



Work Plan

THE
CADMUS
GROUP, INC.

Ameren Illinois Residential Programs Electric and Gas Savings Evaluation, Measurement & Verification Work Plans Program Year 3 (2010-2011)

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1. Introduction

Ameren Illinois Gas and Electric Residential Energy Efficiency Solutions (REES) portfolios include the following programs:

- Home Energy Performance (electric and gas savings)
- Residential Heating and Cooling (electric and gas savings)
- Residential Appliance Recycling (electric savings)
- Residential Lighting and Appliances (electric savings)
- Residential Low Income (gas savings)
- Residential Multifamily (electric and gas savings)
- Residential ENERGY STAR® New Construction (electric and gas savings)
- Residential Demand Response-Direct Load Control (electric, gas, and demand savings)
- OPOWER (electric and gas savings)

In program year one (PY1), Cadmus performed impact and process evaluations of the following four programs:

- Home Energy Performance
- Residential Appliance Recycling
- Residential Lighting and Appliances
- Residential Multifamily

In program year two (PY2), Cadmus delved more deeply into the impact assessments and updated the process evaluations of these same four programs. We also performed process and impact evaluations for the Residential Heating and Cooling and Residential Demand Response-Direct Load Control programs. As a subcontractor to Cadmus, Opinion Dynamics performed process and impact evaluations for the gas portion of the business programs of Green Nozzles and Small Business HVAC.

This year (PY3), our evaluation work plan includes primary research to assess the net-to-gross (NTG) ratio and analyze metering data for the Residential Heating and Cooling Program to estimate unit savings and a realization rate. We will analyze and report on this data as part of our PY3 evaluation. We will also summarize results from the other previously evaluated programs (Home Energy Performance, Appliance Recycling, Lighting and Appliances, and Multifamily, Green Nozzles, and Small Business HVAC) using actual participation data from the data tracking databases and applying previously evaluated savings estimates to compute total savings. For OPOWER and Residential New Construction, Cadmus will include savings estimates provided by the implementation contractors in the final report, but will not perform any independent evaluation of these two programs.

Sections 2 through 8 of this report include descriptions of Cadmus' proposed work plans for performing evaluation activities for the two programs, along with expected activities for PY3. Section 9 shows the proposed budget and Section 10 presents an overview of the schedule for completion of the remaining evaluation activities.

Several of Ameren Illinois' programs include both gas and electric energy savings. When applicable, we incorporated an evaluation of activities and work plans for both types of savings. Cadmus will provide a final PY3 evaluation report for electric savings. The gas savings will be reported in a final Plan 1, 3-year evaluation report

In addition to the specific program evaluations, Cadmus budgeted for a limited amount of additional evaluation support to participate in Stakeholder Advisory Group (SAG) meetings, respond to informal and formal data requests, provide expert witnesses for cross examination in the evaluation dockets, prepare the three-year electric and gas summary reports, and fund the remaining evaluation task for the gas savings portions of the business programs Green Nozzles and Small Business HVAC.

2. Residential Heating and Cooling Program

Program Description

The Ameren Illinois Residential Heating and Cooling Program provides incentives to encourage the installation of high-efficiency central air conditioning, air-source heat pumps, ground-source (geothermal) heat pumps, and gas furnaces. The baseline efficiency conditions for new heating and cooling systems are the applicable federal equipment standards.

The overall Ameren Illinois implementation strategy involves the recruitment and account management of HVAC contractors (allies) in the delivery of HVAC services, focusing on the proper sizing and installation of above-code new equipment. The program recruits contractors who are receptive to a higher quality approach when serving residential customers. Contractors are required to enter into a participation agreement that outlines the program responsibilities and contractor responsibilities. The program protocols specify sizing requirements, efficiency standards, and other elements, such as a matching indoor and outdoor coil requirement for new air conditioning equipment. The program provides sales and marketing training to educate the HVAC contractors on program requirements. The training includes topics on developing a simple payback analysis for high-efficiency HVAC systems, marketing high-efficiency equipment, the basics of building science, and methods for communicating the need for high-efficiency equipment to customers. In addition, an integrated utility outreach campaign maximizes customer attention, receptivity, and action. Finally, the electric and gas Home Energy Performance and Residential Multifamily Programs generate leads for this HVAC program.

Evaluation Plan

The PY3 evaluation consists of the following four tasks:

Stakeholder Interviews. Cadmus will conduct an interview with the program staff member most familiar with the program to determine changes to the program from PY2 to PY3.

Metering Pick-up and Analysis. Cadmus installed end-use meters in 30 homes with new HVAC equipment during the summer of 2010. We will remove the meters and analyze the data to update energy savings estimates from PY2 based on the engineering simulation model runs.

Contractor Surveys. Since major HVAC purchases are most often influenced by HVAC contractors, Cadmus will develop a survey to understand how HVAC contractors make recommendations with and without the program. We will use this information to estimate the program NTG. At the same time we will collect information on the contractors' view of program operation and note any suggestions for improvement.

Tracking Database Analysis. Cadmus will also obtain a copy of the tracking database and apply energy savings estimates from the updated energy savings analysis to compute PY3 savings.

Table 2-1 summarizes the tasks we propose for evaluating this program.

Table 2-1. Summary of Residential HVAC Evaluation Proposed Approach

Task	Details	Sample Size
Stakeholder Interview	Interview program manager to identify any key program changes from PY2 to PY3	1
Metering and Analysis	Metering Analysis to update energy savings	30
Contractor Surveys	Survey HVAC contractors to inform NTG and program satisfaction	
Program Savings Estimates	Analyze tracking database	Census

3. Residential Appliance Recycling

Program Description

The Appliance Recycling Program (ARP) promotes the retirement and recycling of old, inefficient refrigerators and freezers from Ameren Illinois electric households by offering: (i) a turn-in incentive of \$35 and free pickup, and (ii) information and education on the cost of keeping an inefficient unit in operation. ARP is available to all residential electric customers with working refrigerators and freezers between 10 and 27 cubic feet in size. New for PY3, Ameren Illinois allows primary units to be recycled, while earlier years the program was limited to secondary units.

Evaluation

As previous evaluations included surveys and analysis to estimate savings and freeridership, the PY3 evaluation will apply these savings estimates to actual participation results achieved through PY3 and tracked in the tracking database. Cadmus will obtain a copy of the tracking database, analyze the appliance recycling program sales and apply savings estimates based on previous evaluations to compute program impacts. We will also interview the program staff most familiar with the program to document key implementation changes from PY2 to PY3. Table 3-1 summarizes the tasks we propose for the PY3 evaluation.

Table 3-1. Summary of Residential Appliance Recycling Proposed Approach

Task	Details	Sample Size
Stakeholder Interview	Interview program manager to identify any key program changes from PY2 to PY3	1
Program Savings Estimates	Analyze tracking database and apply savings estimates from PY2 evaluation.	Census

4. Residential Lighting and Appliances

Program Description

The Ameren Illinois Residential Lighting and Appliance Program encourages the purchase of high-efficiency lighting products, such as compact fluorescent lamps (CFLs) and ENERGY STAR® appliances. The appliance portion of the program is implemented primarily through mail-in rebate coupons, while the lighting portion is implemented primarily through upstream markdowns and buy-down promotions—the specific strategy may vary by product and retailer. Other program activities include Ameren Illinois-branded point of purchase (POP) materials, customer and retailer educational materials, in-store events, and training for retail sales staff.

Evaluation

As previous evaluations included surveys and analysis to estimate savings and a net-to-gross ratio, the PY3 evaluation will apply these savings estimates to actual participation results achieved through PY3 as they are tracked in the tracking database. Cadmus will obtain a copy of the tracking database, analyze the lighting and appliances program sales and apply savings estimates based on previous evaluations to compute program impacts.

We will also interview the program staff most familiar with the program to document key implementation changes from PY2 to PY3. Table 4-1 summarizes the tasks we propose for the PY3 evaluation.

Table 4-1. Summary of Residential Lighting and Appliances Proposed Approach

Task	Details	Sample Size
Stakeholder Interview	Interview program manager to identify any key program changes from PY2 to PY3	1
Program Savings Estimates	Analyze tracking database and apply savings estimates from PY2 evaluation.	Census

5. Residential Home Energy Performance

Program Description

Home Energy Performance (HEP) is a home diagnostic and improvement program that provides energy audits to targeted Ameren Illinois customers with high summer and winter loads. During the energy audits, program implementers can install several “instant-savings” measures, including domestic hot water measures and CFLs. The customer is also encouraged to implement cost-effective insulation and HVAC measures through a network of HEP program allies.

Customers who hire qualified HEP allies automatically receive program incentives for insulation and air sealing as part of the measure’s basic pricing. HEP program allies must meet standards outlined by the program for knowledge and workmanship, and they are subject to the program’s quality assurance inspections (see details below).

The program implementer recruits, trains, and qualifies insulation and home performance contractors (allies) in Ameren Illinois’ service territory to perform comprehensive and effective building shell improvements. HEP program allies sign an agreement stipulating they will provide high-quality workmanship and customer service, maintain proper insurance, and promptly inform HEP program administrators of program-affiliated work. To ensure customer safety, HEP program allies are required to certify their technicians through the Building Performance Institute (BPI). Contractors new to the program must also complete a one-day training that includes a field review of the program’s technical standards. Training covers blower door-assisted air sealing, use of high-density cellulose, and other effective insulation procedures. Ameren Illinois also offers additional training to HEP program ally technicians in proper insulation, air sealing, and duct-sealing techniques. Installation of all incented measures is subject to quality assurance inspections performed by program administrators. HEP program allies are allowed to provide program incentives directly to eligible homeowners who have not completed the program energy audit. Contractors who take advantage of this approach must contact program administrators to prequalify customers, and provide customers with documentation necessary to claim a customer incentive.

Evaluation

As previous evaluations included surveys and analysis to estimate savings and net-to-gross, the PY3 evaluation will apply these savings estimates to actual participation results achieved through PY3 and tracked in the tracking database. Cadmus will obtain a copy of the tracking database, analyze the HEP energy efficiency installations, and apply savings estimates based on previous evaluations to compute program impacts. We will also interview the program staff most familiar with the program to document key implementation changes from PY2 to PY3. Table 5-1 summarizes the tasks we propose for the PY3 evaluation.

Table 5-1. Summary of Residential Home Energy Performance Proposed Approach

Task	Details	Sample Size
Stakeholder Interview	Interview program manager to identify any key program changes from PY2 to PY3	1
Program Savings Estimates	Analyze tracking database and apply savings estimates from PY2 evaluation.	Census

6. Multifamily

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 offers energy audits that recommend energy efficiency upgrades for common areas with incentives if measures are installed, and free CFLs and water conservation measures for tenant units.

Evaluation

As previous evaluations included surveys and analysis to estimate savings and freeridership, the PY3 evaluation will apply these savings estimates to actual participation results achieved through PY3 and tracked in the tracking database. Cadmus will obtain a copy of the tracking database, analyze the Multifamily energy efficiency installations, and apply savings estimates based on previous evaluations to compute program impacts. We will also interview the program staff most familiar with the program to document key implementation changes from PY2 to PY3. Table 6-1 summarizes the tasks we propose for the PY3 evaluation.

Table 6-1. Summary of Residential Multifamily Proposed Approach

Task	Details	Sample Size
Stakeholder Interview	Interview program manager to identify any key program changes from PY2 to PY3	1
Program Savings Estimates	Analyze tracking database and apply savings estimates from PY2 evaluation.	Census

7. Green Nozzles

Program Description

The Green Nozzles Program is part of Ameren Illinois Small Business Gas Food Service Program. By installing free low-flow pre-rinse spray nozzles in place of less flow-efficient nozzles, the Green Nozzle Program aims to reduce therms associated with water heating in eligible Ameren Illinois restaurants, commercial kitchens, bar and grills, and other locations that perform food service/food preparation activities.

Evaluation

As previous evaluations included surveys and analysis to estimate savings and freeridership, the PY3 evaluation will apply these savings estimates to actual participation results achieved through PY3 and tracked in the tracking database. Opinion Dynamics will obtain a copy of the tracking database, analyze the Green Nozzles energy efficiency installations, and apply savings estimates based on previous evaluations to compute program impacts. We will also interview the program staff most familiar with the program to document key implementation changes from PY2 to PY3. Table 7-1 summarizes the tasks we propose for the PY3 evaluation.

Table 7-1. Summary of Green Nozzles Proposed Approach

Task	Details	Sample Size
Stakeholder Interview	Interview program manager to identify any key program changes from PY2 to PY3	1
Program Savings Estimates	Analyze tracking database and apply savings estimates from PY2 evaluation.	Census

8. Small Business HVAC

Program Description

The Small Business HVAC program offers Ameren Illinois' small commercial and industrial customers prescriptive incentives to tune-up HVAC equipment, including air conditioners, gas boilers and gas furnaces. In addition, the program provides incentives to replace gas boilers and gas furnaces with energy efficient models. The program requires Ameren pre-approval before work commences, as well as documentation of project completion through the final application process. Customers may obtain incentives for electric savings and/or gas savings through the program. However, this evaluation effort encompasses only gas savings because electric savings are addressed in a separate report.

Ameren Illinois developed this program to address specific barriers among smaller customers to taking energy efficient actions. In particular, given that HVAC equipment is typically replaced on failure, substantial incentives may be required to entice a facility to upgrade before then, particularly smaller companies with fewer financial resources. Additionally, businesses may not regularly tune-up their HVAC equipment or know about the benefits of doing so. As a result, the program's outreach and incentives serve to educate smaller customers about the importance of maintenance given the often limited staff and staff time to explore energy efficiency upgrade opportunities.

Evaluation

As previous evaluations included surveys and analysis to estimate savings and freeridership, the PY3 evaluation will apply these savings estimates to actual participation results achieved through PY3 and tracked in the tracking database. Opinion Dynamics will obtain a copy of the tracking database, analyze the Small Business HVAC energy efficiency installations, and apply savings estimates based on previous evaluations to compute program impacts. We will also interview the program staff most familiar with the program to document key implementation changes from PY2 to PY3. Table 8-1 summarizes the tasks we propose for the PY3 evaluation.

Table 8-1. Summary of Small Business HVAC Proposed Approach

Task	Details	Sample Size
Stakeholder Interview	Interview program manager to identify any key program changes from PY2 to PY3	1
Program Savings Estimates	Analyze tracking database and apply savings estimates from PY2 evaluation.	Census

9. Program Budget

Table 9-1. Ameren Illinois PY3 Budget

Program/Task	Principal Hours (\$220)	Sr. Assoc. Hours (\$185)	Associate Hours (\$150)	Analyst Hours (\$125)	Editor Hours (\$85)	Travel Cost	Total	Electric	Gas
HVAC									
Tracking Database Analysis & Report	1	6		12	4		\$2,830	\$ 1,415	\$ 1,415
Metering Analysis		10	8	20			\$5,550	\$ 2,775	\$ 2,775
Contractor Interviews and Analysis	5	16	12	80			\$15,860	\$ 7,930	\$ 7,930
Travel to Pick up Meters				54			\$6,750	\$ 3,375	\$ 3,375
Stakeholder Interviews		1					\$185	\$ 93	\$ 93
Total							\$31,175	\$15,588	\$15,588
HEP									
Tracking Database Analysis & Report	1	12		16	1		\$4,440	\$ 1,220	\$ 2,220
Multifamily									
Tracking Database Analysis & Report	1	12		16	1		\$4,440	\$ 2,220	\$ 2,220
Lighting and Appliances									
Tracking Database Analysis & Report	1	12		24	1		\$5,440	\$5,440	
Appliance Recycling									
Tracking Database Analysis & Report		12		20	1		\$4,720	\$4,720	
Overall Project Management									
Overall Project Management	8	15		20			\$7,035	\$ 4,925	\$ 2,111
Program Year Two Docket (Remaining)									
PY2 Docket	12	20		20		\$2,500	\$11,340	\$11,340	
Program Year Three Docket									
PY3 Docket	8	12		8		\$2,500	\$7,480	\$7,480	
Three Year Summary Report									
Electric 3 Year Summary Report	8	20		8	8		\$6,460	\$6,460	
Gas 3 Year Summary Report	8	20		8	4		\$6,460		\$6,460
SAG Participation									
Prepare/Attend Meetings	16	16					\$6,480	\$6,480	
Green Nozzles/Small Business									
ODC Contract							\$10,000		\$10,000
Total							\$105,470	\$66,872	\$38,598

10. Schedule

Table 10-1. PY3 Evaluation Schedule

PY3 Evaluation Schedule	April	May	June	July	August	September	October	November	December	January	February
PY2 Docket											
HVAC											
Contractor Surveys											
Metering Removal & Analysis											
Tracking Database Analysis											
Prepare Draft Report											
Other Programs											
Tracking Database Analysis											
Stakeholder Interviews											
Prepare Draft Reports											
SAG Q&A											
Incorporate Report Comments											
3-Year Electric Report											
3-Year Gas Report											
PY3 Docket											