipment without the incentive. Participants can also be partial free riders, as shown in the matrix.

Table 10. Freeridership Scoring Matrix Example

Q27 Prior to learning about program, would have installed lighting	Q28 Had installed same lighting elsewhere in complex	Q29 Was previously purchased lighting same or different level of efficiency	Q30 If program not avail., would have purchased same or fewer	Q31 Would have installed lighting at a later time	Q32 Was in budget to replace lighting before received rebates	FR Score
No	x	x	X	x	x	0%
Yes	Partial	x	X	x	x	100%
Yes	Yes	x	X	x	x	100%
Yes	No	Partial	No	Yes	No	0%
Yes	No	Partial	No	No	No	0%
Yes	No	Partial	Partial	Yes	Yes	12.5%

The results of the participant survey analysis showed 20 percent freeridership among common-area participants. The analysis was based on survey response data from ten of the twelve participants who installed common-area measures. This result was applied to program gross savings to determine program net savings, which are summarized below in Table 11.

Table 11. Summary of Program Net Energy and Demand Savings

Program Component	Percent Freeridership*	NTG Ratio	Net kWh Savings	Net kW Savings
Common-Area Lighting	20%	0.80	255,677	41
In-Unit Energy Efficiency	0%	1.00	2,486,271	220
Total Program	2%	0.98	2,741,949	262

*Total program freeridership was calculated by taking a weighted average based on gross savings in each program component.

Process Evaluation

Two primary data sources informed the PY2 process evaluation: the participant survey and the stakeholder interviews. Information from the documentation review and evaluability assessment also was reviewed. This section details the findings of each evaluation activity that contributed to our assessment of the program's processes.

Participant Survey Findings

The participant survey focused on seven categories: measure installation and selection decisions; measure purchasing decisions; exposure to program marketing; experience with application process; program and measure satisfaction; freeridership and spillover; and building characteristics.

Measure Installation and Selection Decisions

Owners were asked if they installed each of four measures in their buildings' units - CFLs, showerheads, faucet aerators, and pipe insulation.¹ Three measures were especially popular, with 83 percent saying they installed CFLs, and 88 percent reporting installing both showerheads and faucet aerators. Pipe insulation was installed less often, but still conducted by a majority (54 percent) of participants.

There was a wide variation in the reported number of measures installed per facility, corresponding to the wide variation in numbers of units among the participating owner/managers. On average, participants reported installing 280 CFLs. These ranged from a minimum of six to a maximum of 909 CFLs per facility. A relatively large number of participants, 49 percent, did not know or report how many CFLs they installed. Results for all the measures are summarized in Table 12.

Table 12. Reported Quantities of Measures Installed

Measure	Average	Minimum	Maximum	% Don't Know
CFLs, n=35	280	6	909	49%
Showerheads, n=37	86	3	375	16%
Faucet Aerators, n=37	107	3	500	22%
Pipe Insulation, n=23	120	6	500	43%

There were some clear differences in the types of responses owners gave when asked why they installed each of the four energy-saving items (CFLs, showerheads, faucet aerators, and pipe insulation). Each respondent was given the chance to offer the main reasons they installed each item. They were allowed to give more than one answer or reason for each item. When why they installed CFLs, 43 percent mentioned *'To help my tenants.'* Other frequently mentioned responses included: *'To save energy'* (31 percent), *'To lower energy bills'* (20 percent), and *'Because they were free'* (14 percent).

The reasons for installing CFLs contrast with the most popular responses given for the other three measures. Forty-six percent said the main reason they installed showerheads was *'To lower my energy bill and save energy,'* an answer also given by 49 percent as the reason they installed faucet aerators. For pipe insulation, 52 percent reported the main reason for installation was *'to save energy,'* while 39 percent said the main reason was to *'lower my energy bill and save energy.'*

These responses suggest that participants viewed installing in-unit CFLs as an altruistic gesture, probably because most of these buildings have individual meters for electricity use, and tenants pay their own electricity bills. The other three measures, however, save water and water heat – both of which are more frequently paid for by the building owner or manager. These results, summarized in Table 13, highlight participants' interest in energy efficiency and cost savings.

¹ Cadmus did not compare the survey result to the program database – this question was intended to stimulate participant recall of installations and set the stage for follow-up questions rather than to verify the accuracy of the program database.

Table 13. Reasons for Installing Measures in Individual Units*

Response	CFLs (n=35)	Shower-heads (n=37)	Faucet Aerators (n=37)	Pipe Insulation (n=23)
To help my tenants	43%	11%	8%	17%
To save energy	31%	14%	19%	52%
To lower energy bill, save money on bills	20%	46%	49%	39%
Because they were free	14%	8%	8%	4%
Environmental reasons	9%	5%	3%	-
To replace broken equipment	3%	-	5%	-
Part of a remodel or renovation	3%	8%	5%	4%
Other	9%	32%	27%	9%
Don't know	-	-	-	6%

*Highest-frequency response for each measure is bold; totals are greater than 100%, as respondents offered multiple answers.

The reasons participants gave for installing common-area lighting upgrades were more straightforward: to save energy (50 percent) and to lower energy bills (40 percent).

Measure Purchasing Decisions

Participants who installed common-area lighting measures were asked about their purchasing experience. All ten common-area participants surveyed reported purchasing the equipment themselves. The results were split regarding ease in finding lighting; while six participants, or 60 percent, reported that the lighting measures were very easy to find, three rated the difficulty in finding lighting at an eight or above on a scale of zero to ten, indicating that they had difficulty in finding the lighting measures. Eight common-area installers found it very easy to find energy-efficient equipment, while the remaining two found it difficult. Three participants reported that they had help selecting equipment from a salesperson. These results indicate that, in general, most participants did not have trouble locating and purchasing the appropriate lighting measures for their building.

Exposure to Program Marketing

All participants were asked how they first learned about the program. The most frequently mentioned method, by 48 percent of respondents, was by receiving a cold call. Ten percent said they learned about the program through friends or family, and another 10 percent said they learned through a presentation. Seven percent learned about the program through the Act On Energy Website. Other communications channels were mentioned less frequently. These results are summarized in Table 14.

Table 14. Initial Method of Learning about Multifamily Program

Method	Percent* (n=42)
Cold call	48%
Friend or family	10%
Other presentation	10%
Website	7%
Received letter	2%
Contractor	2%
Other	21%
Don't know	7%

*Totals to more than 100%, as respondents offered multiple answers.

Respondents were then asked to rate how informative each cited method was, with 0 meaning not at all informative and 10 meaning very informative. Cold calling was reported to be a very informative method; 90 percent of those who received cold calls rated that method 8 or above, and 40 percent rated it 10 out of 10. While few participants mentioned them, 'Other presentation', 'Website', and 'Contractor' were also rated as very informative, with 100 percent giving them a rating of 8 or higher.

Additionally, 75 percent of the owners who did not install common-area equipment said they were aware that Ameren Illinois was offering incentives for installing such common-area equipment. These results demonstrate that cold calling apartment building owners and managers is an effective way of reaching prospective participants.

Finally, participants were asked how motivated they were to participate once they had received program information. Owner motivation to participate in the program was very high once they learned about it: 44 percent said their motivation level was 10 out of 10, and another 44 percent rated it as an 8 or 9.

Experience with Application Process

Those installing common-area measures appeared to be satisfied with the ease of filling out the incentive application. Twenty percent scored the application process 10 out of 10, where 0 means not at all easy and 10 means very easy. Another 60 percent gave it an 8 or 9. Seventy percent of the common-area participants said the incentive arrived in a reasonable amount of time. Only one person said the incentive did not arrive in a reasonable time period, with an additional two saying they didn't know. No one reported having an issue they needed to resolve with Ameren Illinois regarding incentives.

Program and Measure Satisfaction

Program participants are very satisfied with their program experiences: 81 percent of participants rated their overall satisfaction as an 8 or higher, and 38 percent rated it 10 out of 10 (very satisfied). Satisfaction was similarly high with all four in-unit measures, with between 45 and 54 percent giving each measure a rating of 10 (very satisfied).

Among common-area installers, six gave common-area lighting a 10 satisfaction rating (very satisfied), one rated it 9 and three rated it 8, so all participants were satisfied or very satisfied.

Freeridership and Spillover

The results of the freeridership-related questions were analyzed using a decision matrix (see the above section in this report ‘Determination of Net Savings), and 20 percent of surveyed participants who installed common-area measures were determined to be freeriders. This result was applied to program gross savings to determine program net savings.

Although spillover was not quantified and applied as an adjustment to program savings, Cadmus asked a short battery of questions to determine whether any spillover effects appeared to have occurred. Fifty percent of all participants said they installed other energy-efficient equipment without incentives or rebates. Within this group, 55 percent said they installed ENERGY STAR® equipment. A large proportion (32 percent) did not know whether the equipment they had installed was ENERGY STAR® labeled. Also within this group, 50 percent rated the program’s influence as an 8 or higher, suggesting the program was very influential in their decision to install additional efficient equipment. Eighteen percent of those who had installed equipment without incentives said they had participated in utility programs other than the multi family program.

Building Characteristics

Respondents were asked to describe the characteristics of their building or complex. Forty-three percent of participants overall had just one building in their complex. Twelve percent had 13 or more buildings. The number of units owned or managed ranged from three to 399. Half of the respondents could not estimate the approximate square footage of their building/complex. For those that could make this estimate, square footage ranged from a minimum of 65,924 square feet to a maximum of 430,053 square feet. Respondents were given two options to estimate the square footage of their common areas: they could provide the estimate in square feet or as a percent of the total. These results, along with additional building characteristics, are summarized in Table 15.

Table 15. Characteristics of Participant Multifamily Buildings

Characteristic	Average	Minimum	Maximum
Number of buildings in complex (n=42)	7	1	40
Units in multifamily complex (n=41)	92	3	399
Approximate square footage of building/complex (n=21)	65,924	1,700	430,053
Common-area amount in square feet (n=12)	2,079	0	10,800
Common-area amount as a percentage (n=29)	18%	0%	50%
Approximate age of building complex (n=41)	30	1	82

Additionally, 48 percent of multifamily building participants reported that their building or complex uses electric energy only, with 52 percent reporting that they use a mix of gas and electric. All but one of the participants using gas reported that they purchase their gas from Ameren Illinois.

Stakeholder Interview Findings

Cadmus conducted interviews with three program stakeholders as identified in Table 16. The interviews focused on three general program areas: marketing, the audit and installation process, and payments and invoicing. Interviewees were also asked to give their opinions about the

program in general. Interviews were conducted in July and September of 2010, and followed the interview guide attached in Appendix C.

Table 16. Stakeholder Interviewees

Title	Organization
Program Manager	Ameren Illinois
Program Manager	CSG
Sales Representative	Lighting Company

Each person interviewed had quite different daily tasks, ranging from a focus on managing others, to implement the program, to having a more hands-on role in program delivery, to being involved in all aspects of the sales process. The breadth of interviewee involvement with the project provided a multifaceted examination of the program's functioning.

When asked about the program's primary goals, each interviewee had a slightly different perspective. One manager described the goals as *'find ways to help customers save money, save energy, don't waste energy, help them manage bills and energy usage.'* The other manager characterized the goals as *'achieve savings goals mandated by the legislature and improve the energy efficiency of housing stock in the multifamily sector.'* The sales representative provided the most direct response: *'To reduce kilowatt usage - that is the primary goal of the program so that is what we try to help them do.'*

Marketing

All stakeholders have tried various methods of marketing the program. There was a general consensus that cold calling was a very effective way to gain new business; both program managers thought of cold calling as the most effective method; the customer feedback cited above confirms this perception. The sales representative saw cold calling as effective, but also viewed referrals from other facilities as a very good way to get new business. The program managers did not view their efforts to get new business as marketing per se, possibly given their reliance on cold calling.

The sales representative mentioned regularly putting out flyers offering free energy analysis audits. These flyers would be provided by Ameren Illinois, affixed with the lighting company's logo. After sending out the flyers, the sales representative would do follow-up calling in the neighborhood. Once given permission to visit, they would typically provide free energy analysis, offer recommendations, and take care of all paperwork associated with the incentives, if that is the customer's preference.

One program manager is very optimistic about the program's future participation potential. He thinks the market is not yet near saturation. He also thinks facilities catering to middle and lower income residents have the most potential. These typically have less maintenance staff, and may be less likely to have new efficient technologies installed. Newer apartments are better staffed, and have higher quality equipment and correspondingly less energy saving potential.

Energy Audits and Installations

There were some differences among stakeholders in determining site eligibility. One program manager said he would look mainly at technical potential, and reported that they try to stick with higher savings projects. He specifically mentioned CFLs and showerheads, and suggested they might not do an all-aerator project, as the savings would not be great enough. The sales representative and other program manager were concerned mostly with determining that the prospect met all of the program qualification requirements.

Interviewee perspectives on custom audits also differ. One program manager said that custom audits were done: if the property owner wants to upgrade, the account manager will walk through the building with the property owner or property manager, making suggestions about HVAC or air sealing (for example). The other program manager reported that custom audits were not done, that the process was all walk through, and that the property owner/manager is either interested or not. The sales representative had a very specific definition of a custom audit - he said it would be triggered by a lot of incandescent and/or exterior lighting, and his example was *'if we take 50 fixtures out and put in 20 we would have to go in under the custom program.'*

Going forward, Ameren Illinois plans to add additional energy-saving measures and phase out the pipe wrap measure, since it is considered to be too time consuming.

Payment and Invoicing

The sales representative said they had a 30 day net policy on their invoices, and were usually paid within 60 days. The other staff personnel were less specific about payment and invoicing timing, but one of them did some research after the interview and contacted us to inform us that he found it was generally a two week process to pay an invoice. There were no reported problems with payments or invoicing, beyond normal discrepancies that have been resolved easily with a little research and telephone calling.

Overall Program

There was general consensus among the interviewees that the program is doing well. One program manager said this was the only program they'd had where there was no negative feedback and quite a bit of positive feedback from property managers about the account managers. The other program manager said they had already hit their goals and had a full pipeline of work in the coming months. The sales representative also was optimistic about the program in general; he thought that incentive levels should remain the same (without decreases) to maintain public interest in the programs. He also expressed some general concerns about the slow economy and its potential impact on demand, but said the program itself was a good one. All three stakeholders were clear that the program overall was useful, successful, and is accomplishing its main goals of promoting and achieving energy efficiency.

Program Material Review

Cadmus reviewed the documents that a customer would encounter in applying for incentives for common-area measures. These include: the multifamily common-area lighting program application documents, program ally list, guidelines to qualifying measures, terms and conditions of the program overview, and the request for reservation of incentive funds.

The Multifamily Common-Area Lighting Program Ally List can be used by customers to locate participating contractors to install the program materials. This list is included in Appendix F. Since the number of participants using contractors to install common measures has been low, the ally list hasn't been used much. However, this may change in the future as Ameren Illinois adds measures to the list and more buildings participate. The list includes the company name, address, telephone number, contact name, email address, and/or Website address, in addition to the areas they each serve in Illinois.

The Multifamily Common-Area Lighting Program Guidelines to Qualifying Measures assists customers in deciding which qualifying measures to install in their building. Measures are divided into different lighting categories to simplify the selection process. Each lighting category lists the type of measure, incentive amount, and description of incentive (specifications, typical applications, and a photographed example of a qualifying measure).

The Multifamily Common-Area Lighting Program Overview presents a program summary. This overview gives customers an understanding of the program qualifications, defines what a common area is, defines the energy-efficient measures included in the program, the incentive amounts, and outlines the estimated long-term savings of installation for certain measures. This information is then followed up with a step-by-step outline of the application process.

The purpose of the material review was to evaluate the ease of understanding, correct contact data, and ease of use of Website address links. There were several problems with the documents, as discussed below.

Several inaccuracies associated with individual allies existed on the program ally list:

- Action Electric - the E-mail address is for Lisa, but the contact should be Rick VanDynHoven
- Aschinger Electric - the Website information is not valid
- Budget Lighting – the Website has a different address and contact number than what is listed on the form
- Witte Electric - the Website information is missing

One of the issues encountered was ease of use with the Website address links. The address links for the Consortium for Energy Efficiency (cee1.org) and Act On Energy - both of which are included on the guidelines to qualifying form - were not easily navigated. The CEE1 Website is referred to as a resource to learn about T8 lighting options. The Website has a Multifamily Housing area, but that Web page is no longer current. There are other areas on the Web page for consumers to learn about lighting; however, it is not clear whether the residential or the commercial program would be the appropriate link. Only after the consumer goes through both Web pages is it clear that the commercial Webpage has the needed information.

The Act On Energy Website is not easily navigated. The home page has links for home, business, and energy saving tips. While the multifamily program is listed under “business,” there are not any direct links to multifamily programs on the first linked Web page. Many multifamily building managers have competing demands on their time. Streamlining program information and increasing ease of use will benefit those who are looking for multifamily program resources.

Evaluability Assessment

A program evaluability assessment ensures that the program's data collection and organization will enable future evaluations to be conducted with ease and accuracy. Cadmus conducted this assessment while reviewing the database and associated documentation provided.

Last year Cadmus reviewed what data were being collected for use in evaluations; this year Cadmus examined the finer details of the data collection and transfer process for reducing sources of error. Our review, summarized in Table 17, shows that the program could benefit from improved QA/QC practices.

Table 17. Evaluability Assessment of Data Collection Practices

Industry Best Practice	Multifamily Program/ Subcontractor Practice?	Cadmus Comments
Consistent document labeling/naming convention	No	
Electronic records include data on individual units	No	
Electronic records show cumulative results per facility	No	Currently database bundles measures by type and installation date, with corrections entered as separate items
Electronic records include savings calculations	Yes	
Use of FTP for secure transfer of customer data	Yes	
Clear and legible handwritten forms	No	Many forms were difficult to read, multiple edits made on the same form are unclear
All fields completely filled out on forms	No	

5. Conclusions and Recommendations

Conclusions

Participation in the PY2 program is up considerably from PY1; however, similar to PY1, less than 10 percent of participants install common-area measures. As in many programs, participation is limited by the slow economy and barrier of the upfront investment needed to receive incentives. Cadmus' NTG analysis found very low freeridership on the common-area measures, indicating that the incentives are effective in encouraging investment.

Stakeholders and participants are both reportedly satisfied with the program, although several of the common-area participants felt it was difficult to identify equipment qualifying for rebates. While the trade allies would be helpful to participants, customers are not required to use trade allies for common-area lighting installations, and therefore most identified and installed common-area measures on their own.

Cold calling appears to be the most effective marketing method, as both the participant survey and the stakeholder interviews identified it as effective in helping customers learn about the program. There was a notably wide variability in facility size among the owner-participants (from three to nearly 400 units).

There appeared to be confusion among the program stakeholders as to project eligibility and how the audit process works. Better definition of program approaches and post-installation verification procedures may improve results.

The participant documentation process needs improvement, as missing and illegible forms made it difficult to verify installations and savings. The program documentation and Website was also difficult to navigate and contained inaccuracies.

Table 18 summarizes and compares the PY2 results to PY1 using NTG ratios calculated in each respective year.

Table 18. PY2 Multifamily Program Gross and Net Results

Program Year	Gross kWh Savings	Gross kW Savings	Net kWh Savings	Net kW Savings
PY2	2,805,868	272	2,741,949	262
PY1	1,073,094	107	816,654	82

Recommendations

Cadmus identified the following recommendations for improving the program in PY3 and beyond.

- Put more emphasis on marketing for common-area measures.*** If more common-area installations are complete, the program will be more cost-effective and leverage the marketing and site visit dollars invested. While it is understandable that the upfront investment and concerns about the economy are participation barriers, additional marketing could overcome this resistance. Follow-up calls by CSG or leads to trade allies

could be one marketing approach. Also consider making formal presentations to the building owners, emphasizing cost savings and other benefits, such as “green” marketing. Some common-area participants suggested that they had difficulty locating eligible equipment. The eligible measures form could be made more “customer friendly” and offer suggestions of where and what products to purchase.

- ***Focus on defining the program so all stakeholders have the same understanding of how the program works and how to optimize eligibility.*** . It was apparent from the interviews that stakeholders did not all have the same understanding of how the program operates, and specifically how eligible customers are identified and optimized. Better definition could provide some program benefits and ensure their proper use. Given the wide variety of facility size among participants, Ameren Illinois could evaluate whether there are special efficiencies or advantages to concentrating on a specific type, size, or age of building complex to promote the program.
- ***Change applications, materials request, and post-installation forms to an electronic format.*** The current documents were confusing due to penmanship, notes entered on sides of sheet, rows not totaled, and items being crossed out - which decrease the evaluability of the program. Moving to an electronic, Web-based application will increase accuracy and efficiency.
- ***Updating the Website address links for program information.*** The CEE1 Website and the Act on Energy Website have valuable information for consumers; however, both sites are not easily navigated. When listing the CEE1 Website as a resource for additional information, include what page the resource is on. This will increase ease of use. For the Act On Energy Website, include a heading for multifamily program information on the first page of the website. Again, this will increase usability and perhaps increase program participation.
- ***Implement a naming convention for program participant files.*** Multiple methods were used when naming program files. In some cases, the multiple naming conventions made evaluating the documents arduous. The method that was most useful was site id_dwelling name. This naming convention allowed Cadmus to quickly match sites with post review information, thus increasing our evaluation efficiency.
- ***Implement ongoing quality control checks for the program documentation.*** Due to initially missing and illegible data forms identified in our documentation review process, Cadmus recommends that Ameren Illinois and CSG develop a quality control system that ensures all the forms are in place and legible before rebates are paid or results are counted in the tracking database.

Appendix A. Document Review Protocol

This protocol describes how to complete the document review effort for the Ameren Illinois Multifamily Program. There are three distinct areas to review:

1. The One time review includes items that are overarching and require a thorough reading of program materials. This review is designed to address inconsistencies and program mechanics.
2. The Common-Area Review focuses on the common-area rebate program and includes a review of the materials submitted to the program and the associated database.
3. The In-Unit Review focuses on the in-unit portion of the program and includes a review of the materials submitted to the program and the associated database.

This protocol is to be used in conjunction with the Document Review Database (doc Review Database 02AUG2010.xls). Please review program forms for the participating buildings from the sample, which can be found in the Ameren multifamily folder. Enter the results into the spreadsheet using the instructions in this protocol.

There are two types of multifamily measures: common-area measures and in-unit measures. This program provides an incentive for common-area measures and free efficiency upgrades for individual units. Any errors or areas for improvement in program documentation should be recorded along with noting which document the error or area in question is located.

1. One time review items

1. Begin the document review by reading the multifamily common-area lighting program overview.
 - Ensure that the dates, Web address, and other numbers are correct.
 - If the document refers to a Web page, check that the page exists and is functional.
 - Note any inconsistencies or errors in the Errors Found tab, including the name of the program material where it was found.
2. Check the program ally list and ensure the Websites are functional.
3. Check the “Guidelines to Qualifying Measures” document and check for consistency with other documents.
4. Review program documents for logic and consistency. Again, any inconsistencies or errors should be documented in the Errors Found tab, including the name of the program material where it was found.
5. Review the Terms and Conditions language.
6. Review the Common-Area Lighting Program Overview.
7. Review the fields in the forms.

2. Common-Area Review

1. Check the Request for Reservation of Incentive Funds and Terms and Conditions forms for completeness. If these are completed, please input “complete” into the database in

columns N-O. If information in missing input “incomplete,” if the form is missing then input “missing.” Any inconsistencies or errors found in the forms should be documented in the Errors Found tab. Please include the name and section number of the program material where the error was found.

- a. Forms Complete = Complete
 - b. Input missing = Incomplete
 - c. Form is missing = Missing
2. Check the following forms:
- Multifamily Common-Area Lighting Incentive Funds Application form should be checked for complete data entries.
 - Check the cut sheets and invoices to see if they match what was claimed to have been installed on the Multifamily Common-Area Lighting Incentive Funds Application, on the “summary of project as completed” pages.
There may be multiple sheets for each property due to multiple batch installations, be sure to add them together to get the total number of measures installed at that property.
 - Record the total quantity of each measure installed for the whole program year in the “document review database” (columns P-U).
 - In addition to quantity of measures, compare the “summary of project as completed” forms to the “common area” tab in the “document review database” workbook. Ensure the following elements match:
 - Address
 - Existing wattage
 - New wattage
 - Location
 - Operating hours
- Again, any inconsistencies or errors should be documented in the Errors Found tab, including the name of the program material where it was found.

3. In Unit Review

1. Check the Program Participation Agreement and Materials Request forms for complete data entries. If these are complete, please input “complete” into the database (columns D-E) in the appropriate cell. If information in missing input “incomplete,” if the form is missing then input “missing.”
 - a. Form complete = Complete
 - b. Data Missing= Incomplete
 - c. Form Missing = Missing

2. There may be more than one In-Unit Post Installation Data Collection Form per property. Please total up each of the measures across all data forms and report the total quantity installed during the 2009 year in the “document review database” for that property (columns F-L).

Appendix B. Participant Survey Instrument

**Ameren Illinois
Residential Multifamily Program
Participating Owner Survey Codebook**

NOTE:

1. Open-ended responses are captured in the file "Ameren IL MF Open Ends.xls".
2. Questions were asked of all respondents unless indicated otherwise.
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.

Introduction and Confirmation

- Q1 Our records show that your building took part in Ameren's ActOnEnergy Multifamily program where you received free light bulbs, water saving products, or other equipment, is that correct?
- 1 Yes
- 2 No *[Terminate]*
- Q2 First, I want to confirm what you received from the program. Did you receive free light bulbs and /or free water saving products to install in individual units in your building?
- 1 Yes
- 2 No
- 8 Don't Know
- 9 Refused
- Q3 Did you receive incentives for installing other energy efficiency equipment in your common areas?
- 1 Yes *[If also answered "no" to Q2, skip to "Common Area Incentives", else continue]*
- 2 No *[If also answered "no" to Q2, thank and terminate, else continue]*
- 8 Don't Know
- 9 Refused
- Q3a [If Q2 <> 1 and Q3 <> 1] What did you receive through the program?
- 1 Energy efficient measures for only tenant apartments
- 2 Energy efficient equipment for only common areas
- 3 Energy efficient equipment for both tenant and common areas

- 4 None of the above
- 8 Don't Know
- 9 Refused

In Unit Measure Questions

- Q4 I would like to talk to you about the free light bulbs and water saving items you received for your individual units as part of this program.
Our records indicate that you received [LIST FREE MEASURES] is this correct?
- 1 Yes *[GO TO Q5]*
 - 2 No
 - 8 Don't Know
 - 9 Refused
- Q4_2 [If Q4 = No] What did you receive?
- 1 Mentioned
 - 0 Not mentioned
- Q4_2_1 Compact Fluorescent Light bulbs
- Q4_2_2 High Efficiency Showerheads
- Q4_2_3 High Efficiency Faucet Aerators
- Q4_2_4 Pipe Insulation
- Q4_2_5 Other *[Specify]*
- Q5 [ASK FOR EACH MEASURE FROM Q4] Did you install the [Measures]?
- 1 Yes
 - 2 No
 - 3 None of any measure *[PROBE: Why not?]*
 - 8 Don't Know
 - 9 Refused
- Q5_1 CFLs
- Q5_2 Showerheads
- Q5_3 Faucet Aerators
- Q5_4 Pipe Insulation
- Q5_1 How many did you install?
___ *[Record qty/length in feet]*

- 8 Don't Know
- 9 Refused
- Q5_1_1 CFLs (Quantity)
- Q5_1_2 Showerheads (Quantity)
- Q5_1_3 Faucet Aerators (Quantity)
- Q5_1_4 Pipe insulation (Length in feet)
- Q6 What are the main reasons you decided to install [Measures] in the individual units? *[DO NOT READ]*
- 1 Mentioned
- 0 Not mentioned
- _1 It was free
- _2 To help my tenants
- _3 To save energy
- _4 To lower energy bill, save money on bills
- _5 Environmental reasons
- _6 Liked the make/model/design
- _7 To replace broken equipment
- _8 Part of a remodel or renovation
- _9 Recommended by a family or friend
- _10 Other *[Specify]*
- _11 Don't Know
- _12 Refused
- Q6_1 CFLs
- Q6_2 Showerheads
- Q6_3 Faucet Aerators
- Q6_4 Pipe Insulation
- Q7 *[IF PROVIDED MORE THAN 1 REASON IN Q6]* What was the most important reason? *[DO NOT READ]*
- 1 To save energy
- 2 To lower energy bill, save money on bills
- 3 Environmental reasons
- 4 Liked the make/model/design

- 5 To replace broken equipment
- 6 Part of a remodel or renovation
- 7 Recommended by a family or friend
- 8 To get the rebate
- 9 Other *[Specify]*
- 8 Don't Know
- 9 Refused

Q7_1 CFLs

Q7_2 Showerheads

Q7_3 Faucet Aerators

Q7_4 Pipe Insulation

Q8 [SKIP IF Q3=YES] Did you know that Ameren also offers incentives for installing certain equipment such as lighting equipment in building common areas?

- 1 Yes
- 2 No
- 8 Don't Know
- 9 Refused

Common Area Measure Questions

Q9 [IF Q3=NO, SKIP TO Q12] Now I would like to talk to you about the energy efficiency items you installed in your common areas for which you received an incentive from Ameren.

Our records show you received an incentive for installing [LIST ALL COMMON AREA MEASURES] in [date (month/year)]?

Is that correct?

- 1 Yes
- 2 No, measure(s) are incorrect. *[PROBE: What measures were installed?]*
- 3 No, date is incorrect. What date was it?
- 4 No, did not receive an incentives, but I've applied for them
- 5 No I did not apply for any incentives *[TERMINATE]*
- 8 Don't Know *[TERMINATE]*
- 9 Refused *[TERMINATE]*

- Q10 What are the main reasons you decided to install the energy efficient lighting in the common area of your building? *[DO NOT READ, ACCEPT MULTIPLE ANSWERS]*
- 1 Mentioned
 - 0 Not mentioned
- Q10_1 To save energy
- Q10_2 To lower energy bill, save money on bills
- Q10_3 Environmental reasons
- Q10_4 Liked the make/model/design
- Q10_5 To replace broken equipment
- Q10_6 Part of a remodel or renovation
- Q10_7 Recommended by a family or friend
- Q10_8 To get the rebate
- Q10_9 Other *[Specify]*
- Q10_10 Don't Know
- Q10_11 Refused
- Q11 *[IF PROVIDED MORE THAN 1 REASON]* What was the most important reason?
- 1 To save energy
 - 2 To lower energy bill, save money on bills
 - 3 Environmental reasons
 - 4 Liked the make/model/design
 - 5 To replace broken equipment
 - 6 Part of a remodel or renovation
 - 7 Recommended by a family or friend
 - 8 To get the rebate
 - 9 Other *[Specify]*
 - 8 Don't Know
 - 9 Refused

Marketing

- Q12 Now I'd like you to think back to when you first learned about Ameren/s ActOnEnergy Multifamily program, how did you first learn about it? *[DO NOT READ, MULTIPLE RESPONSES OKAY]*
- Q12_1 Cold call / Someone knocked on my door

- Q12_2 I received a Letter about the program
- Q12_3 Information left at my apartment building
- Q12_4 Presentation at neighborhood meeting
- Q12_5 Other presentation *[Specify]*
- Q12_6 Website *[GO TO 13B]*
- Q12_7 Friend or family
- Q12_8 Contractor
- Q12_9 Other *[Specify]*
- Q12_10 Don't Know
- Q12_11 Refused
- Q13 [FOR EACH IN Q12] On a scale of 0-10 where 0 is not at all informative and 10 is very informative, how informative was the [INSERT APPROPRIATE TYPE FROM 12] in describing the program?
 _____ *[RECORD RESPONSE (0-10)]*
 -8 Don't Know
 -9 Refused
- Q13a On a scale of 0-10 where 0 is not at all motivated and 10 is highly motivated, how motivated were you to participate in the program as a result of the information you received?
 _____ *[RECORD RESPONSE (0-10)]*
 -8 Don't Know
 -9 Refused
- Q13b_1 [If Q12 = 6] On a scale of 0-10 where 0 is not at all easy and 10 is very easy; please rate the ease of finding information on the website?
 _____ *[RECORD RESPONSE (0-10)]*
 -8 Don't Know
 -9 Refused
- Q13b_2 [If Q12 = 6] On a scale of 0-10 where 0 is not at all informative and 10 is very informative, how informative was the information presented on the website?
 _____ *[RECORD RESPONSE (0-10)]*
 -8 Don't Know
 -9 Refused

Application Process

- Q14 [IF Q3=NO, SKIP TO Q25] The next few questions focus on your experience in completing the application to receive incentives for common area improvements.
- On a scale of 0-10, where 0 is not at all easy and 10 is very easy, how easy was it to fill out the application for incentives?
- _____ [RECORD RESPONSE (0-10)]
- 8 Don't Know [IF 5 OR >, SKIP TO 17]
- 9 Refused
- Q15 [If Q14 above is <5] What was difficult in filling out the incentives application?
- [RECORD RESPONSE]
- Q16 [If Q14 is <5] Were you able to get the help you needed?
- 1 Yes
- 2 No
- 3 Didn't ask for help/figured it out for myself
- 8 Don't Know
- 9 Refused
- Q17 Did you feel your incentive arrived in a reasonable amount of time?
- 1 Yes [GO TO Q20]
- 2 No
- 8 Don't Know
- 9 Refused
- Q17_2 [If Q17 = 2] How long did it take?
- [RECORD RESPONSE]
- Q18 Was there an issue to resolve with Ameren about the incentive?
- 1 Yes [Probe: What was it?] [GO TO 19]
- 2 No [GO TO 20]
- 8 Don't Know [GO TO 20]
- 9 Refused [GO TO 20]
- Q19 On a scale of 0-10 where 0 is not at all easy and 10 is very easy, how easy was it to resolve the issues?
- _____ [RECORD RESPONSE (0-10)]
- 8 Don't Know

-9 Refused

Purchase and Installation Information	
--	--

Q20 Now I would like you to think about the purchase and installation of the incentivized measures (in other words, the common area lighting measures for which you received a rebate or money back).

On a scale of 0 to 10, where 0 is very easy and 10 is not at all easy, how easy was it to find a energy efficient lighting that qualified for Ameren's incentives?

_____ [RECORD RESPONSE (0-10)]

-8 Don't Know

-9 Refused

Q21 Did you or your staff purchase and install the energy efficient lighting yourselves or did you hire a contractor?

1 Ourselves

2 Contractor [GO TO 23]

-8 Don't Know

-9 Refused

Q22 [If Q21 = 1] On a scale of 0-10 where 0 is very easy and 10 is not at all easy, how easy was it to find the energy efficient lighting you needed?

_____ [RECORD RESPONSE (0-10)]

-8 Don't Know

-9 Refused

Q22A Did a sales person help you decide on the energy efficient lighting to purchase?

1 Yes [GO TO Q25]

2 No

-8 Don't Know

-9 Refused

Q23 [If Q21 = 2] On a scale of 0-10, where 0 is not at all easy, and 10 is very easy, how easy was it to get the energy efficient lighting installed?

_____ [RECORD RESPONSE (0-10)]

-8 Don't Know

-9 Refused

Q24 Did a contractor help you select the energy efficient lighting that you purchased?

1 Yes

- 2 No
- 8 Don't Know
- 9 Refused

Satisfaction

Q25 Now I would like to ask some questions about your satisfaction with the program and the energy efficiency items you installed.

Overall, on a scale of 0 to 10, with 0 being not at all satisfied, and 10 being very satisfied, how satisfied are you with your participation in the program?

_____ [RECORD RESPONSE (0-10)]

- 8 Don't Know
- 9 Refused

Q25A Why did you give that response?

[RECORD RESPONSE]

Q26 On a scale of 0 to 10, with 0 being not at all satisfied and 10 being very satisfied, how satisfied are you with the [MEASURE]?

_____ [RECORD RESPONSE (0-10)]

- 8 Don't Know
- 9 Refused

Q26IU_1 CFLs

Q26IU_2 Showerheads

Q26IU_3 Faucet Aerators

Q26IU_4 Pipe Insulation

Q26COM [If common area measures installed] Energy efficient lighting you installed in common areas?

Q26A [IF Q26<5] Why did you give that response?

[RECORD RESPONSE]

Free Ridership and Spillover

Q27 I have just a few questions about your purchase decisions for the energy efficiency items installed in your common areas.

Prior to learning about the program, would you have installed energy efficient lighting without this program??

- 1 Yes
- 2 No

- 8 Don't Know
- 9 Refused
- Q28 Prior to installing the energy efficient lighting had you ever purchased the same energy saving item for installation anywhere in your complex?
- 1 Yes
- 2 No
- 8 Don't Know
- 9 Refused
- Q29 [IF Q28=1] Did the energy efficient lighting you purchased before have the same level of efficiency, or was it more efficient, or less efficient than what was just installed through the program?
- 1 Same efficiency
- 2 More efficient, or
- 3 Less efficient
- 8 Don't Know
- 9 Refused
- Q30 If the rebates for energy saving energy efficient lighting had not been available through the program, would you have purchased and installed the same amount of energy efficient lighting on your own, or would you have installed fewer or none?
- 1 Same
- 2 Fewer
- 3 None
- 8 Don't Know
- 9 Refused
- Q31 Would you have purchased and installed the energy efficient lighting at a later time if Ameren's Multifamily program were not available?
- 1 Yes
- 2 No
- 8 Don't Know
- 9 Refused
- Q32 Was it in your budget to replace [measures] before you received rebates for them through Ameren's program?
- 1 Yes

- 2 No
- 8 Don't Know
- 9 Refused

Q33 Since participating in the Ameren's multifamily program, did you install any other energy efficient equipment or appliances without incentives or rebates from your utility or other energy organizations?

- 1 Yes
- 2 No *[SKIP TO Q37]*
- 8 Don't Know
- 9 Refused

Q33_1 What did you purchase or install?

[RECORD RESPONSE]

Q34 Were any of the equipment or appliances ENERGY STAR rated?

- 1 Yes *[Probe: Which ones?]*
- 2 No
- 8 Don't Know
- 9 Refused

Q35 Overall, on a scale of 0-10 where 0 is not very influential and 10 is very influential how much did participating in Ameren's multi-family program influence you to install this other energy efficient equipment?

_____ *[RECORD RESPONSE (0-10)]*

- 8 Don't Know
- 9 Refused

Q36 Have you participated in any other Ameren or other utility energy efficiency programs?

- 1 Yes *[Probe: What did you get?]*
- 2 No
- 8 Don't Know
- 9 Refused

Program Improvement

Q37 What do you think is the greatest benefit of participating in Ameren's multifamily program?

[RECORD RESPONSE]

Q38 As a participant what do you see as strengths of this program?

[RECORD RESPONSE]

Q39 Do you have any suggestions to improve the program?

[RECORD RESPONSE]

Classification	
----------------	--

Q40 Now I have just a few more questions about your building or complex that participated in the program.

How many buildings make up your multifamily complex?

_____ [RECORD RESPONSE]

-8 Don't Know

-9 Refused

Q41 How many units are in the multifamily [building/complex]?

_____ [RECORD RESPONSE]

-8 Don't Know

-9 Refused

Q42 What is the approximate square footage of the [building/complex]

_____ [RECORD RESPONSE]

-8 Don't Know

-9 Refused

Q42_1 How much of that is common area?

1 Answer in sq ft

2 Answer in percentage

-8 Don't Know

-9 Refused

Q42_1a [Record Square Feet]

Q42_1b [Record Percentage]

Q43 What is the approximate age of your [building/complex]?

_____ [RECORD RESPONSE]

-8 Don't Know

-9 Refused

Q44 Is your building....?

- 1 All Electric
- 2 Gas and Electric?
- 3 Some other combination of energy sources [Specify]
- 8 Don't Know
- 9 Refused

Q44_1 Do you purchase gas from Ameren?

- 1 Yes
- 2 No
- 8 Don't Know
- 9 Refused

R1 Thank you that completes the survey. I just have one more question.

Within a few weeks we will be offering people \$50 to allow a trained technician to visit their apartment complexes. The visit should take about 30-45 minutes, during which time a technician will gather and verify information on the lighting/water-saving equipment installed through the program.

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 [Say: THANK YOU VERY MUCH FOR YOUR TIME]
- 8 Don't know

Appendix C. Stakeholder Interview Guides

Ameren Illinois Multifamily Program Stakeholder Interview Guide

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

As you know, The Cadmus Group, Inc., is evaluating the program on behalf of Ameren Illinois. 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 Illinois Multifamily 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?
4. In general terms, will you please walk me through the delivery of Ameren Illinois' Multifamily Program? (probe for marketing, contact with customers, scheduling and conducting audits, supplying recommendations to landlord, installing measures, any follow-up, incentive applications, and inspections)

Program Delivery

Marketing

5. What is your strategy for identifying multifamily complexes to target?
6. What methods have you used for marketing the program to potential participants (phone calls, canvassing, business associations, or other)?
7. How effective would you say those methods have proved to be?
8. What marketing materials do you use? (ask for copies of marketing materials)
9. How effective are these marketing materials?
10. Do you market this program to contractors and trade allies?
11. Did you use contractors to implement the program this year?

Energy Audits and Installations

12. How is a site determined to be eligible for the program?
13. Did the concept of recommending energy efficiency upgrades to participants get implemented in the last year. (probe for Shell and HVAC)
14. What would trigger a custom audit?
15. How many CFLs were installed in each apartment?
16. All the common area measures were lighting measures, do you know why there were no additional measures? Were they not offered?
17. Is it still true that the account manager shows the maintenance manager how to install the measures the first day?
18. Are installations inspected after completion?
 - a. If yes, by whom?
19. How is data collected on participants and the participating buildings? Have there been any difficulties with data tracking?
20. What other reporting is required by the Program? How often are these reports submitted?
21. Do you feel the incentives offered by the Program are sufficient for engaging participants?
22. Are you satisfied with the range of equipment that is eligible for incentives?
23. Are there measures that you feel would be beneficial to many buildings, but are not adopted by participants? (Probe for Shell and HVAC measures.)

Payment and Invoicing

24. How is CSG paid for completed projects?
25. Generally, how long after CSG submit(s) the invoice(s) are you paid for a project?
26. If there are problems with an invoice, how are they generally resolved?

Overall program

27. Other than reporting on individual projects, what other reporting is required by the program?
28. Is that amount of reporting sufficient? Have the reporting concerns been resolved?
29. Have there been any changes to program design since implementation began?
 - a. If yes, what are the reasons for these changes?
30. Did CSG develop the dash board they planned to?
31. Do you foresee any changes that will occur in program design over the next year?

- a. If yes, what are the changes and why?
- 32. Overall, do you feel the program is and/or will be useful for participants?
- 33. Do you feel that the program will be successful over the next two years?

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

Appendix D. Ameren Multifamily Site Visit Manual

Preparation for Site Visits

The purpose of site visits is to perform spot checks for quality control on the implementation process. There will not be any penalties to the building owner/management for any reason.

Site Visit Notification to Building Owner/Manager

Either during the scheduling call or at least 2 days before the site visit discuss the following items with the building owner/manager:

- Purpose of the visit, required by Ameren Illinois Utilities for evaluating the overall program
- Date, time, and expected duration (1 ½ - 2 hours) of the visit
- They will receive a \$50 VISA gift card as a thank you for their time involved in the visit
- The building owner/manager needs to accompany the technician on the visit
- They will need to get tenant permission in advance to enter any of the units during the visit
- Ask how many units are in the complex and let them know the technician will need to visit a random sample of the units that will be chosen by the technician at the time of the visit.

Data Collection Sheet Preparation

Each site scheduled for verification will have its own verification form. This sheet has fields which should be filled out prior to the visit. After the call, look up the sampling pattern in Table 1 below. As an example, if the owner says there are a total of 20 units on site, then you will attempt to visit every 4th unit, skipping those where the tenant refuses. Ideally, 6 or more units will be inspected at each complex where possible.

Table 1. Sampling Pattern

Number of Total Units in Complex	Number of Units to Visit per Complex	Visit Every ____ Unit
1-6	All	All
7-12	Minimum of 6 units	2 nd
13-18	Minimum of 6 units	3 rd
19-24	Minimum of 6 units	4 th
25-30	Minimum of 6 units	5 th
31-36	Minimum of 6 units	6 th
For any complexes having more than 36 units	Minimum of 6 units	The number of units divided by 6 (EG if you have 60 units divide 60 by 6 and visit every 10 th unit.)

Fill out the following fields, marked with an asterisk (*), in the verification form from information in the program database or notes from speaking to the building manager/owner:

- site ID
- building address
- building manager name and phone number
- number of units in the complex
- skip pattern

Also, look up the building in the database to see if there are common area measures installed. If there are common area measures present, indicate the quantity expected in the corresponding column on the verification form.

Site Visit Etiquette

- Dress appropriately for the inspection. Specifically, wear close-toed shoes, the Ameren logo polo shirt and casual office slacks (no shorts or skirts).
- Do not make or receive cell phone calls while on site unless necessary.
- Be on time for all site visit appointments. If you will be more than 15 minutes late for an appointment, call the building manager and confirm that you may still perform the verification.
- Try to not inconvenience the tenants in the apartment.
- Wipe your feet before entering the apartment.
- Answer all participant and building manager questions.

What to Bring

Bring the following to each site visit:

- Data collection sheet (bring at least 3 blank verification forms)
- Gift card signature sheet
- Clipboard and pen
- This manual

Measure Verification

The following sections describe how the on-site data collection sheet will be filled out during the visit. Please write your name (field staff) and the date of the site visit when you first arrive at the property.

Upon Arrival

Greet the building owner/manager and remind him or her that this verification is required by Ameren Illinois Utilities for purposes of evaluating the overall program. There are no penalties for any reason. Explain that you will need to visit the common areas (if measures were installed there) and a minimum of 6 units (where possible) according to the skip pattern determined in section 1.2. Ask the manager/owner if the property is all electric or also receives gas service and record in the appropriate field on the form.





Measure Verification


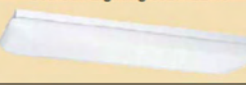



There are two possible types of measures: common area measures and in unit measures. First, inspect the common areas with the building manager and fill out any common area measures on the form. Then go back and confirm in unit measures separately.

Common Area Lighting Measures

For each of the measures, fill in the corresponding information as directed by the on-site form, and confirm the hours of use with the building manager. Please see the photos below for examples of the different measures.

In addition to the quantity of measures, check for proper installation and be sure to note any measures which may not have been installed with care. Lighting measures should only be present in high use areas and bulbs should not be missing or burnt out. Wires should be tucked away and not easily accessible.

Incentive Category	Incentive Amount	Description of Incentive Eligible Measure	Specifications	Typical Application	Examples of Qualifying Products
Integral CFL \geq 13 watts screw-in CFL	\$1.50	Compact fluorescent light bulbs 13 watts or greater to REPLACE incandescent bulbs.	Must be ENERGY STAR® qualified with screw-in base ONLY	General purpose: halls, basements, exterior	Technical Consumer Products 2UB23 
Modular CFL \leq 18 watts pin-based electronic ballast fixture	\$23	Hard-wired fluorescent fixture 18 watts or less to REPLACE incandescent fixture	NEW hard-wired fluorescent fixture with electronic ballast	General purpose: halls, basements, exterior	Max-Lite 18 watt Outdoor Lantern 
Modular CFL $>$ 18 watts pin-based electronic ballast fixture	\$26	Hard-wired fluorescent fixture greater than 18 watts to REPLACE incandescent fixture	NEW hard-wired fluorescent fixture with electronic ballast	hallways	Technical Consumer Products 142 Copper Ceiling Dome 14240 CP 
4' T8 32 watt lamps with electronic ballast	\$7 per tube	Upgrade an existing T12 fixture with magnetic ballast with NEW T8 lamps and electronic ballast	Only electronic ballast and T8 lamps listed on Consortium for Energy Efficiency Web site are eligible	halls, stairs, basements	Phillips Alto Plus T8 lamps  See Web site: www.cee1.org

Incentive Category	Incentive Amount	Description of Incentive Eligible Measure	Specifications	Typical Application	Examples of Qualifying Products
8' T8 59 watt lamps with electronic ballast	\$10 per tube	Upgrade an existing T12 fixture with magnetic ballast with NEW T8 lamps and electronic ballast	Only electronic ballast and T8 lamps listed on Consortium for Energy Efficiency Web site are eligible	utility spaces	<p>Philips Optanium electronic ballast</p>  <p>See Web site: www.cee1.org</p>
4' T8 32 watt lamps with electronic ballast-new fixture with diffuser	\$9 per tube	Install a NEW T8 fixture with electronic ballast which includes a diffuser to REPLACE a fixture of higher wattage	NEW fixture, must have electronic ballast and T8 lamps	halls, stairs, basements	<p>Sea Gull Lighting-59271LE-15</p> 
8' T8 59 watt lamps with electronic ballast-new fixture with diffuser	\$12 per tube	Install a NEW T8 fixture with electronic ballast which includes a diffuser, to REPLACE a higher wattage fixture	NEW fixture, must have electronic ballast and T8 lamps	utility spaces	
Lighting Controls	\$25	Occupancy sensor to control lighting	Must control minimum of 120 watts	laundry rooms	<p>Hubell- Motion-Sensing Wall Switch IWS-ZP-3P-W</p> 
LED Exit Sign	\$22	NEW LED Exit sign to REPLACE fluorescent or incandescent exit sign or LED retro-fit kit installed in existing non LED exit sign	Must be LED (light emitting diode) light source	halls, basements utility spaces	<p>Technical Consumer Products-20742D</p> 

In Unit Measures

For in unit measures, ask the building manager to ask tenants for permission to enter the home and count the measures, record the apartment number on the form in the “Unit # _____” field. Visit at least 6 units if possible, following the skip pattern already filled out on the form. If you cannot get into the units randomly chosen, go on to the next unit until you are able to do an inspection. Then continue with the skip pattern until you have run out of time or units. If you run out of units using the randomized sampling approach, then go back and attempt to inspect units that were previously skipped until you have inspected at least 6 units, noting where you had to deviate from the protocol in section 1.2 on the space provided on the form called “notes”. If you visit more than 6 units, continue data collection on a second verification sheet with the building ID and address indicated at the top of every additional page.

For each of the measures, fill in the corresponding information as directed by the on-site form. Please see the photos below for examples of the different measures. Except for pipe wrap, each CFL, aerator or showerhead counts as a single unit. For example, a light fixture with 3 CFLs in the apartment will increase the quantity of CFLs recorded on the form by “3”. For the pipe wrap measure, note the total number of feet of piping insulated in the unit.

In addition to the quantity of measures, check for proper installation and be sure to note any measures which may not have been installed with care. Lighting measures should only be present in high use areas (no closets) and bulbs should not be missing or burnt out. Plumbing measures should be screwed on properly without any leakage, pipe insulation should fit snugly around the pipe and not loose or damaged.

CFL	Kitchen Aerator	Showerhead	Bathroom Aerator
			
15 W	2.2 gpm	2.0 gpm	1.5 gpm
20 W			
23 W			

Notes

Please include any notes that you feel are necessary to fully capture the quality of program implementation.

Visit Conclusion

As you are preparing to leave the home:

- Thank the building owner/manager for their participation
- Give gift card to owner/manager and ask for them to sign the signature sheet.

Data Collection Form

See form in attached excel file.

Gift Card Signature Sheet

See form in attached excel file.

APPENDIX E. IN UNIT FORMS

APPENDIX F. COMMON AREA FORMS

Multifamily In-Unit Energy Efficiency Program Overview

ActOnEnergy

If you are a property owner or manager, you could be eligible to receive multiple energy efficiency products for your units—FREE OF CHARGE—through a special multifamily program administered by the Ameren Illinois Utilities.

You qualify to participate in the Act On Energy™ Multifamily In-Unit Energy Efficiency Program if:

1. You are the owner/manager of a multifamily property that has three or more apartments per building.
2. Your units are served by the Ameren Illinois Utilities and have electric or natural gas water heaters.
3. You have the manpower to install these products within 15 days of receiving them.
4. You agree to abide by the program guidelines.

What energy efficiency upgrades does the program provide?

- ✓ **More water-efficient shower head(s).**
The Program provides new high performance shower heads that use less water and energy than standard shower heads. The model provided by the Program has a high rate of consumer satisfaction. The projected savings, based on an average occupancy rate of 2.3, is 12,000 gallons per unit, per year.
- ✓ **ENERGY STAR® qualified compact fluorescent light bulbs (CFLs) to replace inefficient incandescent light bulbs in permanent fixtures.**
CFLs use 75% less electricity, provide a high light output and last 6-10 times longer than incandescent bulbs. A typical Ameren Illinois Utilities household will save more than \$30 a year in energy costs simply by using CFLs in their four most frequently used light fixtures.
- ✓ **Kitchen and bath faucet aerators to improve water efficiency.**
Aeration is a simple yet effective way to conserve water. By mixing air into the water, faucet aerators create a more efficient flow while using less water.
- ✓ **Water pipe insulation near water heaters.**
The water heater typically accounts for 13–17% of a household's energy usage. Insulating both hot and cold water pipes connected to the water heater helps to prevent heat loss. Insulating the first six feet of both lines provides the most benefit.

Source: All statistical information reflects average usage and is based on information provided by the U.S. Department of Energy's ENERGY STAR Web site (www.energystar.gov). Savings projections are estimated and may vary by individual.

Act now! This program is available on a limited, first-come, first-served basis.

To participate in the program, complete and return the Multifamily In-Unit Energy Efficiency Program Participation Agreement. Call 866-838-6918 to request a form or to get more information about the program.

The number one goal of Act On Energy's energy-efficiency programs is to help customers of the Ameren Illinois Utilities save money by conserving energy. For more information about energy-saving programs, tips and resources, go to www.ActOnEnergy.com.

Please direct all correspondence to:

Ameren Illinois Utilities Act On Energy Common Area Lighting Program
300 Liberty Street, 4th Floor, Peoria, IL 61602

Fax: 309-673-3370 • Toll-free: 866-838-6918 • ActOnEnergy.cc



Multifamily In-Unit Energy Efficiency Program

How to Participate



During any step of this process, call 866-838-6918 for assistance.

STEP ONE: The In-Unit Energy Efficiency Program (Program) offers FREE energy-saving materials for apartment buildings that are three units or larger and receive electric or natural gas service from Ameren Illinois Utilities. A copy of an Ameren Illinois Utilities electric and/or natural gas bill that shows the account number is required to verify that the property is eligible.

STEP TWO: Count the total number of shower heads, bathroom aerators, and kitchen aerators eligible for replacement. The quantity of shower heads, bathroom aerators, kitchen aerators and CFLs (compact fluorescent light bulbs) that may be ordered is limited to one shower head per shower, one aerator per faucet, and up to four CFLs total per apartment, unless authorized by the Program Manager. Only permanently mounted light fixtures in living rooms, kitchens, dining rooms, and entry ways are eligible to receive CFLs. Low use locations like bedrooms, halls, and closets are not eligible. Portable lamps are not eligible for CFL installation. CFLs provided by the In-Unit Energy Efficiency Program ARE NOT to be installed in common area locations. Up to 12' of pipe insulation per water heater may be ordered, to insulate the first 6' of both the hot and cold pipes closest to the water heater. Specify 1/2" or 3/4" inside diameter size.

STEP THREE: Fill out the Materials Request Form (on the other side). Read and sign the In-Unit Energy Efficiency Program Participation Agreement. Both documents may be mailed back to the Program in the envelope provided, or faxed to 309-673-3370. Your material request will be reviewed by Program staff to confirm eligibility and to review the amounts and types of product ordered.

STEP FOUR: The material will be shipped directly to the shipping address you provide, or may be delivered by a Program staff member. Larger projects may be divided into several shipments at the discretion of the Program Manager.

STEP FIVE: Arrange to have the installation of materials performed by your personnel. See the In-Unit Installation Instructions (printed on the back of each Post-Installation Data Collection Form) for detailed instructions. A Program staff member will be available for advice and monitoring of installations.

STEP SIX: All materials installed must be recorded on the Post-Installation Data Collection Form. The data for materials installed must be recorded separately on an apartment-by-apartment basis. The completed form must be sent by fax to 309-673-3370 or by mail to: Ameren Illinois Utilities Act On Energy In-Unit Program, 4th floor, 300 Liberty St, Peoria, IL 61602.

STEP SEVEN: A fact sheet will be left behind in each unit by the installation crew. The fact sheet describes the energy-saving items installed and lists the www.ActOnEnergy.com Web site as a resource for additional information. After completion of installations, notify the Program of the amount of non-installed materials and make arrangements for the Program to pick them up. Any non-installed materials are the property of the Ameren Illinois Utilities. Property owners/managers will be invoiced for items not installed and not made available for pick-up. Program staff will be given access to the units for verification and quality control purposes after the installation is complete.

Product Descriptions (At the discretion of the Program product types, sizes and/or models may change)

15 watt CFL: Specifications: LightWiz 15 watt mini spiral, 1050 lumens, color temperature 2700K, 82 Color Rendering Index
20 watt CFL: Specifications: LightWiz 20 watt spiral, 1400 lumens, color temperature 2700K, 82 Color Rendering Index
23 watt CFL: Specifications: TCP 23 watt spiral, 1550 lumens, color temperature 2700K, 82 Color Rendering Index
Showerhead: Niagara 2.00 gallons per minute "Earth" model has high-impact plastic body with adjustable spray pattern
Bathroom Aerator: Uses 1.50 gallons per minute
Kitchen Aerator: Uses 2.20 gallons per minute, has swivel spray
Pipe Insulation: In 3' lengths, fits 1/2" inside diameter or 3/4" inside diameter pipes.

Ordering tips

CFL EQUIVALENCY CHART	ROOM CHART LIST
15 watt CFL = 60 watt incandescent	Abbreviations for permitted CFL install rooms:
20 watt CFL = 75 watt incandescent	LR: Living Room - DR: Dining Room
23 watt CFL = 100 watt incandescent	KIT: Kitchen - EW: Entry Way
Existing Wattage:	
When wattage of existing bulbs you may average out the wattage for all bulbs being replaced by each type of CFL. Example: a 4 lamp fixture w/3-60W and 1-75W incandescent bulb can be recorded as 60W or if it had 1-60W and 3-75W bulbs it could be recorded as 75W	
CFL RESTRICTIONS	
CFLs can not be used with dimmer switches or touch lamps. It is best to install CFLs in high use locations only for longest bulb life and optimum energy savings. See the list above of permitted install rooms. CFLs shall only be installed where they replace incandescent bulbs.	

CFLs are slightly larger than incandescent light bulbs and may not fit in all light fixtures. Please contact the Program for assistance in ordering the correct size CFLs.

For assistance call Act On Energy at 866-838-6918.

Please direct all correspondence to:
 Ameren Illinois Utilities Act On Energy In-Unit Energy Efficiency Program
 300 Liberty Street, 4th Floor, Peoria, IL 61602
 Fax: 309-673-3370 • Toll-free: 866-838-6918 • ActOnEnergy.com



Multifamily In-Unit Energy Efficiency Program Participation Agreement

ActOnEnergy

In-Unit Savings Measures

The Act On Energy™ Multifamily In-Unit Energy Efficiency Program (Program) is available to multifamily property owners and management companies whose units are served natural gas or electricity by the Ameren Illinois Utilities and have electric or natural gas water heaters. The Program offers free limited quantities of: high-performance shower heads; faucet aerators for kitchens and baths; Compact Fluorescent Light Bulbs (CFLs) for high use lighting areas; and pipe insulation for water lines near the water heater. All materials to be installed will be provided by the Program. It will be the responsibility of the property owner or management company to provide the manpower for the installation of the provided materials. Quantities of all Program materials are limited by Program eligibility requirements and product availability. Distribution of quantities shall be at the sole discretion of the Program Manager. The Program will be available on a limited, first-come, first-served basis. All requests are required to be pre-approved by the Program staff before materials can be reserved and delivered to a Program participant.

Terms and Conditions

- The property owner/manager of apartment buildings with three units or more should call 866-838-6918 to arrange for participation in the Program.
- The Program provides materials for inside apartment units only. Common Area Lighting retrofits may be eligible under the Multifamily Common Area Lighting Program (call 866-838-6918 or visit www.ActOnEnergy.com/multifamily)
- The property owner/manager shall sign the Program Participation Agreement stating that the property owner/manager shall comply with all Program requirements.
- Property owners/managers shall submit a Program Materials Request form to ensure that the proper materials are delivered to their location. The required information on the form includes:
 - a) Total quantity of buildings and apartment units that are eligible to have materials installed.
 - b) The quantity of CFLs requested, pre-existing bulb wattages and locations (living room, dining room, kitchen, entryways) where CFLs will be installed.
 - c) Quantity of shower heads and faucet aerators eligible for installation.
 - d) Quantity of water heaters per building and verification that there is access to insulate hot and cold water lines within the first six feet of the water heaters.
 - e) Address of each building or complex where materials are to be installed.
 - f) Address where materials are to be delivered.
- The property owner/manager shall make arrangements to have their maintenance staff perform the installation of provided items.
- Ameren Illinois Utilities reserves the right to have a Program representative present during installations to ensure installations conform to Program requirements.

Eligibility and Installation Requirements include:

 - a) The property owner/manager must give at least a 24-hour notice to tenants before installations occur.
 - b) Up to four CFLs can be installed per apartment unit, unless authorized by the Program Manager. The CFLs shall only be installed in high use locations: living rooms, dining rooms, kitchens and entryways. CFLs shall not be installed on light fixtures controlled by dimmers or touch devices. CFLs shall only be installed in permanently mounted fixtures. Portable lamps are not eligible for CFL installations. CFLs shall only be installed where they replace incandescent bulbs.
 - c) Teflon tape, provided by the property owner/manager, shall be used on the threads of the shower arm where the new shower head is installed. Newly installed shower heads will be tested for proper performance and to ensure that they do not leak.
 - d) Aerators should be installed and tightened by hand to avoid stripping or cross threading. If existing aerators are too tight to remove by hand, care should be taken to remove them without damaging the threads or fixture.
 - e) Where accessible, pipe insulation shall be installed on the first six feet of both the hot and cold water lines where they are attached to the water heater. On natural gas water heaters, the pipe insulation shall not be installed within 4" of the draft diverter (back-drafting may melt pipe insulation that is installed improperly). Pipe insulation shall not be placed within 4" of the exhaust vent of a natural gas water heater. For curves/angles, pipe insulation may be cut at a 45-degree angle or can be notched.

Please direct all correspondence to:

Ameren Illinois Utilities Act On Energy In-Unit Energy Efficiency Program
300 Liberty Street, 4th Floor, Peoria, IL 61602
Fax: 309-673-3370 • Toll-free: 866-838-6918 • ActOnEnergy.com



Multifamily In-Unit Energy Efficiency Program Participation Agreement



- f) Installations of Program materials shall not be performed on fixtures, fittings or appliances that are in disrepair.
- The installation personnel must accurately and completely record all installations for each apartment unit on the Post-Installation Data Collection form. When finished, installation data must be sent to the Program by fax to 309-673-3370 or by mail.
- The Program will provide fact sheets describing the energy-saving items that were installed and recycling resources for CFLs. The installation personnel must leave a fact sheet for tenants of each unit.
- All materials shall be installed within fifteen days of receipt, unless property owner/manager receives prior approval from the Program Manager for additional time to perform installations.
- All materials that are not installed are the property of the Ameren Illinois Utilities and shall be returned to the Program. The property owner/manager agrees to be invoiced for the cost of any non-installed materials that are not returned or made available for retrieval by a Program representative within one day after the scheduled installation date.
- Larger projects may be furnished with materials in stages. When the first delivery of materials is installed and documentation is delivered to the Program, additional sets of materials will be delivered until all installations are complete.
- The property owner/manager agrees to provide Program representatives with access to apartment units for installation verification. The property owner/manager will accompany the Program representatives while in any unit.
- The property owner/manager agrees not to remove installed items unless materials are known to be defective or inoperable. The property owner/manager shall immediately inform the Program Manager of any and all such removals.
- The property owner/manager agrees to provide access to representatives of Ameren Illinois Utilities to re-inspect installed items for a three-year period. Such access will be scheduled at a time convenient to the property owner/manager, and with at least a one-week notice.
- All Program correspondence shall be sent to:

**Ameren Illinois Utilities Act On Energy
In-Unit Energy Efficiency Program
300 Liberty St., 4th floor
Peoria, IL 61602**

LIMITATION OF LIABILITY AND INDEMNIFICATION: a) The Ameren Illinois Utilities (AmerenCIPS, AmerenCILCO and AmerenIP) and any of its affiliates, officers, employees or contractors shall not be liable to the Customer for any special, indirect, consequential or incidental damages or for any damages in tort (including negligence) caused by any activities associated with this Agreement. By participating in the Ameren Illinois Utilities Program, Customer agrees to waive any claims and fully releases Ameren Illinois Utilities from any damages, of any kind. b) The Customer shall protect, indemnify, and hold harmless Ameren Illinois Utilities from and against all liabilities, losses, claims, damages, judgments, penalties, causes of action, costs and expenses (including, without limitation, attorney's fees and expenses) incurred by or assessed against the Ameren Illinois Utilities arising out of or relating to the performance of this Agreement.

By signing below I verify that I understand and agree to comply with the above-stated Terms and Conditions of the Ameren Illinois Utilities Act On Energy Multifamily In-Unit Energy Efficiency Program.

Print Name: _____ Date: _____

Signature: _____ Ameren Account # _____

Owner (or Owner's Authorized Representative) _____

Please direct all correspondence to:
Ameren Illinois Utilities Act On Energy In-Unit Energy Efficiency Program
300 Liberty Street, 4th Floor, Peoria, IL 61602
Fax: 309-673-3370 • Toll-free: 866-838-6918 • ActOnEnergy.com



Multifamily In-Unit Energy Efficiency Program Materials Request Form

ActOnEnergy

Site information

Complex Name			
Address			
City/State/Zip Code			
Contact Person & Title			
Phone & email address			
No. of total buildings in project:		No. of total units in project:	
Water heater fuel - Gas or Electric:		No. of water heaters:	
Ameren electric account # (required)			
Ameren gas account # (required)			

Project order details	# Needed	Existing Wattage	Location
	High use areas only - minimum of 3hrs use each day and only in approved rooms (see list on back)	Of incandescent light bulbs (you may use average wattage replaced for each type CFL - see chart on back)	Room to be installed in (please use room code list on back)
15 watt CFL			
20 watt CFL			
23 watt CFL			
2.00 gpm showerhead		Order 15W CFL to replace 60W incandescent	
bathroom faucet aerator			
kitchen aerator		Order 20W CFL to replace 75W incandescent	
1/2" pipe insulation	total feet		
3/4" pipe insulation	total feet	Order 23W CFL to replace 100W incandescent	

Shipping details (if location to ship materials to is same as above, write "SAME")

Complex Name			
Address			
City/State/Zip Code			
Ship attention to			
Phone			

Special Shipping Instructions (if needed):

Print Name	Date
Signature	Contact number:

Note: Include copy of Ameren electric and/or gas bill showing account number for this property (required).

Note: All unused material must be returned to the Act On Energy Program. Please call for details.

Note: See back of form for How to Participate, Product Descriptions, and Ordering Tips.

Please direct all correspondence to:
Ameren Illinois Utilities Act On Energy In-Unit Energy Efficiency Program
300 Liberty Street, 4th Floor, Peoria, IL 61602
Fax: 309-673-3370 • Toll-free: 866-838-6918 • ActOnEnergy.com



Multifamily Common Area Lighting Program Overview



If you are a multifamily property owner or manager, you could be eligible to receive financial incentives on energy-efficiency lighting products for the common areas of your complex through a special energy-efficiency program administered by the Ameren Illinois Utilities.

You qualify to participate in the Act On Energy™ Multifamily Common Area Lighting Program if:

1. You are the owner/manager of a multifamily property that has three or more apartments per building.
2. Your units are served by the Ameren Illinois Utilities.
3. When using an electrical contractor you use only a registered Program Ally to install Program-qualified products. A list of Program Allies may be found at: www.ActOnEnergy.com.
4. You agree to abide by all Program requirements.

What are common areas?

Common areas are those areas open to and for use by all tenants or residents. Typical common areas include: hallways, stairways, on-site building management offices, laundry rooms, community rooms, exterior lighting, etc.

What energy-efficiency measures can I earn incentives for?

- ✓ **Replacements or retrofits of inefficient common area lighting fixtures with energy-efficient fixtures.**
Retrofit T12 fixtures to use T8 lamp and electronic ballast. Install new hard-wired fluorescent fixtures with electronic ballast.
- ✓ **Replacement of inefficient incandescent light bulbs with ENERGY STAR® qualified compact fluorescent light bulbs (CFLs) in permanent fixtures of common areas.**
CFLs use 75% less energy, provide a high light output and last 6-10 times longer than incandescent bulbs.
- ✓ **Installation of occupancy sensors.**
Occupancy sensors in laundry rooms, common restrooms and other areas of "uneven" usage patterns help conserve electricity by lighting the area only when it is in use.
- ✓ **Replacement of inefficient Exit Signs.**
Replace or retrofit incandescent or fluorescent exit sign lighting with more efficient LED lighting.

How much are the incentive amounts and what are the long-term savings?

Maintenance and repairs are an ongoing concern for property owners. Why not get the most cost savings by installing energy-efficient lighting? See chart below for examples of incentives and annual savings.*

Incentive Category	Incentive Amount	Old Lighting type & wattage	New Lighting type & wattage	Typical Location	KWH Ann. Savings	\$ Annual Savings
Integral CFL ≥ 13 watts screw-in CFL	\$1.50	Incandescent 60 watt bulb	CFL 15 watt	hall	394	\$31.54
Modular CFL ≤ 18 watts pin based electronic ballast fixture	\$23.00	Incandescent 60 watt bulb	18 watt hard-wired electronic ballast fluorescent fixture	hall	368	\$29.43
Modular CFL > 18 watts pin based electronic ballast fixture	\$26.00	Incandescent 2-60 watt bulbs	30 watt hard-wired electronic ballast fluorescent fixture	hall	788	\$63.07
4' T8 32 watt lamps with electronic ballast	\$7.00 per tube**	4' T12 40 watt lamp with magnetic ballast	4' T8 32 watt lamp with electronic ballast	hall	193	\$15.44
8' T8 32 watt lamps with electronic ballast	\$10.00 per tube**	8' T12 60 watt lamp with magnetic ballast	8' T8 59 watt lamp with electronic ballast	utility space	88	\$7.04
4' T8 32 watt lamps with electronic ballast-new fixture with reflector	\$9.00 per tube**	4' T12 40 watt lamp with magnetic ballast	4' T8 32 watt lamp with electronic ballast—new fixture with reflector	hall	193	\$15.44
8' T8 59 watt lamps with electronic ballast-new fixture with reflector	\$12.00 per tube**	8' T12 60 watt lamp with magnetic ballast	8' T8 59 watt lamp with electronic ballast—new fixture with ballast	utility space	88	\$7.04
Lighting Controls	\$25	no controls, 160 watts 24-hour use	Occupancy sensor reduces use by 50%	laundry	701	\$56.06
LED Exit Sign	\$22	Incandescent exit sign 30 watts	3 watt LED exit sign	hall, basement	237	\$18.92

*Based on: 24-hour use of light fixture; \$ 08/KWH cost of electricity. Savings estimate does not include savings resulting from less demand for maintenance due to longer life.
**Examples of KWH and \$ savings amounts for T8 retro-fits are for two lamp retro-fits which use Consortium For Energy-efficiency approved lamps and ballasts.

Please direct all correspondence to:
Ameren Illinois Utilities, Act On Energy Multifamily Programs
300 Liberty Street, 4th Floor, Peoria, IL 61602
Fax: 309-673-3370 • Toll-free: 866-838-6918 • ActOnEnergy.com



Multifamily Common Area Lighting Program Overview (cont'd)

ActOnEnergy

How to Participate

Below is a general outline of the necessary steps to participate.

STEP ONE

Complete and sign both the **Request for Reservation of Incentive Funds (Request)** and the **Terms and Conditions** forms, then fax or mail them to the Program office. The **Request** provides basic information on the size and scope of the proposed lighting project, which shows the Program the requested amount of incentive funds to reserve.

STEP TWO

Sign a contract with an electrical contractor of your choice for the proposed lighting project. However, when using an electrical contractor, the Program guidelines require the use of an electrical contractor that is registered as a Program Ally (Program Allies are listed on www.ActOnEnergy.com). Any electrical contractor can become a Program Ally by agreeing to and signing a **Program Ally Agreement**.

Note: If a project consists SOLELY of replacement of incandescent bulbs with compact fluorescent light bulbs (CFLs), an electrical contractor is NOT required.

STEP THREE

Once the **Request** has been reviewed, a **Notice of Reserved Funds (Notice)** will be sent to the applicant. The **Notice** signifies that funds have been reserved for your lighting project for a **60-day period**. Once the **Notice** has been received, the Program Ally may begin installation of the proposed incentive eligible measures.

Note: You may plan and design your project at any time, but no fixtures can be purchased and/or installed before receiving the **Notice**. Any product purchased or installed prior to the receipt of the **Notice** will not be eligible for the proposed incentive funds.

Note: The **Notice** only reserves funds; it does not guarantee the amount of incentive to be paid upon completion of the project. The actual incentive amount to be paid will be determined upon verification of project.

STEP FOUR

After the lighting project installations are complete, send the **MultiFamily Common Area Lighting Incentive Application (Application)** to the Program by fax or mail. Along with the **Application**, attach a copy of the invoice from the Program Ally and cut sheets for each type of light fixture installed. The **Application** may be filled out by either the Program Ally or the property owner/manager, but must be signed by the property owner/manager.

Note: Invoices and cut sheets of new equipment must accompany the **Application** to be eligible for the incentives.

STEP FIVE

The **Application** and supporting documentation will be reviewed by a Program representative. Site verification may be performed for Quality Assurance or for data collection or to resolve discrepancies. If discrepancies between proposed and installed measures are found, the incentive amount will be adjusted. Once the project has been verified and approved by a program representative, an incentive check for the amount of the approved incentive funds will be sent to the property owner/manager. Incentive checks should reach the property owner/manager within six weeks.

Act now! This program is available on a limited, first-come, first-served basis.

To initiate participation in the program, the Property Owner/Manager must complete and return the **Request for Reservation of Incentive Funds**. Request Program forms and get more information about the Program by calling 866-838-6918.

The goal of Act On Energy's energy-efficiency programs is to help customers of the Ameren Illinois Utilities save money by conserving energy. For more information about energy-saving programs and resources, go to: www.ActOnEnergy.com.

Please direct all correspondence to:

Ameren Illinois Utilities, Act On Energy Multifamily Programs
300 Liberty Street, 4th Floor, Peoria, IL 61602

Fax: 309-673-3370 • Toll-free: 866-838-6918 • ActOnEnergy.com



Multifamily Common Area Lighting Program

ActOnEnergy

TERMS AND CONDITIONS

1. **ELIGIBILITY:** The Ameren Illinois Utilities will award cash incentives to Eligible Customers for the purchase and installation of Qualifying EEMs, subject to these Terms and Conditions.

a) **"Qualifying EEMs"** are Electric Efficiency Measures (EEMs) identified in official program materials approved by Ameren Illinois Utilities. Energy efficient equipment or services purchased, contracted for or work conducted prior to request and receipt of Reservation of Incentive Funds form of a project are not eligible for incentives under the Ameren Illinois Utilities program. Technologies that purport to save energy through reduction of voltage, demand, or power conditioning are not eligible EEMs. EEMs that displace electrical energy use to another fuel (fuel switching) are not eligible. Unless explicitly pre-approved, EEMs must be new and covered by warranties. Energy savings from EEMs must occur on a meter with an eligible electric rate schedule.

b) **"Eligible Customers"** are non-residential Multifamily customers of electric utilities in the Ameren Illinois Utilities service territory including Central Illinois Light Company (CILCO), Central Illinois Public Service (CIPS), and Illinois Power (IP). Customer organizations that are supported by public tax funds (either federal, state or local) are not eligible for the Ameren Illinois Utilities programs, but may qualify under programs operated by the Illinois Department of Commerce and Economic Opportunity (DCEO). Ameren Illinois Utilities incentives are awarded only to Eligible Customers for equipment that is owned by them and installed in the Ameren Illinois Utilities service area at the location identified in this Application, and such Customers are ultimately responsible for compliance with these Terms and Conditions.

c) EEMs must be purchased and installed after October 15, 2008.

2. OWNERSHIP OF CAPACITY AND/OR ENVIRONMENTAL CREDITS:

a) EEMs purchased and installed in part through incentives provided by this program are the property of the Customer, subject to any limitations contained within these Terms and Conditions. b) Notwithstanding the above, unless otherwise requested in writing by the customer prior to installation of the EEMs, Ameren Illinois Utilities holds sole rights to any electric system capacity credits and environmental credits that may be associated with EEMs for which incentives were received, and Ameren Illinois Utilities can dispose of these credits in any manner authorized by law or regulation. c) In no event shall activity associated with any energy or environmental credits noted in Section 2(b) result in interference with the Customer's sole discretion to operate EEMs as approved in his/her incentive award.

3. PRE-INSTALLATION ANALYSIS, APPROVAL AND SURVEY:

a) For all Multifamily Common Area Lighting Applications, Ameren Illinois Utilities is not obligated to award any incentives unless it has received, and reserved funds for, the Customer's Incentive Application and completes a pre-installation survey of the Customer's facilities, unless it has explicitly waived this latter requirement. b) Ameren Illinois Utilities may independently review the Incentive Application and any customer analysis to verify the energy saving and demand reduction potential, and the project, measure and installation cost estimates. Ameren Illinois Utilities reserves the right to reject or modify any Customer estimates or calculations, based on its analysis. c) Ameren Illinois Utilities has complete discretion to approve or disapprove any proposed EEMs. Ameren Illinois Utilities will only approve EEMs that they believe have reliable and cost-effective energy savings potential in the proposed use and site.

4. PRE-INSTALLATION RESERVATION OF INCENTIVE FUNDS NOTIFICATION:

After a Request for Incentive Funds is approved, the Customer will receive written notification of a maximum reserved incentive amount. Ameren Illinois Utilities will not pay incentives for any EEMs installed prior to the date shown on the Notice of Reserved Funds Letter.

5. POST-INSTALLATION VERIFICATION:

Ameren Illinois Utilities is not obligated to pay any incentive awards until it has performed a satisfactory post-installation verification, unless it has explicitly waived this requirement. If Ameren Illinois Utilities determines that EEMs were not installed in a manner consistent with the application, or if unapproved EEMs were installed, or if the installation was not consistent with generally accepted engineering practices, it may require changes before making payment. Also, Ameren Illinois Utilities will not make payment until it verifies that the Customer has received, as appropriate, final drawings, operation and maintenance manuals, and operator training.

6. INDEPENDENT TESTING:

Ameren Illinois Utilities reserves the right to deny incentives for any EEMs or equipment that have not been favorably assessed or approved by recognized, independent public authorities, such as the Underwriter's Laboratory (UL), Intertek ETL or the American Refrigeration Institute (ARI). Ameren Illinois Utilities may, at its discretion, require the Customer to undertake, at their own expense, testing of a proposed EEM that does not carry the Listing Mark by UL, or an equivalent independent testing facility approved in advance by Ameren Illinois Utilities.

7. **INCENTIVE AMOUNTS:** a) The maximum incentive is \$25,000 per

facility per program year combined for both the Multifamily Common Area Lighting and any other Multifamily Incentives. A facility is a contiguous property for which a single customer is responsible for paying the Ameren Illinois Utilities electricity bill. b) Ameren Illinois Utilities reserves the right to adjust and/or negotiate the incentive amount, based upon its independent assessment of appropriate savings or cost estimates. c) Once an incentive is reserved, Ameren Illinois Utilities will pay no more than the approved fraction of the incremental cost to the Customer purchasing the EEM, or the reserved incentive amount, whichever is less. Ameren Illinois Utilities may, at its discretion, recognize incremental installation labor costs that are unique to the proposed EEM to the extent that they are reasonable, verifiable, and actually incurred by the Customer. Ameren Illinois Utilities has the right to lower the incentive amount if the quantity and/or cost of EEMs actually installed by the Customer differ from the pre-approved amounts. Ameren Illinois Utilities has the right to seek a refund for incentives paid if, at any time, it learns that the EEMs were not actually and properly installed or were subsequently disconnected within 36 months after installation.

8. EEM COSTS:

The Customer must provide copies of all invoices or other reasonable documentation that verify the costs of purchasing and installing the EEMs, including all materials, labor, and equipment discounts. Internal customer labor costs are not eligible. Invoices must indicate a verifiable breakout of all EEMs purchased for installation under this Application. Ameren Illinois Utilities also has the right at any time to require invoices from the contractor to determine the price paid by the contractor (including any discounts or incentives) from his or her supplier for the EEMs.

9. SCHEDULE FOR INCENTIVE PAYMENTS:

a) Ameren Illinois Utilities expects to pay all incentives within six weeks after project completion. Project completion requires: (1) submission to Ameren Illinois Utilities of all documentation; (2) completed installation of the approved EEMs; and (3) Ameren Illinois Utilities acceptance of (1) and (2) above, all in accordance with the specifications outlined elsewhere in these Terms and Conditions. b) Ameren Illinois Utilities reserves the right to apply cash incentives to any of the Customer's unpaid or overdue accounts.

10. MONITORING AND EVALUATION FOLLOW-UP VISITS:

Ameren Illinois Utilities reserves the right to make follow-up visits to Customer's facility during the 36 months following the actual completion date of the project at a time convenient to the Customer, and with at least a one-week advance notice. The purpose of the visit(s) is to review the operation of the EEMs for program evaluation purposes, including monitoring their energy performance. The scope of review is limited to determining whether program conditions have been met. The Customer must allow access to the EEMs and related project documentation.

11. CHANGES IN / CANCELLATION OF THE PROGRAM:

a) Ameren Illinois Utilities may change the program requirements, incentives, or Terms and Conditions at any time without notice, including suspending acceptance of applications or terminating the program. Ameren Illinois Utilities is not obligated to approve any submitted application that may result in Ameren Illinois Utilities exceeding its program budget. b) In the event of program change, applications will be processed to completion under the Terms and Conditions in effect at the time of the reservation of incentive funds by Ameren Illinois Utilities. c) Submission of a completed application does not entitle the Customer to program participation. d) Cash incentives under the Ameren Illinois Utilities programs are offered on a first-come, first-served basis and are subject to project and Customer eligibility, and the availability of funds.

12. PUBLICITY OF CUSTOMER PARTICIPATION:

Ameren Illinois Utilities may wish to publicize information relating to the Customer's participation in the program, including such data as: projected project energy savings, the incentive amount, and other information that does not compromise reasonable Customer expectations of confidentiality of proprietary or competitive information. In such instances, Ameren Illinois Utilities will obtain Customer permission to make such information public.

13. INSTALLATION SCHEDULE REQUIREMENTS:

a) If the Customer has (1) not completed installation of the approved project within 60 days, and has (2) not applied to Ameren Illinois Utilities for a project extension to extend the installation period, Ameren Illinois Utilities may cancel this Application without liability. b) A Customer who fails to advise Ameren Illinois Utilities that a project is complete, or who fails to provide required post-installation documentation as described elsewhere in these Terms and Conditions, within 30 days of project installation, may be denied incentive payment.

14. LIMITATION OF LIABILITY AND INDEMNIFICATION:

a) Ameren Illinois Utilities' liability under this Application will be limited to paying the incentive amounts specified in the Application. The Ameren Illinois Utilities and any of its affiliates or contractors shall not be liable to the Customer for any special, indirect, consequential or incidental damages or for any damages in tort (including negligence) caused by any activities associated with this Application. b) Participating in the Ameren Illinois Utilities program, Customer agrees

to waive any claims and fully releases Ameren Illinois Utilities from any damages, of any kind. b) The Customer shall protect, indemnify, and hold harmless Ameren Illinois Utilities from and against all liabilities, losses, claims, damages, judgments, penalties, causes of action, costs and expenses (including, without limitation, attorney's fees and expenses) incurred by or assessed against the Ameren Illinois Utilities arising out of or relating to the performance of this Application.

15. **NO WARRANTIES:** a) AMEREN ILLINOIS UTILITIES OR ITS CONSULTANTS DO NOT ENDORSE, GUARANTEE, OR WARRANT ANY PARTICULAR MANUFACTURER OR PRODUCT, AND IT PROVIDES NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR IMPLIED WARRANTY OF FITNESS FOR ANY PRODUCT OR SERVICE. AMEREN ILLINOIS UTILITIES IS NOT LIABLE OR RESPONSIBLE FOR ANY ACT OR OMISSION OF ANY CONTRACTOR (IF ANY). THE CUSTOMER'S RELIANCE ON WARRANTIES IS LIMITED TO ANY WARRANTIES THAT MAY BE PROVIDED BY CONTRACTORS, VENDORS, ETC. b) NEITHER AMEREN ILLINOIS UTILITIES NOR ITS CONSULTANTS ARE RESPONSIBLE FOR ASSURING THAT THE DESIGN, ENGINEERING AND CONSTRUCTION OF THE FACILITY OR INSTALLATION OF THE EEMS IS PROPER OR COMPLIES WITH ANY PARTICULAR LAWS, CODES, OR INDUSTRY STANDARDS. AMEREN ILLINOIS UTILITIES DOES NOT MAKE ANY REPRESENTATIONS OF ANY KIND REGARDING THE RESULTS TO BE ACHIEVED BY THE EEMS OR THE ADEQUACY OR SAFETY OF SUCH MEASURES.

16. CUSTOMER MUST PAY ALL TAXES:

Incentives received by the Customer under this Application may be taxable by the federal, state, and local government. The Customer is responsible for declaring and paying all such taxes.

17. VENDOR SELECTION:

The Customer may select any vendor or contractor that is a registered Program Ally to perform the work contemplated by this Application, even after the Application is submitted for reservation of incentive funds by Ameren Illinois Utilities. However, Ameren Illinois Utilities has the right to prohibit specific vendors or contractors from program participation, at its sole discretion.

18. REMOVAL OF EQUIPMENT:

The Customer agrees, as a condition of participation in the program, to remove and dispose of the equipment being replaced by the EEMs in accordance with all laws, rules, and regulations. The Customer agrees not to reinstall any of this equipment anywhere in Illinois, or transfer it to any other party for installation in Illinois.

19. MISCELLANEOUS:

a) The entire agreement between the Customer and Ameren Illinois Utilities is composed of an approved, signed application, these Terms and Conditions and any pre-installation approval letters from Ameren Illinois Utilities. b) Paragraph headings are for the convenience of the parties only and are not to be construed as part of these Terms and Conditions. c) The Customer acknowledges that the only individuals authorized to bind Ameren Illinois Utilities under the Ameren Illinois Utilities program are Ameren Illinois Utilities staff and authorized agents of Ameren Illinois Utilities. d) If either Ameren Illinois Utilities or the Customer desires to modify these Terms and Conditions, the modification must be in writing and signed by an authorized representative of the party against which enforcement of the modification is sought. e) If any provision of the Terms and Conditions is deemed invalid by any court or administrative body having jurisdiction, such ruling shall not invalidate any other provision, and the remaining Terms and Conditions shall remain in full force and effect in accordance with their terms. f) If a dispute arises out of, or relates to this Application, or the breach thereof, and if the dispute cannot be settled through negotiation, Ameren Illinois Utilities and the Customer agree first to try in good faith to settle the dispute by mediation administered by the American Arbitration Association under its Commercial Mediation Procedures before resorting to arbitration, litigation, or some other dispute resolution procedure. If they do not reach such solution within a period of 10 days, then, upon notice by either party to the other, all disputes, claims, questions, or differences shall be finally settled by arbitration administered by the American Arbitration Association in accordance with the provisions of its Commercial Arbitration Rules. Resolution of disputes concerning these Terms and Conditions, or any other requirement of this Application or condition of incentive award, will be governed in all respects by the laws, statutes, and regulations of the State of Illinois. g) AMEREN ILLINOIS UTILITIES AND CUSTOMER HEREBY IRREVOCABLY AND UNCONDITIONALLY WAIVE ANY RIGHT EITHER SUCH PARTY MAY HAVE TO A TRIAL BY JURY OR TO INITIATE OR BECOME A PARTY TO ANY CLASS ACTION CLAIMS IN RESPECT OF ANY ACTION, SUIT OR PROCEEDING DIRECTLY OR INDIRECTLY ARISING OUT OF OR RELATING TO THIS APPLICATION OR THE TRANSACTIONS CONTEMPLATED BY THIS APPLICATION. h) Customer shall not assign any rights it may have under this Application without the prior written consent of Ameren Illinois Utilities, except for the optional assignment of cash incentives as provided for in the Application. Any assignment in violation hereof shall be deemed null and void.

Signature _____

Date _____

Mail/Fax Application to:

Ameren Illinois Utilities Act On Energy Common Area Lighting Program
300 Liberty Street, 4th Floor, Peoria, IL 61602
Fax: 309-673-3370 • Toll-free: 866-838-6918 • ActOnEnergy.com







Multifamily Common Area Lighting Guidelines to Qualifying Measures

ActOnEnergy






Property owners/managers and electrical contractors should refer to the table below as a guideline when deciding which qualifying measures will be most appropriate to install in the common areas of their buildings. Please refer to the Consortium for Energy Efficiency Web site www.cee1.org as a resource for choosing qualifying T8 components. Incentive for retro-fitting T12 fixtures applies ONLY if NEW T8 lamps and a NEW electronic ballast is installed. Replacement of an EXISTING CFL with a NEW CFL does not qualify for incentives. Fixture replacement must be done on a one-for-one basis. Adding to the total number of fixtures DOES NOT qualify for incentives.

Incentive Category	Incentive Amount	Description of Incentive Eligible Measure	Specifications	Typical Application	Examples of Qualifying Products
Integral CFL \geq 13 watts screw-in CFL	\$1.50	Compact fluorescent light bulbs 13 watts or greater to REPLACE incandescent bulbs.	Must be ENERGY STAR® qualified with screw-in base ONLY	General purpose: halls, basements, exterior	Technical Consumer Products 2UB23 
Modular CFL \leq 18 watts pin-based electronic ballast fixture	\$23	Hard-wired fluorescent fixture 18 watts or less to REPLACE incandescent fixture	NEW hard-wired fluorescent fixture with electronic ballast	General purpose: halls, basements, exterior	Max-Lite 18 watt Outdoor Lantern 
Modular CFL $>$ 18 watts pin-based electronic ballast fixture	\$26	Hard-wired fluorescent fixture greater than 18 watts to REPLACE incandescent fixture	NEW hard-wired fluorescent fixture with electronic ballast	hallways	Technical Consumer Products 142 Copper Ceiling Dome 14240 CP 
4' T8 32 watt lamps with electronic ballast	\$7 per tube	Upgrade an existing T12 fixture with magnetic ballast with NEW T8 lamps and electronic ballast	Only electronic ballast and T8 lamps listed on Consortium for Energy Efficiency Web site are eligible	halls, stairs, basements	Phillips Alto Plus T8 lamps  See Web site: www.cee1.org

Please direct all correspondence to:

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300 Liberty Street, 4th Floor, Peoria, IL 61602
Fax: 309-673-3370 • Toll-free: 866-838-6918 • ActOnEnergy.com

Multifamily Common Area Lighting Guidelines to Qualifying Measures

Incentive Category	Incentive Amount	Description of Incentive Eligible Measure	Specifications	Typical Application	Examples of Qualifying Products
8' T8 32 watt lamps with electronic ballast	\$10 per tube	Upgrade an existing T12 fixture with magnetic ballast with NEW T8 lamps and electronic ballast	Only electronic ballast and T8 lamps listed on Consortium for Energy Efficiency Web site are eligible	utility spaces	<p>Philips Optanium electronic ballast</p>  <p>See Web site: www.cee1.org</p>
4' T8 32 watt lamps with electronic ballast-new fixture with diffuser	\$9 per tube	Install a NEW T8 fixture with electronic ballast which includes a diffuser to REPLACE a fixture of higher wattage	NEW fixture, must have electronic ballast and T8 lamps	halls, stairs, basements	Sea Gull Lighting-59271LE-15
8' T8 59 watt lamps with electronic ballast-new fixture with diffuser	\$12 per tube	Install a NEW T8 fixture with electronic ballast which includes a diffuser, to REPLACE a higher wattage fixture	NEW fixture, must have electronic ballast and T8 lamps	utility spaces	
Lighting Controls	\$25	Occupancy sensor to control lighting	Must control minimum of 120 watts	laundry rooms	<p>Hubell- Motion-Sensing Wall Switch IWS-ZP-3P-W</p> 
LED Exit Sign	\$22	NEW LED Exit sign to REPLACE fluorescent or incandescent exit sign or LED retro-fit kit installed in existing non LED exit sign	Must be LED (light emitting diode) light source	halls, basements utility spaces	<p>Technical Consumer Products-20742D</p> 

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 300 Liberty Street, 4th Floor, Peoria, IL 61602
 Fax: 309-673-3370 • Toll-free: 866-838-6918 • ActOnEnergy.com

**MULTIFAMILY COMMON AREA LIGHTING PROGRAM
REQUEST FOR RESERVATION OF INCENTIVE FUNDS**

ActOnEnergy

Office Use Only (circle one) S.I. or A.I.

This is not a commitment of funds. It is a request to reserve funds for a proposed project.

Reservation #

Section 1: CUSTOMER & SITE INFORMATION

Customer Name & Title:		Contact Name:		Contact Telephone:	
Mailing Address:		City / Town:		State:	Zip:
Telephone:	Fax:		Email Address:		
Property address:		City / Town:		State:	Zip:
Property Name:	No. of Total Buildings	No. of Total Units	Bldg type (Apt, Condo, Other):	Ameren Illinois Utilities (Electric) Account # (10 digit):	

Section 2: CONTRACTOR INFORMATION (if applicable / contractor not required for CFLs)

Contractor Name & Title:		Contact Name:		Contact Telephone:	
Mailing Address:		City / Town:		State:	Zip:
Telephone:	Fax:		Email Address:		

Section 3: PAYMENT INFORMATION (if Payee is same as above, write "see above" & include Tax ID)

Payee:		Tax ID # / SSN:			
Mailing Address:		City / Town:		State:	Zip:

Section 4: CUSTOMER SIGNATURE

By signing below, I acknowledge that I am requesting for incentive funds to be reserved for my project. I realize that this form is merely a request to reserve those funds and that until my project is approved by the Ameren Illinois Utilities no funds are guaranteed. I agree to be bound by all program Terms and Conditions. I state that the information contained within this request is true and accurate to the best of my knowledge. Additionally, I certify that I have not and will not apply for an incentive for the measures on this Application with any other Ameren Illinois Utilities program.

Customer Name (signature):	Customer Name (print):	Date:
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Please direct all correspondence to:
Ameren Illinois Utilities Act On Energy Multifamily Common Area Lighting Program
300 Liberty Street, 4th Floor, Peoria, IL 61602
Fax: 309-673-3370 • Toll-free: 866-838-6918 • ActOnEnergy.com



Section 5: REQUEST SUMMARY (page a)

(Use one sheet for a single building. If more than one building, please use a separate sheet for each building.)

Measure	Existing Equipment (Incandescent, T12 with magnetic ballast, etc.)		New Equipment Category (see categories listed on page 4 of this form)		Location (building, floor & area)	Hrs. of Operation (per day)	Incentive Amount (A)	Qty of Proposed Fixtures (B)	Total Proposed Incentive Amount (AxB)
		Wattage		Wattage					
Integral CFL ≥13 watts screw-in							\$1.50		
Modular CFL 518 watts pin based electronic ballast fixture							\$23.00		
Modular CFL 118 watts pin based electronic ballast fixture							\$26.00		
Measure	Existing Equipment (T12 with magnetic ballast, etc.)		New Equipment (manf. & model/part #)		Location (bldg, floor & area)	Hrs. of Operation (per day)	Incentive Amount (A)	Qty of Proposed tubes retro-fitted (B)	Total Proposed Incentive Amount (A x B)
		Wattage		Wattage					
4' T8 number of 32w lamps with electronic ballast							\$7.00		
8' T8 number of 59w lamps with electronic ballast							\$10.00		

Section 5: REQUEST SUMMARY (page b)

(Use one sheet for a single building. If more than one building, please use a separate sheet for each building.)

Measure	Existing Equipment (T12 with magnetic ballast, etc.)		New Equipment (manf. & model/part #)		Location (bldg, floor & area)	Hrs. of Operation (per day)	Incentive Amount (A)	Qty of Proposed tubes retro- fitted (B)	Total Proposed Incentive Amount (A x B)
		Wattage		Wattage					
4' T8 <i>number of 32w lamps with electronic ballast and reflector</i>							\$9.00		
8' T8 <i>number of 59w lamps with electronic ballast and reflector</i>							\$12.00		
Measure	Existing Equipment (switch or no controls present)		New Equipment (manf. & model/part #)		Location (bldg, floor & area)	Hrs. of Operation (per day)	Incentive Amount (A)	Qty of Proposed sensors (B)	Total Proposed Incentive Amount (A x B)
		Wattage		Wattage					
Occupancy Sensor <i>list number of watts controlled</i>							\$25.00		
Measure	Existing Equipment (Incandescent, fluorescent exit fixture, etc.)		New Equipment (manf. & model/part #)		Location (bldg, floor & area)	Hrs. of Operation (per day)	Incentive Amount (A)	Qty of Proposed Fixtures (B)	Total Proposed Incentive Amount (A x B)
		Wattage		Wattage					
LED Exit Sign <i>new fixture or LED retro fit</i>							\$22.00		
						Total PROPOSED incentive :			
REMEMBER: Cutsheets and Invoices are required to be provided at the completion of the project. No Incentives can be paid without proper documentation			Estimated installation date:			* Incentive amounts will be verified for accuracy *			

**MULTIFAMILY COMMON AREA LIGHTING
INCENTIVE FUNDS APPLICATION**



Office Use Only:(circle one) S.I. or A.I

Reservation #: _____

Final Verification: _____

Section 1: CUSTOMER & SITE INFORMATION

Customer Name & Title:		Contact Name:		Contact Telephone:	
Mailing Address:		City / Town:		State:	
Telephone:		Fax:		Email Address:	
Property address:		City / Town:		State:	
Property Name:		No. of Total Bldgs:	No. of Total Units:	Bldg type (Apt. Condo. etc):	Ameren Electric Account #:

Section 2: CONTRACTOR INFORMATION (if applicable / contractor not required for CFLs)

Contractor Name & Title:		Contact Name:			
Mailing Address:		City / Town:		State:	
Telephone:		Fax:		Email Address:	

Section 3: PAYMENT INFORMATION (if Payee is same as above, write "see above" & include Tax ID)

Payee:			Tax ID # / SSN:		
Mailing Address:		City / Town:		State:	

Section 4: CUSTOMER SIGNATURE

By signing below, I acknowledge that I have read and approve of this Application, and I agree to be bound by all program Terms and Conditions. I state that the information contained within this application is true and accurate to the best of my knowledge. Additionally, I certify that I have not and will not apply for an incentive for the measures on this Application with any other Ameren Illinois Utilities program.

Customer Name (signature):		Customer Name (print):		Date:	
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Please direct all correspondence to:

Ameren Illinois Utilities Act On Energy Multifamily Common Area Lighting Program

300 Liberty Street, 4th Floor, Peoria, IL 61602

Fax: 309-673-3370 • Toll-free: 866-838-6918 • ActOnEnergy.com



Summary of "PROJECT AS COMPLETED" (sheet: a)

Print multiple sheets if needed.

SHADED AREA OFFICE
USE ONLY:

Measure	Existing Equipment (Incandescent, T12 with magnetic ballast, etc.)		New Equipment (manf. & model/part #)		Location (building, floor & area)	Hrs. of Operation (per day)	Incentive Amount (A)	Qty of Proposed Fixtures (B)	Total Proposed Incentive Amount (AxB)	Installed	Total Approved Incentive Amount
		Wattage		Wattage							
Integral CFL ≥13 watts screw-in							\$1.50				
Modular CFL ≤18 watts pin based electronic ballast fixture							\$23.00				
Modular CFL >18 watts pin based electronic ballast fixture							\$26.00				
Measure	Existing Equipment (T12 with magnetic ballast, etc.)		New Equipment (manf. & model/part #)		Location (bldg, floor & area)	Hrs. of Operation (per day)	Incentive Amount (A)	Qty of tubes retro-fitted (B)	Total Proposed Incentive Amount (A x B)	SHADED AREA OFFICE USE ONLY:	
		Wattage		Wattage							
4' T8 number of 32w lamps with electronic ballast							\$7.00				
8' T8 number of 59w lamps with electronic ballast							\$10.00				

Summary of "PROJECT AS COMPLETED" (sheet: b)

Print multiple sheets if needed.

SHADED AREA OFFICE USE ONLY:

Measure	Existing Equipment (T12 with magnetic ballast, etc.)		New Equipment (manf. & model/part #)		Location (bldg, floor & area)	Hrs. of Operation (per day)	Incentive Amount (A)	Qty of tubes retro-fitted (B)	Total Incentive Amount (A x B)	Installed	Total Approved Incentive Amount
	Wattage	Wattage	Wattage	Wattage							
4' T8 <i>number of 32w lamps with electronic ballast and reflector</i>							\$9.00				
8' T8 <i>number of 59w lamps with electronic ballast and reflector</i>							\$12.00				
Measure	Existing Equipment (switch or no controls present)		New Equipment (manf. & model/part #)		Location (bldg, floor & area)	Hrs. of Operation (per day)	Incentive Amount (A)	Qty of sensors (B)	Total Incentive Amount (A x B)		
Occupancy Sensor <i>list number of watts controlled</i>											\$25.00
Measure	Existing Equipment (Incandescent, fluorescent exit fixture, etc.)		New Equipment (manf. & model/part #)		Location (bldg, floor & area)	Hrs. of Operation (per day)	Incentive Amount (A)	Qty of Proposed Fixtures (B)	Total Incentive Amount (A x B)		
LED Exit Sign <i>new fixture or LED retro fit</i>											\$22.00

Total incentive amounts Proposed and Approved:

**REQUIRED Cut Sheets Attached:
YES / NO**

**REQUIRED Invoices Attached:
YES / NO**

*** Incentive amounts will be verified for accuracy ***



Date: February 9, 2011
To: Karen Kansfield, Ameren Illinois
From: Robert Huang, The Cadmus Group Inc.
Re: Domestic Hot Water Savings Analysis Addendum to PY2 Multifamily and Home Energy Performance Reports

In January 2010, Cadmus developed an engineering estimate of unit savings for domestic hot water (DHW) measures in follow up to the PY1 Home Energy Performance and Multifamily program evaluations. **The purpose of this memo is to describe how these results, shown in Table 1, were calculated.**

Table 1. Domestic Hot Water Unit Savings Summary

DHW Default Savings Estimates										
Type of Water Heater	Faucet Aerator				Low Flow Showerheads				Pipe Insulation	
	Single Family		Multifamily		Single Family		Multifamily		Single and Multifamily	
	Savings	Per	Savings	Per	Savings	Per	Savings	Per	Savings	Per
Electric (in kWh)	30	aerator	37	aerator	240	shower-head	264	shower-head	51	insulation job
Gas (in therms)	1.2	aerator	1.6	aerator	10.6	shower-head	11.7	shower-head	2.3	insulation job

Aerators

We calculated energy savings by assuming a decrease in flow rate through the aerators in both kitchen and bathroom faucets. This decrease in flow led to energy savings calculated for electric and gas water heaters, shown in Equations 1 and 2 below, respectively:

Equation 1:

Annual Electric DHW Savings (in kWh) per Person for bathroom and kitchen aerators = $(8.33 * 1 * TFR_b * TIME * ((TFR_b - TFR_e) / TFR_b) * (T_{in} - T_{out}) * DAY_h / 3,413) / EFF_{elec}$

Equation 2:

Annual Gas DHW Savings (in therms) per Person for bathroom and kitchen aerators = $(8.33 * 1 * TFR_b * TIME * ((TFR_b - TFR_e) / TFR_b) * (T_{in} - T_{out}) * DAY_h / 100,000) / EFF_{gas}$

Where the constants in the equation are:

- 8.33 lbs per gallon
- 3,413 BTUs per kWh

- 100,000 BTUs per therm
- 1 BTU/lb-degree F = amount of energy to raise 1 lb of water 1 degree F

The inputs into Equations 1 and 2, as well as the results of the savings calculation, are shown in the Table 2. We then weighted the annual DHW savings per person by the ratio of kitchen to bathroom aerator PY1 installs. We multiplied the annual weighted DHW savings per person by the number of people living in the home and divided by the number of sinks per home to derive an annual per aerator savings for either single or multifamily homes in the Ameren Illinois service territory.

Table 2. Assumptions Used in Aerator Calculation

Estimate of Default Saving for Aerators				
Type of Water Heater	Electric		Gas	
Measure Name	Kitchen Aerator	Bathroom Aerator	Kitchen Aerator	Bathroom Aerator
Number Installed at AIU	5	38	59	680
Efficient Aerator Throttled Flow Rate (TFR _e)	1.84	1.48	1.84	1.48
Baseline Aerator Throttled Flow Rate (TFR _b)	2.13	1.87	2.14	1.85
Water Heater Recovery Efficiency (EFF)	100%	100%	77%	77%
T _{in} (in °F)	53.9	53.9	53.9	53.9
T _{out} (in °F)	80	80	80	80
Length of Use (in min) per day per person (TIME)	5	5	5	5
Days per Year at Home (DAY _h)	352.25	352.25	352.25	352.25
Annual DHW Savings per Person	32 kWh	44 kWh	1.5 therms	1.8 therms
Annual DHW Savings per Person Weighted	42.40	kWh	1.79	therms
People per SF Home	2.67	people	2.67	people
Sinks per SF Home	3.83	sinks	3.83	sinks
Annual Savings per Aerator in SF Home	30	kWh	1.2	therms
People per MF Home	2.14	people	2.14	people
Sinks per MF Home	2.46	sinks	2.46	sinks
Annual Savings per Aerator in MF Home	37	kWh	1.6	therms

Showerheads

We calculated energy savings by assuming a decrease in flow rate through low-flow showerheads. This decrease in flow led to energy savings calculated for electric and gas water heaters, shown in Equations 3 and 4 below, respectively:

Equation 3:

$$\text{Annual Electric DHW Savings (in kWh) per Person for showerheads} = (8.33 * 1 * \text{TFR}_b * \text{TIME} * ((\text{TFR}_b - \text{TFR}_e) / \text{TFR}_b) * (\text{T}_{in} - \text{T}_{out}) * \text{DAY}_h / 3,413) / \text{EFF}_{elec}$$

Equation 4:

Annual Gas DHW Savings (in therms) per Person for showerheads =
 $(8.33 * 1 * TFR_b * TIME * ((TFR_b - TFR_e) / TFR_b) * (T_{in} - T_{out}) * DAY_h / 100,000) / EFF_{gas}$

Where the constants in the equation are:

- 8.33 lbs per gallon
- 3,413 BTUs per kWh
- 100,000 BTUs per therm
- 1 BTU/lb-degree F = amount of energy to raise 1 lb of water 1 degree F.

The inputs into Equations 3 and 4, as well as the results of the savings calculation, are shown in Table 3. We then multiplied annual savings per person by the number of people living in the home and divided by the number of sinks per home to derive an annual per aerator savings for either single or multifamily homes.

Table 3. Assumptions Used in Low-Flow Showerhead Calculation

Estimate of Default Saving for Low-Flow Showerheads		
Type of Water Heater	Electric	Gas
Efficient Aerator Throttled Flow Rate (TFR _e)	1.82	1.82
Baseline Aerator Throttled Flow Rate (TFR _b)	2.26	2.26
Water Heater Recovery Efficiency (EFF)	100%	77%
T _{in} (in °F)	53.9	53.9
T _{out} (in °F)	105	105
Length of Shower (in min) per day per person (TIME)	8.2	8.2
Days per Year at Home (DAY _h)	352.25	352.25
Annual Savings per Person	161 kWh	7.1 therms
People per SF Home	2.67	2.67
Showers per SF Home	1.79	1.79
Annual Savings per Showerhead in SF Home	240 kWh	10.6 therms
People per MF Home	2.14	2.14
Showers per MF Home	1.30	1.30
Annual Savings per Showerhead in MF Home	264 kWh	11.7 therms

Hot Water Pipe Insulation

We calculated heat loss per area of pipe for insulated and non-insulated water pipe via Equations 5 and 6 below:

Equation 5:

$Q/A_{ins} = (T_{pipe} - T_{amb}) / R_{ins}$

Equation 6:

$Q/A_{unins} = (T_{pipe} - T_{amb}) / R_{unins}$

Where:

- Q/A = heat loss per area of pipe (BTU/hr-ft²) for non-insulated and insulated pipe
- R = R-value of insulated and non-insulated pipe (hr-ft²-degreeF/Btu)
- T_{pipe} = temperature of copper pipe
- T_{amb} = temperature of ambient air

The inputs into Equation 5 and 6, as well as the results of the heat loss per area calculation, are shown in Table 4 below.

Table 4. Assumptions Used in Low-Flow Showerhead Calculation

Pipe Heat Loss Assumptions		
Temperature of copper pipe (T_{pipe})	122	°F
Temperature of ambient air (T_{amb})	67.5	°F
R-value of un-insulated pipe (R_{unins})	0.86	hr-ft ² -°F/Btu
R-value of insulated pipe (R_{ins})	2.79	hr-ft ² -°F/Btu
Efficiency of electric hot water heater ($EFF_{electric}$)	100%	
Efficiency of gas hot water heater (EFF_{gas})	77%	
$AREA_{pipe}$	0.46	ft ²
Calculation		
Q/A_{ins}	19.47	Btu/hr-ft ²
Q/A_{unins}	63.18	Btu/hr-ft ²
Conversion to Gas and Electric Water Heater Savings		
Pipe Insulation Annual Electric and Gas Water Heater Savings	51	kWh
	2	therms

We calculated annual savings with Equations 7 and 8 below:

Equation 7:

$$\text{Pipe Insulation Annual Electric Water Heater Savings} = (Q/A_{unins} - Q/A_{ins}) * AREA_{pipe} * 8,760 / EFF_{electric} / 3,413$$

Equation 8:

$$\text{Pipe Insulation Annual Gas Water Heater Savings} = (Q/A_{unins} - Q/A_{ins}) * AREA_{pipe} * 8,760 / EFF_{gas} / 100,000$$

Where the constants in the equation are:

- 3,413 BTUs per kWh
- 100,000 BTUs per therm
- 8,760 hours per year

The inputs into Equation 7 and 8, as well as the results of the annual savings calculations, are shown in Table 4 above.