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Applied Energy Group

KENTUCKY POWER PROCESS & MARKET EVALUATION
VOLUME 1: EXECUTIVE SUMMARY

October 5, 2017

Report specifically developed for:
KENTUCKY POWER COMPANY

Energy Solutions. Delivered.

This work was performed by

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INTRODUCTION

Kentucky Power Company (Kentucky Power) retained Applied Energy Group (AEG) to conduct a comprehensive evaluation of its 2016 - 2018 Demand Side Management (DSM) Program Portfolio. Kentucky Power serves approximately 168,000 electric customers in all or part of 20 eastern Kentucky counties. The utility is part of the American Electric Power (AEP) system, which is one of the largest electric utilities in the United States.[1] The DSM Program Portfolio is implemented as a cost-effective resource to help customers lower their electricity bills, and encourage long-term change in the market through the adoption of energy efficiency technologies and services.

The Kentucky Power Demand Side Management Program Plan (DSM Case 2015-00271) is the basis for the existing portfolio of DSM programs[2]. AEG designed the process and market evaluation to examine program processes and customer responses to the program. The evaluation identifies methods for gathering data and measuring program results and makes recommendations for program improvements. Evaluation, measurement and verification (EM&V) demonstrates the value of energy efficiency programs by providing accurate, transparent and consistent assessments of program performance and cost-effectiveness.

For this evaluation AEG interviewed three staff members at Kentucky Power, 11 implementation contractors, 60 participating commercial customers, 592 participating residential customers and 49 trade allies. The participant survey samples were designed to ensure the results had a 90 percent confidence interval with an error margin of +/-10 percent.

Process and market evaluations identify whether key elements, such as incentive levels, program delivery, program tracking mechanisms and quality assurance/quality control (QA/QC) procedures, are performing as designed and identifies issues or opportunities to improve these key elements. A comprehensive process and market evaluation will:

- Assist program implementers and managers in restructuring existing programs and/or designing new programs to achieve cost-effective savings while maintaining high levels of customer satisfaction.
- Determine awareness levels to refine marketing strategies and reduce barriers to participation.
- Provide recommendations for changing the program's structure, management, administration, design, delivery, operations or targets.
- Determine if specific best practices should be incorporated.
- Gather information from a variety of sources to address the issues stated above.

AEG evaluated thirteen DSM programs, including:

- Whole House Efficiency Program
- Residential Efficient Products Program
- Community Outreach Program
- Energy Education for Students Program
- New Manufactured Homes Program

[1] American Electric Power delivers electricity to more than 5 million customers in 11 states and ranks among the nation's largest generators of electricity, with almost 38,000 megawatts of generating capacity in the U.S.

[2] Two programs, Community Outreach and Energy Education for Students, were not included with the Demand Side Management Program Plan but were retained by Kentucky Power Company and updated for operation beginning with program year 2016.

- Targeted Energy Efficiency Program
- Appliance Recycling Program
- Residential Home Performance Program
- Commercial Incentive Prescriptive/Custom Program
- New Construction Program
- Express Install Program
- School Energy Manager Program
- Retro-Commissioning Program

Overall the residential portfolio performed very well achieving 96% of participation goals and spending 97% of the budget. Customer satisfaction is consistently high across all the programs in the portfolio. The relationships with Kentucky Power and the implementation contractors is strong and all the necessary processes are in place and running smoothly.

Awareness of Kentucky Power programs is increasing among participants and the program incentives are influential in educating customers and driving interest in energy efficiency

Residential Programs –Program Performance vs. Goals

	Metric	Target	2016 Actual	% Achieved
Whole House Efficiency	Participants	2,497	2,584	103%
	Budget	$1,466,636	$1,649,503	112%
Residential Efficient Products	Participants	413,550	392,846	95%
	Budget	$1,130,845	$1,149,101	102%
Community Outreach	Participants	4,000	4,200	105%
	Budget	$67,680	$33,087	49%
Energy Education for Students	Participants	2,200	2,205	100%
	Budget	$31,368	$37,483	119%
New Manufactured Homes	Participants	135	112	83%
	Budget	$171,500	$101,072	59%
Targeted Energy Efficiency	Participants	175	89	51%
	Budget	$352,410	$277,872	79%
Appliance Recycling	Participants	575	498	87%
	Budget	$95,869	$72,456	76%
Residential Home Performance	Participants	60,000	59,258	99%
	Budget	$604,700	$502,361	83%

The commercial portfolio also performed very well achieving 106% of participation goals and spending 134% of the budget. Customer satisfaction is consistently high across all the programs in the portfolio. The relationships with Kentucky Power and the implementation contractors is strong and all the necessary processes are in place and running smoothly.

Apart from retrocommissioning, the market for the C&I programs is very good and will be able to sustain some increases in the targeted number of participants in the future.

Commercial Programs –Program Performance vs. Goals

	Metric	Target	2016 Actual	% Achieved
Prescriptive/Custom	Participants	170	300	176%
	Budget	$1,023,984	$1,964,489	192%
New Construction	Participants	8	13	163%
	Budget	$71,370	$62,296	87%
Express Install	Participants	40	40	100%
	Budget	$392,631	$304,643	78%
School Energy Manager	Participants	23	17	74%
	Budget	$203,000	$201,854	99%
Retrocommissioning	Participants	5	0	0%
	Budget	$205,342	$4,365	2%

Volume 1 summarizes the key findings from the process and market evaluation. Volume 2 describes the methodology, key evaluation findings and provides recommendations for improving the Residential DSM Programs. Volume 3 describes the methodology, key evaluation findings and provides recommendations for improving the commercial Business DSM Programs. Volume 4 presents the Appendices.

Abbreviations

AEG	Applied Energy Group, Inc.
AEP	American Electric Power
CFL	Compact Fluorescent Light Bulb
DSM	Demand Side Management
DSIM	Demand-Side Investment Mechanisms
EM&V	Evaluation, Measurement and Verification
HSPF	Heating Seasonal Performance Factor
HVAC	Heating, Ventilation and Air Conditioning
KPCO	Kentucky Power Company
KSBA	Kentucky School Boards Association
LED	Light Emitting Diode

PSC	Kentucky Public Service Commission
QA/QC	Quality Assurance/Quality Control
RCx	Retrocommissioning
SEER	Seasonal Energy Efficiency Ratio

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1
WHOLE HOUSE EFFICIENCY PROGRAM

The objective of the Whole House Efficiency Program is to encourage whole-house improvements to existing homes by promoting home energy assessments and comprehensive retrofit services. Residential customers living in single family, multi-family or mobile homes with an electric central cooling system (i.e., central air conditioner or heat pump) are eligible to participate.

The Whole House Efficiency Program has been adapted and re-organized from three previously implemented Kentucky Power programs: Modified Energy Fitness, Residential High Efficiency Heat Pump and Mobile Home High Efficiency Heat Pump. In mid-2016 the Whole House Efficiency Program incorporated additional measures and program features beyond the previous programs offered including updated incentive levels.

The current program consists of three options, 1) a Home Energy Assessment, 2) Weatherization Measures and 3) HVAC equipment rebates. The weatherization component was added in mid-2016.

Home Energy Assessment. The customer receives an in-home energy audit and direct installation of energy conservation measures free of charge. A professional energy auditor performs the home energy assessment, identifying key areas of the home that are wasting energy and provides recommendations to make the home more energy efficient. Participants are eligible to receive free installation of energy conservation measures. Eligible measures may include:

- High efficiency lighting
- Domestic hot water pipe insulation
- Water heater insulation wrap (electric DHW only)
- Low flow showerhead
- Low flow faucet aerator
- Weatherstripping / caulking / door sweep
- Duct sealing

Weatherization Measures. Customers are eligible to receive incentives for the purchase and installation of air sealing, duct sealing and insulation (attic, wall, basement sidewall and crawlspace). Air and duct sealing must be performed by a participating contractor and a blower door test conducted to verify energy and demand savings. Customers may self-install insulation measures, except for attic insulation. The customer is encouraged to receive a Home Energy Assessment before weatherization measures are installed by a program contractor or as a self-installed stand-alone measure.

HVAC Equipment. Customers are eligible to receive incentives for qualifying HVAC equipment installed by a participating contractor. Qualifying measures include heat pump ductless mini splits, air source heat pumps and smart programmable thermostats. Customers have an option to self-install a smart programmable, communicating thermostat.

Summary of Key Findings

In 2016, the Whole House Efficiency Program performed 1,748 audits and rebated 884 HVAC measures while spending 112% of the budget.

Table 1-1 2016 Program Performance versus Goal

Metric	Target	2016 Actual	% Achieved
Audit	1,775	1,748	98%
Weatherization	150	-	0%
HVAC & Smart Thermostat	572	884	155%
Program Expenditures	**$1,466,636**	**$1,649,503**	**112%**

The evaluation revealed the following program strengths and challenges:

Program Strengths

- Home Energy Assessments are strong, as well as the direct installation of low intrusion measures installed during the audit (e.g., High efficiency lighting, hot water pipe insulation, water heater insulation wrap, low flow showerhead, low flow faucet aerator, weatherstripping / caulking / door sweep, duct sealing)
- Customers are becoming more educated about energy efficiency and weatherization through the energy assessment due to the high quality of the contractor interaction and the report.
- During the assessment, customers receive a variety of direct install measures and few are removed after the audit is completed.
- Awareness of the benefits of high efficiency HVAC equipment is increasing and more customers are installing high efficiency HVAC due to the program.
- Processes are running smoothly:
- The relationship between Kentucky Power and Honeywell has been positive.
- According to the participating HVAC contractors interviewed, responsiveness of Honeywell with participating contractors has been good.
- No problems were identified with program data or invoicing.
- Effective QA/QC procedures are in place.
- The implementation contractor is adapting quickly to the changing lighting market, and is transitioning from CFLs to LEDs for audit direct install measures.

Program Challenges

- Participating HVAC contractors are somewhat dissatisfied with the length of the application, the increase in SEER level to qualify and the discontinuation of the participating contractor incentive.[3]
- Promotion and implementation of the rebated weatherization component is ineffective; there were no participants in 2016 for the weatherization component.
- There is a lack of qualified participating contractors to promote and install the weatherization component of the program.
- There are low installation rates of high impact direct install measure such as LEDs, hot water pipe insulation and duct sealing in the assessment component of the program.

[3] A modified contractor incentive has been implemented in 2017.

- Few higher efficiency (≥15 SEER) heat pumps are being installed.
- Seventy-five percent of the participants received HVAC rebates under the older program requirements during the transition from the existing HVAC programs to the new Whole House Efficiency program
- The participant survey shows low customer awareness of other Kentucky Power programs.

Recommendations

The evaluation team recommends the following actions to improve the program:

Conduct focus groups or additional training sessions with local participating contractors to discuss program components, clear up any confusion/frustration surrounding program changes and discuss potential solutions. The decision to hold focus groups or additional training would depend on Honeywell's needs. Focus groups would serve a research purpose if Kentucky Power or Honeywell need to better understand why contractors are confused or frustrated, and require feedback on training curriculum to ensure it is being received positively and is helpful. Additional training sessions would serve a need to reach more contractors more frequently to clear up any confusion and would rely on existing training materials.

Recruit and train qualified contractors for weatherization component by working with local distributors and local trade associations to find and train contractors. Recruitment and training will help to address the lack of qualified and knowledgeable participating contractors in the service territory.

Remove the EER requirement for eligible air source heat pumps. Dealers are imperative to the program delivery and if they cannot sell qualifying units, the program is in danger of not meeting its participation goals. Eliminating the EER also simplifies the requirements making it easier for both customers and dealers to understand.

Increase awareness of other Kentucky Power programs by providing more marketing materials for auditors on additional Kentucky Power programs. The Whole House Efficiency Program offers an opportunity to cross promote other Kentucky Power programs. Auditors are in customer's homes with their undivided attention. Providing additional marketing materials and education to auditors on other Kentucky Power programs is a cost-effective way to introduce customers to other programs. Customers may not utilize the other programs themselves, but may know a friend or family that can. In 2017, Kentucky Power has provided fact sheets on other programs to the auditors.

Clarify program requirements and confirm with participating contractors that applications can be submitted via email. Clarifying program requirements will reduce confusion among customers and participating contractors. Some contractors are not aware that the applications can be submitted via email, mail or fax. Making them aware of this may streamline the application process and make it easier and more efficient for contractors.

Consider reducing the annual participation goal. There is evidence that the program may not achieve the program goals in 2017. The majority of heat pumps rebated in 2016 qualified under the older program requirements, but would not meet the new program requirements. While there is an indication that participant equipment efficiency is increasing, the program may have difficulty achieving the participation goals. Given a full program year with the current incentives and the addition of the contractor incentive, more realistic goals based on 2016 and 2017 results to date would be 1,800 audits, 400 HVAC measures and 25 weatherization measures.

2
RESIDENTIAL EFFICIENT PRODUCTS PROGRAM

The Residential Efficient Products Program incentivizes the purchase of efficient lighting and appliances.

- Lighting Incentives. Kentucky Power utilizes an upstream strategy to provide incentives at participating retailers. Kentucky Power has memorandums of understanding (MOUs) with retailers and manufacturers to provide customers an instant incentive on qualifying CFL and LED bulbs at the point-of-purchase. Incentives may vary depending upon the type of bulb, manufacturer and associated retail cost. Customers may purchase up to 12 bulbs at a time. Product selection and rebate amounts may vary by store.
- Appliance Incentives. Customers submit a mail-in application to receive an incentive for the purchase of an ENERGY STAR® clothes washer, air purifier or dehumidifier.

Kentucky Power's online store[4] encourages the purchase and use of efficient residential lighting.

Summary of Key Findings

The Efficient Products Program came very close to meet its goal, incentivizing 392,846 measures (95% of goal) and spending just above the target budget, with total expenditures of $1,149,101.

Table 2-1 Efficient Products Program Performance

Metric	Target	Actual	% Achieved
Lighting Participants (lamps)	412,500	391,873	95%
Appliance Participants (units)	1,050	973	93%
Total Units	**413,550**	**392,846**	**95%**
Budget	**$1,130,845**	**$1,149,101**	**102%**

The evaluation revealed the following program strengths and challenges:

Program Strengths

- The retail stores are the main avenue for marketing the program; most customers heard about the program from point of purchase materials or store personnel.
- Retailers reported increased sales due to the program, specifically increased LED sales. Retailers also believe the program benefits the local economy.
- The appliance application is easy to complete and the rebate check arrives in a reasonable amount of time.
- Satisfaction with the program is high for the quality of the appliances, the appliances rebated and the amount of the rebate.

[4] Kentucky Power supplies an online retail store that is managed by Energy Federation Incorporated (EFI). The online store has been scaled down over the past several years due to low participation. There were no lamp sales in the online retail store.

- Retailers are satisfied with the program, knowledgeable about the incentives and believe it is effective in promoting energy efficient equipment.

Program Challenges

- Satisfaction ratings for appliance savings on energy bills is low; only 38% of participants gave savings on energy bill a top box rating of 4 or 5 on a 5-point scale.
- Online customer awareness and purchasing is low, presenting an untapped online market[5].
- Customers are unable to track rebate application status.
- The clothes washer incentive did not meet the planned 2016 goal.
- Lighting market trends are fluctuating greatly due to the rapid transition from CFLs to LEDs, making it difficult to keep program goals aligned with the types of bulbs available.

Recommendations

The evaluation team recommends the following actions to improve the program:

Hold more in-store events and promotions, specifically targeted at the stores/regions that had lower lamp sales and appliance rebates. Increasing the number of in-store events may bring more visibility to the program in the more economically depressed areas that may need it the most. CLEAResult expressed an interest in increasing the number of events, indicating it can possibly be done by adjusting the budget, rather than increasing program costs. Any increase in the budget could also result in increased sales, which would not hurt the program's cost effectiveness.

Increase in-store trainings for sales associates and department managers. Increasing the trainings for retailer staff that regularly interact with customers may increase product sales for the program. When the field representatives are not there to speak with customers, the store staff should have enough knowledge about the program and technology to engage with customers and encourage program participation.

Develop online tracking system for customers to track appliance rebate status. Developing an online tracking system for customer appliance rebates will increase customer satisfaction and improve data tracking abilities. Kentucky Power is currently working on this with the contractor and it will be addressed in the 2018 program year.

Work with the program implementer to Increase online program presence, by increasing online marketing tactics at participating retailer websites and expanding to non-brick and mortar online retail sites. The lack of customer awareness from the internet and online purchases present opportunities to improve the program and increase product sales. Kentucky Power is currently working on this with the contractor. On-line retailers are working with CLEAResult to resolve issues with their systems so they are able to offer incentives on lighting products through their online stores.

Adjust the lighting targets, scaling back the target and deployment of CFL incentives and increasing the target for LEDs. These targets were adjusted by Kentucky Power in 2016 when GE announced they would cease CFL manufacturing[6] and Walmart announced they would stop selling CFLs[7] and the declining cost of LEDs, but the majority of lighting incentivized through the program in 2016 was CFLs.

[5] According to the U.S. Census Bureau in 2015 1.3% of all sales at electronics and appliance stores were e-commerce sales. And 7% of all online sales was electronics and appliances.

[6] http://www.ge.com/reports/say-goodbye-say-hello-ge-stops-making-cfls-says-go-go-go-to-leds/

[7] http://talkbusiness.net/2016/02/walmart-to-transition-lighting-products-away-from-compact-fluorescent-to-led/

The program exceeded the LED goal in 2016, however, CFLs still comprised the majority of bulbs incentivized. LEDs offer more savings compared to CFLs and prices are on the decline. As a result, Kentucky Power will no longer be incentivizing CFLs in 2017 and 2018.

3
COMMUNITY OUTREACH PROGRAM

The Community Outreach Program distributes energy conservation measures and provides energy education to customers at company-sponsored community events. The program aims to educate and encourage customers to save money by using energy efficient lighting. Kentucky Power typically holds eight to ten community outreach events throughout the year, and 10 events were held in 2016. At seven of the events in 2016, customers received four free CFL bulbs. At the other three events, customers received an energy efficiency kit that included two LED bulbs, a faucet aerator, refrigerator thermometer, instruction for installation, and a promotional sheet on other DSM programs for residential customers.

Summary of Key Findings

The Community Outreach Program exceeded its goal, distributing measures to 4,200 participants. The program spent less than was budgeted, with total expenditures of $33,087.

Table 3-1 Community Outreach Program Performance

Metric	Target	Actual	% Achieved
Participants	4,000	4,200	105%
Budget	$67,680	$33,087	49%

The evaluation revealed the following program strengths and challenges:

Program Strengths

- Program marketing is effective. Customers are attending events throughout the Kentucky Power service territory.
- Customers report that they are attending the events to get free measures and save energy.
- The majority of customers said they plan to install the measures immediately.
- The program is addressing the main barrier expressed by participants. Participants say they haven't purchased LEDs in the past because they are too costly.
- The cost per participant in the program is lower than budgeted, meaning the program is able to reach more customers.
- The program has increased interest in Kentucky Power's programs. More than half of the participants said it was at least somewhat likely that they will participate in Kentucky Power's energy saving programs in the future.

Program Challenges

- Savings data and bulb manufacturer data is not currently tracked in the program tracking database.
- Customer surveys reveal the program influence on increasing high efficiency lighting purchases may be eroding.
- About a third of customers had attended a Community Outreach Event in the past.
- Forty-two percent of participants said it was very likely they would have purchased LEDs without the program.

- Participants report that a third of the LEDs will be replacing other high efficiency light bulbs (i.e., LEDs and CFLs).

Recommendations

The evaluation team recommends the following actions to improve the program:

Track manufacturer and savings data in the program tracking database. Having program participation information, measure data, and savings estimates in one central location allows for easier analysis of program data, more transparency in the program operations, and allows impact evaluators to easily replicate savings estimates. If all the measures dispersed at a single event are the same, this can be accomplished with one line item per event, listing the manufacturer of the bulbs and the appropriate savings information (e.g., rated lumens, wattage, estimated savings).

Hold events in areas where they have not been previously held. Holding events in new locations will increase the likelihood of attracting first time participants, who are less familiar with energy efficiency measures. In 2017 Kentucky Power has added rural locations that have not had an event in several years to the schedule.

Hold more events in low income areas. Holding events in low income areas will make it more likely the measures will be installed by participants who would not otherwise be able to afford them.

Coordinate events with other low-income service providers, such as food banks and local Community Action Agencies. Holding events in places that also serve the low-income population will make it more likely the measures will be installed by participants who would not otherwise be able to afford them.

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4
ENERGY EDUCATION FOR STUDENTS

The Energy Education for Students Program provides classroom instruction and educational materials to middle school students at participating schools within Kentucky Power's service territory. The program introduces students to various aspects of responsible energy use and energy conservation. Students use math and science skills to learn about how energy is produced and used, and methods to conserve energy that can be easily applied to their own homes. Students receive an energy conservation kit to apply their classroom learning at home. The program is provided at no cost to participating schools.

Summary of Key Findings

The Energy Education for Students Program surpassed its goal, reaching 2,205 students and spending 119% of its budget.

Table 4-1 Energy Education for Students Program Performance

Metric	Target	Actual	% Achieved
Participants	2,200	2,205	100%
Budget	$31,368	$37,483	119%

The evaluation revealed the following program strengths and challenges:

Program Strengths

- Program satisfaction is high.
- Parents are very satisfied with the energy conservation kit and the information their child learns in school.
- The NEED one day training is beneficial to the teachers; the majority are able to attend and find the training useful.
- Teachers are very satisfied with the program materials, the program website, NEED staff, and Kentucky Power staff.
- According to participating teachers, the program leads to more energy education in their curriculum.
- According to parents, most of the LEDs included in the energy conservation kit are installed immediately by parents.
- The majority of parents are familiar with other Kentucky Power programs and most who are familiar are at least somewhat likely to participate.

Program Challenges

- The tracking database does not track all of the necessary information.
- According to parents, the majority of the faucet aerators are not installed.
- Fifty-five percent of parents report that the LEDs included in the energy conservation kit replaced energy saving bulbs, such as CFLs or LEDs.
- Getting complete information about the students participating is difficult.

- Most parents do not recall receiving a letter with the kits that they were supposed to complete and return.
- Less than half of the families who receive the energy efficiency kits return the letter to school with their account information.
- 8 of the 13 teachers did not double check the letters for completeness.
- The majority of parents say that none of their household's behaviors have changed as a result of receiving the kit.

Recommendations

The evaluation team recommends the following actions to improve the program:

Track attendance at the training, the number of Science of Energy kits distributed and estimated savings. If possible use an online tool (e.g., Google Analytics) to track NEED website activity (e.g., downloads of curriculum materials). Attendance at training and the number of Science of Energy kits distributed is already known by NEED and can easily be added to the program tracking information. An estimate of energy savings and how those savings were derived will make it easier and less time consuming to replicate savings during the impact evaluation. Analytical data on how often various curriculum materials are downloaded from the NEED website would provide valuable information on the popularity and usefulness of various lesson plans and activities.

Provide families with additional educational information about the benefits of installing faucet aerators. Additional education about the benefits may result in increased installation rates.

Provide teachers with an incentive for returning complete parent letters. There is currently no incentive for teachers to ensure complete letters are returned. Offering some sort of incentive, such as additional educational materials for their classroom (additional Science of Energy kits, guest speakers, etc.,) may increase the return rate of the letters. Another incentive option is altering the current random teacher gift card drawing to instead award it to the teacher who returns the largest percentage of student participation forms.

5
NEW MANUFACTURED HOMES PROGRAM

The New Manufactured Home Program helps customers offset the cost of energy efficient improvements to a new manufactured home, providing customers greater savings, comfort and value. Two levels of incentives are offered:

- **Energy Efficient Manufactured Home**. A $450 incentive to manufactured home buyers who purchase a new home with Zone 3 insulation and a high efficiency air-source heat pump. Heat pump requirements include Seasonal Energy Efficiency Ratio (SEER) ≥ 15 and Heating Seasonal Performance Factor (HSPF) ≥ 8.5. Zone 3 insulation keeps more heat in during the winter and out during the summer.
- **ENERGY STAR® Manufactured Home**. A $1,200 incentive to manufactured home buyers who purchase a new ENERGY STAR® certified home. These homes have increased insulation, tightly sealed air ducts and ENERGY STAR® certified windows for better protection against heat, cold, drafts and noise. ENERGY STAR® homes use less energy for heating, cooling and water heating.

The measure rebate application was updated July 1, 2016, along with incentives and eligibility. Prior to July 1, 2016, the previous program, the Mobile Home New Construction program, offered a customer incentive for heat pump upgrade and installation of zone 3 insulation The previous incentives offered were:

- A $500 incentive to manufactured home buyers who purchase a new home with Zone 3 insulation and a high efficiency air-source heat pump. Heat pump requirements include SEER ≥ 13[8] and HSPF ≥ 7.7. Zone 3 insulation keeps more heat in during the winter and out during the summer.
- Manufactured home dealers received a $50 incentive for each new manufactured home rebate application submitted and approved.

Summary of Key Findings

Kentucky Power's New Manufactured Homes Program achieved 83% of its participation goal while spending 59% of the budget. Approximately 60% of the homes were purchased prior to July 1, 2016. The majority of customer applications in 2016 were processed by Kentucky Power at the higher incentive amount and lower heat pump efficiency requirement, with the majority of customers installing a new manufactured home with a SEER 14. Only 10 applications were processed by DNV GL.

Table 5-1 New Manufactured Homes Program Performance

Metric	Target	Actual	% of Achieved
Participants	135	112	83%
Budget	171,500	$101,072	59%

[8] Based on the accepted baseline standard at that time.

The evaluation revealed the following program strengths and challenges:

Program Strengths

- Dealers are the main avenue for marketing the program.
- Most customers heard about the program from the dealer.
- Most customers did not know about the rebate before they shopped for a new manufactured home.
- In most instances, the dealer either completed the application for the participant or helped the participant complete the application.
- The implementation contractor believes customer interest in the program is beginning to drive demand and may cause a paradigm shift in the market.
- Satisfaction with the program is good with the highest ratings given to the size of the rebate and the comfort of the home.
- More than half of participants are aware of other Kentucky Power programs.

Program Challenges

- There is room for improvement in the satisfaction ratings for dealers and for savings on customer energy bills. Dealers received a satisfaction rating of 65% and energy savings received a rating of 62% (given a rating of a 4 or 5 on a 5-point scale).
- The 8 dealers interviewed said they have never been contacted by DNV GL and have not received program materials.
- Few dealers serving the Kentucky Power service territory stock ENERGY STAR® homes.
- The majority of customer applications were processed at the pre-July 1st incentive amount and lower heat pump efficiency requirement, with the majority of customers installing a new manufactured home with a SEER 14. A SEER 14 heat pump is no longer eligible for a rebate and this may affect future participation.
    - Six of the 8 dealers interviewed reported that the SEER 15 units do not fit in their homes.
    - Dealers reported that all manufactured homes have good insulation and sealing which decreases HVAC run time, thereby decreasing the benefits of an incremental efficiency upgrade in HVAC equipment. Thus, a SEER 15 heat pump, which carries a significant incremental cost and installation burden relative to a SEER 14 heat pump, is not worth it for customers in spite of any AEP incentive.
- The largest participating dealer in the program, Clayton Homes accounted for 35% of the program sales including two ENERGY STAR® Homes[9]. But many of their projects were processed at the pre-July 1st incentive amount and lower heat pump efficiency requirement, with the majority of customers installing a new manufactured home with a SEER 14.
    - Three of the 4 employees interviewed from Clayton Homes said they sell ENERGY STAR® homes in addition to their own branded Energy Smart homes. Their Energy Smart homes can qualify as ENERGY STAR® with a few modifications (as reported from the dealer interviews).
    - More than half of the participants surveyed said they purchased their home from Clayton Homes.
    - Nationally, Clayton Homes sell ENERGY STAR® homes and advertise ENERGY STAR® prominently on their corporate website.

[9] According to the program tracking database provided by DNV GL.

Recommendations

The evaluation team recommends the following actions to improve the program:

Arrange a meeting or workshop with all the largest area dealer to discuss how Kentucky Power, DNV GL and the dealer can collaboratively work together to sell more efficient homes. The largest manufactured home dealer in the area is also the largest participating dealer in the program. Establishing a strong working relationship with them is imperative to future program success. A meeting or workshop discussing the program and the shared goal of selling homes is a good starting point.

When conducting outreach with dealers, ask for contact information for all sales people employed by the dealer. Follow up with each sales person via phone or email. Current outreach efforts are not reaching all parties who could influence customers purchasing decisions. Following up with all sales staff at individual dealer locations will increase dealer awareness of the program and increase program participation.

Conduct mass marketing, such as radio, TV, and newspaper ads that focuses on the benefits of an Energy Efficient or ENERGY STAR® Manufactured Home. Mass marketing will help increase customer interest and hasten the paradigm shift DNV GL is predicting. If customer demand for ENERGY STAR® increases, more dealers will stock ENERGY STAR® homes.

Consider adding a tiered incentive for homes that are energy efficient but do not quite meet the ENERGY STAR® eligibility requirements. Few dealers will be promoting the Tier 1 rebate due to the problems with the size of the unit, and the low interest among both dealers and customers. A middle tier rebate that would provide an incentive for homes similar to the largest dealer's Energy Smart home, could increase participation and improve dealer satisfaction.

Reduce the annual participation goal. The 2016 program activity and results of this process evaluation do not support the program achieving the goal of 155 participants. In addition, there have been market changes, such as the increased heat pump efficiency standard and 15 SEER units not being well received by dealers or participants. The program may reach a goal of 50 participants, particularly when coupled with the other recommendations.

6
TARGETED ENERGY EFFICIENCY PROGRAM

The Targeted Energy Efficiency Program provides weatherization and energy efficiency services to qualifying residential customers who need help reducing their energy bills. Kentucky Power provides funding through the Kentucky Community Action network of not-for-profit Community Action Agencies. The DSM program funding is supplemental to the funding received by Community Action Agencies through the federal Weatherization Assistance Program.

Program services can include the following, as applicable and per program guidelines:

- Energy audit
- Air infiltration diagnostic test to find air leaks
- Air leakage sealing
- Attic, floor, and side-wall insulation
- Duct sealing and insulation
- High efficiency lighting upgrades
- Domestic hot water heating insulation (electric)
- Energy efficient doors and windows
- Customer education on home energy efficiency
- Air Source Heat Pump

Customers who have primary electric heat and use an average of 700 kWh per month may be eligible for extensive weatherization and energy conservation measures. Customers without primary electric heat may be eligible for limited efficiency measures if they have electric water heat and use an average of 700 kWh from November through March. To qualify, a household's income cannot exceed the designated income guidelines.

Summary of Key Findings

The Targeted Energy Efficiency Program did not meet its goals in 2016, achieving 51% of total participation and spending 79% of its budget.

Table 6-1 Targeted Energy Efficiency Program Performance

Metric	Target	Actual	% Achieved
Total Participants	175	89	51%
Budget	$352,410	$277,872	79%

The evaluation revealed the following program strengths and challenges:

Program Strengths

- According to participants word of mouth is an effective tool for increasing customer awareness of the program.
- The program is performing very well logistically.

- The Community Action Agencies feel Kentucky Power is good to work with.
- The application and approval process receive high satisfaction ratings.
- The time between scheduling and the assessment is reasonable.

- Satisfaction with the program, staff, and equipment is rated highly by participants.
- More than half of participants are aware of other Kentucky Power programs and say it is likely they will participate.

Program Challenges

- The program did not meet its goals which were based on the DSM Program Plan1[10].
- Two of the five Community Action Agencies did not complete any Kentucky Power projects, but they only serve 6,639 Kentucky Power customers and only a portion of those are eligible for program services.
- Some data on equipment replaced is not included in the program tracking database.

Recommendations

The evaluation team recommends the following actions to improve the program:

If possible, transfer some of the funds to the high performing Community Action Agencies. High performing Community Action Agencies interviewed felt they could use additional funds. The funds not currently being used by the two Community Action Agencies could be put to use in those areas. There may, however, be political or regulatory reasons why Kentucky Power cannot do this.

[10] DSM Case 2015-00271

7
APPLIANCE RECYCLING PROGRAM

The Appliance Recycling Program is designed to produce long-term electric energy savings by permanently removing operable secondary refrigerators and freezers from the power grid and recycling them in an environmentally safe manner. The program targets residential customers with more than one refrigerator and/or freezer and offers a $50-70 incentive for removing these units from service. The appliances must be between 10 to 30 cubic feet, readily accessible for removal, and plugged-in and operable.

Summary of Key Findings

The Appliance Recycling Program fell short of its goal, recycling 498 appliances and spending 72% of its budget. Kentucky Power contracted with ARCA to implement the program beginning March 1, 2016. Therefore, the program did not start until April and really didn't get fully implemented until May. The late start is the main reason, cited by the implementation contractor, that the program did not meet its goals.

Table 7-1 Appliance Recycling Program Performance

Metric	Target	Actual	% Achieved
Units Recycled	575	498	87%
Budget	$95,869	$72,456	75%

The evaluation revealed the following program strengths and challenges:

Program Strengths

- According to participants the program provides a convenient way for customers to recycle appliances.
- The program is performing very well logistically.
    - Kentucky Power and ARCA have a very good relationship and communicate frequently.
    - Scheduling and pick up are done in a timely manner.
    - Staff working with Kentucky Power customers is responsive and professional.
- The incentive is influential in convincing customers to participate in the program.
- Bill inserts are working well to inform customers about the program.
- Targeting second refrigerators is effective, more than three-fourths of participants recycled refrigerators that were located somewhere other than the kitchen.
- The program is effectively targeting appliances currently in use in customer homes. Almost all of the respondents said the recycled appliances had been in use prior to pick up.

Program Challenges

- The program did not meet its goals, although this is potentially due to full program start beginning in the 2nd quarter 2016.
- A large portion (85%) of the recycled units were replaced, which will erode savings from the program.

Recommendations

The evaluation team recommends the following actions to improve the program:

Use the entire marketing budget. The Kentucky Power marketing is effective. Using the amount budgeted will likely increase program participation and help the program meet its goals.

Increase customer education efforts in an effort to reduce appliance replacement. According to ARCA, the marketing messages that resonate the best with customers focus on energy savings, recycling and the cash incentive. Kentucky Power should consider developing a marketing campaign to highlight energy and bill savings if the appliance is recycled and not replaced or develop customer literature to leave behind during the scheduled pick-up. The majority of participants reported replacing the recycled unit. Developing a targeted marketing campaign or literature will serve to increase customer awareness and educate them on the potential energy and bill savings associated with recycling a unit and not replacing it.

Distribute energy saving kits to participants. Since the program savings may be less than expected given the large number of customers who replace their recycled appliances, additional savings may be achieved cost-effectively by distributing energy saving kits during the scheduled pick up.

8
RESIDENTIAL HOME PERFORMANCE PROGRAM

The Residential Home Performance Program offers selected residential customers a Home Energy Report, which provides individualized energy use information to customers while simultaneously offering recommendations on how to save energy and money by making small changes to energy consuming behaviors. The reports are periodically mailed and emailed to customers to give them self-awareness and a peer comparison of their energy usage. Customers are also provided access to an online tool with a home energy calculator with additional tips to reduce usage.

Summary of Key Findings

The Residential Home Performance Program came very close to meeting its goal, providing Home Energy Reports to 59,258 participants and spending 83% of its budget.

Table 8-1 Home Performance Program Performance

Metric	Target	Actual	% Achieved
Participants	60,000	59,258	99%
Budget	$602,940	$502,361	83%

The evaluation revealed the following program strengths and challenges:

Program Strengths

- The reports are well received by customers; most customers say they review the reports, find the information easy to understand, trust the information and are satisfied overall with the content.
- Most customers said that after reading the reports they have a better understanding of their household's energy usage.
- Most participants say they have exhibited energy saving behavior and/or taken energy efficiency actions since receiving the home energy reports.
- Most participants are familiar with other Kentucky Power programs.
- Oracle proactively tracks customers' attitudes about the reports, adjusts procedures and content as needed and reacts quickly to customer complaints.

Program Challenges

- A little more than a third of customers receiving the report said the reports did not provide new ideas on how to save energy.
- Less than half of participants agreed with the statement "I frequently use the information."

Recommendations

The evaluation team recommends the following actions to improve the program:

Work with Oracle to develop segmented customer messages. Oracle would like to do more customer segmentation to develop targeted messages based on customer characteristics (e.g., low income). Doing so may improve the usefulness of the information provided to each customer segment.

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9
COMMERCIAL INCENTIVE PRESCRIPTIVE/CUSTOM PROGRAM

The Commercial Incentive Prescriptive/Custom Program is designed to help commercial customers save energy through a broad range of energy efficiency options that address all major end uses and processes. The program provides customer rebates for prescriptive and custom projects.

- Prescriptive Rebates. Participants select energy efficient equipment from a list of pre-qualified measures. Rebates are issued upon completion of the project and submission of the rebate application. The measures incentivized, include:
  - Lighting
  - Heating, Ventilation and Air Conditioning (HVAC)
  - Motors, Pumps and Drives
  - Refrigeration
  - Food Service
  - Miscellaneous
- Custom Rebates. Equipment that does not qualify for a prescriptive rebate is eligible for a custom rebate. Projects must have a Total Resource Cost Test benefit-cost ratio of at least 1.0.

Custom applications must be pre-approved by Kentucky Power before the equipment is purchased and installed; while pre-approval is not a requirement for the prescriptive rebates, it is strongly recommended to reserve the funds. The maximum incentive payout is 50% of the incremental equipment cost, up to $20,000 per project per year. Multiple rebate applications for different measures may be submitted.

Summary of Key Findings

In 2016, the Commercial Incentive Prescriptive/Custom Program provided 300 customers with incentives, while spending 192% of the budget.

Table 9-1 2016 Program Performance versus Goal

Metric	Target	Actual	% Achieved
Participants	170	300	176%
Program Expenditures	$1,023,984	$1,964,489	192%

The evaluation revealed the following program strengths and challenges:

Program Strengths

- Participants report that the application is able to be completed in a reasonable amount of time.
- Satisfaction among participations with various program components is high.
- The rebate is influential in convincing customers to make an investment in high efficiency equipment.

- Most participants who are aware of other Kentucky Power programs say they are likely to participate in the future.
- Processes are running smoothly:
    - The relationship between Kentucky Power and DNV GL has been positive.
    - Responsiveness of DNV GL with contractors has been good.

Program Challenges

- Although the participant survey did not identify any major challenges to the program from a customer's perspective, small percentages of participants identified a few minor challenges:
    - 12% of participants said the rebate was lower than expected.
    - 14% of participants said it took them 3 or more hours to complete the application.
- There is low participation in the custom program.
- Several important data points were incomplete for several projects.
- Participating contractors identified the follow program challenges:
    - Exclusion of a key lighting measures, T-LEDs (tubular LEDs).
    - Application length, confusion surrounding pre-approval and final application entries, difficulty in entering lighting codes.
    - Wait time on pre-approval process and entire application review process.

Recommendations

The evaluation team recommends the following actions to improve the program:

Ensure proper QA/QC protocols are being followed. Following the proper QA/QC procedures will reduce potential program issues and ensure the program is being administered as designed.

Consider increasing the program budget and participation goal to meet demand. Based on 2016 program performance, consider increasing the program budget to $2,000,000 and participation goals to 300 for 2017 and 2018.

10
NEW CONSTRUCTION PROGRAM

The New Construction Program is designed to encourage decision-makers in new construction and major renovation projects to incorporate greater energy efficiency into their building design and construction practices. Commercial customers who are designing new additions, planning major renovations, or building new facilities can take advantage of incentives for electric energy efficiency above and beyond the building energy code.

New construction or major renovation projects may include: new building projects, additions or expansion of an existing building or site footprint, removal and redesign of at least two major building systems, or major tenant improvements that change the use of the space and/or add new load.

Eligible customers may participate through one of two approaches:

- Whole Building Approach. For projects pursuing integrated design and demonstrating high performance goals through energy simulation modeling. Early design intervention and a holistic building design will enhance savings and optimize building performance. Incentives are only available for projects that are at least 10 percent more energy efficient than a baseline building designed to ASHRAE 90.1-2007 Standards. Applicants must provide an energy simulation model utilizing software programs that estimate annual energy savings.
- Systems Approach. Encourages designers to optimize individual systems to increase building energy efficiency. This approach offers a flexible solution for less complex projects. Throughout the design phase, simple spreadsheet tools quickly estimate typical energy savings and calculate corresponding incentives. Standardized incentives include, but are not limited to, lighting, HVAC, and refrigeration measures.

Summary of Key Findings

In 2016, the New Construction Program surpassed its goals, providing 13 participants with incentives, while only spending 87% of the budget.

Table 10-1 2016 Program Performance versus Goal

	Target	Actual	% Achieved
Participation	8	13	163%
Total Cost	$71,370	$62,296	87%

The evaluation revealed the following program strengths and challenges:

Program Strengths

- The program performed well, exceeded the participant goal and was under budget.
- Overall, participants were satisfied with the program and incentives; although one respondent believed incentives should match retrofit projects.
- Pre-approval and final applications are easy to understand and complete.

- The relationship between Kentucky Power and DNV GL is good.
- Cross program promotion activities are effective – several participants were active in other programs and heard about the program through Kentucky Power representatives.

Program Challenges

- Data tracking can be improved – a few data points were missing for a few of the projects.
- Pre-approval processes were not followed for all projects – two projects did not submit reservation applications and pre-approval dates were not recorded for two projects.
- Participants were not satisfied with the project pre-approval time of 4-8 weeks.

Recommendations

The evaluation team recommends the following actions to improve the program:

Ensure proper QA/QC and data tracking protocols are being followed. Ensuring that all projects are properly pre-approved and vetted by both DNV GL and Kentucky Power corresponds with proper QA/QC procedures and reduces potential program issues.

Improve project application processing timelines. Long application and incentive processing times negatively impact project timelines and customer satisfaction. Streamlining approval processes will help to reduce processing times and improve the overall customer experience.

11
EXPRESS INSTALL PROGRAM

The Express Install Program, approved in April 2016 and launched in July 2016, provides targeted, highly cost-effective measures to small commercial customers in a quickly deployable program delivery mechanism. The program is targeted at small commercial customers with a peak electric demand of less than 100 kW per year.

The program offers small commercial customers an energy assessment that includes information on potential energy savings and anticipated payback as well as incentives that cover up to 70% percent of equipment and installation costs. Eligible measures include, but are not limited to, lighting and refrigeration.

The implementation strategy incorporates three components:

- Walk-Through Energy Assessment. Trained auditors complete a walk-through examination of the business using standard audit software, identifying specific energy saving opportunities. The auditor reviews the anticipated costs and savings of the measures with the customer, along with information on financial resources available to help defray costs. Customers are provided with a report and list of recommendations.
- Direct Installation of Measures. Upon customer approval of a job scope, a contractor reviews the job scope and the implementation contractor orders the materials. The contractor installs the measures identified during the assessment and approved in the job scope.
- Customer Education. Customers are educated on energy efficient equipment and Kentucky Power's full suite of DSM programs. Particular attention is paid to areas identified in the assessment.

The incentives are assigned directly to the implementation contractor, so the value of utility incentives is reduced directly from the project cost.

Summary of Key Findings

The Express Install Program contract was executed April 2016 and the program launched in July 2016. The program completed 40 audits and installations in 6 months. Given a full year, the program would likely have exceeded its participation goal. A total of 233 audits were performed in 2016, 17% led to completed projects, 71% are pending or projected for completion, and 12% did not result in a project.

Table 11-1 2016 Program Performance versus Goal

Metric	Target	Actual	% Achieved
Participants	40	40	100%
Total Cost ($)	$392,631	$304,643	78%

The evaluation revealed the following program strengths and challenges:

Program Strengths

- Processes are running smoothly:

  - The relationship between Kentucky Power and Lime has been positive.
  - Successful and knowledgeable ESRs.
  - Timing of energy assessment and installation scheduling has been good.
  - No problems were identified with program data or invoicing.
  - Effective QA/QC procedures are in place.
- High participant satisfaction with the program overall, excluding the measure savings performance.
- The project pipeline shows a strong interest in the program and provides evidence of a successful marketing and canvassing campaign.

Program Challenges

- One participating contractor was somewhat dissatisfied with the amount of the payment and time it took to receive the payment.
- There is a lack of qualified participating contractors[11] to carry out the project work that is scattered throughout the service territory.
- Program requirements for contractors may be limiting program success.
- Participants were primarily convenience stores, indicating there is a participation gap among other business types and there is opportunity to target those customers going forward.
- Difficulty with audit tool when customer does not have Wi-Fi.

Recommendations

The evaluation team recommends the following actions to improve the program:

Recruit and train more local contractors to complete the approved projects. If more contractors are not found, consider engaging contractors who were willing to obtain any missing certifications. Consider subsidizing the certifications needed to participate. Recruiting and training more contractors will increase participation and reduce any pressure/strain placed on the one active contractor. More contractors will be able to cover more locations in the service territory and relieve the congested project pipeline.

Adjust compensation for contractors. Due to the current shortage of contractors, consider instituting a mileage compensation for travel to the customer site and having to find a Wi-Fi location to help to keep the one active contractor engaged and satisfied with the Express Install Program.

Increase the 2017 and 2018 budget and targets based on actual expenditures and performance for 2016. Using actual data from 2016 for program forecast will make the targets more likely to be achieved and the budget more accurate.

Increase the 2017 budget and targets along the lines of actual expenditures and performance for 2016. The program went over-budget in 2016 with only 6 months of operation and using actual data from 2016, will make the targets more likely to be achieved.

[11] According to Lime Energy several contractors do not make it through the screening process. Lime feels the requirements by both Lime and Kentucky Power are strict – they require unemployment insurance, licenses, etc., and some contractors do not keep that up to date. They also have to sign a masters of service agreement and Lime requires that they have experience with energy efficient measures.

12
SCHOOL ENERGY MANAGER PROGRAM

The School Energy Manager Program is a partnership between Kentucky Power and the Kentucky School Boards Association (KSBA) to support the School Energy Managers Project to maintain a major presence within schools in eastern Kentucky. The project employs school energy manager(s) to work with eligible school districts to identify behavioral changes and better utilize automation equipment to improve energy efficiency. The statewide program is managed and implemented by the KSBA. Kentucky Power provides funding to support the program.

Summary of Key Findings

In the 2015/2016 funding year, the School Energy Manager Program engaged 17 school districts, while spending the program budget.

Table 12-1 2016 Program Performance versus Goal

Goal	Target	Actual	% Goal Achieved
Participation	23	17	74%
Budget	$203,000	$201,854	99%

The evaluation revealed the following program strengths and challenges:

Program Strengths

- Processes are running smoothly:
    - The relationship between Kentucky Power and the KSBA is positive.
    - Responsiveness of the KSBA with the school energy managers is good.
- The program is shifting towards one school energy manager per district.
- School energy managers are actively tracking building performance and implementing efficiency improvements.
- School energy managers are knowledgeable and are benefiting from the training sessions conducted every few months.
- School energy managers are eager to make a difference in the schools and want to learn more about energy efficiency.
- The KSBA has accumulated enough data to begin benchmarking performance, which is showing that school districts have been able to reduce the school's energy consumption.

Program Challenges

- Student energy team activities are lacking and not well tracked. Not all the school energy managers have established student energy teams and those that have are not actively involved.
- Program data tracking and reporting is not comprehensive.
    - Data points, like measure details or student energy team activities, are not tracked or organized

efficiently in the tracking system.

- Data points like project completion date and rebate application status dates are not entered for every project.
- Benchmarking data detail is not passed along to Kentucky Power, only summarized in the annual status report.

- Projects under consideration or project wish lists are not well documented. Documenting and understanding what school energy managers would like to complete in their school districts can help to advance the program.
- Project application to other Kentucky Power programs is low. Only 33 of the 67 projects have completed applications to other programs for rebates.

Recommendations

The evaluation team recommends the following actions to improve the program:

Schedule an informational session with the school districts that have not participated thus far. The goal would be to understand the barriers the school district has to participating in the program, document the reasons why school districts are not participating and to see if the program resources can reduce those barriers and increase participation.

Provide Kentucky Power with detailed benchmarking data and improve data tracking quality by reorganizing the data tracking sheet and ensuring project details (measure detail, milestone dates, and rebate information) is completed for each project. Ensuring that all data is thoroughly collected for all program activities will create a smoother QA/QC process and confirm that the program is being implemented properly. The detailed benchmarking data will be informative to Kentucky Power to understand better how particular schools are performing. The current reports provide a summary of the program, not detailed data by school and/or school district.

Track projects under development/wish list. This can be a process that is a part of the monthly reporting to the school boards and/or included on annual basis in annual report to Kentucky Power. Documenting and understanding what energy managers would like to complete in their school districts can help to advance the program. KSBA and Kentucky can better assist the school energy managers to complete projects if they understand the project pipeline and school needs. In 2017 KSBA-SEMP staff has been working with energy managers to complete identification and prioritization of all potential energy efficiency opportunities to facilitate short and long-term work plans to be implemented as funding becomes available.

Encourage more Kentucky Power program participation, providing more frequent information on additional Kentucky Power programs, either through additional meetings, email blasts, program material distribution, etc. Increasing awareness and encouraging participation in additional Kentucky Power programs will benefit the School Energy Manager Program by highlighting additional funding opportunities to make projects more attractive to the school boards and will benefit the other Kentucky Power programs through increasing participation. In 2017 a breakout session on Kentucky Power rebates was presented by Kentucky Power personnel at the recent May KSBA School Energy Summit.

13
RETRO-COMMISSIONING PROGRAM

The Retro-Commissioning (RCx) Program is a new addition to the portfolio in 2016. The objective of the program is to encourage commercial and industrial customers to optimize their facility systems and reduce energy consumption.

The program provides a study to optimize a customer's building systems. Eligible customers can receive one of the following fully funded studies depending upon their building size:

- RCx Lite: Buildings with 50,000 and 150,000 square feet and 150 < 500 kW peak demand. A program affiliated contractor completes a targeted assessment and recommend improvements. Customers agree to spend a minimum of $5,000 towards improvements with ≤18-month payback identified through the study.
- RCx Standard: Facilities larger than 150,000 square feet and with ≥ 500 kW peak demand. A program affiliated contractor completes a comprehensive study and a verification report with pre- and post-results. Customers agree to spend a minimum of $15,000 towards improvements with ≤18-month payback identified through the study.

To qualify for the program, customers must pay the DSM rider, meet the minimum building sizes outlined above, and must have a functioning building automation system. Customers who enter into performance contracts are not eligible to participate. A list of contractors to conduct the retrocommissioning study is provided on the Kentucky Power website.

Summary of Key Findings

In 2016, the RCx Program did not have any participants and only spent 4% of the budget.

Table 13-1 2016 Program Performance versus Goal

Metric	Target	Actual	% of Goal
Participation	5	0	0%
Budget	$205,342	$4,365	2%

The evaluation revealed the following program challenges:

Program Challenges

- The program had no participants in 2016.
- Eligibility requirements and performance contracting significantly narrow the pool of participants. Few eligible customers have building automation systems and having such a system is necessary to determine the effectiveness of installed measures.

Recommendations

The evaluation team recommends the following actions to improve the program:

Discontinue offering this program at this time. There is not a viable market for the program in Kentucky Power's service territory.

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AEG
Applied Energy Group

KENTUCKY POWER PROCESS & MARKET EVALUATION
VOLUME 2: RESIDENTIAL PROGRAMS

September 7, 2017

Report specifically developed for:
KENTUCKY POWER COMPANY

Energy Solutions. Delivered.

This work was performed by

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INTRODUCTION

Kentucky Power Company (Kentucky Power) retained Applied Energy Group (AEG) to conduct a comprehensive evaluation of its 2016 - 2018 Demand Side Management (DSM) Program Portfolio. Kentucky Power serves approximately 168,000 electric customers in all or part of 20 eastern Kentucky counties. The utility is part of the American Electric Power (AEP) system, which is one of the largest electric utilities in the United States.[1] The DSM Program Portfolio is implemented as a cost effective resource to help customers lower their electricity bills, and encourage long-term change in the market through the adoption of energy efficiency technologies and services.

The Kentucky Power Demand Side Management Program Plan (DSM Case 2015-00271) is the basis for the existing portfolio of DSM programs[2]. AEG designed the process and market evaluation to examine program processes and customer responses to the program. The evaluation identifies methods for gathering data and measuring program results and makes recommendations for program improvements. Evaluation, measurement and verification (EM&V) demonstrates the value of energy efficiency programs by providing accurate, transparent and consistent assessments of program performance and cost-effectiveness.

For this evaluation AEG interviewed three staff members at Kentucky Power, 8 implementation contractors, 592 participating residential customers, and 36 trade allies. The participant survey samples were designed to ensure the results had a 90 percent confidence interval with an error margin of +/-10 percent.

Process and market evaluations identify whether key elements, such as incentive levels, program delivery, program tracking mechanisms and quality assurance/quality control (QA/QC) procedures, are performing as designed and identifies issues or opportunities to improve these key elements. A comprehensive process and market evaluation will:

- Assist program implementers and managers in restructuring existing programs and/or designing new programs to achieve cost-effective savings while maintaining high levels of customer satisfaction.
- Determine awareness levels to refine marketing strategies and reduce barriers to participation.
- Provide recommendations for changing the program's structure, management, administration, design, delivery, operations or targets.
- Determine if specific best practices should be incorporated.
- Gather information from a variety of sources to address the issues stated above.

A comprehensive process and market evaluation provides valuable information to Kentucky Power, its Demand Side Management Collaborative (DSM Collaborative), and various stakeholders to help structure programs to achieve cost-effective savings while maintaining a high level of customer satisfaction. The Residential DSM programs evaluated include:

- Whole House Efficiency Program
- Residential Efficient Products Program
- Community Outreach Program
- Energy Education for Students Program

[1] American Electric Power delivers electricity to more than 5 million customers in 11 states and ranks among the nation's largest generators of electricity, with almost 38,000 megawatts of generating capacity in the U.S.

[22] Two programs, Community Outreach and Energy Education for Students, were not included with the Demand Side Management Program Plan but were retained by Kentucky Power Company and updated for operation beginning with program year 2016.

- New Manufactured Homes Program
- Targeted Energy Efficiency Program
- Appliance Recycling Program
- Residential Home Performance Program

Overall the portfolio performed very well achieving 96% of participation goals and spending 97% of the budget. Customer satisfaction is consistently high across all the programs in the portfolio. The relationships with Kentucky Power and the implementation contractors is strong and all of the necessary processes are in place and running smoothly.

Awareness of Kentucky Power programs is increasing among participants and the program incentives are influential in educating customers and driving interest in energy efficiency

Residential Programs –Program Performance vs. Goals

	Metric	Target	2016 Actual	% Achieved
Whole House Efficiency	Participants	2,497	2,584	103%
	Budget	$1,466,636	$1,649,503	112%
Residential Efficient Products	Participants	413,550	392,846	95%
	Budget	$1,130,845	$1,149,101	102%
Community Outreach	Participants	4,000	4,200	105%
	Budget	$67,680	$33,087	49%
Energy Education for Students	Participants	2,200	2,205	100%
	Budget	$31,368	$37,483	119%
New Manufactured Homes	Participants	135	112	83%
	Budget	$171,500	$101,072	59%
Targeted Energy Efficiency	Participants	175	89	51%
	Budget	$352,410	$277,872	79%
Appliance Recycling	Participants	575	498	87%
	Budget	$95,869	$72,456	76%
Residential Home Performance	Participants	60,000	59,258	99%
	Budget	$604,700	$502,361	83%

This volume describes the methodology, key evaluation findings and provides recommendations for improving the Residential DSM Programs. Volume 1 summarizes the key findings from the process and market evaluation. Volume 3 describes the methodology, key evaluation findings and provides recommendations for improving the Commercial DSM Programs. Volume 4 presents the Appendices.

Abbreviations

AEG	Applied Energy Group, Inc.
AEP	American Electric Power
Agencies	Community Action Agencies
ARCA	ARCA Recycling, Inc.
CFL	Compact Fluorescent Light Bulb
DSM	Demand Side Management
EFI	Energy Federation Incorporated
EISA	Energy Independence and Security Act
EM&V	Evaluation, Measurement and Verification
HSPF	Heating Seasonal Performance Factor
ISR	In-Service Rate
LED	Light Emitting Diode
MOU	Memorandum of Understanding
NEED	National Energy Education Development Project
POS	Point-of-sale
PSC	Kentucky Public Service Commission
QA/QC	Quality Assurance/Quality Control
RCT	Randomized Control Trial
SEER	Seasonal Energy Efficiency Ratio

Definitions

Energy Independence and Security Act: Public Law signed on December 19, 2007 by President Bush. The law (EISA) that pertains to DSM programs is the increase in efficiency of products and buildings.

Program Leakage: Savings that travel outside of the service territory, (e.g., someone buys a discounted LED at a retail store within the service territory, but installs that bulb in a home outside the service territory).

Randomized Control Total: A study in which people are allocated at random to receive an intervention (e.g., home energy reports). One of these interventions is the standard of comparison or control. The control does not receive the intervention.

CONTENTS

1
WHOLE HOUSE EFFICIENCY PROGRAM

Program Characteristics

The objective of the Whole House Efficiency Program is to encourage whole-house improvements to existing homes by promoting home energy assessments and comprehensive retrofit services. Residential customers living in single family, multi-family or mobile homes with an electric central cooling system (i.e., central air conditioner or heat pump) are eligible to participate.

The Whole House Efficiency Program has been adapted and re-organized from three previously implemented Kentucky Power programs: Modified Energy Fitness, Residential High Efficiency Heat Pump and Mobile Home High Efficiency Heat Pump. In mid-2016 the Whole House Efficiency Program incorporated additional measures and program features beyond the previous programs offered including updated incentive levels.

The current program consists of three options, 1) a Home Energy Assessment, 2) Weatherization Measures and 3) HVAC equipment rebates. The weatherization component was added in mid-2016.

Home Energy Assessment. The customer receives an in-home energy audit and direct installation of energy conservation measures free of charge. A professional energy auditor performs the home energy assessment, identifying key areas of the home that are wasting energy and provides recommendations to make the home more energy efficient. Participants are eligible to receive free installation of energy conservation measures. Eligible measures may include:

- High efficiency lighting
- Domestic hot water pipe insulation
- Water heater insulation wrap (electric DHW only)
- Low flow showerhead
- Low flow faucet aerator
- Weatherstripping / caulking / door sweep
- Duct sealing

Weatherization Measures. Customers are eligible to receive incentives for the purchase and installation of air sealing, duct sealing and insulation (attic, wall, basement sidewall and crawlspace). Air and duct sealing must be performed by a participating contractor and a blower door test conducted to verify energy and demand savings. Customers may self-install insulation measures, except for attic insulation. The customer is encouraged to receive a Home Energy Assessment before weatherization measures are installed by a program contractor or as a self-installed stand-alone measure.

HVAC Equipment. Customers are eligible to receive incentives for qualifying HVAC equipment installed by a participating contractor. Qualifying measures include heat pump ductless mini splits, air source heat pumps and smart programmable thermostats. Customers have an option to self-install a smart programmable, communicating thermostat.

Measure Listing and Rebate

The HVAC measure rebate application was updated on July 1, 2016, along with eligible equipment and incentives. The tables below present the rebated measures available to customers, categorized by weatherization measures and HVAC equipment, prior to and post July 1, 2016.

Table 1-1 Pre-July 1, 2016 Measure Requirements and Incentives

	Requirement	Incentive
Heat Pump	SEER 14, HSPF 8.2	$300
Heat Pump	SEER 15, HSPF 8.5	$500
Heat Pump	SEER 13, HSPF 7.7 Replace Resistance Heat w/CAC	$300
Heat Pump (Site Built Homes Only)	SEER 14, HSPF 8.2 Replace Resistance Heat w/CAC	$500

Table 1-2 Post July 1, 2016 Measure Requirements and Incentives

	Requirement	Incentive
Weatherization Measures		
Duct Sealing	≥10% Reduction	$150
Air Sealing	≥20% ACH Reduction	$200
	≥30% ACH Reduction	$250
	≥40% ACH Reduction	$300
Attic Insulation	R-0 upgraded to ≥R-38	$0.30 per sq. ft., up to $200
	R-11 upgraded to ≥R-38	$0.25 per sq. ft., up to $200
	R-19 upgraded to ≥R-38	$0.20 per sq. ft., up to $200
Wall Insulation	≥R-13	$0.30 per sq. ft., up to $250
Basement Sidewall Insulation	≥R-13	$0.30 per sq. ft., up to $200
Crawlspace Insulation	≥R-19	$0.30 per sq. ft., up to $200
HVAC Equipment		
Heat Pump	SEER 15, EER 12.5, HSPF 8.5	$300
Heat Pump	SEER 16, EER 13, HSPF 9	$450
Heat Pump	SEER 19, EER 14.5, HSPF 10	$500
Heat Pump	SEER 14.5, HSPF 8.0 Replace Resistance Heat w/CAC	$300
Heat Pump	SEER 15, HSPF 8.5 Replace Resistance Heat w/CAC	$600
Heat Pump	SEER 16, HSPF 9.0 Replace Resistance Heat w/CAC	$900
Heat Pump	SEER 19, HSPF 10.0 Replace Resistance Heat w/CAC	$1,000
Heat Pump Ductless Mini Split	SEER 21, HSPF 10.0 Replace Resistance Heat	$400
Heat Pump Ductless Mini Split	SEER 23, HSPF 10.5 Replace Resistance Heat	$450
Smart Programmable Thermostat	Existing/New Heat Pump	$50

Contractor Incentives

Prior to July 1, 2016, participating contractors were eligible to receive a $50 incentive for each approved heat pump application; this incentive was eliminated beginning July 1, 2016. Due to feedback from participating contractors, a contractor incentive has been reinstated for the 2017 program year.

In 2017, quarterly cash production rewards will be available to contractors. Contractors who achieve a minimum monthly rebate product target will receive an incentive paid out in the month immediately following the end of each quarter. The first quarter incentive will include the following:

- $250 quarterly incentive for generating a minimum number of approved rebate applications –requires at least 5 unique customer rebate applications be submitted each month of the first quarter (the incentive is prorated for the remaining month of Q4 2016).
- $500 quarterly incentive award for generating the most kWh savings based on major measure rebate applications – for work performed during the quarter based on calculations and established savings values provided by Honeywell (provided at least 5 unique customer applications were submitted and approved each month of the quarter by the leading contractor).
- Additional $500 will be paid on top of quarterly incentives to the contractor submitting the greatest number of approved rebates in total for the calendar year (starting Q1 calendar year 2017)

Program Goals

Goals for the program are 2,497 total incentivized measures and a budget of $1,466,636 in 2016[3].

Table 1-3 Measure Goals 2016

Measure	2016
Audit	1,775
Weatherization	150
HVAC & Smart Thermostat	572
Total	**2,497**

Table 1-4 2016 Budget

Program	2016 Budget Goal
Whole House Efficiency	$1,466,636

Implementation Contractor

Kentucky Power contracted with Honeywell to implement the Whole House Efficiency Program. Honeywell previously implemented the Modified Energy Fitness Program (similar to the Home Energy Assessment portion of the current program) while Kentucky Power previously implemented the Residential High Efficiency Heat Pump and Mobile Home High Efficiency Heat Pump programs (similar to the HVAC equipment portion of the current program).

The responsibilities of Honeywell include:

- Provide full service implementer and administrator support services
- Plan and implement marketing and outreach services, design and develop marketing materials, in

[3] Program Goals Case 2015-00271

collaboration with Kentucky Power

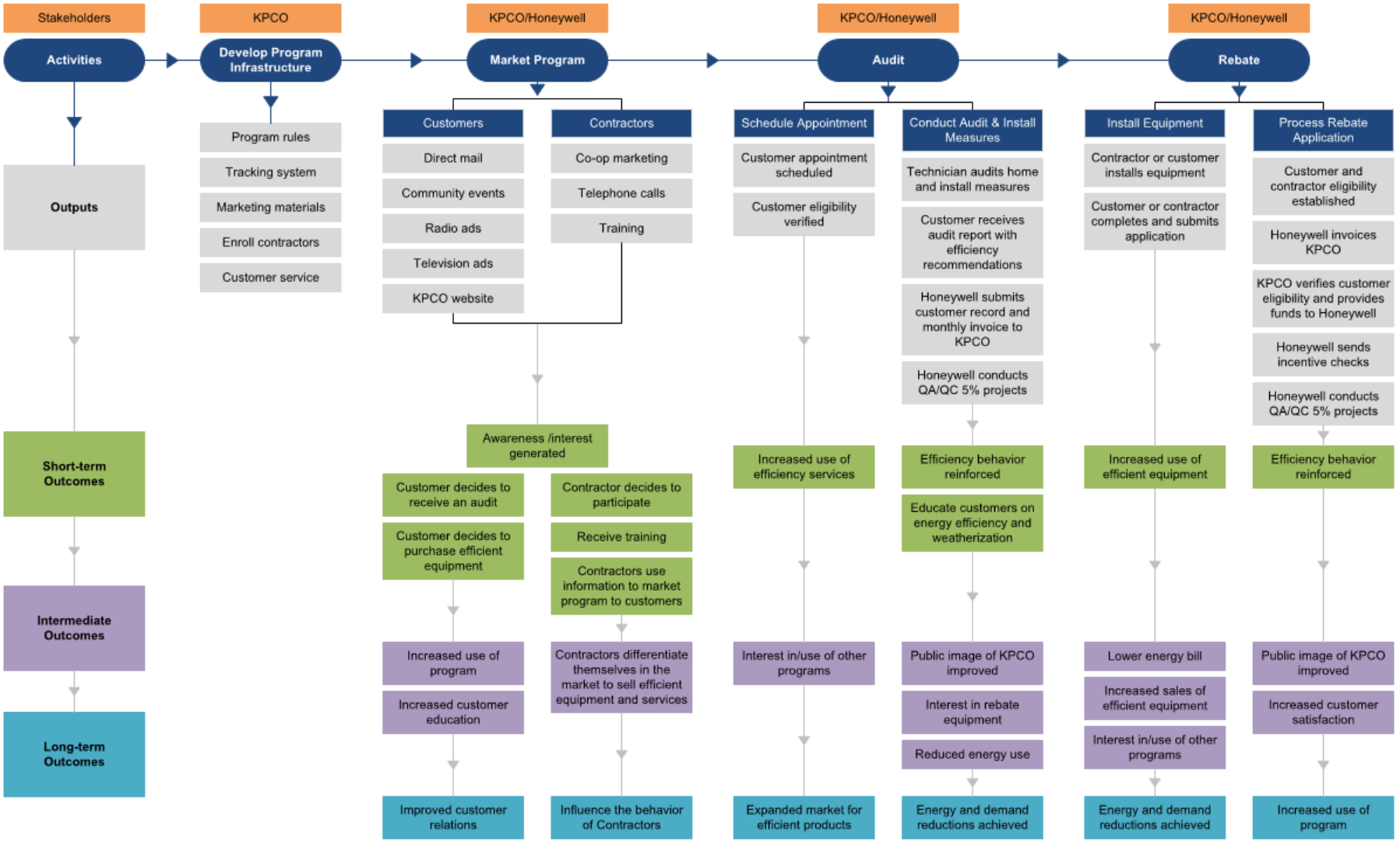
- Provide customer education on energy efficiency while marketing and enrolling customers for home assessments at Kentucky Power sponsored community events
- Administer and expand trade ally network, including recruitment and training
- Verify customer eligibility and schedule home assessments
- Perform home assessments and install low intrusion measures, (e.g., High efficiency lighting , hot water pipe insulation, water heater insulation wrap, low flow showerhead, low flow faucet aerator, weather-stripping / caulking / door sweep, duct sealing)
- Process HVAC and weatherization rebate applications, including application review and customer incentive payment
- Provide customer service support, operate customer call center, and intercept and process customer complaints
- Track program participation and activities
- QA/QC site inspection of installed weatherization and HVAC equipment
- Administer customer surveys to assess satisfaction with program

Program Flow

A program logic model is a graphic representation of a program and its processes. Logic models make the program's assumptions explicit, showing the causal relationships or linkages among the problem or situation the program is designed to address, the intervention (inputs and outputs), and program impact (short, medium and long-term outcomes). Logic models also serve to identify processes and relationships critical to the program's performance.

Program Logic Model

Inputs: PSC filings, Kentucky Power program staff, Implementation Contractor, participating customer survey, contractor interviews, program materials



Program Activities

The program activities and their corresponding outputs help to establish linkages between the situation the program is designed to address and the program's intended outcomes. Program activities include:

Program Infrastructure

Activities conducted by Kentucky Power include developing program requirements, hiring an implementation contractor, and approving marketing materials. Kentucky Power hired Honeywell as the implementation contractor. Honeywell is responsible for scheduling customer assessment appointments, preparing marketing materials subject to Kentucky Power's approval, maintaining the program tracking system, conducting assessments, processing rebates, enrolling new contractors and maintaining relationships with existing contractors, and customer service.

Market Program

Kentucky Power and Honeywell work together to draft marketing materials for customers and contractors. The program is marketed to customers using direct mail, community events, radio ads, television ads and the Kentucky Power website. The program is marketed to contractors through co-op marketing,[4] telephone calls and trainings. Additionally, the program is marketed on the Kentucky Power website and participating contractors are listed on the website.

Conduct Audits

Customers contact the Honeywell call center or enroll online to schedule an energy assessment. The technician audits the customer's home, presents the customer with a report detailing the results and efficiency recommendations, and installs the appropriate low intrusion measures. Honeywell follows-up with the customer after the assessment to ensure the customer is aware of the additional measure opportunities and how the customer can move forward to get those measures installed. If the customer decides to install an HVAC system or upgrade insulation, he or she will receive a rebate for the measure after installation. Honeywell submits the customer record and monthly invoice to Kentucky Power. Honeywell conducts site inspections on five percent of projects.

Process Rebate

A participating contractor installs the equipment or, in some cases, the customer self-installs. After installation, the customer or contractor completes and submits an application for rebate. Customer eligibility is confirmed and Honeywell invoices Kentucky Power. Kentucky Power also verifies the customer's eligibility and provides the funds to Honeywell. Honeywell then sends the rebate check to the customer. Honeywell conducts QA/QC on 5% of projects.

Outcomes

Outcomes are the result of program partners and target audiences responding to the outputs of the program. There are short-term, intermediate, and long-term outcomes of the program.

Short-term Outcomes

The marketing materials generate customer awareness and interest in the program. Customers receive an energy assessment at no additional cost. As a result, the customer learns about their options to save energy and money. The customer may decide to purchase and install the recommended efficient measures, thus leading to increased use of efficiency services and equipment.

[4] The cost of the marketing materials is shared between the participating contractor and the Kentucky Power program.

The marketing and rebates lead to increased customer interest and may attract potential contractors to participate in the program. Contractors receive training on the program and the efficient measures. As a result, contractors become more knowledgeable of the program and measures. Contractors are able to use the information to market the program and their services to customers, as well as educate customers on energy efficiency and weatherization.

Intermediate Outcomes

Intermediate outcomes may include increased program participation, customer education, customer satisfaction, and interest and participation in other programs. Contractors can differentiate themselves in the market to sell efficient equipment and services. The program generates interest in rebate equipment, which leads to increased efficient equipment sales. This may reduce energy use, lower customer energy bills and improve the public image of Kentucky Power.

Long-term Outcomes

The long-term outcomes may include increasing program use, influencing behavior of contractors, expanding the market for efficient products, achieving demand and energy reductions, and improving customer relations.

External Factors

There are a variety of factors outside the control of Kentucky Power and Honeywell that may influence the program:

- Changes in political priorities (e.g., codes and standards, state and local regulations, federal policies, perceptions of energy and climate change)
- Increased efficiency standards
- Macro-economic conditions and associated impacts on customer actions
- Energy prices and regulation
- Changes in utility rate structures
- Perceptions in the value of conservation
- Competing interests among demand side customers

Documenting these factors helps improve program planning by identifying important program partners, the part(s) of the issue the program can realistically influence, which evaluation measures will accurately reflect project outcomes, and other needs that must be met to address this issue.

Methods

AEG designed the evaluation to examine program processes and customer responses to the program. The focus of the evaluation activities was to gain a better understanding of program operations, assess the overall effectiveness of program operations, and identify areas for program improvement. The evaluation was guided by the following key researchable issues:

- Does the program implementer have sufficient resources to effectively implement the program?
- Is the tracking system effective for documenting and reporting program progress?
- Is the program achieving program goals?
- What marketing efforts resonate with customers/participating contractors?

- Are auditors/participating contractors sufficiently knowledgeable about the program? Energy efficiency equipment? Audits?
- Are customers/participating contractors satisfied with the program?
- Are rebate applications processed, approved and paid on a timely basis?
- Is the rebate processing system effective in managing the application and payment process?
- Are invoices processed, approved and paid on a timely basis?
- What are the significant drivers of participation (e.g., free audit)?
- What are the areas for program improvement?
- What are the barriers to program participation? How can those barriers be overcome?
- Has program participation generated interest in other Kentucky Power programs? In other energy efficiency actions outside of Kentucky Power energy savings programs?
- Are there Federal/State/Local codes or standards changes that impact the program (e.g., EISA)?

To arrive at the final recommendations in this report, AEG reviewed program materials and the program tracking system, conducted staff, implementer and contractor interviews, and surveyed participants.

Program Materials

AEG reviewed current program documents and processes including, but not limited to, Kentucky Power's Demand Side Management (DSM) Program Plan, the implementation contractor work authorization, participating contractor details, samples of program materials (i.e., homeowner audit report, incentive check, application forms, contractor letter), samples of marketing materials (i.e., radio ads, promotional brochure, digital banners, bill inserts, fact sheet, newspaper ads etc.), and program tracking data. The review served as the basis for understanding whether the program has been implemented as planned and is on track to meet program goals.

Program Tracking System

AEG reviewed Kentucky Power and Honeywell's program tracking systems. AEG developed a program tracking data checklist to evaluate the program tracking databases and ensure that all critical pieces of program data were tracked.

Staff and Implementer Interviews

AEG conducted a comprehensive, group interview with Kentucky Power program staff in October 2016 to gather staff impressions of program implementation activities, program performance, program delivery issues, marketing and customer awareness, and opportunities for program improvements.

AEG interviewed Honeywell in November 2016. The interview provided information on program implementation activities, tracking methods, program marketing, customer participation, and satisfaction. The interview guides can be found in Appendix A.

Participating Contractor Interviews

Participating contractors were interviewed to assess the impact of their participation in the Whole House Efficiency Program. A total of 10 interviews were conducted. All the contractors were local HVAC contractors who have been in business for decades. Eight of the 10 contractors were the business owner or business partner. The remaining two contractors were secretaries that were involved in the rebate processing and customer relations. The interview guide can be found in Appendix B

Participant Surveys

AEG administered a telephone survey to a random sample of participants from January 26 – 30, 2017. Kentucky Power provided data for residential customers who participated in the program in 2016. There were no incentives for Weatherization Measures. The sample was developed by separating the participants into two groups:

- Home Energy Assessment: participants that received an audit or received an audit and an incentive for HVAC equipment installed. There were 1,700 customers that only received an audit and 48 customers that received an audit and rebate.
- HVAC Equipment: participants who received an incentive for HVAC equipment installed and did not receive a home audit. There were 737 unique customers that received only a rebate for HVAC equipment.

AEG calculated the sample size at a 90 percent confidence interval with an error margin of +/-10 percent. The resulting sample sizes to achieve the designated confidence are shown in the table below. Participants were randomly selected and contacted to complete the survey.

Table 1-5 Sample Development

	Unique Participants	Sample Size
Home Energy Assessment	1,748	66
HVAC Equipment	737	63

Respondents were screened to ensure that they remembered participating in the program. The survey asked respondents to assess program experience and awareness, satisfaction, barriers to participation and areas for potential program improvement. The survey guide can be found in Appendix C.

Evaluation Results

This section provides key evaluation findings, including program performance, program processes, program marketing, program participation, program effectiveness and customer satisfaction.

Program Performance

As a re-organized and updated program beginning in 2016, Honeywell acknowledged that there were issues regarding the expanded measure offerings and the contractor base to support those measure offerings. But even with the roadblocks, the program achieved 105% of the participation goal and spent 112% of the program budget.

Table 1-6 2016 Goals vs. Actual – Budget

Metric	Target	Actual	% Achieved
Evaluation	$8,500	$13,395	158%
Delivery	$655,800	$611,660	93%
Promotion/Marketing	$110,692	$220,634	199%
Education	$0	$8,533	
Customer Incentive	$228,646	$313,450	137%
Performance Payment	$46,879	$35,599	76%
Information Technology	$96,000	$10,500	11%
Installed Measure	$333,398	$404,333	121%
Vendor Incentives	$33,600	$31,400	93%
Total Cost ($)	**$1,466,636**	**$1,649,503**	**112%**

Overall, the program performed well in terms of total program participants. In 2016, 1,748 customers received an energy audit and accompanying direct install measures, and 836 HVAC and smart thermostat measures were rebated. However, there were no participants that received a rebate for weatherization measures (air sealing, duct sealing, wall and attic insulation).

Table 1-7 2016 Goals vs. Actual – Participation

	Target[5]	Actual	% Achieved
Audit	1,775	1,748	98%
Weatherization	150	0	0%
HVAC & Smart Thermostat	572	836	156%
Total	**2,497**	**2,584**	**103%**

Forty-nine customers received an audit and purchased a rebated HVAC measure, 737 participants only purchased a HVAC measure, and 1,699 only received the audit and direct install measures.

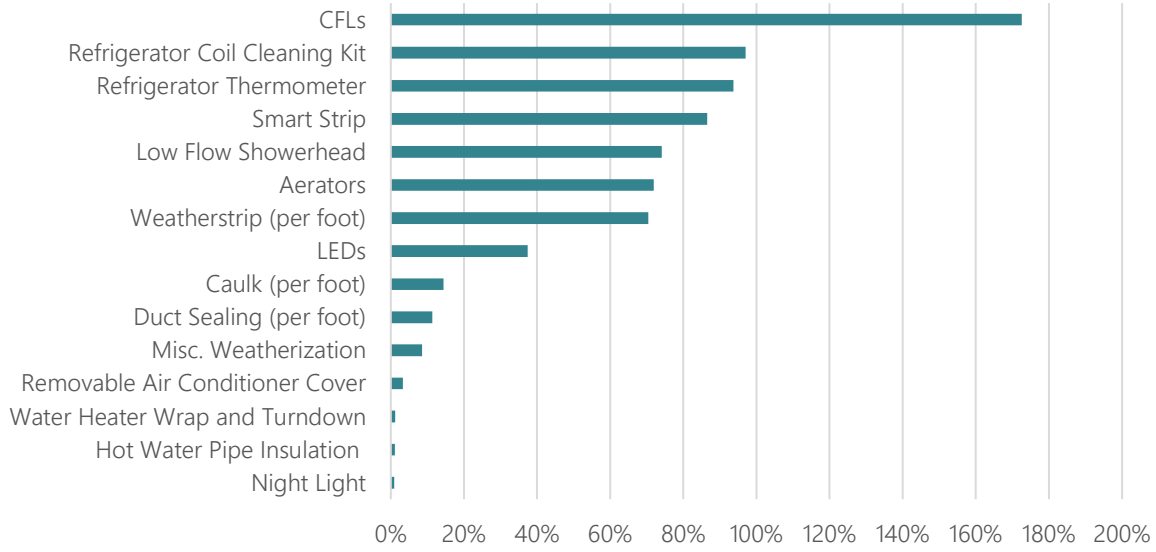
Participants who received an audit received multiple direct install measures. The most popular measures include CFLs (participants received multiple), refrigerator coil cleaning kit, refrigerator thermometer, smart strips, low flow showerhead, aerators and weather stripping. There were low installations of LEDs, hot water pipe insulation, and duct sealing. This is improving in 2017: as of June, 2017, 25% of audit participants have received pipe insulation.

[5] Case 2015-00271

Table 1-8 Participation in Direct Install Measure Categories

	Total Number of Participants	% of Total Audit Recipients
Lighting	1,745	99.8%
Weatherization	1,235	70.7%
Water Measures	1,349	77.2%
Misc. Measures[6]	1,747	99.9%

Figure 1-1 Audit Direct Install Measure Participation as a Percentage of Total Audit Recipients



An analysis of the program tracking data showed that 785 participants received rebates for 835 HVAC and smart thermostat measures. Ninety-six percent[7] of the total measures rebated were heat pump systems. Seventy-five percent of the participants received rebates under the older program requirements. Of the customers who purchased heat pumps, 40% replaced resistance heat and 60% replaced an existing heat pump system.

An analysis of the program tracking database revealed that 2 applications were incorrectly incentivized due to incorrect information provided by the contractor. Honeywell is cross referencing the data from the contractor with the AHRI to prevent this issue from recurring.

A total of 325 participants replaced resistance heat with a new efficient heat pump. Sixty-three percent installed the heat pump prior to July 1, 2016, under the older program requirements and during the program transition to new and updated HVAC incentives offered with the Whole House Efficiency program. Most participants purchased a 14<15 SEER, <8.5 HSPF heat pump (75%).

[6] Misc. weatherization includes Foam, Door Sweep, and Switch & Outlet Gaskets.

[7] The remaining measure rebates include 29 smart thermostats and 2 Ductless Mini Split Heat Pumps.

Table 1-9 Heat Pump Equipment Efficiency – Replacing Resistance Heat (Percent)

	<8.5 HSPF	8.5<9 HSPF	9<10 HSPF
13<14 SEER	1.5%	0.0%	0.0%
14<15 SEER	75.1%	11.4%	0.3%
15<16 SEER	2.2%	3.7%	2.5%
16<19 SEER	0.0%	1.2%	1.8%
≥19 SEER	0.0%	0.0%	0.3%

A total of 479 participants replaced an existing heat pump with a new efficient heat pump. The majority of participants (88%) installed the heat pump prior to July 1, 2016, under the older program requirements and during the transition to the new and updated HVAC incentives offered with the Whole House Efficiency program. Participants replacing an existing heat pump typically opted for higher efficiency units than participants that replaced resistance heat. The largest group of participants purchased a 14<15 SEER, <8.5 HSPF heat pump (43.2%), a lower proportion compared to customers who replaced resistance heat. The second most popular unit was a 15<16 SEER, 9<HSPF heat pump (16.7%).

Table 1-10 Heat Pump Equipment Efficiency – Replacing Heat Pump (Percent)

	<8.5 HSPF	8.5<9 HSPF	9<10 HSPF	≥10.0 HSPF
14<15 SEER	43.2%	10.0%	2.5%	0.0%
15<16 SEER	0.6%	11.7%	16.7%	0.0%
16<19 SEER	0.2%	2.7%	11.3%	0.4%
≥19 SEER	0.0%	0.0%	0.0%	0.6%

Program Processes

Interviews with Kentucky Power, Honeywell, and participating contractors assessed how well the program is performing in terms of staffing resources, communication, and quality assurance and quality control.

The relationship between Kentucky Power and Honeywell is very good. There is a continuous flow of communication and data between Honeywell and Kentucky Power – including frequent meetings on program updates, program status and invoicing reviews – which minimized data errors during the transition to the new program design. Honeywell has dedicated a sizable amount of resources to the program by hiring more staff to take on the expanded program. They added a program manager in July who is dedicated solely to the Kentucky Power program. They have 4 auditors in the field, call center staff to conduct scheduling and a field specialist who provides training. Honeywell believes the transition from the previously implemented programs – Modified Energy Fitness, Residential High Efficiency Heat Pump and Mobile Home High Efficiency Heat Pump – to the Whole House Efficiency Program has been smooth, and that they have resolved any initial road blocks that occurred. Honeywell believes that their experience with running these types of programs and the auditing software they use have contributed to program success.

Honeywell and Kentucky Power both acknowledge the challenges with the weatherization component of the program. Kentucky Power noted that there is a ramp up period for the new HVAC/Weatherization measure offerings and a need to build up the participating contractor network that can complete the

weatherization work. Honeywell is aware of this need and is working to improve the network to properly support the program. Honeywell intends to increase visibility with contractor visits and training sessions.

Honeywell has also encountered issues with outbound calling of customers, as Kentucky Power is restricted from directly calling customers to market energy efficiency programs[8]. To work around this marketing challenge, Honeywell is looking to enhance marketing in other ways, with more community events and visibility in the community.

Honeywell received negative feedback from contractors regarding the removal of the $50 participating contractor incentive as of July 1, 2016. This is addressed further below in the participating contractor interview results. To address this complaint, Honeywell is implementing a quarterly production rewards program beginning in 2017. Participating contractors will have the ability to earn quarterly cash rewards for generating a minimum number of approved rebate applications.

A new HVAC rebate application was administered on July 1, 2016 when Honeywell began implementing customer HVAC rebates for the Whole House Efficiency. The application is available via Kentucky Power's website. There are two small inconsistencies between the application and the website: (1) Duct sealing is listed as a weatherization measure on the website but as HVAC equipment on the application and (2) The application states that the customer must have an electric central cooling system (i.e., retrofits only) and that smart programmable thermostat incentives are only available to customers with a heat pump (This is buried within the 'Program Rules and Equipment Eligibility Requirements' on the application). Kentucky Power has requested that Honeywell review the applications and fix any inconsistencies.

Participating Contractor Interviews

All of the participating contractors mentioned some type of positive relationship with either Honeywell or Kentucky Power. But two participating contractors noted difficulties in communication and application approval.

> *"Excellent communication and responsiveness."*
>
> *"It has always been a good relationship with Kentucky Power. With Honeywell it has been different, now it is much harder to get them [the applications] approved."*
>
> *"Honeywell has done a good job, very responsive."*

8 out of 10 contractors feel that they receive enough support, information and training and 8 of the 10 feel the program benefits their business.

Participating contractors have noticed a difference between the program when it was run by Kentucky Power and as it now exists with Honeywell as implementer. Several participating contractors mentioned that there was confusion after the program switched to Honeywell – some were able to resolve that confusion and others were not – which has affected their participation in the program.

Most of the participating contractor comments centered on the installation of heat pump measures and highlighted their unfamiliarity with the weatherization measures. One participating contractor specifically mentioned that the weatherization measures are not handled well by participating contractors and/or the program because the measures are underutilized.

None of the participating contractors reported that the removal of the $50 participating contractor incentive has affected their participation in the program.

[8] FCC Ruling 8/4/2016 https://apps.fcc.gov/edocs_public/attachmatch/FCC-16-88A1.pdf

"We don't install the equipment for the incentive, we install it for the customer to get the best efficiency."

"It was a nice thing. We have to sell the high efficiency equipment anyways, so it has not affected participation in the program."

"It kind of gives an extra incentive to deal with the paperwork. But as long as it is good for the customer. More important for the customer to receive more money than the contractors."

Several of the participating contractors expressed the sentiment that they are "not in it for the money." However, almost all also echoed the sentiment that the incentive was an added bonus because of the uptake in application complexity and expressed their disappointment in the discontinuation. As previously mentioned, contractor cash production rewards have been incorporated back into the program for the 2017 program year.

Program Tracking Database

Honeywell tracks program data through their own audit tool software and program tracking system. AEG developed a program tracking data checklist to evaluate Honeywell's tracking system. Honeywell collects all the recommended data except for retail equipment price, estimated kWh savings, and date incentive paid. The tracking system includes date of audit completion, application receipt, and application approval – which are sufficient for the evaluation.

Table 1-11 Program Tracking Checklist for Whole House Efficiency Program

Data Required	Tracked in Database
Participating Customer Information	✓
Participating Contractor Information	✓
Audit Completion Date	✓
Application Receipt Date	✓
Application Acceptance Date	✓
Measure Group/Equipment Type	✓
Existing Unit for Replacement	✓
Manufacturer or Product Identifier	✓
Equipment Size & Quantity	✓
Efficiency Level	✓
Number of Products Incentivized	✓
Date Incentive Paid	✓
Dollar Value of Incentive	✓
Retail Price	✓
Retailer Name	✓
Estimated kWh Savings	✓

✓ Data included
O Data missing

Quality Control/Quality Assurance Procedures

Honeywell conducts site visits for 5% of the all projects completed. Honeywell follows up with auditors and reviews the major measure installations. Any issues with participating contractors results in a warning and possible probation. Honeywell has an internal system of checks and balances that flags ineligible applications and measure mistakes.

Program Marketing

During the participant surveys, customers who participated in the program were asked about their awareness of the Kentucky Power program and their reason for participating. Marketing was also addressed in the program staff, implementer and participating contractor interviews. AEG reviewed the marketing schedule and marketing materials provided by Honeywell.

Honeywell and Kentucky Power's comprehensive 2016 marketing campaign used diverse modes of communication, such as digital banners, contractor search portal, postcard follow-ups and more.

Table 1-12 Program Marketing Schedule for 2016

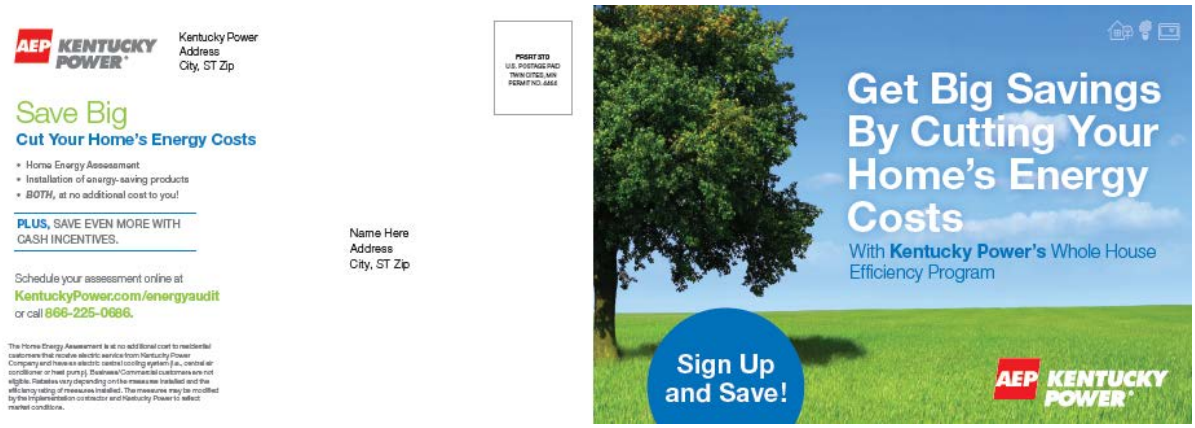
Deliverable	Date
Bill Inserts	May, August, December
Direct Mail	Spring and Fall Mailing
Radio Spot	July - November
Contractor Letter	May
Fact Sheet	June
Brochures	July
FAQ Sheet	July
Website[9]	August – Site live
Digital Banners	October
Major Measures Follow Up Postcard	November
Newspaper Ad	Ongoing
Bill Messages	Ongoing
TV Spot	September - December

Below are samples of the direct mailings and bill inserts issued throughout the program year.

Figure 1-2 Sample Bill Insert

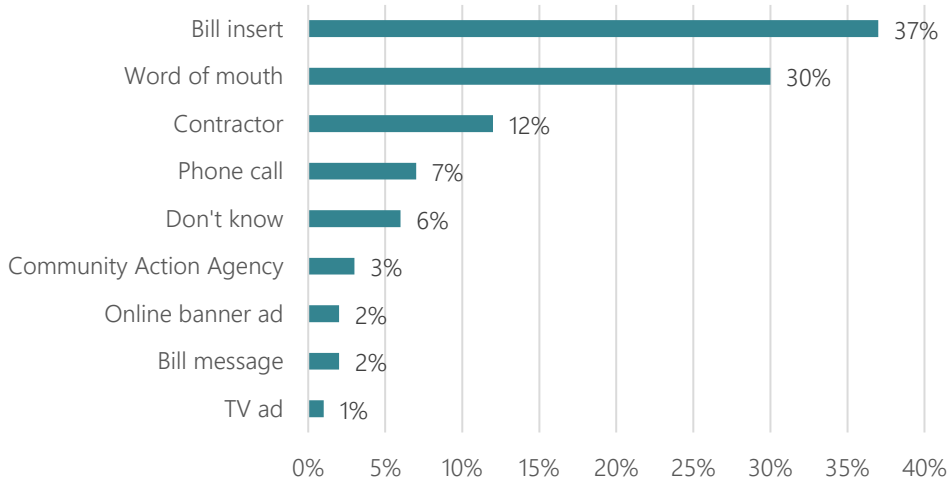
[9] Development of 5 informational pages plus online contractor search tool and rebate status tool.

Figure 1-3 Sample Direct Mailer



The largest proportion of participants heard about the program through a Kentucky Power bill insert or from friends, family or co-workers. Twelve percent found out about the program from a participating contractor.

Figure 1-4 How Participants Heard about Program

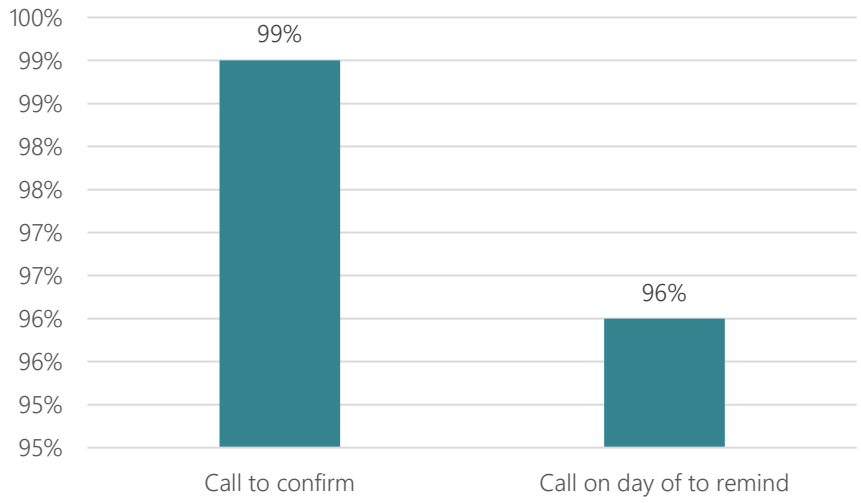


Program Participation

Home Energy Assessment

Almost all participants (98%) said they were able to schedule an assessment at a convenient time. The time it took between the call to schedule and have the assessment performed ranged from 1 to 60 days, with an average of 10 days. All participants felt this wait time was reasonable. Ninety-nine percent of participants said they received a call to confirm their appointment, and 96% said they were called ahead on the day of the appointment.

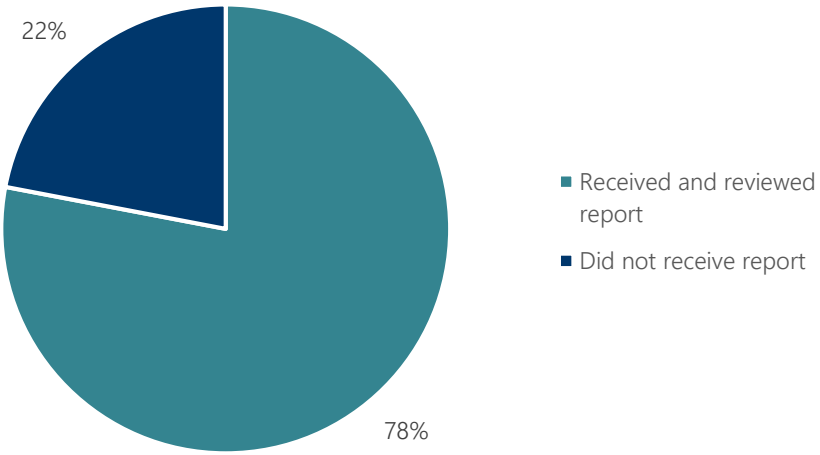
Figure 1-5 Percent of Customers that Received Reminder Calls



Most participants (91%) said that measures such as LEDs, faucet aerators, low flow showerheads, water heating and pipe insulation, duct sealing, or weather stripping were installed during the assessment. Seven percent of participants who had measures installed have since removed them; one customer removed LEDs, 2 removed a low flow showerhead and 1 removed a faucet aerator.

Seventy-eight percent of participants said they received and reviewed a report during the assessment that included recommended improvements for their home.

Figure 1-6 Percent of Customers Who Received and Reviewed a Report during Assessment

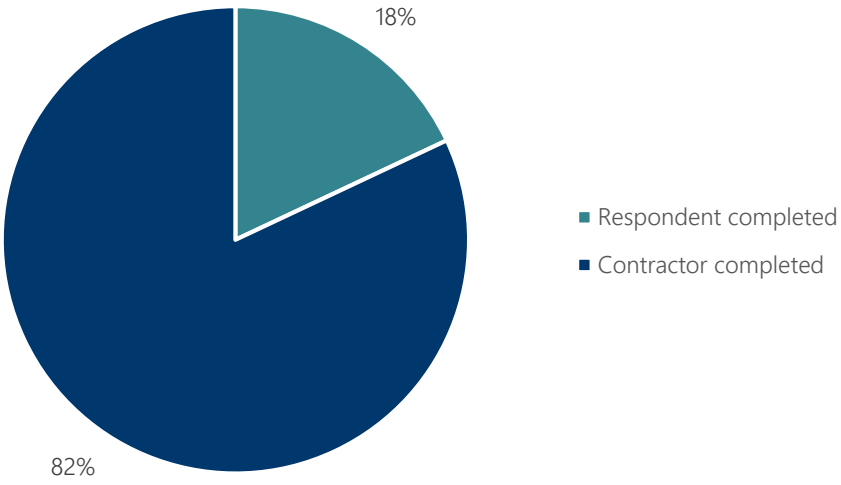


A little over half of participants (53%) said they received information about rebates and incentives available from Kentucky Power during the assessment.

HVAC Rebates

Sixteen percent of customers purchased and installed equipment that qualified for a rebate. Most of these participants (80%) installed heat pumps and a little over a quarter installed smart thermostats. Eighty-two percent of participants said the participating contractor completed the rebate application.

Figure 1-7 Percent of Who Completed the Rebate Application

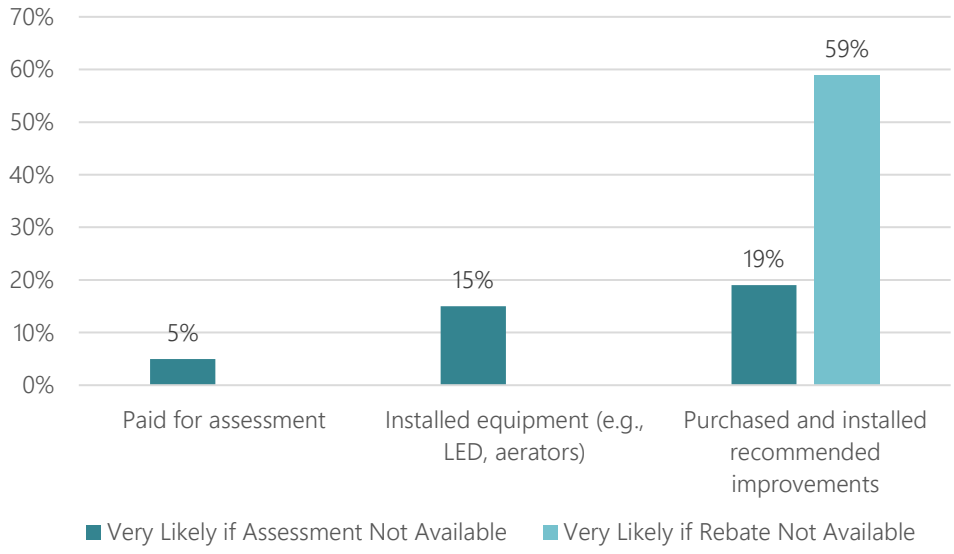


Program Effectiveness

Program Influence

Five percent of assessment participants said they would have paid for the assessment on their own if the program had not been available. Fifteen percent said they would have installed the direct install equipment (e.g., LEDs, aerators, etc.) and 19% said they would have purchased and installed the recommended improvements if the assessment had not been available through the program. More than half of HVAC participants (59%) said they would have installed the HVAC equipment if a rebate had not been available. Ten percent of participants said they purchased additional energy efficient equipment as a result of participating in the program and did not receive a rebate for their purchase.

Figure 1-8 Likelihood of Completing Program Components if Program Not Available



Five out of 10 participating contractors interviewed believe that the customer would not have purchased the same high efficiency unit without the rebate. Only 2 believe that the customer would have purchased the same unit.

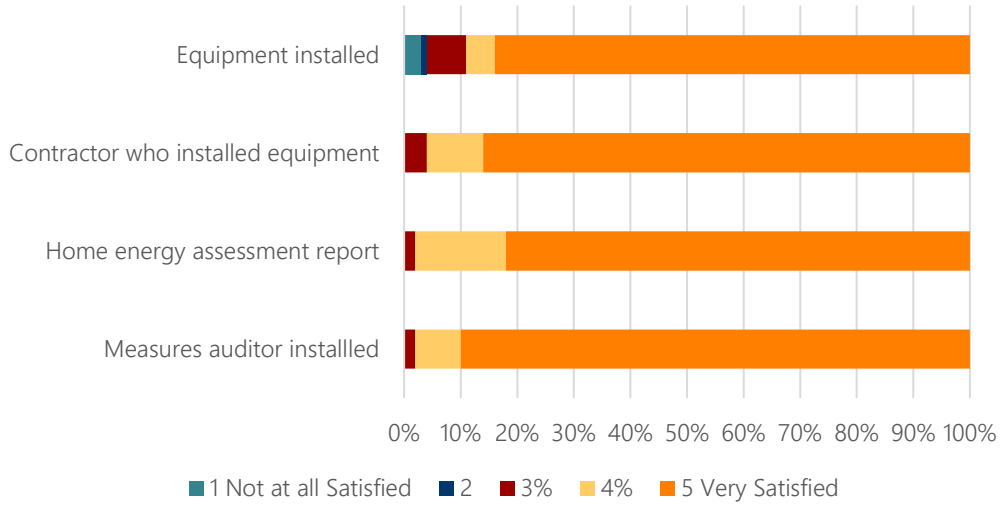
> *"Probably not. The rebate has a lot to do with it. People like to get money back."*
>
> *"Yes, they would have – a lot of them don't even know about the rebate. The salesmen have to inform the customer about the rebate and many of them were going the energy efficiency route anyways."*

Five out of 10 participating contractors believe the rebate and audit to be influential. They believe that the audit and rebate are influential for those customers on the fence about purchasing but the people who bought the higher SEERs would have done so regardless.

Participant Satisfaction

Satisfaction with all aspects of the program are high, with most participants giving a rating of 5 on a 5-point scale.

Figure 1-9 Satisfaction with Various Aspects of the Program



The high customer satisfaction was reinforced by participating contractors. In the in-depth interviews, all contractors noted that customers are satisfied with the equipment installed. Seven of the 10 participating contractors reported their customers are satisfied with the program. However, 3 of the 10 participating contractors noted that their customers were not fully satisfied due to increased program qualification requirements and decreased rebate amounts.

> *"When the customers get rejected – that's when it is hard. They need more explanation and flexibility. If you meet two of the three requirements you should get a rebate."*

Participating Contractor Satisfaction

Participating contractors are mostly satisfied with Honeywell, but are frustrated with the additional application paperwork, change in qualifying units, reduction in rebates and discontinuation of the participating contractor incentive (i.e., the July 1, 2016 program changes).

- 8 of the 10 participating contractors report that the application is easy to complete, but 3 of the 8 contractors also note that there is more paperwork with the new application.
- 8 out of 10 participating contractors feel that they receive enough support, information and training.

Participating contractors indicated that the responsiveness of Kentucky Power/Honeywell, the promotion of the EE equipment, and the rebates are working well in the program. However, 3 of the 10 participating contractors did not believe the program was working well for the following reasons:

- Discontinuation of participating contractor incentive
- Rebates have decreased and requirements have become more strict
- Application and program process from start to finish has become more complex

Participating contractors cite the following recommended improvements:

- Reduce the qualifying SEER rating
- Reinstate the participating contractor incentive
- Increase the rebates, particularly for duct sealing
- Reduce the amount of paperwork required when submitting the application
- Allow the application to be emailed, not only faxed
- Improve the communication specifically about following up on rebate checks
- Hire more staff to promote and educate participating contractors and customers and/or send out a representative directly to homes to educate and increase customer knowledge

Awareness of Kentucky Power Programs

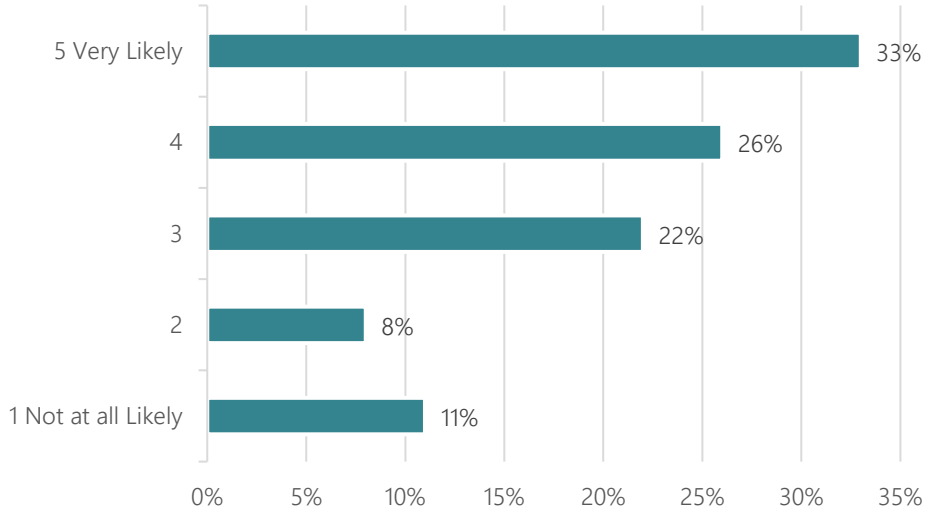
The majority of participants (66%) are aware of other Kentucky Power programs with the largest proportion (49%) being aware of the Appliance Recycling Program.

Table 1-13 Participation in Other Kentucky Power Programs

Program	Percent of Respondents
Appliance Recycling	49%
Residential Efficient Products	27%
Community Outreach	30%
New Manufactured Home	12%
Targeted Energy Efficiency	37%
None	34%

More than half of participants who were aware of one or more programs said it was at least somewhat likely that they will participate in other Kentucky Power energy saving programs in the future.

Figure 1-10 Likelihood of Participating in a Kentucky Power Program in the Future



Conclusions and Recommendations

Main Findings

In 2016, the Whole House Efficiency Program performed 1,748 audits and rebated 884 HVAC measures while spending 112% of the budget.

Table 1-14 2016 Program Performance versus Goal

Metric	Target	2016 Actual	% Achieved
Audit	1,775	1,748	98%
Weatherization	150	-	0%
HVAC & Smart Thermostat	572	884	155%
Program Expenditures	**$1,466,636**	**$1,649,503**	**112%**

The evaluation revealed the following program strengths and challenges:

Program Strengths

- Home Energy Assessments are strong, as well as the direct installation of low intrusion measures installed during the audit(e.g., High efficiency lighting , hot water pipe insulation, water heater insulation wrap, low flow showerhead, low flow faucet aerator, weatherstripping / caulking / door sweep, duct sealing)
- Customers are becoming more educated about energy efficiency and weatherization through the energy assessment due to the high quality of the contractor interaction and the report.
- During the assessment customers receive a variety of direct install measures and few are removed after the audit is completed.
- Awareness of the benefits of high efficiency HVAC equipment is increasing and more customers are installing high efficiency HVAC due to the program.
- Processes are running smoothly:

- The relationship between Kentucky Power and Honeywell has been positive.
- According to the participating HVAC contractors interviewed responsiveness of Honeywell with participating contractors has been good.
- No problems were identified with program data or invoicing.
- Effective QA/QC procedures are in place.
- The implementation contractor is adapting quickly to the changing lighting market, and is transitioning from CFLs to LEDs for audit direct install measures.

Program Challenges

- Participating HVAC contractors are somewhat dissatisfied with the length of the application, the increase in SEER level to qualify and the discontinuation of the participating contractor incentive.[10]
- Promotion and implementation of the rebated weatherization component is ineffective; there were no participants in 2016 for the weatherization component.
- There is a lack of qualified participating contractors to promote and install weatherization component
- Low installation rates of high impact direct install measure such as LEDs, hot water pipe insulation and duct sealing in the assessment component of the program.
- Lower installation of higher efficiency ≥15 SEER heat pumps.
- Seventy-five percent of the participants received HVAC rebates under the older program requirements during transition from existing the existing HVAC programs to the new Whole House Efficiency program .
- The participant survey shows low customer awareness of other Kentucky Power programs.

Recommendations

The evaluation team recommends the following actions to improve the program:

Recommendation 1: Conduct focus groups or additional training sessions with local participating contractors to discuss program components, clear up any confusion/frustration surrounding program changes and discuss potential solutions. The decision to hold focus groups or additional training would depend on Honeywell's needs. Focus groups would serve a research purpose if Kentucky Power or Honeywell need to better understand why contractors are confused or frustrated, and require feedback on training curriculum to ensure it is being received positively and is helpful. Additional training sessions would serve a need to reach more contractors more frequently to clear up any confusion and would rely on existing training materials.

- Only 12% of surveyed customers heard about the program from a participating contractor – this indicates that participating contractors may not be sufficiently promoting the program.
- Participating contractors have expressed dissatisfaction with several program components including application length, rebate check follow up, rebate amounts and qualifying SEER levels.

  Rationale: In-person meetings will continue to educate participating contractors of the newly organized program and clarify any lingering confusion. The focus groups would allow Honeywell to better understand why contractors are confused and allow them to develop and test out additional training curriculum.

[10] A modified contractor incentive has been implemented in 2017.

Recommendation 2: Recruit and train qualified contractors for weatherization component by working with local distributors and local trade associations to find and train contractors.

- Several participating contractors highlighted confusion and a lack of knowledge surrounding insulation measures.
- There were no participants in the rebated weatherization component of the program,

  Rationale: Recruitment and training will help to address the lack of qualified and knowledge participating contractors in the service territory.

Recommendation 3: Remove the EER requirement for eligible air source heat pumps.

- Kentucky Power has received feedback from the dealers stating that the demand and availability of units that meet previous EER requirements are low, particularly for the SEER 16 and SEER 19 tiers.
- Using updated cost data for air source heat pumps from a recent cost analysis conducted by Cadmus for Ameren Illinois11, AEG determined that the measure will remain cost effective for all three tiers (SEER 15, SEER 16, and SEER 19) with the elimination of the EER requirement.

  Rationale: Dealers are imperative to the program delivery and if they cannot sell qualifying units, the program is in danger of not meeting its participation goals. Eliminating the EER also simplifies the requirements making it easier for both customers and dealers to understand.

Recommendation 4: Increase awareness of other Kentucky Power programs by providing more marketing materials for auditors on additional Kentucky Power programs.

- The customer surveys indicated low customer awareness of the other individual KCPO programs. Over 66%, were aware that there were other programs, however, only 27% were aware of the Efficient Products Program and 30% were aware of the Community Outreach program.
- A little over half of participants (53%) said they received information about rebates and incentives available from Kentucky Power during the assessment.

  Rationale: The Whole House Efficiency Program offers an opportunity to cross promote other Kentucky Power programs. Auditors are in customer's homes with their undivided attention. Providing additional marketing materials and education to auditors on other Kentucky Power programs is a cost-effective way to introduce customers to other programs. Customers may not utilize the other programs themselves, but may know a friend or family that can. In 2017, Kentucky Power has provided fact sheets on other programs to the auditors.

Recommendation 5: Clarify program requirements and confirm with participating contractors that applications can be submitted via email.

- Some participating contractors are not aware the application can be emailed, not only faxed.

  The program requirements differ on the application versus the website with respect to customer heating type and presence of cooling equipment.

  Rationale: Clarifying program requirements will reduce confusion among customers and

[11] http://www.ilsag.info/il_trm_version_6.html

participating contractors. Some contractors are not aware that the applications can be submitted via email, mail or fax. Making them aware of this may streamline the application process and make it easier and more efficient for contractors.

Recommendation 6: Consider reducing the annual participation goal.

- Seventy-five percent of the HVAC participants received rebates under the older program requirements.
- Most participants that replaced resistance heat or a heat pump purchased a 14<15 SEER, <8.5 HSPF heat pump. Approximately 12% of heat pumps that replaced resistance heat and 43% of heat pumps that replaced a heat pump were ≥15 SEER, ≥8.5 HSPF.

  Rationale: There is evidence that the program may not achieve the program goals in 2017. The majority of heat pumps rebated in 2016 qualified under the older program requirements, but would not meet the new program requirements. While there is an indication that participant equipment efficiency is increasing, the program may have difficulty achieving the participation goals. Given a full program year with the current incentives and the addition of the contractor incentive, more realistic goals based on 2016 and 2017 results to date would be 1,800 audits, 400 HVAC measures and 25 weatherization measures.

2
RESIDENTIAL EFFICIENT PRODUCTS PROGRAM

Program Characteristics

The Residential Efficient Products Program incentivizes the purchase of efficient lighting and appliances.

- Lighting Incentives. Kentucky Power utilizes an upstream strategy to provide incentives at participating retailers. Kentucky Power has memorandums of understanding (MOUs) with retailers and manufacturers to provide customers an instant incentive on qualifying CFL and LED bulbs at the point-of-purchase. Incentives may vary depending upon the type of bulb, manufacturer and associated retail cost. Customers may purchase up to 12 bulbs at a time. Product selection and rebate amounts may vary by store.
- Appliance Incentives. Customers submit a mail-in application to receive an incentive for the purchase of an ENERGY STAR® clothes washer, air purifier or dehumidifier.

Kentucky Power's online store[12] encourages the purchase and use of efficient residential lighting.

Measure Listing and Incentives

Kentucky Power modified the Residential Efficient Products Program measure offerings for the 2016 program year. ENERGY STAR® refrigerators and freezers as well as heat pump water heaters were removed from the program, but were tracked in 2016 due to applications submitted in late 2015. These measures were removed because they were no longer cost-effective based upon updated appliance standards. ENERGY STAR® air purifiers were added to the program in 2016.

Table 2-1 Efficient Products Program Measure and Incentive Offerings

Measure Type	Avg. Incentive
Standard CFL	$1.00
Standard LED	$3.00
Specialty LED	$5.00
Air Purifier	$25.00
Clothes Washers	$50.00
Dehumidifiers	$25.00

[12] Kentucky Power supplies an online retail store that is managed by Energy Federation Incorporated (EFI). The online store has been scaled down over the past several years due to low participation. There were no lamp sales in the online retail store.

Program Goals

The 2016 goals for the program are 412,500 bulbs and 1,050 appliance rebates with a budget of $1,130,845.

Table 2-2 Efficient Products Program Budget 2016

Metric	2016
Total Budget	$1,130,845

Table 2-3 Efficient Products Program Participation Goals 2016

Metric	2016
Standard CFL	375,000
Standard LED	30,000
Specialty LED	7,500
Total Lighting Units	**412,500**
Air Purifier	50
Clothes Washers	800
Dehumidifiers	200
Refrigerators (2015 carryover)	
Freezers (2015 carryover)	
Heat Pump Water Heaters (2015 carryover)	
Total Appliance Quantities	**1050**

Implementation Contractor

Kentucky Power has contracted with CLEAResult (formerly APT) to implement the Residential Efficient Products Program. CLEAResult utilizes Energy Federation Incorporated (EFI) to track and report sales data, process payments, and manage the online store. The responsibilities of CLEAResult include:

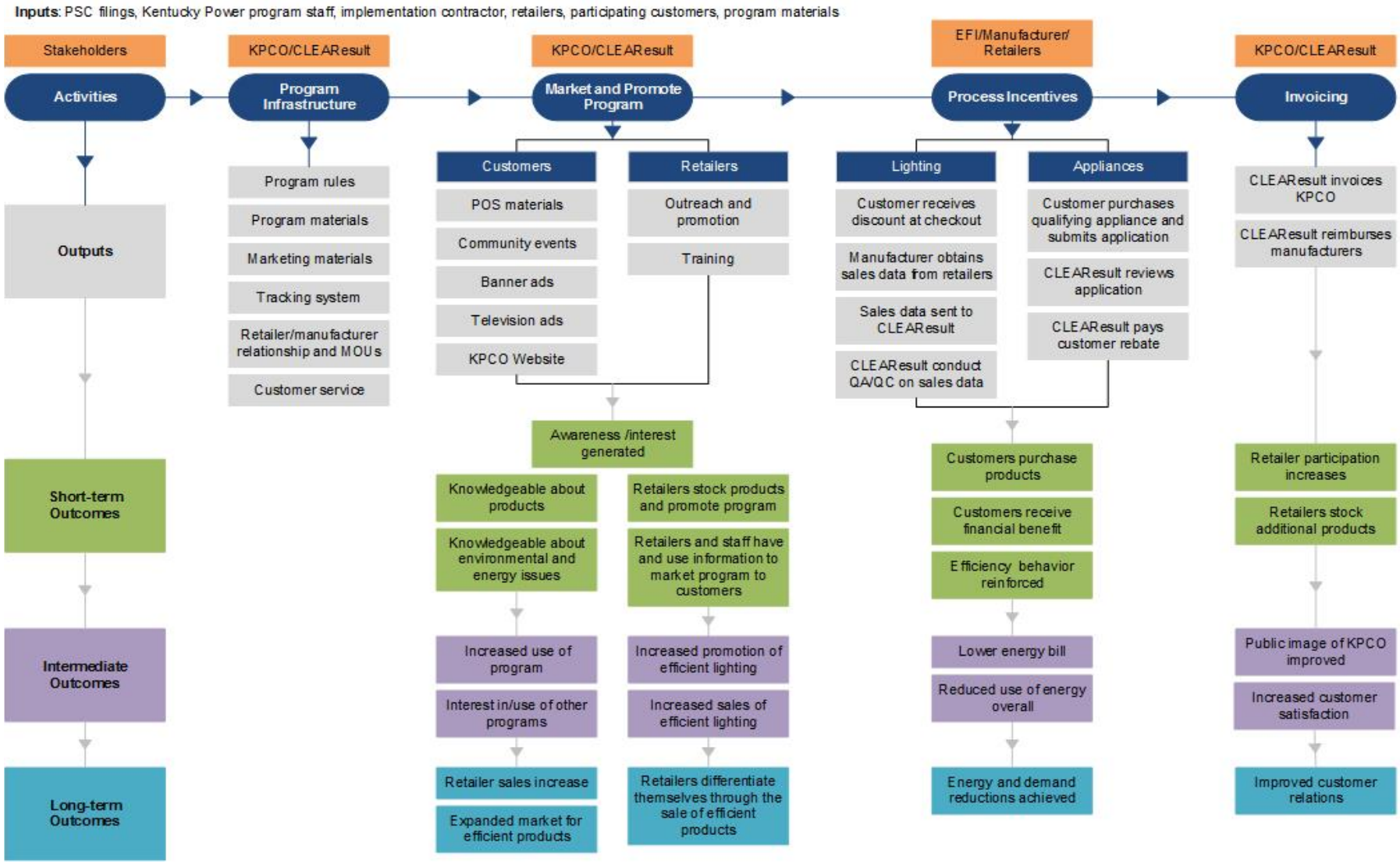
- Maintain relationship with manufacturers and retailers
- Develop Memorandum of Understanding (MOU) agreements between the manufacturers, retailers and Kentucky Power. The MOUs detail program criteria (i.e., retail discount, qualifying lamps, goals, etc.).
- Provide in-store support for retailers – materials and training
- Plan and implement marketing and outreach services, in collaboration with Kentucky Power
- Track data, including reporting progress, projecting sales and monitoring budget implementation
- Process rebate applications, including application review and incentive payment
- Provide customer service support, operate customer call center, and intercept and process customer complaints

Program Flow

A program logic model is a graphic representation of a program and its processes. Logic models make the program's assumptions explicit, showing the causal relationships or linkages among the problem or

situation the program is designed to address, the intervention (inputs and outputs), and program impact (short, medium and long-term outcomes). Logic models also serve to identify processes and relationships critical to the program's performance.

Program Logic Model



Program Activities

The program activities and their corresponding outputs help to establish linkages between the situation the program is designed to address and the program's intended outcomes. Program activities include:

Program Infrastructure

Kentucky Power and CLEAResult designed the program, including developing program rules, program and marketing materials and a tracking system as well as establishing retailer and manufacturer relationships.

CLEAResult identified potential manufacturers and retail stores to participate in the program and facilitated MOU negotiations between the parties and Kentucky Power. CLEAResult engaged potential retail stores well within the Kentucky Power service territory to minimize the possibility of sales to non-Kentucky Power customers (i.e., leakage). The MOUs detail the criteria retailers and manufacturers must meet to participate in the program, such as price and qualifying lamps. A list of participating retail stores is available on the Kentucky Power website.

Market and Promote Program

The program is marketed and promoted to customers and retailers. Point-of-sale (POS) materials, banner ads, television ads, and language for the Kentucky Power website were crafted to promote the program to customers. In addition, a CLEAResult field representative conducts in-store promotion events and attends community events to speak with and educate customers on the benefits of efficient lighting. Retailers receive training, promotion materials, and regular store visits.

Process Incentives

Customers purchase qualifying measure through two avenues:

- Lighting. Customers receive an instant rebate at the time of purchase. The manufacturer receives sales data from participating retailers and reviews for completeness and accuracy. The manufacturer submits the sales data to EFI for processing and payment. EFI staff reviews the sales data for anomalies.
- Appliances. Customers purchase a qualifying appliance and submit an application via mail, in store, or online. EFI staff review the application for completeness and verify customer eligibility. CLEAResult pays the customer rebate.

Invoicing

EFI reviews the sales data provided by the manufacturers and typically submits audited sales data as well as an invoice to CLEAResult on a bi-weekly basis. CLEAResult reviews the audited sales data and ensures the data matches the manufacturer invoice. An audited invoice, with sales data, is submitted to Kentucky Power on a bi-weekly basis, often within one or two days of receiving the audited sales data from EFI. Kentucky Power approves invoices and submits payment to CLEAResult. CLEAResult submits payment to EFI and EFI submits payment to the manufacturer/retailer.

Outcomes

Outcomes are the result of program partners and target audiences responding to the outputs of the program. There are short-term, intermediate, and long-term outcomes of the program.

Short-term Outcomes

When the program is marketed, awareness and interest in efficient lighting and appliances may increase among customers, manufacturers and retailers. Retailers stock the qualified products and may stock additional efficient lighting and appliance products. Retailer staff can use the information provided by the program to market the program to customers. Customers will become more knowledgeable about

products and may receive a financial benefit from installing efficient products. The program may lead to an increased knowledge about environmental and energy issues, as well as an increased commitment to energy efficiency.

Intermediate Outcomes

Intermediate outcomes may include increased participation in the program, interest in and use of other Kentucky Power efficiency programs, increased promotion and sales of energy efficient products, and lower energy bills.

Long-term Outcomes

The long-term outcomes may include an expanded market for energy efficient products. Retailers may strive to differentiate themselves from other retailers by increasing sales of energy efficient products. Additional outcomes may include reduced utility emissions and fewer greenhouse gases emitted. Kentucky Power may enhance its public image as a utility that responds to customer needs without sacrificing consideration of environmental issues.

External Factors

There are a variety of factors outside the control of Kentucky Power and CLEAResult that may influence the program. Documenting these external factors helps improve program planning by identifying important program partners, factors the program can realistically influence, which evaluation tactics will accurately reflect project outcomes, and other needs that must be met to address the issue. Some external factors include:

- Changes in political priorities (e.g., codes and standards, state and local regulations, federal policies, perceptions of energy and climate change)
- Weather and associated impacts on customer actions and energy bills
- Energy prices and regulation
- Changes in utility rate structures
- Perceptions in the value of energy efficiency
- Competing interests among demand side customers
- Competition among targeted retailers
- Economic conditions
- Internal retailer procedures
- Cost, performance and availability of efficient technologies

Documenting these factors helps improve program planning by identifying important program partners, the part(s) of the issue the program can realistically influence, which evaluation measures will accurately reflect project outcomes, and other needs that must be met to address this issue.

Methods

AEG designed the evaluation to examine program processes and customer responses to the program. The focus of the evaluation activities was to gain a better understanding of program operations, assess the overall effectiveness of program operations, and identify areas for program improvement. The evaluation was guided by the following key researchable issues:

- Does the program implementer have sufficient resources to effectively implement the program?

- Is the tracking system effective for documenting and reporting program progress?
- Is the program achieving program goals?
- What marketing/promotional efforts resonate with customers?
- Are customers/retailers satisfied with the program?
- What are the areas for program improvement?
- What are the barriers to program participation? How can those barriers be overcome?
- Has program participation generated interest in other Kentucky Power programs? In other energy efficiency actions outside the Kentucky Power energy savings programs?
- Could additional measures be added to the program?
- Are there Federal/State/Local codes or standards changes that impact the program (e.g., EISA)?

To arrive at the final recommendations in this report, AEG reviewed program materials and the program tracking system, conducted staff, implementer and retailer interviews, and surveyed appliance rebate participants.

Program Materials

AEG reviewed current program documents and processes including, but not limited to, Kentucky Power's Demand Side Management (DSM) Program Plan, the implementation work authorization, samples of program materials (i.e., field reports, product rebate forms), and samples of marketing materials (i.e., promotional brochure, digital banners, display signage, etc.). The review served as the basis for understanding whether the program has been implemented as planned and is on track to meet program goals.

Program Tracking System

AEG reviewed Kentucky Power and CLEAResult's tracking databases. AEG developed a program tracking data checklist to evaluate the program tracking databases and ensure that all critical pieces of program data were tracked.

Staff and Implementer Interviews

AEG conducted a comprehensive group interview with Kentucky Power program staff in October 2016 to gather staff impressions of program implementation activities, program performance, program delivery issues, marketing and customer awareness, and opportunities for program improvements.

AEG interviewed CLEAResult in October 2016. The interview provided information on program implementation activities, program data and tracking methods, and barriers to increased participation. The interview guides can be found in Appendix A.

Retailer Interviews

AEG interviewed a sample of participating retailers to assess product availability, customer satisfaction, potential areas for program improvement, marketing and coordination efforts, and educational efforts. AEG conducted 5 interviews from February 2 – 17, 2017 with 2 general managers, 1 store manager, and 2 customer service associates. The interview guide can be found in Appendix B.

Participant Surveys

AEG administered a telephone survey with customers who received an appliance rebate from February 7 – 10, 2017. Kentucky Power issued 952 rebates in 2016 through mid-December. The sample was developed

by cleaning the data to remove duplicate accounts (i.e., customers that purchased more than one appliance). AEG calculated the sample size at a 90 percent confidence interval with an error margin of +/- 10 percent. The resulting sample size to achieve the designated confidence was 64 participants. Participants were randomly selected and contacted to complete the survey.

Respondents were screened to ensure that they remembered participating in the program. The survey asked respondents to assess program experience and awareness, satisfaction, barriers to participation and areas for potential program improvement. The survey guide can be found in Appendix C.

Evaluation Results

This section provides key evaluation findings, including program performance, program processes, program marketing, program effectiveness and customer satisfaction.

Program Performance

The Efficient Products Program came close to meeting its goal, incentivizing 392,846 measures (95% of goal). The program spent slightly more than budgeted, with total expenditures of $1,149,101.

Table 2-4 Efficient Products Program Performance

Metric	Target	Actual	% Achieved
Lighting Participants (lamps)	412,500	391,873	95%
Appliance Participants (units)	1,050	973	93%
Total Units	**413,550**	**392,846**	**95%**

A breakdown of expenditures show that the program spent more than budgeted on customer incentives and evaluation.

Table 2-5 2016 Goals vs. Actual – Budget

Metric	Target	Actual	% Achieved
Evaluation	$6,745	$10,328	153%
Customer Incentive	$548,750	$664,990	121%
Delivery	$536,625	$462,514	88%
IT	$15,000	$0	0%
Promotion and Marketing	$23,725	$11,268	47%
Total Cost ($)	**$1,130,845**	**$1,149,101**	**102%**

The table below shows the distribution of measures incentivized. All of the lamps were purchased in-store, there were no lamp purchases through the online store. Standard CFLs fell short of the planned goal with LEDs surpassing its goal due to the phasing out of CFLs in the market. . Air purifier and dehumidifier participation also exceeded the 2016 planned goal while clothes washers fell short. Refrigerators, freezers, and heat pump water heaters were carry overs from the 2015 program year and are no longer offered through the program.

Table 2-6 Measure Level Participation Detail

Metric	Target	Actual	% of Goal
Standard CFL	375,000	254,313	67%
Standard LED	30,000	124,070	413%
Specialty LED	7,500	13,490	179%
Total Units	**412,500**	**391,873**	**95%**
Air Purifier	50	52	104%
Clothes Washers	800	580	72%
Dehumidifiers	200	235	117%
Refrigerators (2015 carryover)	0	79	NA
Freezers (2015 carryover)	0	19	NA
Heat Pump Water Heaters (2015 carryover)	0	8	NA
Total Units	**1,050**	**973**	**93%**

The table below displays the distribution of appliance purchases by whether the purchase was made in-store versus online. Ninety-six percent (96%) of appliance purchases were made in-store rather than online.

Table 2-7 Percent of Total Appliance Purchases by Location Type

Store	In-Store Purchase	Online Purchase
Air Purifier	96%	4%
Clothes Washers	96%	4%
Dehumidifiers	97%	3%
Refrigerators (2015 carryover)	96%	4%
Freezers (2015 carryover)	100%	0%
Heat Pump Water Heaters (2015 carryover)	100%	0%
Total	**96%**	**4%**

The appliance rebate application asked customers to state the reason behind their purchase decision. Of the 70% of participants that responded to the question, the majority noted the reason for the purchase was that they were replacing an old appliance that broke (43%), followed by energy savings (39%).

Table 2-8 Reasons for Appliance Product Purchases

Reason	Percent of Responses
Needed One	6%
Energy Savings	39%
Like to Buy the Best	6%
Old Broke - Replacement	43%
Other	1%
Rebate	6%
Grand Total	100%

The sales data indicates that the majority of lamp purchases in 2016 were made at participating Walmart stores.

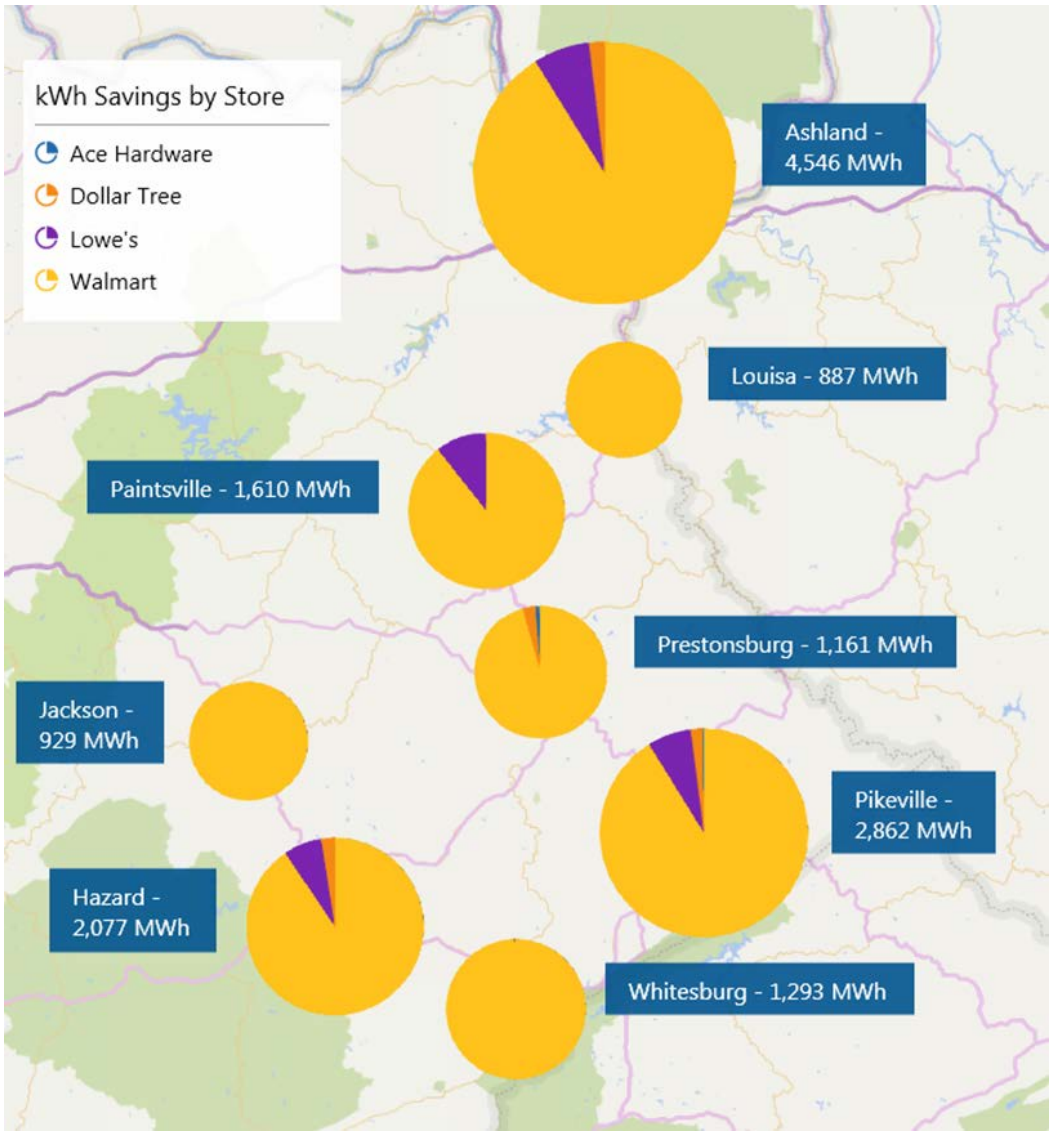
Table 2-9 Participating Retail Lamp Sales [13]

Store	Lamp Sales	Percent of Total Sales
Walmart	364,357	93.0%
Lowe's	20,995	5.4%
Ace Hardware	664	0.2%
Dollar Tree	5,801	1.5%

The map below shows the location of the lamp savings in Kentucky Power's service territory. Most lamps were purchased around Ashland and Pikeville, and therefore contribute the most energy savings to the program.

[13] 56 bulbs were 2015 sales from independent retailers and are not presented in the table.

Figure 2-1 Lamp Savings by Location



Program Processes

Interviews with Kentucky Power and CLEAResult assessed how well the program is performing in terms of staffing resources, communication, and quality assurance and quality control.

Kentucky Power indicated that CLEAResult was able to resolve initial data and customer service challenges that arose with the transition from Applied Proactive Technologies (APT) to CLEAResult in 2014. Kentucky Power believes that overall marketing, especially point-of-sale (POS) materials at the retail stores, has improved since the transition. Kentucky Power noted that the CLEAResult field representatives have been excellent and overall communication and responsiveness has been positive.

CLEAResult believes the program is running smoothly and that there is good overall communication, with regularly scheduled meetings and performance reviews. CLEAResult has a robust tiered regional and national staffing model that begins with two field representatives that have constant contact with the

retailers, providing program information, training, continued on-the-ground program support/ maintenance and updating POS display materials.

CLEAResult indicated that the retailers in the service territory appear to be very happy with the presence of the program. Opportunities to expand to more retailers is limited because the program is already in the major retailers in the service territory. However, CLEAResult did indicate that there are opportunities for program advancement with online retail stores (i.e., Amazon) and they are exploring the development of a customer portal to track rebates. Kentucky Power also indicated that there is an opportunity to expand online sales, but there needs to be a viable partner that can verify customer information and eligibility. CLEAResult has provided Kentucky Power the information on both opportunities and is looking into potential online partnerships.

Participating Retailer Interviews

In-depth interviews were conducted with participating store retailers. All five interviewees indicated that the decision to participate in the program was initiated at the corporate level. Four of the five respondents reported a positive relationship with field representatives. The field representatives visit weekly or biweekly; however, one respondent reported that they have not received a visit in the six weeks that he had worked at the location. Further investigation into visits by field representatives showed that this was an isolated occurrence that happened during a staffing shortage. This occurrence seems to be an exception and not the normal operation of the program.

All respondents indicated that staff in the lighting and electronics departments are knowledgeable about the program. Three interviewees reported some form of weekly to monthly briefings on program details from the representatives. One interviewee indicated that more training would be helpful. All interviewees approve of the signage provided by AEP. Three of the five respondents reported that the field representative puts out the signage – the remainder do it themselves.

All respondents reported increased sales, specifically increased LED sales. Four of the five retailers stated that customers are usually not aware of the rebates before seeing signage at the store. Three of the five respondents indicated that they often educate customers on the program. All interviewees promote efficient equipment for the following benefits: energy savings, bill savings, and environmental benefits. Almost all interviewees believe the program benefits the local economy.

The respondents indicated several opportunities for improvement from their perspective:

- Missed opportunity with contractors, only discounting 2-packs of bulbs is preventing those bulk buyers (construction, builders, etc.) from participating in program.
- Incentivize additional measures, such as ENERGY STAR fixtures and security lighting (e.g., lighting that comes on during power outages).
- Smaller discounts across more products would be more productive.

Program Tracking Database

CLEAResult maintains a program tracking database for the program. CLEAResult contracts with EFI to process manufacturer invoices and customer appliance applications. EFI receives confidential sales data from manufacturers, which can be accessed only by approved EFI staff. Kentucky Power and CLEAResult can access program data via EFI's web-based portal.

Manufacturers receive program-related sales data from participating retailers. CLEAResult receives a preliminary report of unaudited data from the manufacturers to identify and resolve any issues with pricing or products. EFI staff review the sales data for anomalies, verify that the data matches the guidelines listed in the MOU agreement. CLEAResult is notified as a manufacturer/retailer nears the allocated budget. A

monthly progress report contains CLEAResult field representative site visit notes, training activities as well as audited and unaudited total sales and incentives by store. Kentucky Power approves invoices and submits payment to CLEAResult. CLEAResult submits payment to EFI and EFI submits payment to the manufacturer/retailer.

Customers submit mail-in rebate applications for appliances. EFI tracks and reviews the application form for completeness and eligibility. Upon approval, an incentive check is mailed to the customer.

AEG developed a program tracking data checklist to evaluate the tracking database. CLEAResult sufficiently tracks the majority of the important data points relevant to the Efficient Products Program. However, the application status dates and savings data are not tracked for appliances. Rated lumens, invoice number, and baseline wattage not tracked for the lighting measures.

Table 2-10 Program Tracking Checklist for Efficient Products Program

Data Required	Tracked in Database
Customer Account Number	✓
Customer Contact Information	✓
Retailer Name and Address	✓
Application Status Dates (Appliances)	O
Purchase Date	✓
Invoice Date	✓
Invoice Number	✓O[14]
Customer Payment Date	✓
Lamp Type and Wattage	✓
Appliance Unit Specifications	✓
Quantity	✓
Manufacturer or Product Identifier	✓
Rated Lumens	O
Number of Measures Distributed	✓
Baseline Wattage	O
Estimated kWh Savings	✓O[15]
Purchase Price	✓
Incentive Amount	✓
Purchase Reason (Appliances)	✓O[16]

✓ Data included
O Data missing
✓ O Data Incomplete

Quality Control/Quality Assurance Procedures

There are several procedures for QA/QC in place for the Efficient Products Program. CLEAResult provides audited and unaudited sales data to Kentucky Power. Unaudited sales data provides a real-time look at program sales. Audited sales data has been audited by CLEAResult and corresponds with the Kentucky Power incentive expenditures, but has approximately a one month lag. Appliance applications are reviewed for eligibility and store purchase locations are monitored to ensure there are no group purchases or variations in the data.

[14] Invoice numbers are not provided for the lighting measures.

[15] Saving data not supplied for appliances

[16] When submitting the appliance rebate application, 274 of the 973 participants left the purchase reason blank.

A CLEAResult program manager oversees the field representatives. He supervises the day-to-day program activities and visits the service territory regularly to visit the retail stores and monitor the field representatives for QA/QC purposes. Kentucky Power also visits the retail stores.

Program Marketing

During the participant surveys, customers who purchased an appliance were asked about their awareness of the Kentucky Power program and their reason for participating. Marketing was also addressed in the program staff, implementer and retailer interviews.

POS display materials are the main marketing tactic but the field representative also periodically hosts in-store trainings and regularly attends community events. CLEAResult and Kentucky Power are looking to expand the number of in-store events completed in the program year. Below is a brief description of the marketing activities:

- POS Materials. In-store displays, including shelf tags and horizontal and vertical beam signs, which highlight lamp savings and price. These materials have been updated in 2016 to improve customer interest and refresh the branding.
- Retailer Site Visits. A field representative conducts site visits with participating retailers to check product stock, displays and product labels, and to ensure retail pricing markdowns are current. The representative reviews program details with sales staff and potential program participants. Retailers are visited every one to three weeks, depending on location and lighting sales.
- In-Store Activities. The field representative periodically promotes the program at retail stores. The representative sets up a table with educational lighting information, a light meter and Kentucky Power DSM Program fact sheets and discusses the program with shoppers, answering questions and demonstrating energy savings.
- Community Events. Kentucky Power Community Outreach Program events are held throughout the Kentucky Power service territory. Field representatives display education materials, demonstrate energy savings on a light meter and answer customer questions.
- Retailer Training. The field representative provides retail staff training on efficient lighting products. Retailers had the option of 13 different training modules.
- Home Performance Reports. The program was marketed to participants in the Home Performance program, in the marketing module of both the printed and emailed Home Performance reports received by participants.
- Internet. Kentucky Power marketed the program through kentuckypower.com/save. Customers can access the list of participating retailers.

Below are examples of a retailer window sign, an in-store product label and a brochure for direct mailings and cross promotion events, and the marketing module from the printed Home Performance Reports.

Figure 2-2 Example of a Product Label

Figure 2-3 Example of a Window Sign for a Participating Retailer

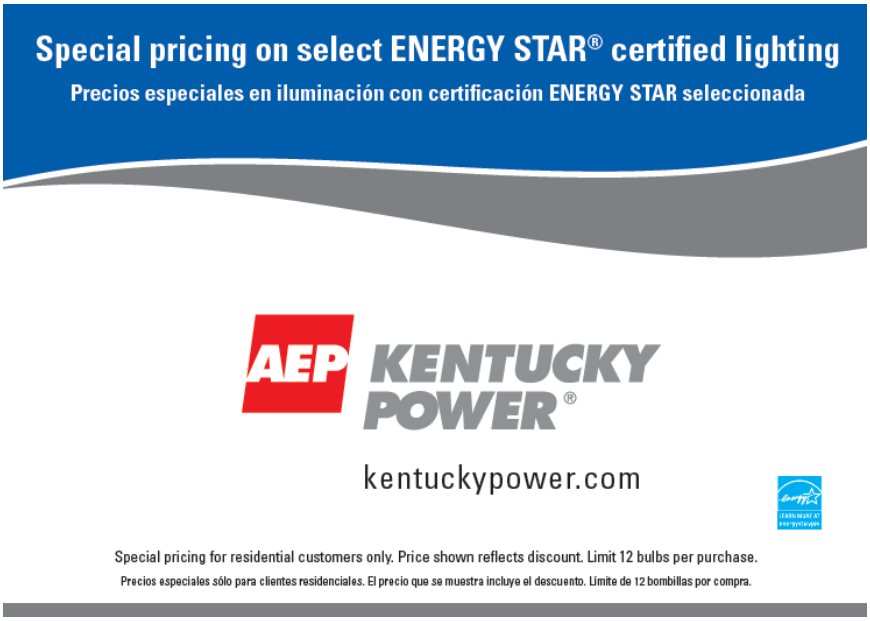


Figure 2-4 Example of a Product Brochure

OPTIONAL DATA:

House information (Check all that apply):

- Own
- Rent
- Single Family
- Multifamily
- Primary residence
- Second home
- Condo
- _____ # of units

What was the main reason you purchased an ENERGY STAR certified air purifier? (Please check only one).

- Energy savings
- Rebate
- Like to buy the best
- Old air purifier broke
- Other: _____

Did you know about the rebate before you purchased your air purifier?

- Yes
- No

If so, did the rebate influence your decision to purchase an ENERGY STAR certified air purifier?

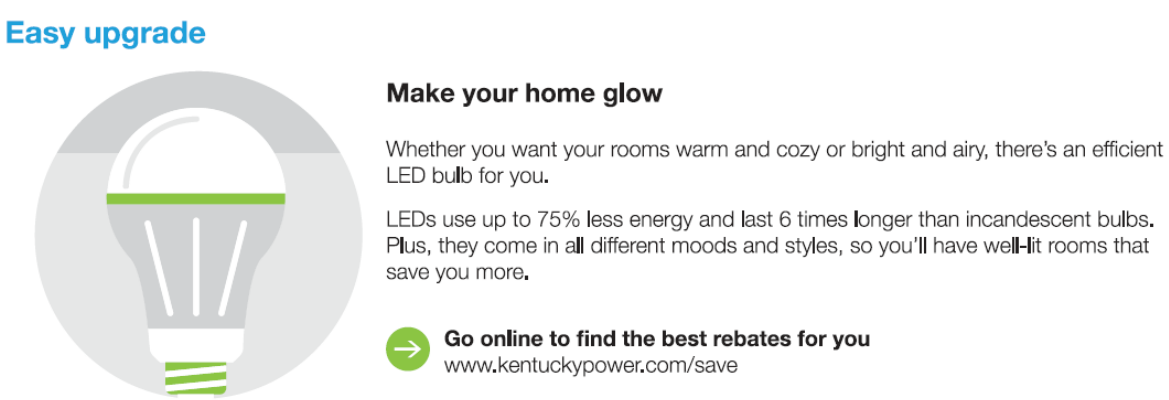
- Yes
- No

How did you hear about the rebate on ENERGY STAR certified air purifier? (Check all that apply).

- Store salesperson
- In-store signage
- Utility bill message
- This rebate form
- Radio ad
- Kentucky Power booth at local event
- Store website
- Print ad
- Kentucky Power website
- Kentucky Power representative _____
- Other:

Comments: _____

Figure 2-5 Example of the Marketing Module included in the Home Performance Reports



Easy upgrade

Make your home glow

Whether you want your rooms warm and cozy or bright and airy, there's an efficient LED bulb for you.

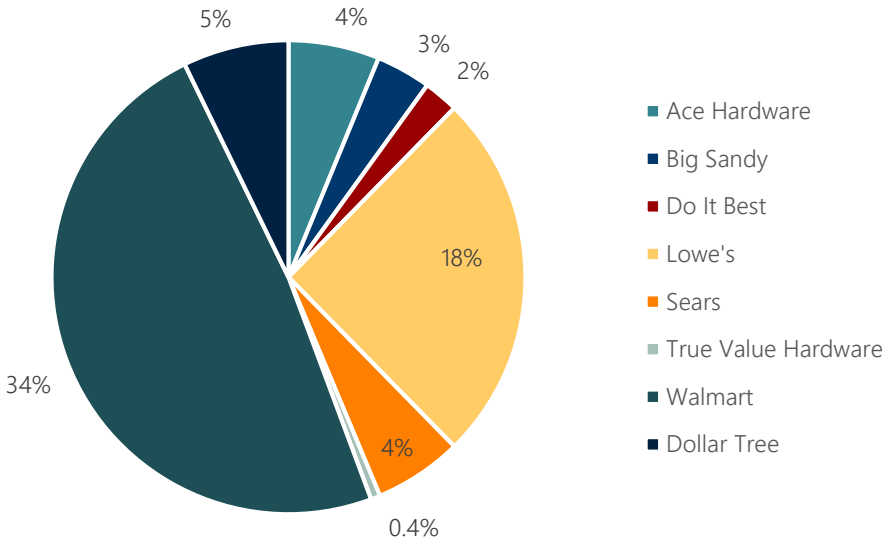
LEDs use up to 75% less energy and last 6 times longer than incandescent bulbs. Plus, they come in all different moods and styles, so you'll have well-lit rooms that save you more.

Go online to find the best rebates for you
www.kentuckypower.com/save

Site Visits and Trainings

The field representatives conducted 1,094 site visits in 2016. The site visits were mainly concentrated at Walmart and the Lowe's stores.

Figure 2-6 Percent of Site Visits at Participating Retailers



In 2016, the field representatives conducted 1,557 trainings with 3,746 individuals. The trainings were mainly concentrated at Walmart and Lowe's stores. Eighty-two percent (82%) of the individuals trained were customers, followed by sales associates (11%) and store managers (3%).

Figure 2-7 Percent of Trainings at Participating Retailers

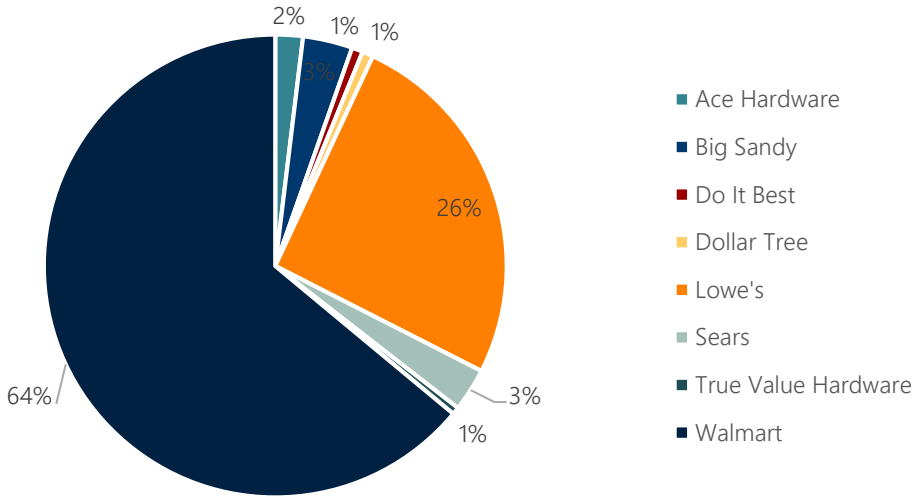
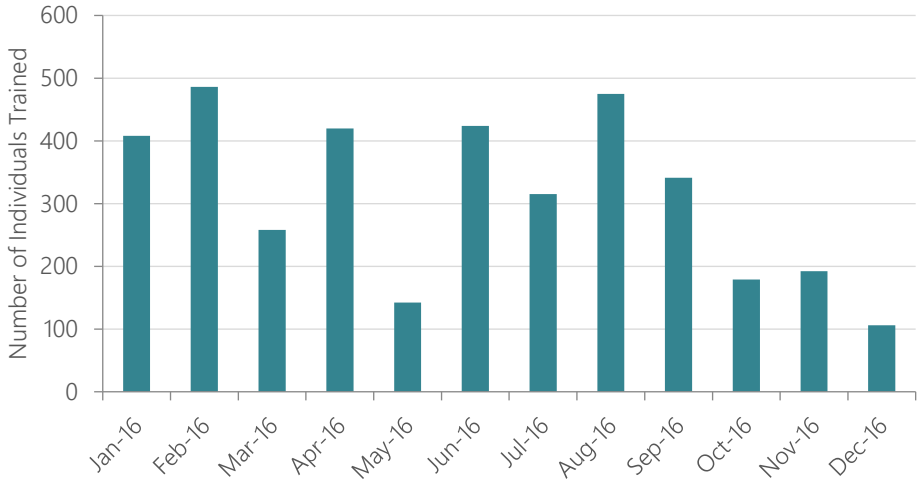
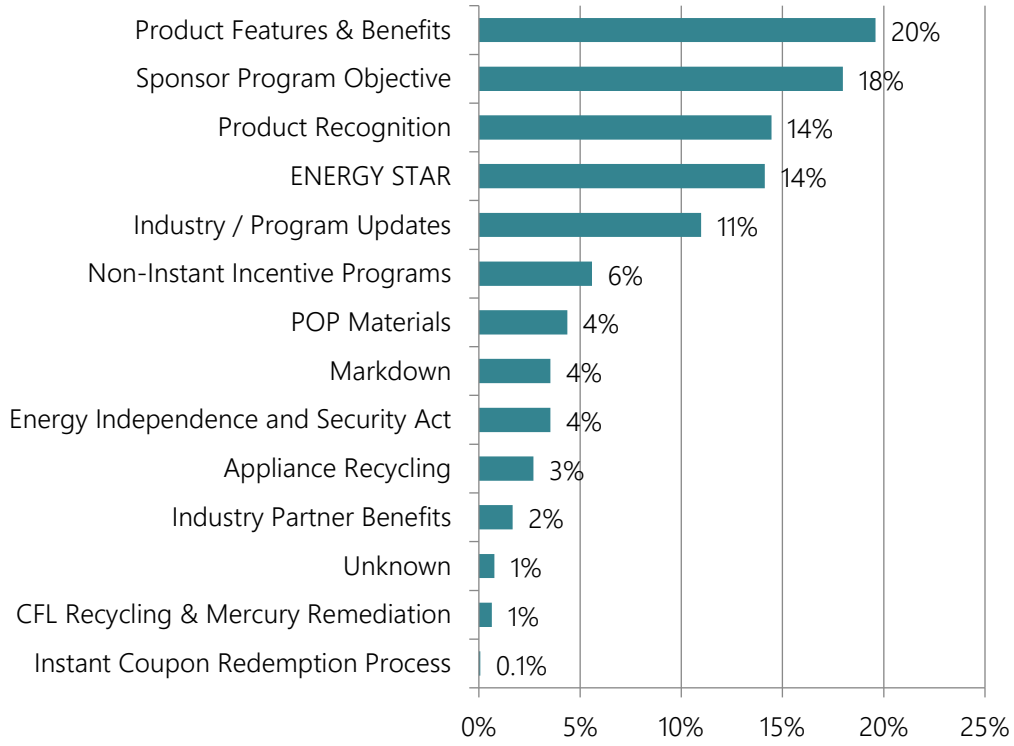


Figure 2-8 Number of Individuals Trained by Month



While the trainings cover a wide array of topics, product features and benefits (20%), Kentucky Power's program objectives or goals of the program (18%), product recognition (14%) and ENERGY STAR® (14%) were the most prevalent training topics.

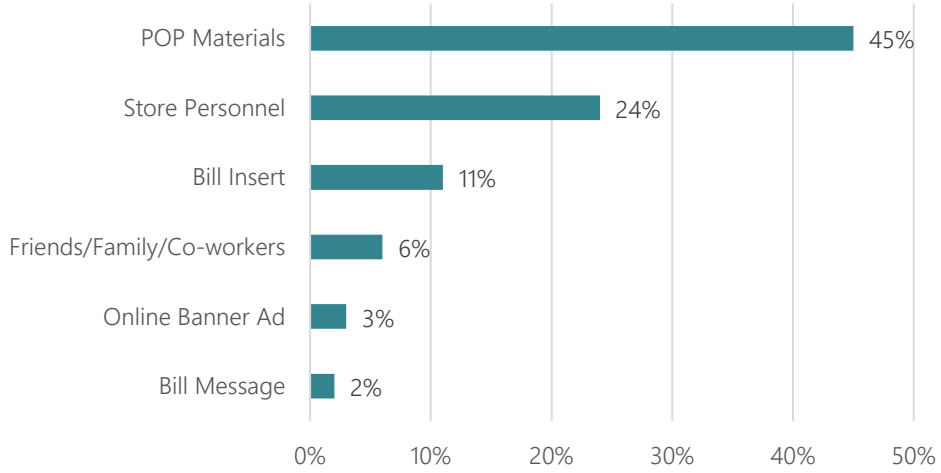
Figure 2-9 Trainings by Module in 2016



Customer Awareness

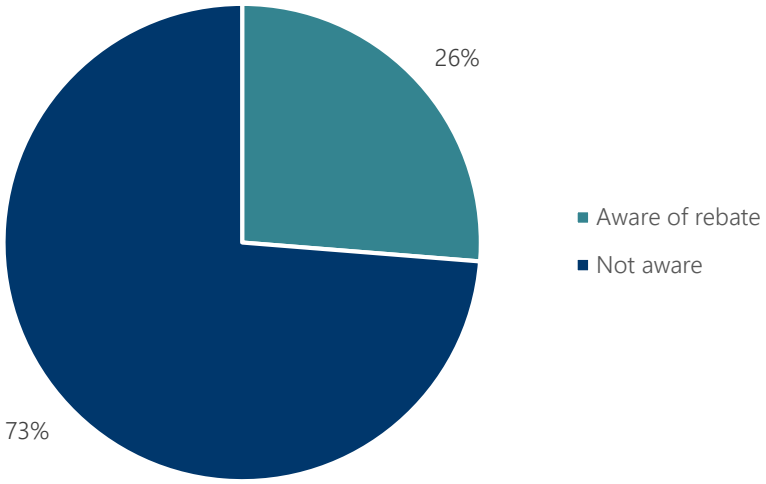
The majority of participants that purchased appliances heard about the program at the store, either from point of purchase materials or from store personnel.

Figure 2-10 How Participants Heard About the Programs



Only a little over a quarter of participants (26%) said they knew about the appliance rebate before going to the store. Almost half of participants (48%) said store personnel discussed the potential energy savings of a more efficient appliance.

Figure 2-11 Awareness of Appliance Rebate Prior to Purchase



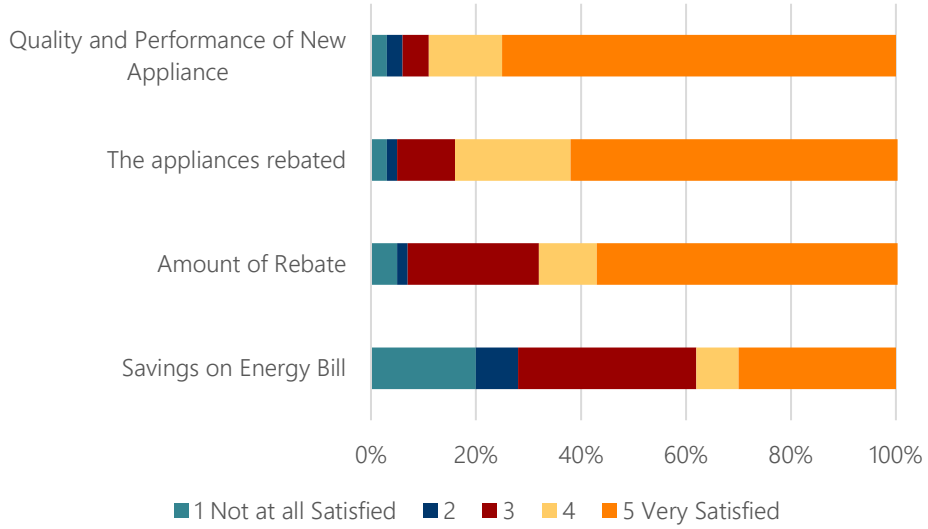
Most participants (81%) said they completed the program application themselves. Thirteen percent of participants said store personnel completed the application and six percent said store personnel helped them complete the application.

Program Effectiveness

Satisfaction

Satisfaction with most aspects of the program is high, with the exception of savings on energy bills. Only 38% of participants gave savings on energy bill a top box rating of 4 or 5 on a 5-point scale. Participants are very satisfied with the amount of the rebate, the appliances rebated and the quality and performance of the appliance purchased.

Figure 2-12 Satisfaction with Various Aspects of the Program – Appliance Rebates



Awareness of Kentucky Power Programs

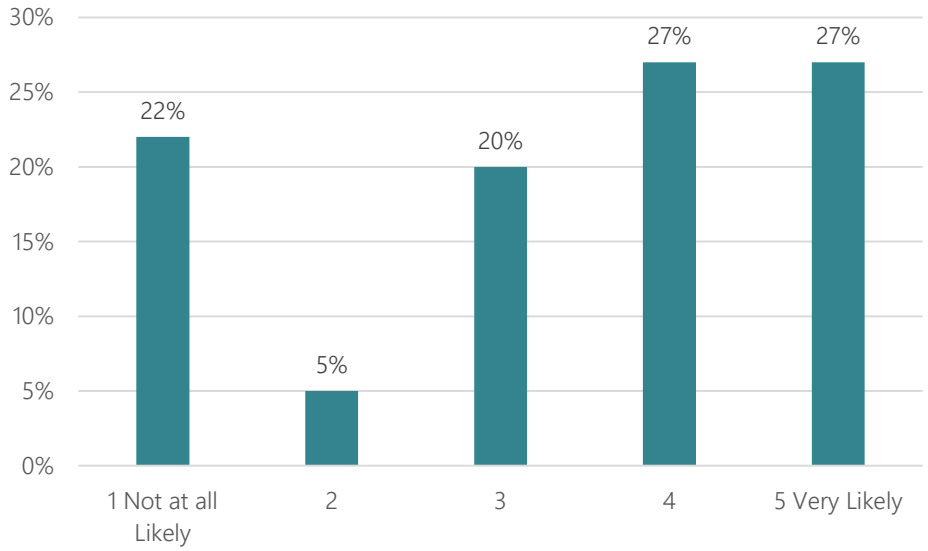
The majority of participants (64%) that purchased an appliance are aware of other Kentucky Power programs with the largest proportion (44%) being aware of the Appliance Recycling and Whole House Efficiency programs.

Table 2-11 Awareness of Other Kentucky Power Programs

Program	Percent of Respondents
Appliance Recycling	44%
New Manufactured Homes	16%
Community Outreach	14%
Whole House	44%
Targeted Energy Efficiency	30%
None	36%

Fifty-four percent of participants who were aware of one or more programs said it was at least somewhat likely that they will participate in Kentucky Power's energy saving programs in the future.

Figure 2-13 Likelihood of Participating in a Kentucky Power Program in the Future



Conclusions and Recommendations

Main Findings

The Efficient Products Program came very close to meet its goal, incentivizing 392,846 measures (95% of goal) and spending just above the target budget, with total expenditures of $1,149,101.

Table 2-12 Efficient Products Program Performance

Metric	Target	Actual	% Achieved
Lighting Participants (lamps)	412,500	391,873	95%
Appliance Participants (units)	1,050	973	93%
Total Units	**413,550**	**392,846**	**95%**
Budget	**$1,130,845**	**$1,149,101**	**102%**

The evaluation revealed the following program strengths and challenges:

Program Strengths

- The retail stores are the main avenue for marketing the program; most customers heard about the program from point of purchase materials or store personnel.
- Retailers reported increased sales due to the program, specifically increased LED sales. Retailers also believe the program benefits the local economy.
- The appliance application is easy to complete and the rebate check arrives in a reasonable amount of time.
- Satisfaction with the program is high for the quality of the appliances, the appliances rebated and the amount of the rebate.
- Retailers are satisfied with the program, knowledgeable about the incentives and believe it is effective in promoting energy efficient equipment.

Program Challenges

- Satisfaction ratings for appliance savings on energy bills is low; only 38% of participants gave savings on energy bill a top box rating of 4 or 5 on a 5-point scale.
- Online customer awareness and purchasing is low, presenting an untapped online market[17].
- Customers are unable to track rebate application status.
- The clothes washer incentive did not meet the planned 2016 goal.
- Lighting market trends are fluctuating greatly due to the rapid transition from CFLs to LEDs, making it difficult to keep program goals aligned with the types of bulbs available.

Recommendations

The evaluation team recommends the following actions to improve the program:

Recommendation 1: Hold more in-store events and promotions, specifically targeted at the stores/regions that had lower lamp sales and appliance rebates.

- Sales and application details indicate that product purchases are concentrated in Ashland, with Pikeville and Hazard at about half of what is purchased in Ashland.
- CLEAResult expressed interest in increasing the in-store events

  Rationale: Increasing the number of in-store events may bring more visibility to the program in the more economically depressed areas that may need it the most. CLEAResult expressed an interest in increasing the number of events, indicating it can possibly be done by adjusting the budget, rather than increasing program costs. Any increase in the budget could also result in increased sales, which would not hurt the program's cost effectiveness.

Recommendation 2: Increase in-store trainings for sales associates and department managers.

- Most of the individuals trained (82%) were customers; only 11% were sales associates and 3% were department supervisors.

  Rationale: Increasing the trainings for retailer staff that regularly interact with customers may increase product sales for the program. When the field representatives are not there to speak with customers, the store staff should have enough knowledge about the program and technology to engage with customers and encourage program participation.

Recommendation 3: Develop online tracking system for customers to track appliance rebate status.

- CLEAResult indicated that creating a rebate tracking system for customers is a possibility and an opportunity for program advancement.

  Rationale: Developing an online tracking system for customer appliance rebates will increase customer satisfaction and improve data tracking abilities. Kentucky Power is currently working on this with the contractor and it will be addressed in the 2018 program year.

[17] According to the U.S. Census Bureau in 2015 1.3% of all sales at electronics and appliance stores were e-commerce sales. And 7% of all online sales was electronics and appliances.

Recommendation 4: Work with the program implementer to Increase online program presence, by increasing online marketing tactics at participating retailer websites and expanding to non-brick and mortar online retail sites.

- CLEAResult indicated increasing traffic on online retail stores was an opportunity to advance the program.
- Only about 5% of customers purchased an appliance online.
- Only 3% of customers who completed the participant survey indicated they learned about the program through an online banner ad.

Rationale: The lack of customer awareness from the internet and online purchases present opportunities to improve the program and increase product sales. Kentucky Power is currently working on this with the contractor. On-line retailers are working with CLEAResult to resolve issues with their systems so they are able to offer incentives on lighting products through their online stores.

Recommendation 5: Adjust the lighting targets, scaling back the target and deployment of CFL incentives and increasing the target for LEDs. These targets were adjusted by Kentucky Power in 2016 when GE announced they would cease CFL manufacturing[18] and Walmart announced they would stop selling CFLs[19] and the declining cost of LEDs, but the majority of lighting incentivized through the program in 2016 was CFLs.

- The lighting market is shifting towards LEDs.

Rationale: The program exceeded the LED goal in 2016, however, CFLs still comprised the majority of bulbs incentivized. LEDs offer more savings compared to CFLs and prices are on the decline. As a result, Kentucky Power will no longer be incentivizing CFLs in 2017 and 2018.

[18] http://www.ge.com/reports/say-goodbye-say-hello-ge-stops-making-cfls-says-go-go-go-to-leds/

[19] http://talkbusiness.net/2016/02/walmart-to-transition-lighting-products-away-from-compact-fluorescent-to-led/

3
COMMUNITY OUTREACH PROGRAM

Program Characteristics

The Community Outreach Program distributes energy conservation measures and provides energy education to customers at company-sponsored community events. The program aims to educate and encourage customers to save money by using energy efficient lighting. Kentucky Power typically holds eight to ten community outreach events throughout the year, and 10 events were held in 2016. At seven of the events in 2016, customers received four free CFL bulbs. At the other three events, customers received an energy efficiency kit that included two LED bulbs, a faucet aerator, refrigerator thermometer, instruction for installation, and a promotional sheet on other DSM programs for residential customers.

Program Goals

The 2016 goals for the program are 4,000 participants with a budget of $67,680

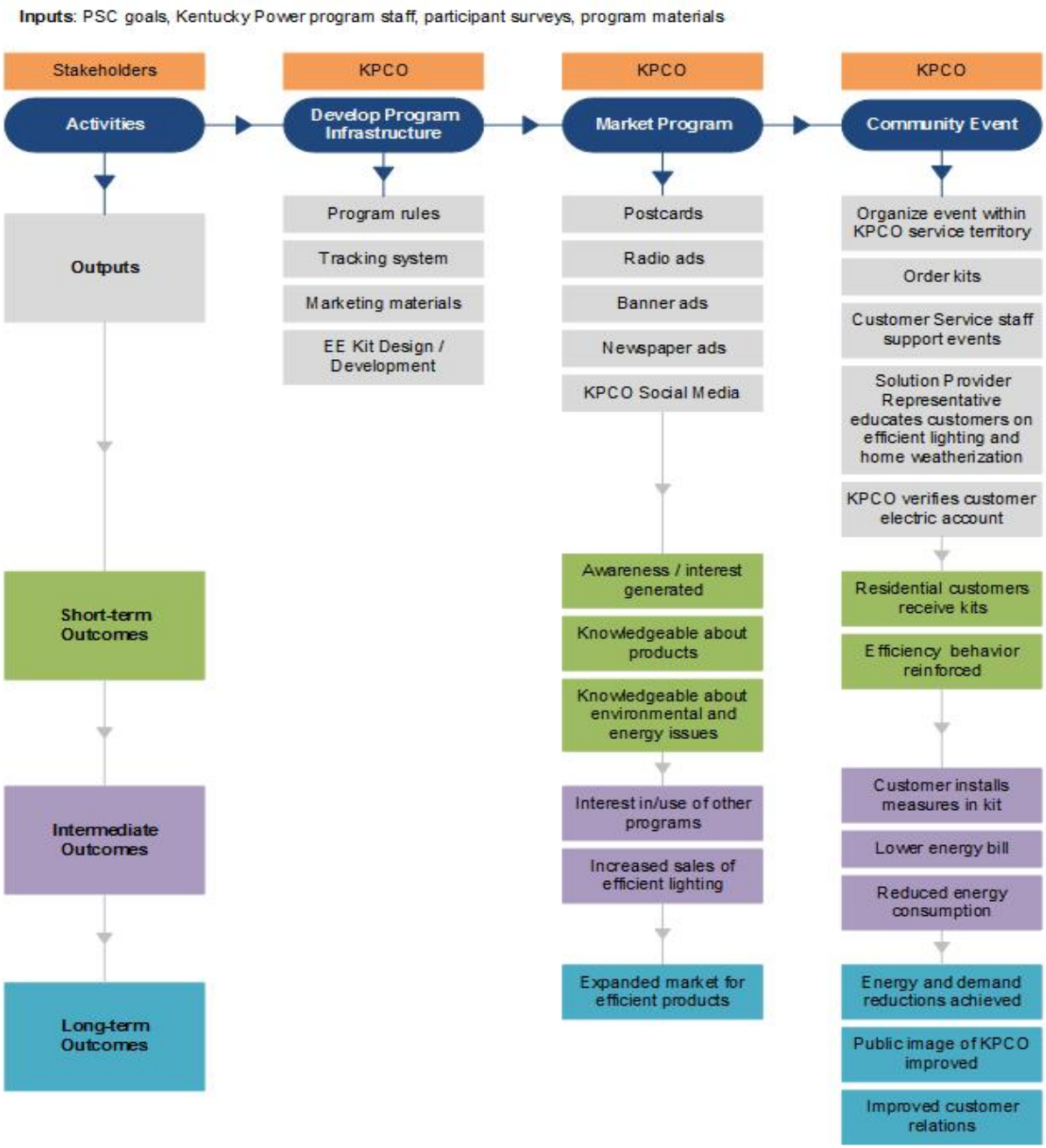
Table 3-1 Community Outreach Goals 2016

Metric	2016
Participants	4,000
Budget	$67,680

Program Flow

A program logic model is a graphic representation of a program and its processes. Logic models make the program's assumptions explicit, showing the causal relationships or linkages among the problem or situation the program is designed to address, the intervention (inputs and outputs), and program impact (short, medium and long-term outcomes). Logic models also serve to identify processes and relationships critical to the program's performance.

Program Logic Model



Program Activities

The program activities and their corresponding outputs help to establish linkages between the situation the program is designed to address and the program's intended outcomes. Program activities include:

Program Infrastructure

Activities conducted by Kentucky Power include developing the program rules, maintaining the program tracking database, developing marketing materials and selecting the energy conservation kit.

Market Program

Kentucky Power markets the program in various ways, including sending direct mail postcards, announcing events through social media and running radio, newspaper and online banner ads.

Community Events

Kentucky Power arranges the event at a location within their service territory and staffs the event with customer service staff. The customer service staff verifies the customer's account to ensure they are a Kentucky Power customer, educates customers about the kits distributed, and informs them about other Kentucky Power programs.

Outcomes

Outcomes are the result of program partners and target audiences responding to the outputs of the program. There are short-term, intermediate, and long-term outcomes of the program.

Short-term Outcomes

When customers hear about the events, their awareness and knowledge of the measures as well as knowledge about environmental and energy issues is increased. When customers attend events, they receive the energy saving measures and their energy efficiency behavior is reinforced.

Intermediate Outcomes

At events, customers become more aware of other Kentucky Power energy efficiency programs and their interest in participation increases. As they become more knowledgeable about their lighting options, customers may begin to purchase additional LEDs for their home.

Customers install the measures in their home. Their homes use less energy and their energy bill is lower.

Long-term Outcomes

Long-term outcomes may include an expanded market for energy efficient products, energy and demand reductions, an improved public image of Kentucky Power and overall improved relations with customers.

External Factors

There are a variety of factors outside the control of Kentucky Power that may influence the program:

- Changes in political priorities (e.g., codes and standards, state and local regulations, federal policies, perceptions of energy and climate change)
- Increased efficiency standards
- Macro-economic conditions and associated impacts on customer actions
- Energy prices and regulation
- Changes in utility rate structures
- Perceptions in the value of conservation
- Competing interests among demand side customers

Documenting these factors helps improve program planning by identifying important program partners, the part(s) of the issue the program can realistically influence, which evaluation measures will accurately reflect project outcomes, and other needs that must be met to address this issue.

Methods

AEG designed the evaluation to examine program processes and customer responses to the program. The focus of the evaluation activities was to gain a better understanding of program operations, assess the overall effectiveness of program operations, and identify areas for program improvement. The evaluation was guided by the following key researchable issues:

- Is the tracking system effective for documenting and reporting program progress?
- Is the program achieving program goals?
- What marketing/promotional efforts resonate with customers?
- Are the energy conservation measures being used in customer's homes?
- Are customers satisfied with the program?
- What are the areas for program improvement?
- What are the barriers to program participation? How can those barriers be overcome?
- Has program participation generated interest in other Kentucky Power programs? In other energy efficiency actions outside of Kentucky Power energy savings programs?
- Are there Federal/State/Local codes or standards changes that impact the program (e.g., EISA)?

To arrive at the final recommendations in this report, AEG reviewed program materials and the program tracking system, conducted staff interviews, and surveyed program participants.

Program Materials

AEG reviewed current program documents and processes including, but not limited to, relevant PSC order and filings, marketing and promotional activity and the program tracking database. The review served as the basis for understanding whether the program has been implemented as planned and is on track to meet its goals.

Program Tracking System

AEG reviewed Kentucky Power's tracking database. AEG developed a program tracking data checklist to evaluate Kentucky Power's program tracking database and ensure that all critical pieces of program data were tracked.

Staff Interviews

AEG conducted a comprehensive, group interview with Kentucky Power program staff in October 2016 to gather staff impressions of program implementation activities, program performance, program delivery issues, marketing and customer awareness, and opportunities for program improvements. The interview guide can be found in Appendix A.

Participant Surveys

AEG administered a participant survey to customers on October 20, 2016. The surveys were conducted onsite with Kentucky Power customers who attended the Community Outreach Event at Ashland Park Place in Ashland, KY. A total of 90 surveys were completed with customers who received an energy efficiency kit consisting of two LED bulbs, a faucet aerator and a refrigerator thermometer. The survey guide can be found in Appendix C.

Evaluation Results

This section provides key evaluation findings, including program performance, program processes, program marketing, program effectiveness and customer satisfaction.

Program Performance

The Community Outreach Program exceeded its goal, distributing measures to 4,200 participants. The program spent less than half of the budget, with total expenditures of $33,087. The original budget included anticipated cost for CLEAResult and Honeywell to attend events to promote the Whole House Efficiency and Residential Efficient Products program.. The cost never materialized as the vendors implemented the program promotion at Community Outreach events as part of their respective program marketing budgets.

Table 3-2 Community Outreach Program Performance

Metric	Target	Actual	% Achieved
Participants	4,000	4,200	105%
Budget	$67,680	$33,087	49%

A breakdown of expenditures show that the program spent more than budgeted on evaluation, but less in every other category. The cost per participant was also much lower than originally budgeted.

Table 3-3 2016 Goals vs. Actual – Budget

Metric	Target	Actual	% Achieved
Delivery	$500	$0	0%
Evaluation	$500	$618	123
Promotion/Marketing	$2,000	$687	34%
Education	$26,880	$0	0%
Lighting	$37,800	$31,783	84%
Total Cost ($)	**$67,680**	**$33,087**	**48%**
Total Participants	4,000	4,200	105%
Cost per Participant	**$16.92**	**$7.88**	**46%**

The table below shows the distribution of measures given away at each Kentucky Power Community Outreach event. Customers received four free CFL bulbs at seven events. At the other three events, customers received an energy efficiency kit that included two LED bulbs, a faucet aerator and a refrigerator thermometer. Attendance at events ranged from 108 in Northeast Commodity to 729 in Ashland District. A total of 13,224 high efficiency light bulbs, 1,788 faucet aerators, and 1,788 refrigerator thermometers were distributed in 2016, with an average of 488 participants at each event.

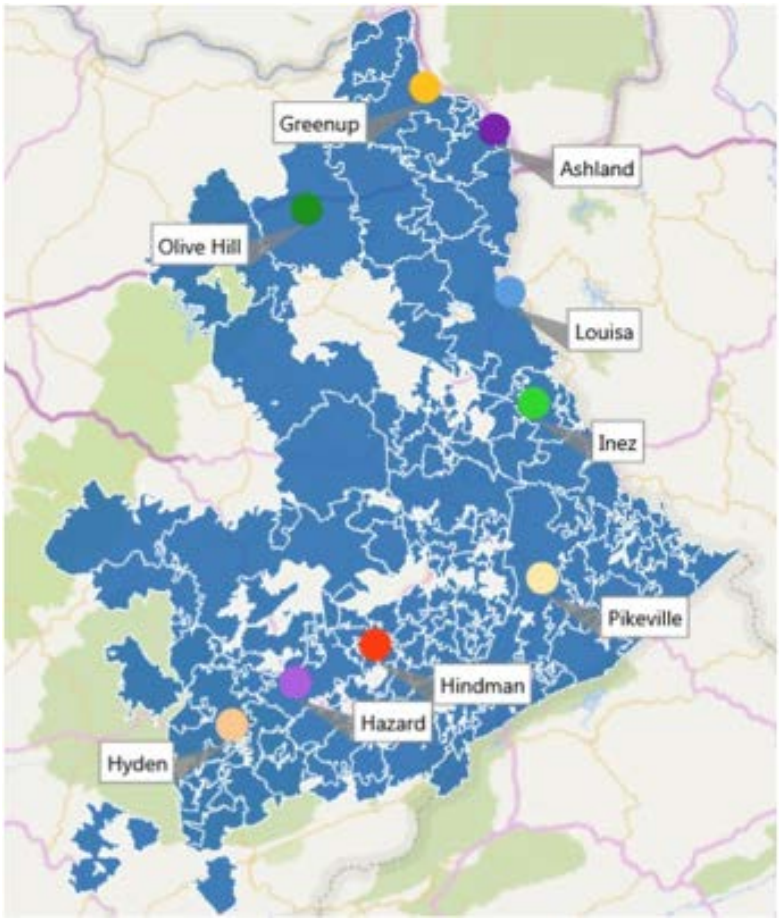
Table 3-4 Measures Distributed at Each Event

Location	Event Date	Participants	Bulb Type	Number of Bulbs	Number of Faucet Aerators	Number of Refrigerator Thermometer
Pikeville District	3/31/2016	365	CFL	1,460	0	0
Greenup County Wurtland	5/4/2016	480	CFL	1,920	0	0
Hazard	5/31/2016	440	CFL	1,760	0	0
Inez	7/7/2016	332	CFL	1,328	0	0
Northeast Commodity	7/26/2016	108	CFL	432	0	0
Louisa	8/31/2016	498	CFL	1,992	0	0
Knott Co	10/3/2016	418	LED	836	418	418
Ashland District	10/20/2016	729	LED	1,458	729	729
Leslie Co Event	11/3/2016	641	LED	1,282	641	641
Northeast LIHEAP[20] Giveaway	11/23/2016	189	CFL	756	0	0
Total		**4,200**		**13,224**	**1,788**	**1,788**

The map below shows the location of the Community Outreach events in Kentucky Power's service territory. As shown, the community outreach events are held throughout the service territory and in different locations to limit customers from participating more than once.

[20] Low Income Home Energy Assistance Program

Figure 3-1 Community Event Locations



Program Processes

Interviews with Kentucky Power assessed how well the program is performing in terms of staffing resources, communication, and quality assurance and quality control.

Kentucky Power handles all aspects of the program implementation. Kentucky Power promotes the program primarily through postcards, but some mass media and social media is also used. When doing a promotional mailing, Kentucky Power anticipates that approximately 10% of people who receive a mailed postcard will attend the event. According to Kentucky Power, people who attend the events, particularly in the more rural locations, tend to be low income and/or elderly.

Program Tracking Database

Kentucky Power maintains a program tracking database for the program. AEG developed a program tracking data checklist based on the Uniform Methods Project Protocols. Kentucky Power does not track some of the data used to determine energy savings, such as rated lumens, baseline wattage and estimated energy savings. Manufacturer information is also not tracked.

Table 3-5 Program Tracking Checklist for Community Outreach Program

Data Required	Tracked in Database
Customer Account Number	✓
Customer Contact Information	✓
Bulb Type	✓
Wattage	✓
Manufacturer or Product Identifier	**O**
Rated Lumens	**O**
Other Measures Distributed	✓
Number of Measures Distributed	✓
Date of Event	✓
Name and Location of Event	✓
Baseline Wattage	**O**
Estimated kWh Savings	**O**

✓ Data included
O Data missing

Quality Control/Quality Assurance Procedures

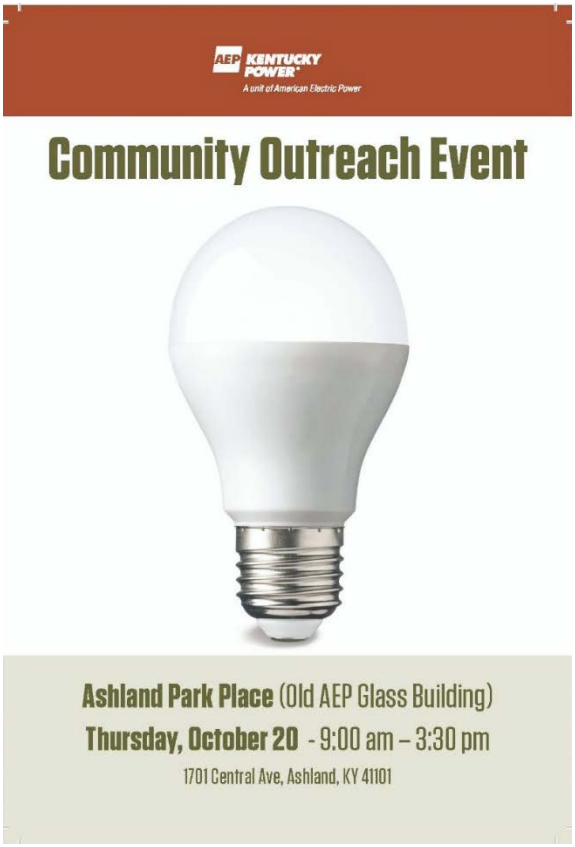
When a customer arrives at the event, he or she brings a copy of their bill or a Kentucky Power staff member looks up the customer's account online to verify they are a current Kentucky Power customer. Customers can give the names of friends, family and neighbors as well. If the names and addresses provided are verified as Kentucky Power customers, a customer can take home additional measures/kits to give to those customers.

Program Marketing

During the participant surveys, customers who participated in the program were asked about their awareness of the Kentucky Power program and their reason for participating. Marketing was also addressed in the program staff interviews.

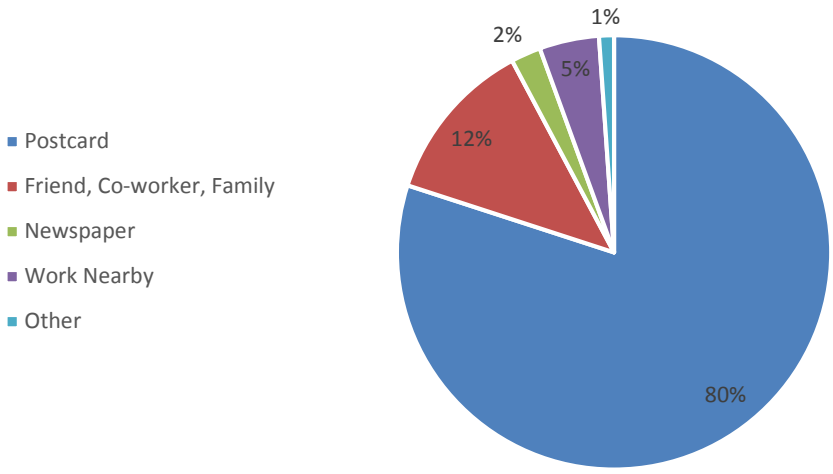
Kentucky Power advertised the event in Ashland (where the participant surveys were conducted) by direct mailing postcards announcing the event. Energy saving kits that included 2 LEDs, a faucet aerator and a refrigerator thermometer were distributed at this event. An example postcard is shown below.

Figure 3-2 Example of a Community Event Postcard



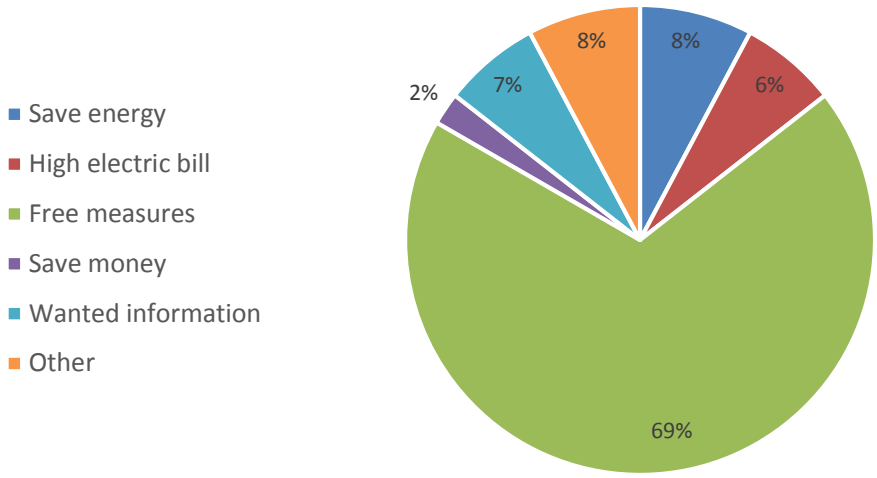
The majority of surveyed customers (80%) heard about the event from the postcard. Others said they heard about the event from family, friends and coworkers (12%), by working nearby (5%) or from the newspaper (2%). Thirty-four percent of participants had attended an outreach event in the past.

Figure 3-3 How Customers Heard about the Community Outreach Event



Customers said they attended the event to get the free measures (69%), – mainly light bulbs were mentioned –they wanted to save energy (8%), they wanted information (7%), they had high electric bills (6%) or they wanted to save money (2%).

Figure 3-4 Reasons Customers Attended the Event

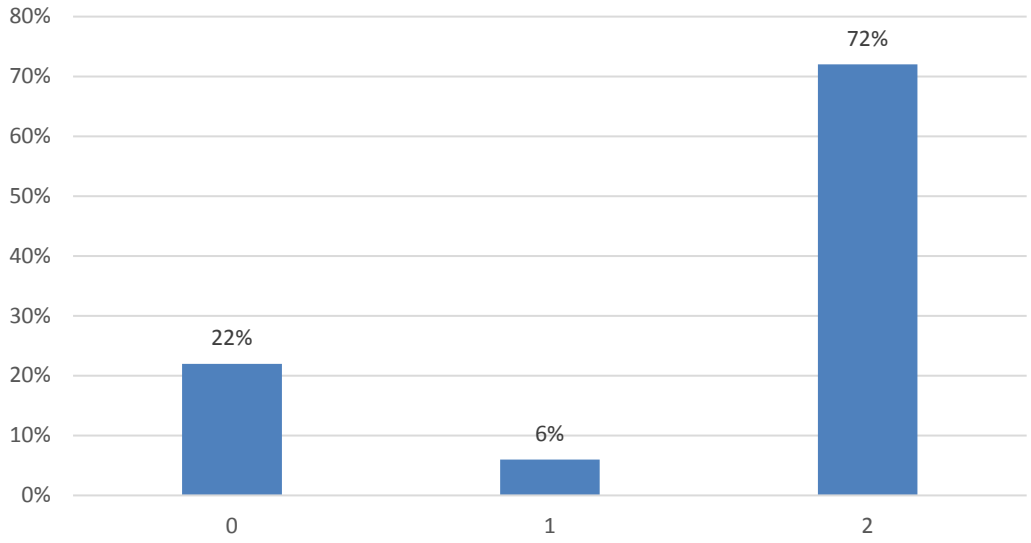


Program Effectiveness

Measure Installation

Most customers plan to install their high efficiency light bulbs immediately, with 72% planning to install both the light bulbs and another 6% planning to install one of the light bulbs.

Figure 3-5 Number of Lightbulbs Customers Plan to Install Immediately



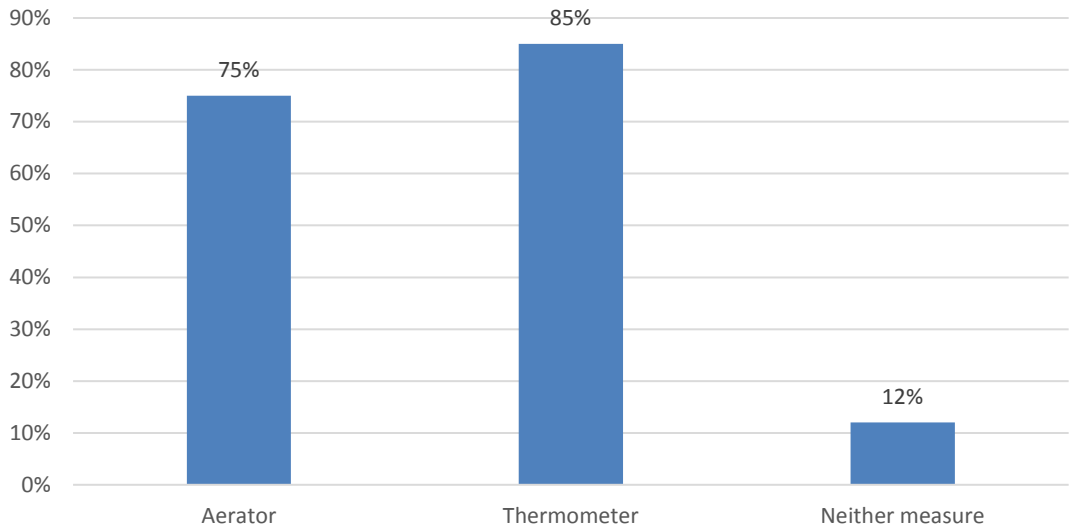
A little more than half of the high efficiency light bulbs will replace incandescent bulbs, while a little over a quarter will replace CFLs.

Table 3-6 Type of Bulb Replaced

Type of Bulb Replaced	Percent of Respondents
Incandescent/Halogen	51%
CFLs	27%
LEDs	2%
Don't Know	4%

Three-quarters of participants said they planned to install the faucet aerators immediately and 85% of participants said they planned to install the refrigerator thermometers.

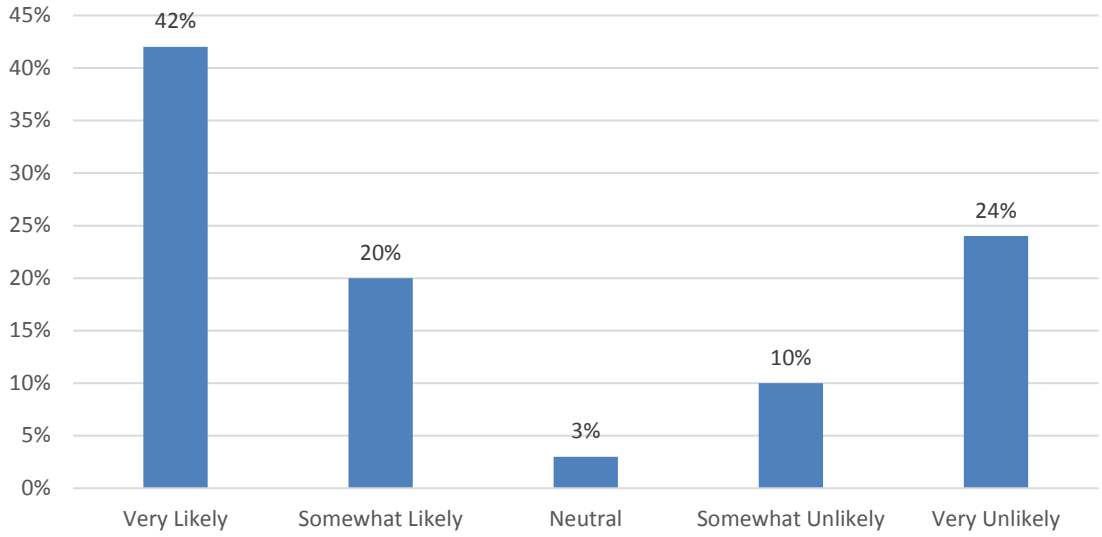
Figure 3-6 Plans to Install Faucet Aerator and Refrigerator Thermometer Immediately



Program Influence

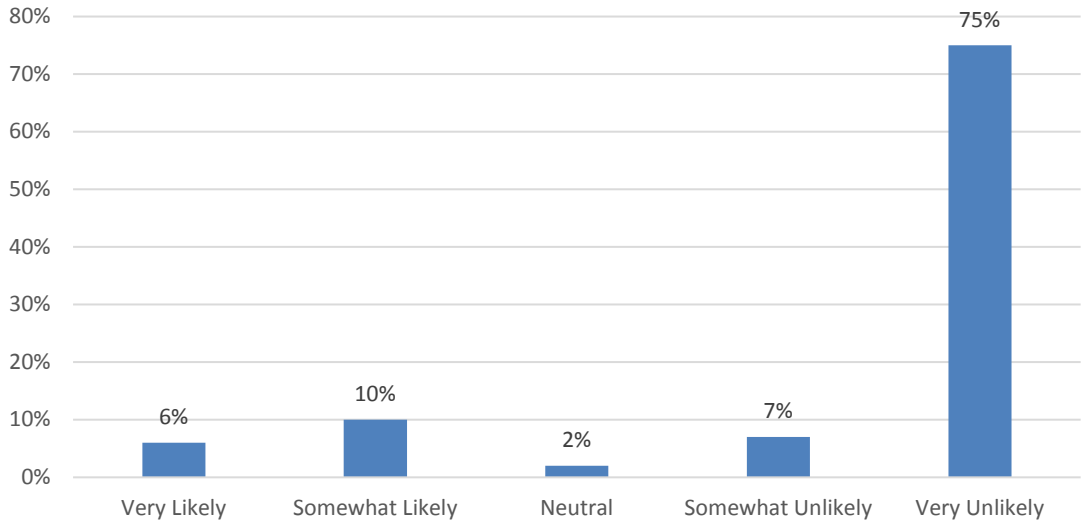
More than three-quarters of respondents said they have considered replacing their current bulbs with LEDs before attending the event. Forty-two percent said it was very likely that they would have purchased and installed the LEDs on their own if they had not been available from Kentucky Power for free.

Figure 3-7 Likelihood of Purchasing LEDs if Not Available for Free at Event



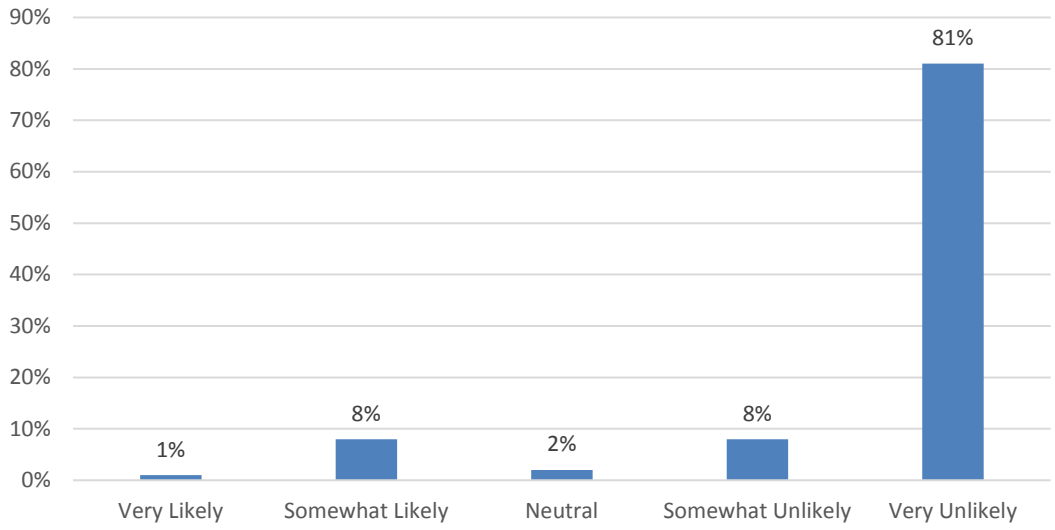
Most customers (75%) said that it was very unlikely that they would have bought and installed the faucet aerator if it was not available from Kentucky Power for free.

Figure 3-8 Likelihood of Purchasing Faucet Aerator if Not Available for Free at Event



Slightly more customers (81%) said they were very unlikely to purchase a refrigerator thermometer if it was not available from Kentucky Power for free.

Figure 3-9 Likelihood of Purchasing Refrigerator Thermometer if Not Available for Free at Event



Awareness of Kentucky Power Programs

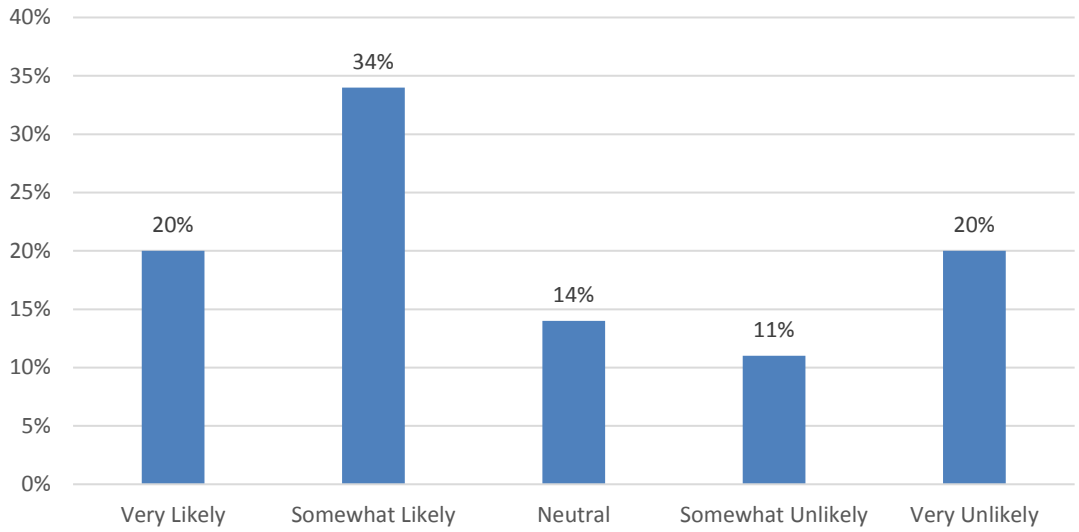
About a third of customers had attended a Community Outreach Event in the past. Although many customers had attended outreach events in the past, most customers (79%) said they had not participated in other Kentucky Power energy saving programs.

Table 3-7 Participation in Other Kentucky Power Programs

Program	Percent of Respondents
Residential Efficient Products	6%
Appliance Recycling	4%
Residential Home Performance	8%
Whole House Efficiency	7%
None	79%

More than half of participants said it was at least somewhat likely that they will participate in other Kentucky Power energy saving programs in the future.

Figure 3-10 Likelihood of Participating in a Kentucky Power Program in the Future



Conclusions and Recommendations

Main Findings

The Community Outreach Program exceeded its goal, distributing measures to 4,200 participants. The program spent less than was budgeted, with total expenditures of $33,087.

Table 3-8 Community Outreach Program Performance

Metric	Target	Actual	% Achieved
Participants	4,000	4,200	105%
Budget	$67,680	$33,087	49%

The evaluation revealed the following program strengths and challenges:

Program Strengths

- Program marketing is effective. Customers are attending events throughout the Kentucky Power service territory.
- Customers are attending the events to get free measures and save energy.
- The majority of customers plan to install the measures immediately.
- The program is addressing the main barrier expressed by participants. Participants say they haven't purchased LEDs in the past because they are too costly.
- The cost per participant in the program is lower than budgeted, meaning the program is able to reach more customers.
- The program has increased interest in Kentucky Power's programs. More than half of the participants said it was at least somewhat likely that they will participate in Kentucky Power's energy saving programs in the future.

Program Challenges

- Savings data and bulb manufacturer data is not currently tracked in the program tracking database.

- Customer surveys reveal the program influence on increasing high efficiency lighting purchases may be eroding.
- About a third of customers had attended a Community Outreach Event in the past.
- Forty-two percent said it was very likely they would have purchased LEDs without the program.
- A third of the LEDs will be replacing other high efficiency light bulbs (i.e., LEDs and CFLs).

Recommendations

The evaluation team recommends the following actions to improve the program:

Recommendation 1: Track manufacturer and savings data in the program tracking database.

- Savings data and bulb manufacturer data is not currently tracked in the program tracking database.

  Rationale: Having program participation information, measure data, and savings estimates in one central location allows for easier analysis of program data, more transparency in the program operations, and allows impact evaluators to easily replicate savings estimates. If all the measures dispersed at a single event are the same, this can be accomplished with one line item per event, listing the manufacturer of the bulbs and the appropriate savings information (e.g., rated lumens, wattage, estimated savings).

Recommendation 2: Hold events in areas where they have not been previously held.

- About a third of customers had attended a Community Outreach Event in the past.

  Rationale: Holding events in new locations will increase the likelihood of attracting first time participants, who are less familiar with energy efficiency measures. In 2017 Kentucky Power has added rural locations that have not had an event in several years to the schedule.

Recommendation 3: Hold more events in low income areas.

- Forty-two percent said it was very likely they would have purchased LEDs without the program.
- A third of the LEDs will be replacing other high efficiency light bulbs.

  Rationale: Holding events in low income areas will make it more likely the measures will be installed by participants who would not otherwise be able to afford them.

Recommendation 4: Coordinate events with other low income service providers, such as food banks and local Community Action Agencies.

- Forty-two percent said it was very likely they would have purchased LEDs without the program.
- A third of the LEDs will be replacing other high efficiency light bulbs.

  Rationale: Holding events in places that also serve the low-income population will make it more likely the measures will be installed by participants who would not otherwise be able to afford them.

4

ENERGY EDUCATION FOR STUDENTS PROGRAM

Program Characteristics

The Energy Education for Students Program provides classroom instruction and educational materials to middle school students at participating schools within Kentucky Power's service territory. The program introduces students to various aspects of responsible energy use and energy conservation. Students use math and science skills to learn about how energy is produced and used, and methods to conserve energy that can be easily applied to their own homes. Students receive an energy conservation kit to apply their classroom learning at home. The program is provided at no cost to participating schools.

Program Goals

The 2016 goals for the program are 2,200 participants (students) with a budget of $31,368.

Table 4-1 Appliance Recycling Goals 2016

Metric	2016
Participants	2,200
Budget	$31,368

Implementation Contractor

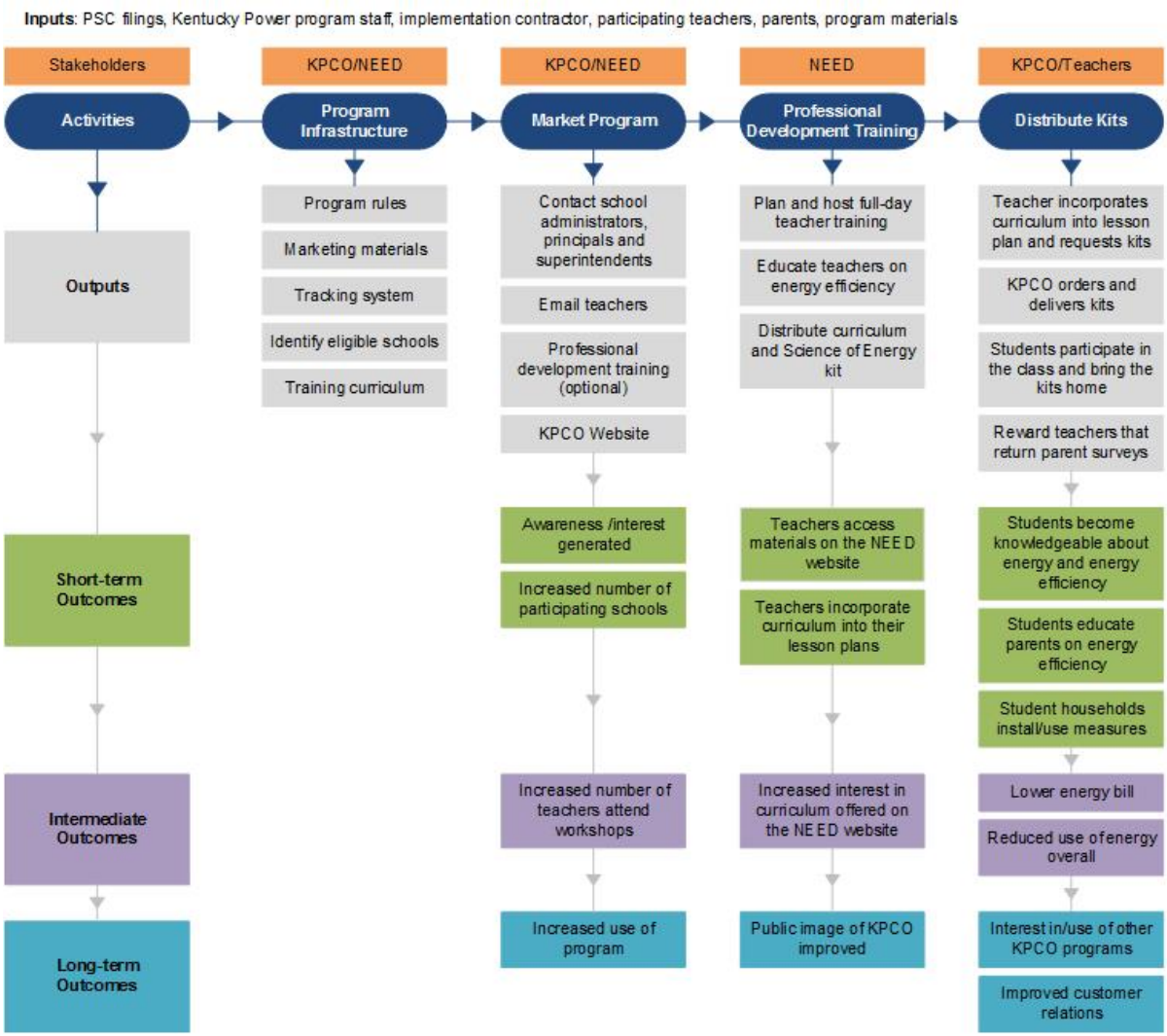
Kentucky Power partners with the National Energy Education Development Project (NEED) to implement the Energy Education for Students Program. NEED is an established and respected energy education organization that has been presenting programs for teachers and students in Eastern Kentucky for many years. NEED provides:

- Professional development for teachers where they will receive classroom curriculum and educational materials
- Fun classroom games, lab activities and homework assignments
- Activities to aid in teaching the new science curriculum

Program Flow

A program logic model is a graphic representation of a program and its processes. Logic models make the program's assumptions explicit, showing the causal relationships or linkages among the problem or situation the program is designed to address, the intervention (inputs and outputs), and program impact (short, medium and long-term outcomes). Logic models also serve to identify processes and relationships critical to the program's performance.

Program Logic Model



Program Activities

The program activities and their corresponding outputs help to establish linkages between the situation the program is designed to address and the program's intended outcomes. Program activities include:

Program Infrastructure

Activities conducted by Kentucky Power and NEED include developing the program rules, maintaining the program tracking database, developing marketing materials, identifying eligible schools and teachers and providing the training curriculum.

Market Program

Kentucky Power and NEED market the program in various ways, including contacting school administration, principals and superintendents, emailing teachers, conducting professional development training and providing information about the program on the Kentucky Power website.

Professional Development Training

NEED holds a full day teacher training for interested teachers. During the training, the teachers receive the curriculum and if two or more teachers from a school attend, a Science of Energy kit. Additional curriculum resources are available to teachers on the NEED website.

Distribute Kits

Participating teachers incorporate the NEED curriculum into their lesson plans. Kentucky Power distributes the energy saving kits to participating teacher's classrooms. Teachers distribute the kits to their students to take home along with a letter to be completed and returned by the student's parents. The letter to parents provides facts about LEDs and the materials provided in the kit as well as requests information about the school, teacher name, household address and Kentucky Power account number. Parents who return the letters are eligible for a sweepstakes drawing.

Outcomes

Outcomes are the result of program partners and target audiences responding to the outputs of the program. There are short-term, intermediate, and long-term outcomes of the program.

Short-term Outcomes

When teachers and school administrators hear about the program, their awareness increases and more schools participate in the program.

Participating teachers access the materials at the training and/or on the NEED website. They incorporate the curriculum into their lesson plans and become more knowledgeable about energy and how to effectively teach it to students.

Students become more knowledgeable about energy efficiency, they share that knowledge at home and the family installs the measures included in the energy saving kit.

Intermediate Outcomes

As the program matures, the number of teachers who attend the full day training increases and more teachers use the curriculum materials available on the NEED website. The students' families may have lower energy bills and there is an overall reduction in energy usage.

Long-term Outcomes

Long-term outcomes may include an increase in participation in this and other Kentucky Power programs, an improved public image for Kentucky Power, and overall improved relations with customers.

External Factors

There are a variety of factors outside the control of Kentucky Power and NEED that may influence the program:

- Changes in political priorities (e.g., codes and standards, state and local regulations, federal policies, perceptions of energy and climate change)
- Increased efficiency standards
- Macro-economic conditions and associated impacts on customer actions
- Energy prices and regulation
- Changes in utility rate structures
- Perceptions in the value of conservation

- Competing interests among demand side customers

Documenting these factors helps improve program planning by identifying important program partners, the part(s) of the issue the program can realistically influence, which evaluation measures will accurately reflect project outcomes, and other needs that must be met to address this issue.

Methods

AEG designed the evaluation to examine program processes and customer responses to the program. The focus of the evaluation activities was to gain a better understanding of program operations, assess the overall effectiveness of program operations, and identify areas for program improvement. The evaluation was guided by the following key researchable issues:

- Does the program implementer have sufficient resources to effectively implement the program?
- Is the tracking system effective for documenting and reporting program progress?
- Is the program achieving program goals?
- What marketing/promotional efforts resonate with teachers/schools?
- How do school districts participate in the program?
- How are the instructional materials incorporated into the classroom?
- Are teachers/parents satisfied with the program?
- Are the energy conservation measures being used in customer's homes?
- What are the areas for program improvement?
- What are the barriers to program participation? How can those barriers be overcome?
- Would teachers recommend the program?
- Is the teacher training effective?
- Has participation generated interest in other Kentucky Power programs? In other energy efficiency actions outside of Kentucky Power energy savings programs?
- Are there Federal/State/Local codes or standards changes that impact the program (e.g., EISA)?

To arrive at the final recommendations in this report, AEG reviewed program materials and the program tracking system, conducted staff and implementer interviews, and surveyed participants.

Program Materials

AEG reviewed current program documents and processes including, but not limited to, relevant PSC order and filings, the letter distributed to students' families, marketing and promotional materials, the NEED website and the program tracking database. The review served as the basis for understanding whether the program has been implemented as planned and is on track to meet its goals.

Program Tracking System

AEG reviewed Kentucky Power's tracking database. AEG developed a program tracking data checklist to evaluate the program tracking databases and ensure that all critical pieces of program data were tracked.

Staff and Implementer Interviews

AEG conducted a comprehensive, group interview with Kentucky Power program staff in October 2016 to gather staff impressions of program implementation activities, program performance, program delivery issues, marketing and customer awareness, and opportunities for program improvements.

AEG interviewed NEED in November 2016. The interview provided information on program implementation activities, tracking methods, teacher participation, and satisfaction. Interview guides can be found in Appendix A.

Participating Teacher and Parent Surveys

AEG administered surveys with participating teachers and parents. The teacher survey was conducted from January 9 – 20, 2017. The survey was administered online and emailed to all participating teachers.[21] Of the 23 teachers who participated in the Energy Education for Students Program in 2016, 13 completed the survey. One partial complete is included in the analysis from a teacher who completed about half of the survey. The teacher survey guide can be found in Appendix B.

The parent survey was administered via telephone to a random sample of parents whose children participated in the Energy Education for Students Program in 2016. The sample was developed by cleaning the data to remove parents that were not Kentucky Power customers and remove duplicate accounts. Kentucky Power provided data on 710 parents that completed the form in 2016, 422 were verified as Kentucky Power customers after duplicates were removed for siblings. AEG calculated the sample size at a 90 percent confidence interval with an error margin of +/-10 percent. The resulting sample size to achieve the designated confidence was 59 participants. Participants were randomly selected and contacted to complete the survey.

A total of 59 surveys were completed from February 3 - 8, 2017. Respondents were screened to ensure that they remembered participating in the program. The survey asked respondents to assess program experience and awareness, satisfaction, and areas for potential program improvement. The participant survey guide can be found in Appendix C.

Evaluation Results

This section provides key evaluation findings, including program performance, program processes, program marketing, program materials, program effectiveness and program satisfaction.

Program Performance

The Energy Education for Students Program slightly surpassed its goal, reaching 2,205 student participants and spending 119% of its budget.

Table 4-2 Energy Education for Students Program Performance

Metric	Target	Actual	% Achieved
Participants	2,200	2,205	100%
Budget	$31,368	$37,483	119%

A breakdown of expenditures shows that the program spent more in lighting and delivery, but less in promotion. The cost per participant was also higher than originally budgeted.

[21] Kentucky Power has email addresses for all participating teachers.

Table 4-3 2016 Goals vs. Actual

Metric	Target	Actual	% Achieved
Lighting	$15,393	$18,140	118%
Delivery	$5,500	$9,582	174%
Evaluation	$0	$286	NA
Promotion	$1,000	$0	0%
Education	$9,475	$9,475	100%
Total Cost ($)	**$31,368**	**$37,483**	**119%**
Total Participants	2,200	2,205	100%
Cost per Participant	**$14.26**	**$17.00**	**119%**

The table below shows the energy savings kit distributed by school.

Table 4-4 Kits Distributed by School

School	Kits Distributed	% of Total
Fairview High School	103	5%
Fairview Middle School	53	2%
East Carter Middle School	90	4%
West Carter Middle School	162	7%
South Floyd Middle School	213	10%
McKell Middle School	371	17%
Wurtland Middle School	112	5%
Blaine Elementary School	60	3%
Louisa Middle School	165	7%
Arlie Bogg Elementary School	50	2%
Herald Whitaker Middle School	115	5%
Robert W. Combs Elementary School	66	3%
Robinson Elementary	32	1%
Hazard Middle School	66	3%
Elkhorn City Elementary School	155	7%
Johns Creek Elementary School	241	11%
Kimper Elementary School	59	3%
Valley Elementary	92	4%
Total	**2,205**	**100%**

Program Processes

Interviews with Kentucky Power and the NEED State Director assessed how well the program is performing in terms of staffing resources, communication, and quality assurance and quality control.

The relationship between Kentucky Power and NEED is good, but the two organizations differ on their main focus for the program. The main focus for Kentucky Power is supporting local schools through science education while delivering and distributing energy saving kits to customers. The main focus for NEED is to improve the curriculum and provide educational resources for teachers. The energy saving kits are a component of the program that is unique to Kentucky Power, other NEED programs do not offer energy saving kits.

Offering the full day professional training session for the program is a new feature of the Kentucky Power program. In the past, NEED had only offered after school events. NEED feels the one day training sessions are working very well, much better than the after school events. One full day training is held each year and the location alternates each year between the Northern and Southern regions of the service territory. The goal of the program for NEED is to get students to understand the science behind the energy savings. The full day training is more in-depth than the previous after school events and helps teachers reach that goal. Science curriculum is coveted by teachers in the Appalachian region as resources in that area are currently not adequate.

Participating teachers are provided with curriculum materials from the program, including three full lesson plans, a flow bag[22] and a flicker checker.[23] The materials are distributed during the full day training. If a teacher is interested in the program but cannot attend the training, they can contact Kentucky Power or NEED and NEED will send them the materials through the mail. Schools that send two or more teachers to the training also receive a Science of Energy kit, which provides background information and hands-on experiments to explore the different forms of energy and how energy is transformed from one form to another. Additional curriculum materials are also available online.

Each participating teacher is provided with energy saving kits from Kentucky Power for each student in their class. The teacher contacts Kentucky Power or NEED to tell them how many students they have and Kentucky Power delivers the kits to the school, along with the parent letters. The letter asks for information, such as Kentucky Power account number, that needs to be completed and returned by the parents. There is little incentive for the teachers to make sure the letters are completed and returned, it is seen as yet another thing they are asked to fit into an already overloaded schedule. As a result, the letters are not consistently returned, and those that are returned are often missing important information. Kentucky Power does offer parents entry into a sweepstakes for a $250 gift card if the letter is returned. But that incentive is fairly new and has not yet proven to be very effective. According to Kentucky Power tracking data, 710 letters were returned out of the 2,202 kits that were distributed.

The parent letter was also addressed in the teacher and parent surveys. Only 39% of parents said they recalled receiving a letter with the kit asking them to complete information and return it to school. But all the parents who recalled receiving the letter said they returned it. Eleven of the 13 teachers said they sent the letters home with students. One teacher planned to send the letters home at a later date. Teachers surveyed reported a total of 559 letters were returned out of the 1,253 kits that were distributed to their students. This indicates that less than half of the students who received kits, returned the letter, which is an improvement since the last evaluation.

Table 4-5 Distribution of Energy Saving Kits and Letters from Teacher Survey

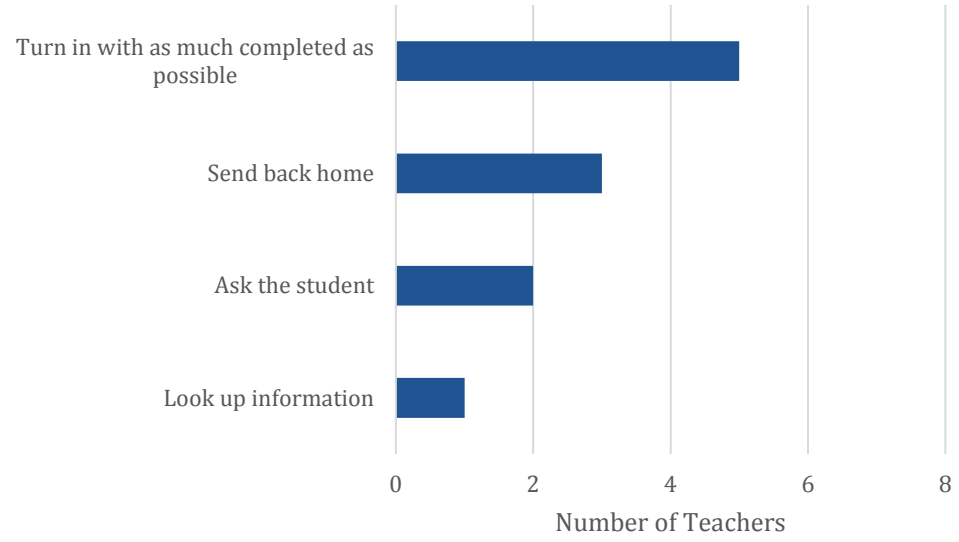
	Teachers Distributed	Average Given/Returned	Total
Energy Saving Kits	13	96	1,253
Letters	11	51	559

[22] A flow bag allows you to calculate your gallons per minute usage of showerheads, faucet aerators and kitchen aerators.

[23] A flicker checker is a black and white spinner that identifies is fluorescent lighting has electronic or magnetic ballasts.

Eight of the 13 teachers said they checked the returned letters for completeness. When the letters were incomplete, most teachers turned them in with as much information completed as possible.

Figure 4-1 Actions Teacher Took if Letter Was Incomplete



Program Tracking Database

NEED has a database of schools, teachers, principals and superintendents. The NEED State Director also compiles a spreadsheet of student participants from information provided in the parent letter. This information is given to Kentucky Power. Kentucky Power maintains a program tracking database for the program. AEG developed a program tracking data checklist to evaluate each entity's tracking database. Kentucky Power and NEED track the required contact information and the number of energy saving kits distributed, but do not track any data related to attendance at the training, the number of Science of Energy kits distributed or an estimate of savings. NEED website activity (downloads of curriculum) also is not tracked.

Table 4-6 Program Tracking Checklist for Student Energy Education Programs

Data Required	Tracked in Database
Customer Account Number	✓
Customer and Student Contact Information	✓
School Name	✓
Teacher Contact Information	✓
Number of Kits Distributed	✓
Date Kit Distributed	✓
Number of Letters Returned	✓
Estimated Savings	**0**
Teacher Attendance at Training	✓
Date of Training	✓
Location of Training	✓
Received Science of Energy Kit	✓

✓ Data included
O Data missing

Quality Control/Quality Assurance Procedures

NEED has a Teacher Advisory Board that assists NEED's staff, Board of Directors, and participants in planning, evaluating and implementing curriculum, programs, and special projects. The group meets one to two times a year and works to maintain the objectivity and comprehensiveness of NEED's curriculum and programs. The Teacher Advisory Board members are available to assist NEED teachers nationwide with questions, comments, and suggestions.

The NEED State Director receives the parent letters from the teachers and enters the information from the letter into a database that is provided to Kentucky Power. She follows up with the teachers if the letters are not received. Getting the letters completed is a low priority for both NEED and the teachers. There is little incentive to get the letters completed as their main interest in the program is the curriculum materials.

Program Marketing

During the surveys, teachers who participated in the program were asked about their awareness of the Kentucky Power program and their reason for participating. Marketing was also addressed in the staff interviews.

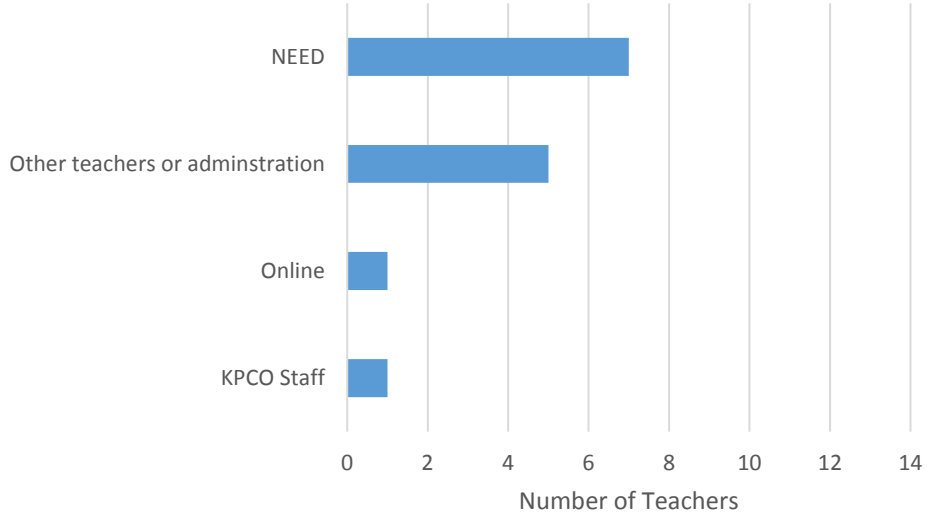
NEED markets the program directly to teachers. Making teachers aware of the full day training is the main outreach activity. A flier advertising the training is sent to all the teachers in the NEED database. At the time of the NEED interview, 126 middle school teachers were on the distribution list, representing 20 school districts. A total of 15 teachers from 10 different schools had attended the latest workshop.

According to NEED, the main reason teachers choose to participate in the program is because of the professional development and the curriculum resources. The main barriers to participation is the difficulty

in getting an available substitute so they can attend the training and the travel distance to the training for some of the teachers.

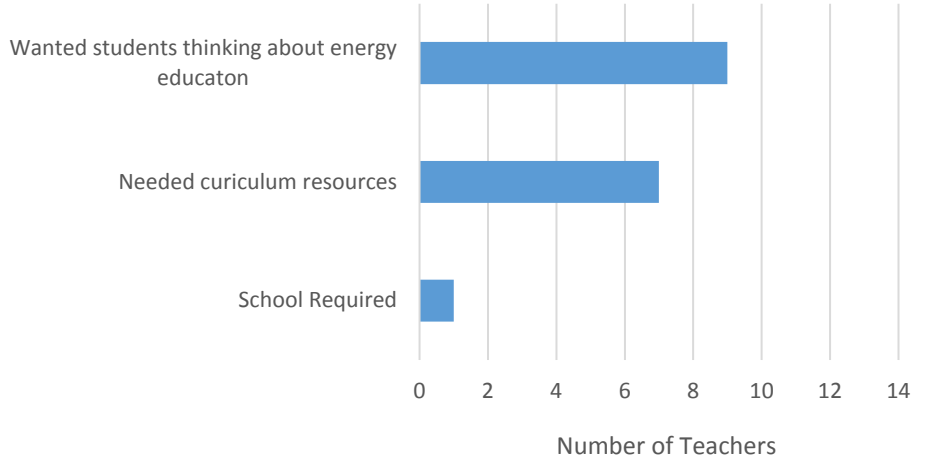
Teachers who responded to the survey said they heard about the Energy Education for Students Program from NEED or from other teachers or administrators in their schools.

Figure 4-2 How Customers Heard about the Energy Education for Student Program



The desire to expose students to energy education and the need for curriculum resources are the main reasons teachers said they participated in the program.

Figure 4-3 Reasons Teachers Participated



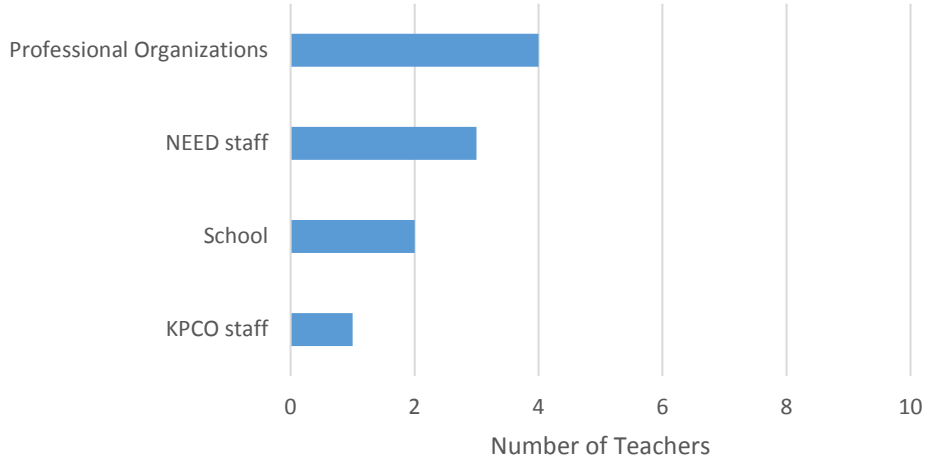
NEED Program Materials

Need Training

Ten of the 14 teachers surveyed attended the NEED training. The four teachers who did not attend training said they did not attend because they had attended before, didn't know about the training, or it was too far away. Teachers who attended the training heard about it from professional organizations, such as the

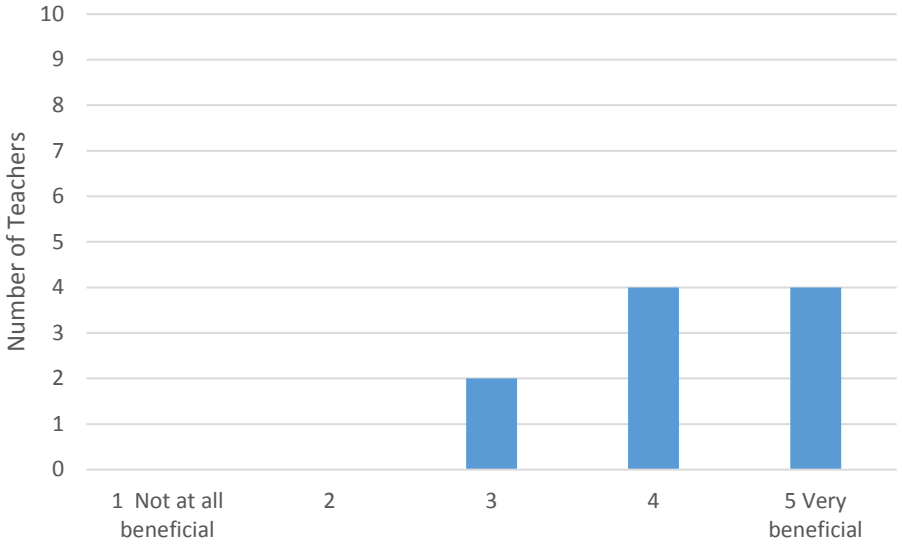
Kentucky Educational Development Corporation, NEED staff or at school. One teacher heard about the program from Kentucky Power.

Figure 1-4 How Teachers Heard About the Training



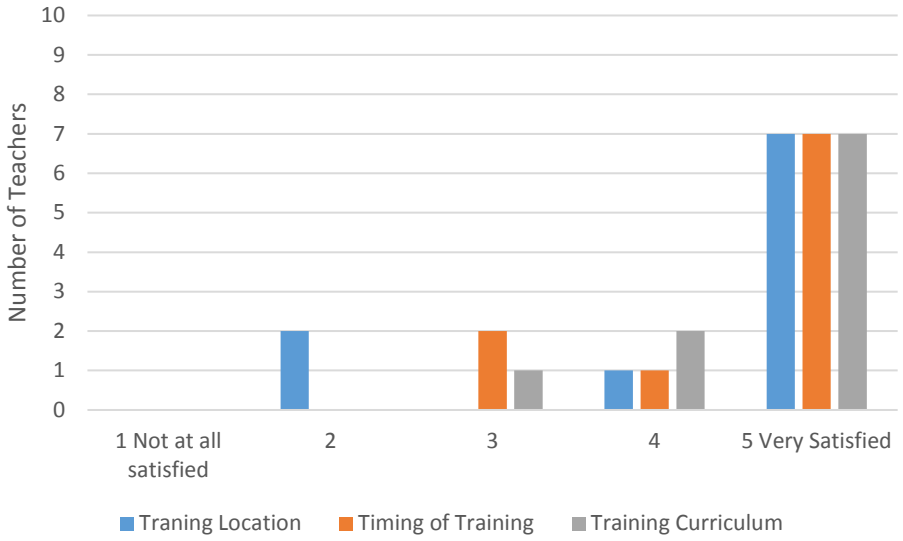
The teachers who attended the training found it beneficial, rating it a 3 or higher on a 5-point scale. No teachers gave the training a low rating of 1 or 2.

Figure 4-5 Rating of How Beneficial Training Was



Satisfaction with various aspects of the training were also rated highly by teachers who attended. Some teachers were less satisfied with the location and timing of the training, but all gave the curriculum high marks.

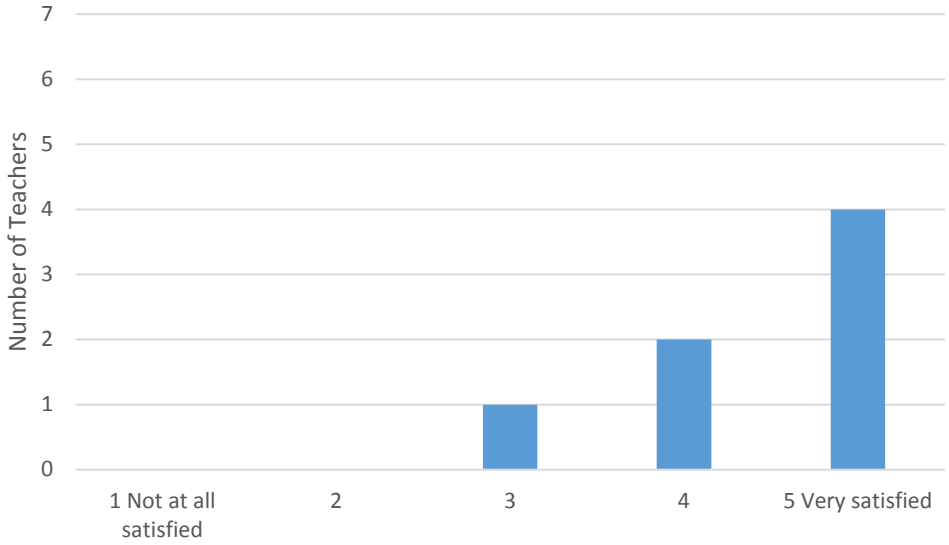
Figure 4-6 Satisfaction with Training



Need Classroom Materials

Eight of the ten teachers who attended the training said they received the NEED Science of Energy kit for their classroom. The Science of Energy kit is only provided if 2 or more teachers attend the training. Teachers had to attend the training in order to receive the Science of Energy kit. Teachers who received the kit were mainly satisfied with it, with most giving it a rating of 4 or 5 on a 5-point scale.

Figure 4-7 Satisfaction with Science of Energy Kit

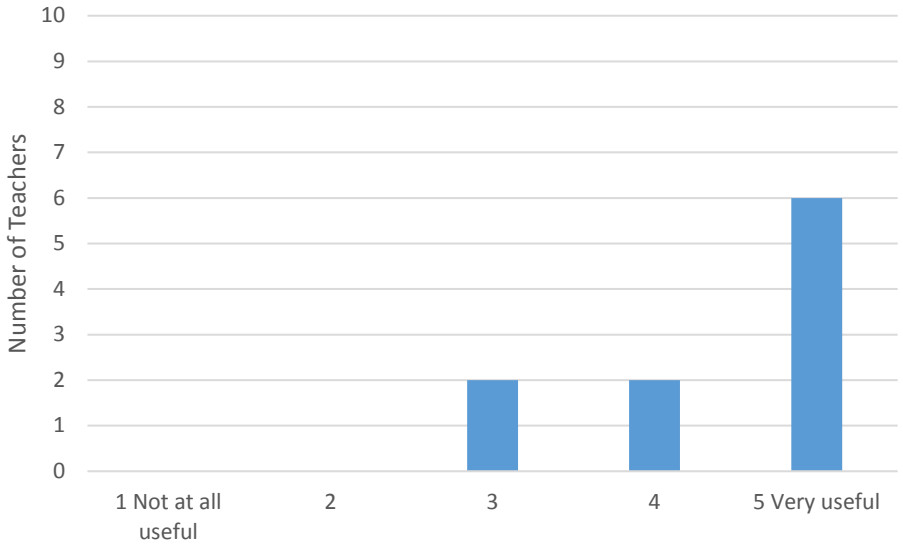


All teachers who participated in the program should have received lesson plans, a water flow bag and a flicker checker, but 3 of the 13[24] teachers surveyed said they did not receive the materials. Most of the

[24] The teacher who completed the partial survey dropped out at this point.

teachers who said they received the materials found them useful. Although two teachers felt more neutral about the materials' usefulness giving it a rating of 3 on a 5-point scale.

Figure 4-8 Usefulness of NEED Curriculum Materials



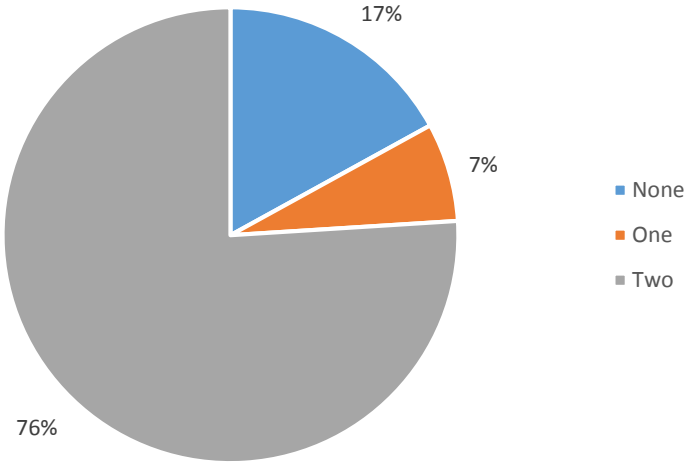
Program Effectiveness

Energy Saving Kit

The surveyed teachers said they distributed between 20 and 170 energy saving kits to students for an average of 96 kits per teacher. All the teachers said they provided the students with education about the kits.

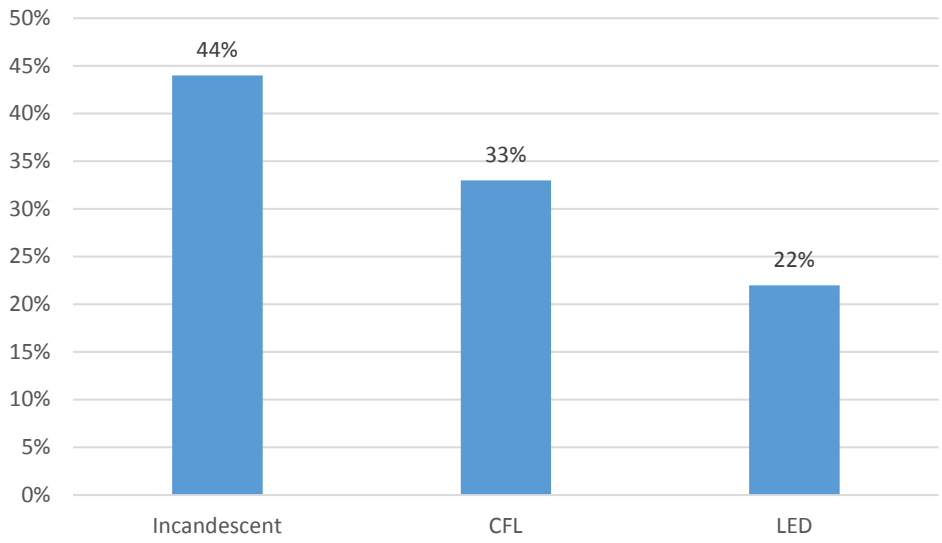
Three quarters of parents said they installed the two LED bulbs they received in the kit immediately. The light bulbs that aren't yet installed are in storage.

Figure 4-9 Number of Light Bulbs Installed in Student's Homes



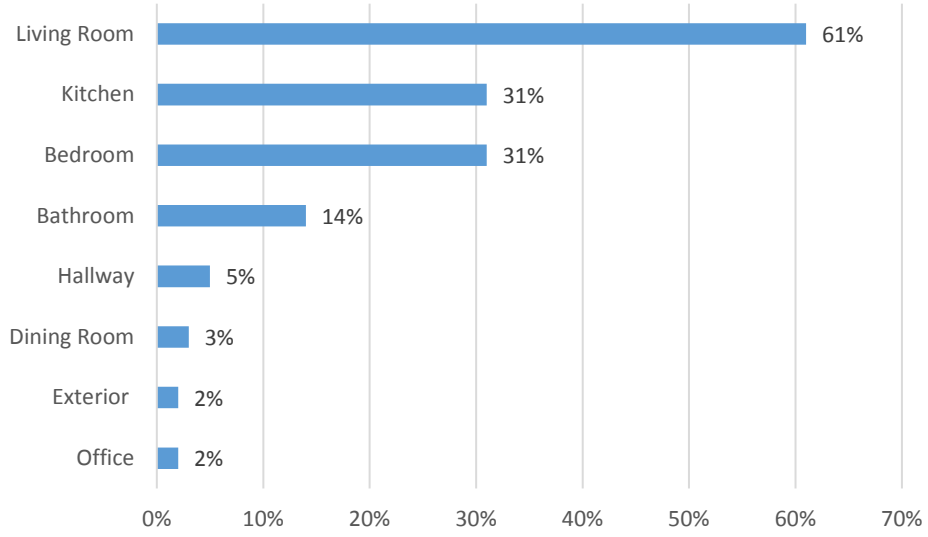
Forty-four percent of the LEDs replaced incandescent bulbs, 33% replaced CFLs and 22% replaced LEDs.

Figure 4-10 Bulbs LEDs in Energy Saving Kit Replaced



The majority of the LEDs (61%) are installed in the living room, while 31% are installed in the kitchen and/or a bedroom.

Figure 4-11 Location of Installed LEDs

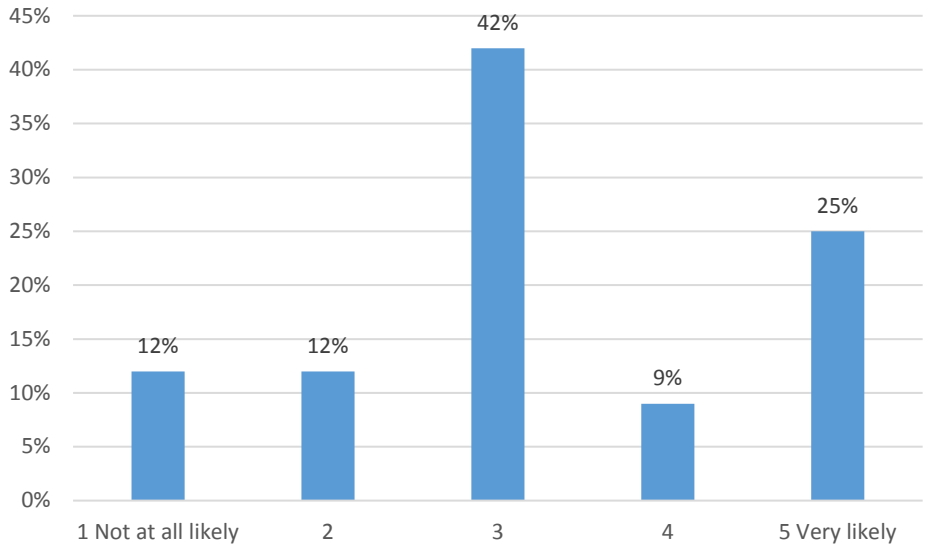


Sixty-one percent of parents said they installed the refrigerator thermometer, but only 39% said they installed the faucet aerator. Almost all parents (96%) who said they installed the faucet aerator, installed it in the kitchen.

Program Influence

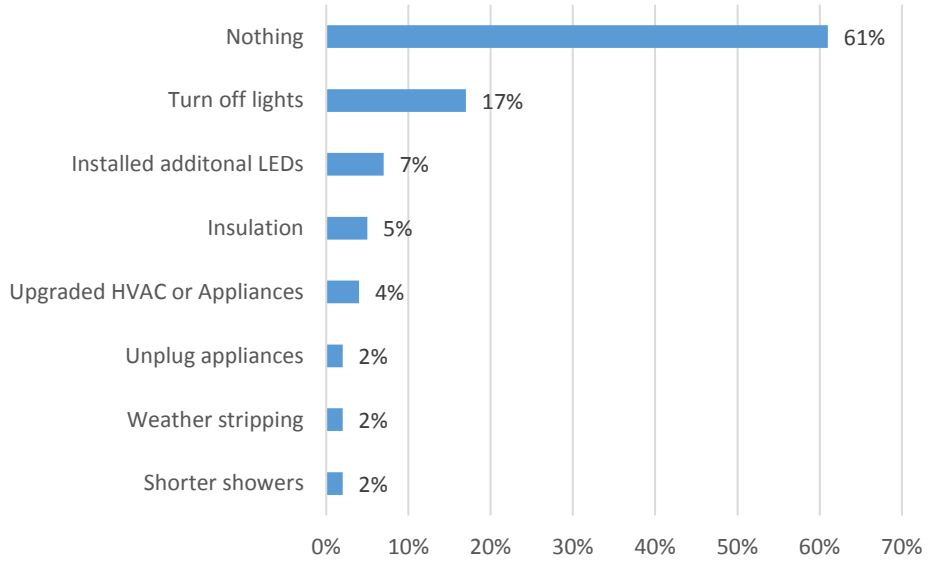
A quarter of parents said they were very likely to have purchased and installed the measures if their child had not received the kit from school. Eighteen percent of parents said they have purchased additional energy efficient measures since receiving the energy saving kit.

Figure 4-12 Likelihood of Installing Measures if Had Not Received the Kit



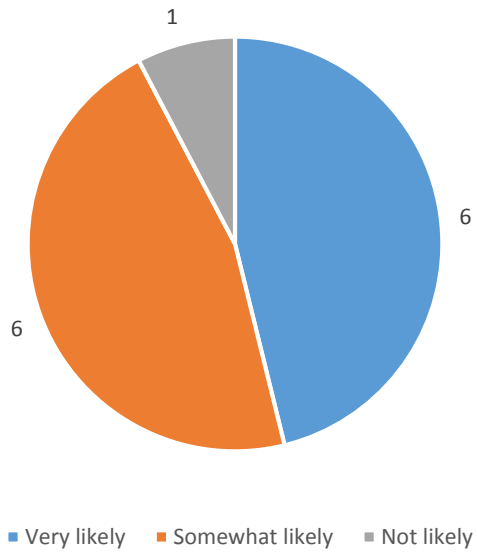
A little more than a third of parents said their household's behavior changed as a result of the program, with the largest group (17%) saying they now turn off lights when not in use. Sixty-one percent said they don't do anything differently as a result of the program.

Figure 4-13 Household Behavior Changes as Result of Student Participation in Program



Most teachers said it was at least somewhat likely that they would have taught energy education if they had not participated in the program.

Figure 4-14 Likelihood of Teaching about Energy if Program Not Available

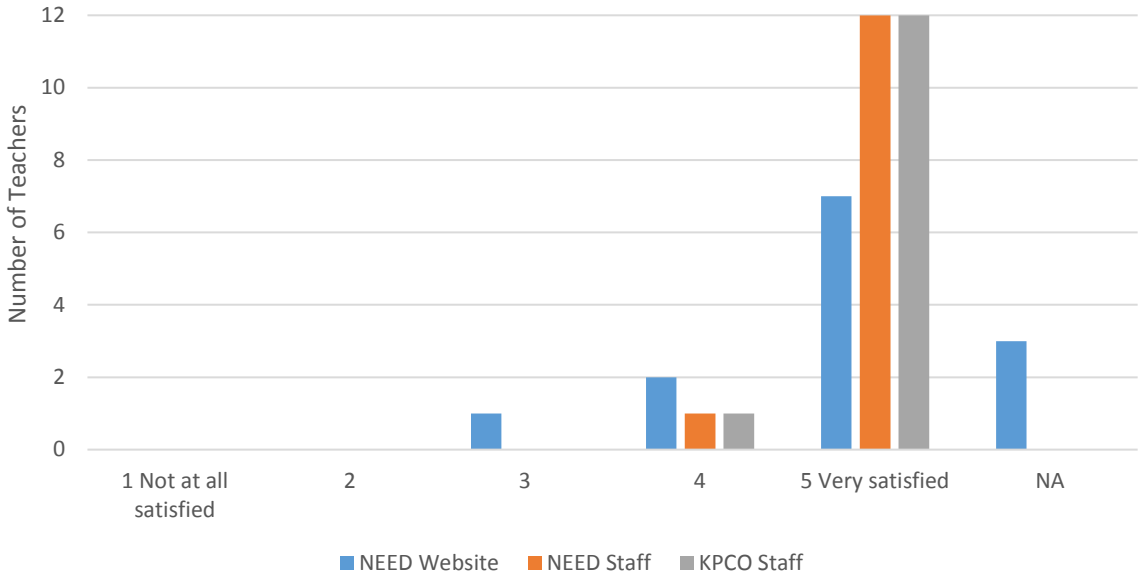


All of the teachers said, however, that they have included more energy education in their curriculum as a result of the program, indicating the program has influenced the amount of energy education taught in schools.

Program Satisfaction

Teachers were asked to rate their satisfaction with the NEED website, NEED staff and Kentucky Power staff on a 5-point scale. Satisfaction was high with teachers rating NEED and Kentucky Power staff a 4 or higher. One teacher was more neutral about the NEED website rating it a 3.

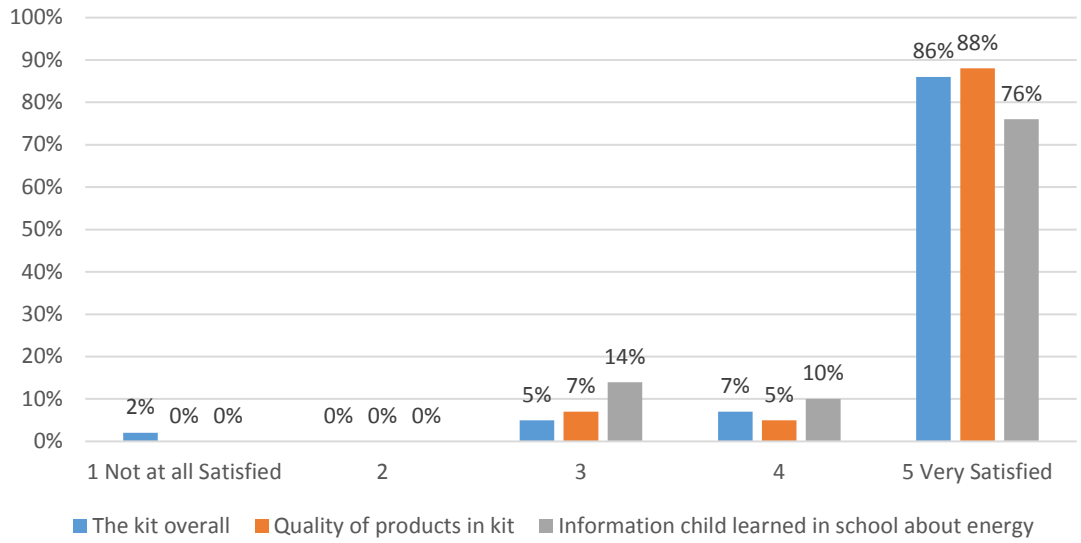
Figure 4-15 Teacher Satisfaction with the Program



Ideas for improving the program include giving the Science of Energy kits to each teacher, not only one per school, providing more supplies, having more variety in the lessons, conducting training closer to schools and providing access to speakers who could come to the classrooms.

Parents are very satisfied with the kit overall, the quality of the products in the kit and the information their child learned in school about energy. The majority of parents rated these attributes a 5 on a 5-point scale.

Figure 4-16 Parent Satisfaction with the Program



Awareness of Kentucky Power Programs

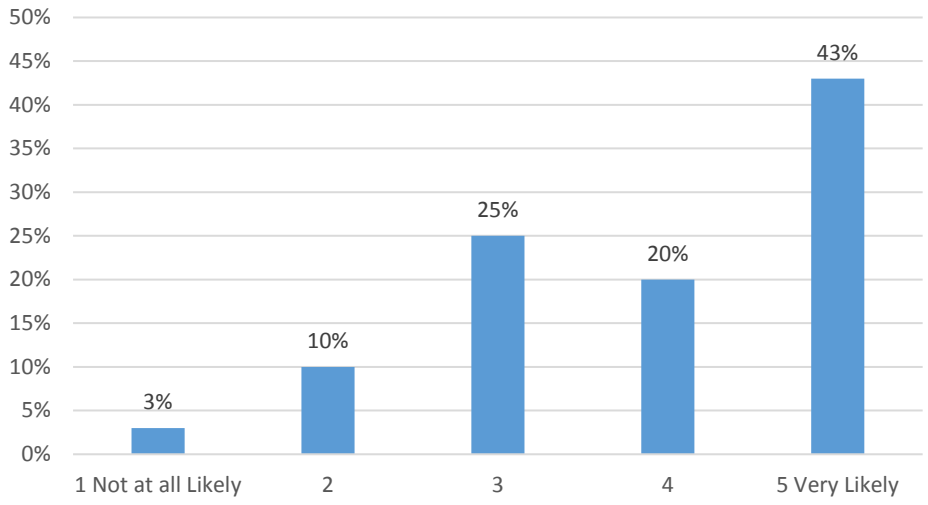
The majority of parents (68%) are aware of other Kentucky Power programs, with the largest proportion (49%) being aware of the Appliance Recycling Program.

Table 4-7 Awareness of Other Kentucky Power Programs

Program	Percent of Respondents
Appliance Recycling	49%
Residential Efficient Products	27%
Community Outreach	27%
New Manufactured Home	17%
Targeted Energy Efficiency	39%
None	32%

Sixty-three percent of parents who were aware of one or more programs said it was at least somewhat likely that they will participate in Kentucky Power's energy saving programs in the future.

Figure 4-17 Likelihood of Participating in a Kentucky Power Program in the Future



Conclusions and Recommendations

Main Findings

The Energy Education for Students Program surpassed its goal, reaching 2,205 students and spending 119% of its budget.

Table 4-8 Energy Education for Students Program Performance

Metric	Target	Actual	% Achieved
Participants	2,200	2,205	100%
Budget	$31,368	$37,483	119%

The evaluation revealed the following program strengths and challenges:

Program Strengths

- Program satisfaction is high.
- Parents are very satisfied with the kit and the information their child learns in school.
- The NEED one day training is beneficial to the teachers; the majority are able to attend and find the training useful.
- Teachers are very satisfied with the program materials, the program website, NEED staff, and Kentucky Power staff.
- The program leads to teachers including more energy education in their curriculum.
- Most of the LEDs included in the kit are installed immediately by parents.
- The majority of participants are familiar with other Kentucky Power programs and most who are familiar are at least somewhat likely to participate.

Program Challenges

- The tracking database does not track all of the necessary information.
- The majority of the faucet aerators are not installed.

- Fifty-five percent of the LEDs replaced energy saving bulbs, such as CFLs or LEDs.
- Getting complete information about the students participating is difficult.
- Most parents do not recall receiving a letter with the kits that they were supposed to complete and return.
- Less than half of the families who receive the energy efficiency kits return the letter to school with their account information.
- 8 of the 13 teachers did not double check the letters for completeness.
- The majority of parents say that none of their household's behaviors have changed as a result of receiving the kit.

Recommendations

The evaluation team recommends the following actions to improve the program:

Recommendation 1: Track attendance at the training, the number of Science of Energy kits distributed and estimated savings. If possible use an online tool (e.g., Google Analytics) to track NEED website activity (e.g., downloads of curriculum materials).

- The tracking database does not track all of the necessary information.

  Rationale: Attendance at training and the number of Science of Energy kits distributed is already known by NEED and can easily be added to the program tracking information. An estimate of energy savings and how those savings were derived will make it easier and less time consuming to replicate savings during the impact evaluation. Analytical data on how often various curriculum materials are downloaded from the NEED website would provide valuable information on the popularity and usefulness of various lesson plans and activities.

Recommendation 2: Provide families with additional educational information about the benefits of installing faucet aerators.

- The majority of the faucet aerators are not installed.

  Rationale: Additional education about the benefits of faucet aerator may result in increased installation rates.

Recommendation 3: Provide teachers with an incentive for returning complete parent letters.

- Most parents do not recall receiving a letter with the kits that they were supposed to complete and return.
- Less than half of the families who receive the energy efficiency kits return the letter to school with their account information.
- 8 of the 13 teachers do not double check the letters for completeness.

  Rationale: There is currently no incentive for teachers to ensure complete letters are returned. Offering some sort of incentive, such as additional educational materials for their classroom (additional Science of Energy kits, guest speakers, etc.,) may increase the return rate of the letters. Another incentive option is altering the current random teacher gift card drawing to instead award it to the teacher who returns the largest percentage of student participation forms.

5
NEW MANUFACTURED HOMES PROGRAM

Program Characteristics

The New Manufactured Home Program helps customers offset the cost of energy efficient improvements to a new manufactured home, providing customers greater savings, comfort and value. Two levels of incentives are offered:

- Energy Efficient Manufactured Home. A $450 incentive to manufactured home buyers who purchase a new home with Zone 3 insulation and a high efficiency air-source heat pump. Heat pump requirements include Seasonal Energy Efficiency Ratio (SEER) ≥ 15 and Heating Seasonal Performance Factor (HSPF) ≥ 8.5. Zone 3 insulation keeps more heat in during the winter and out during the summer.
- ENERGY STAR® Manufactured Home. A $1,200 incentive to manufactured home buyers who purchase a new ENERGY STAR® certified home. These homes have increased insulation, tightly sealed air ducts and ENERGY STAR® certified windows for better protection against heat, cold, drafts and noise. ENERGY STAR® homes use less energy for heating, cooling and water heating.

The measure rebate application was updated July 1, 2016, along with incentives and eligibility. Prior to July 1, 2016, the previous program, the Mobile Home New Construction program, offered a customer incentive for heat pump upgrade and installation of zone 3 insulation The previous incentives offered were:

- A $500 incentive to manufactured home buyers who purchase a new home with Zone 3 insulation and a high efficiency air-source heat pump. Heat pump requirements include SEER ≥ 13[25] and HSPF ≥ 7.7. Zone 3 insulation keeps more heat in during the winter and out during the summer.
- Manufactured home dealers received a $50 incentive for each new manufactured home rebate application submitted and approved.

Implementation Contractor

For the first half of 2016, the program was implemented by Kentucky Power during the transition from the previous program to the New Manufactured Homes program. Kentucky Power awarded the implementation contract having an effective work authorization date January 1, 2016, to DNV GL. Program requirements and incentives were changed after DNV GL transitioned to the new program. The responsibilities of DNV GL include:

- Review and update rebate applications, manufactured home dealer agreements, etc.
- Provide input for measure incentive levels and update measure savings estimates as needed
- Plan and implement marketing and outreach services, in collaboration with Kentucky Power
- Engage and educate manufactured home dealers
- Process rebate applications, including application review and incentive payment
- Provide customer service support, operate customer call center, and intercept and process customer complaints
- Track program participation and activities

[25] Based on the accepted baseline standard at that time.

Program Goals

The 2016 goals for the program were 135 participants with a budget of $171,500.

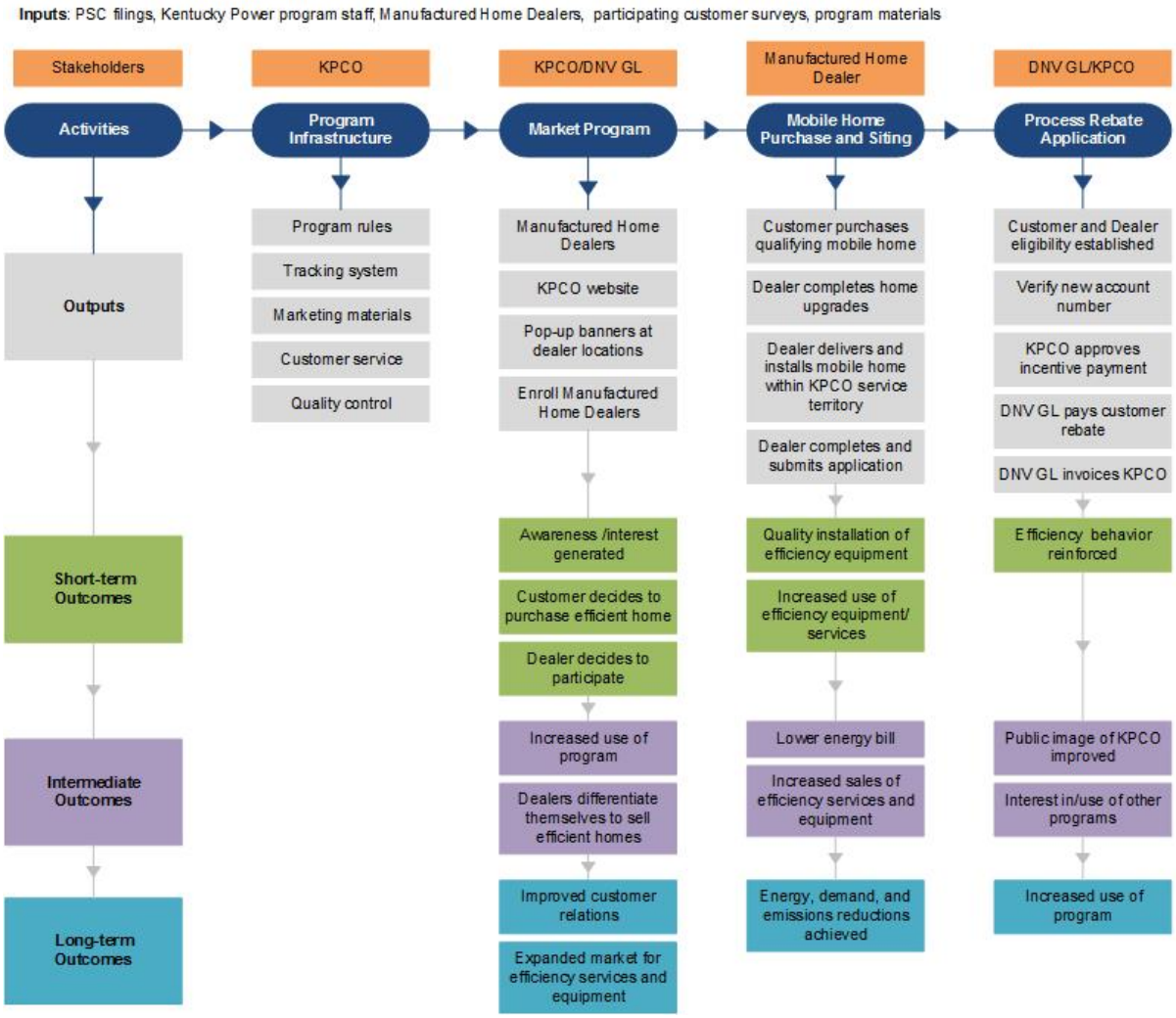
Table 5-1 New Manufactured Homes Program Goals 2016

Metric	Target
Participants	135
Budget	$171,500

Program Flow

A program logic model is a graphic representation of a program and its processes. Logic models make the program's assumptions explicit, showing the causal relationships or linkages among the problem or situation the program is designed to address, the intervention (inputs and outputs), and program impact (short, medium and long-term outcomes). Logic models also serve to identify processes and relationships critical to the program's performance.

Program Logic Model



Program Activities

The program activities and their corresponding outputs help to establish linkages between the situation the program is designed to address and the program's intended outcomes. Program activities include:

Program Infrastructure

Activities conducted by Kentucky Power include developing the program rules, maintaining the program tracking database, developing marketing materials, customer service and quality control.

Market Program

Kentucky Power and DNV GL market the program mainly through outreach to manufactured home dealers and banners at dealer locations. Program information is also available on the Kentucky Power website along with the name and location of participating home dealers.

Mobile Home Purchase and Siting

Customers purchase an eligible home from a home dealer. The dealer performs the upgrades, installs the home in Kentucky Power's service territory and completes the rebate application.

Process Rebate Application

DNV GL and Kentucky Power confirm that the customer and dealer have met the program eligibility requirements and verify the new Kentucky Power account number. Kentucky Power approves the application. DNV GL pays the customer the rebate and invoices Kentucky Power for the incentives paid out each month.

Outcomes

Outcomes are the result of program partners and target audiences responding to the outputs of the program. There are short-term, intermediate, and long-term outcomes of the program.

Short-term Outcomes

When DNV GL reaches out to dealers about the program, the dealer decides to participate. Customer awareness is increased and customers are influenced by dealers to purchase a more energy efficient home.

The new homes have high quality energy efficient equipment. Sales of energy efficient equipment is increased. Customers receive a higher quality home and a rebate check, reinforcing their energy efficient behavior.

Intermediate Outcomes

As the program matures participation in the program increases and dealers begin to differentiate themselves as high efficiency home providers. Customers lower their energy bills and sales of energy efficient equipment increases. Kentucky Power's public image improves and interest in other energy saving programs increases.

Long-term Outcomes

Long-term outcomes may include improved customer relations, an expanded market for energy efficient services and equipment, energy demand and emission reductions, and increased participation in this and other Kentucky Power programs.

External Factors

There are a variety of factors outside the control of Kentucky Power and DNV GL that may influence the program:

- Changes in political priorities (e.g., codes and standards, state and local regulations, federal policies, perceptions of energy and climate change)
- Increased efficiency standards
- Macro-economic conditions and associated impacts on customer actions
- Energy prices and regulation
- Changes in utility rate structures
- Perceptions in the value of conservation
- Competing interests among demand side customers

Documenting these factors helps improve program planning by identifying important program partners, the part(s) of the issue the program can realistically influence, which evaluation measures will accurately reflect project outcomes, and other needs that must be met to address this issue.

Methods

AEG designed the evaluation to examine program processes and customer responses to the program. The focus of the evaluation activities was to gain a better understanding of program operations, assess the overall effectiveness of program operations, and identify areas for program improvement. The evaluation was guided by the following key researchable issues:

- Does the program implementer have sufficient resources to effectively implement the program?
- Is the tracking system effective for documenting and reporting program progress?
- Is the program achieving program goals?
- What marketing/promotional efforts resonate with customers?
- Are participating dealers sufficiently knowledgeable about the program?
- Are participating dealers promoting the program to customers?
- Are customers/participating dealers satisfied with the program?
- Are rebate applications processed, approved and paid on a timely basis?
- Is the rebate processing system effective in managing the application and rebate payment process?
- What are the areas for program improvement?
- Has program participation generated interest in other Kentucky Power programs? In other energy efficiency actions outside of the Kentucky Power energy savings programs?
- What are the barriers to program participation? How can those barriers be overcome?

To arrive at the final recommendations in this report, AEG reviewed program materials and the program tracking system, conducted staff, implementation contractor, and new home dealer interviews, and surveyed participants.

Program Materials

AEG reviewed current program documents and processes including, but not limited to, relevant PSC order and filings, the program fact sheet, marketing and promotional materials, the Kentucky Power website and the program tracking database. The review served as the basis for understanding whether the program has been implemented as planned and is on track to meet its goals.

Program Tracking System

AEG reviewed Kentucky Power and DNV GL's tracking databases. AEG developed a program tracking data checklist to evaluate the program tracking databases and ensure that all critical pieces of program data were tracked.

Staff and Implementer Interviews

AEG conducted a comprehensive, group interview with Kentucky Power program staff in October 2016 to gather staff impressions of program implementation activities, program performance, program delivery issues, marketing and customer/dealer awareness, and opportunities for program improvements.

AEG interviewed DNV GL in November 2016. The interview provided information on program implementation activities, tracking methods, program outreach, customer participation, and customer satisfaction. The interview guides can be found in Appendix A.

Dealer Interviews

In-depth interviews with home dealers were conducted from February 14 – 16, 2017. The interviews were conducted by telephone with home dealers who participated in the New Manufactured Homes Program in 2016. A total of 8 interviews were completed with participating dealers. Four of the dealers were Clayton Homes Dealers and 4 were other independent dealers. The interview guide can be found in Appendix B.

Participant Surveys

AEG administered a telephone survey to a random sample of participants from February 7 – 13, 2017. Kentucky Power provided data for residential customers who participated in the program in 2016. Kentucky Power issued 108 rebates in 2016 through mid-December. AEG calculated the sample size at a 90 percent confidence interval with an error margin of +/-10 percent. The resulting sample size to achieve the designated confidence was 42 participants. Participants were randomly selected and contacted to complete the survey.

Respondents were screened to ensure that they remembered participating in the program. The survey asked respondents to assess program experience and awareness, satisfaction, barriers to participation and areas for potential program improvement. The survey guide can be found in Appendix C.

A total of 34 surveys were completed with participating customers for a 90 percent confidence interval with an error margin of +/-11.7 percent. All the completed surveys were with Energy Efficient Manufactured Home participants, no surveys were completed with participants who purchased an ENERGY STAR® Manufactured Home.[26]

Evaluation Results

This section provides key evaluation findings, including program performance, program processes, program marketing, program participation, program effectiveness and program satisfaction.

Program Performance

The New Manufactured Homes Program achieved 83% of its participation goal while spending 59% of the budget. Seven of the 112 homes rebated were ENERGY STAR® Manufactured Homes. The remaining 105 were Energy Efficient Manufactured Homes.

Table 5-2 New Manufactured Homes Program Performance[27]

Metric	Target	Actual	% of Achieved
Participants	135	112	83%
Budget	$171,500	$101,072	59%

A breakdown of expenditures shows that the program was below budget in all categories except evaluation. The cost per participant is also lower than budgeted.

[26] Seven homes rebated were ENERGY STAR® Manufactured Homes.

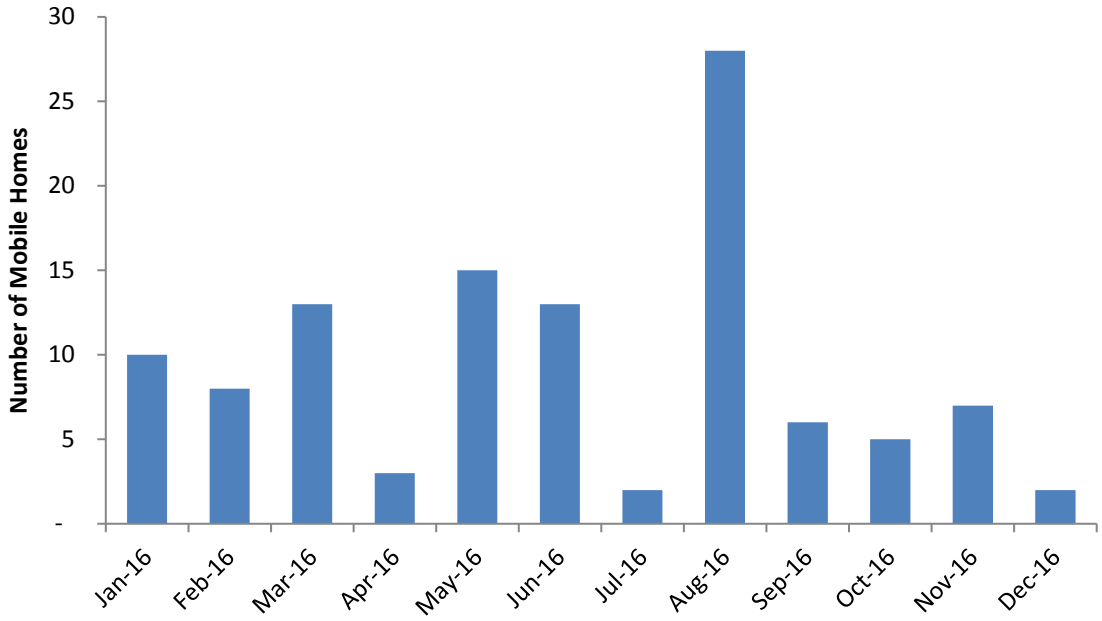
[27] The detailed program tracking data had data for 110 participants versus the Kentucky Power tracking database, which had 112 participants.

Table 5-3 2016 Goals vs. Actual – Budget

Metric	Target	Actual	% of Achieved
Evaluation	$1,100	$1,566	142
Delivery	$40,500	$32,056	79%
Promotion/Marketing	$16,650	$2,966	18%
Customer Incentive	$98,250	$60,750	62%
Information Technology	$15,000	$3,734	25%
Total Cost ($)	**171,500**	**$101,072**	**59**
Total Participants	135	112	83%
Cost per Participant	**$1,270**	**$902**	**71%**

The figure below shows the new homes rebated by month. There was a large spike in sales in August shortly after DNV GL began implementation of the program, but then sales dropped for the remainder of the year. Approximately 60% of the homes were purchased prior to July 1, 2016. The majority of customer applications in 2016 were processed by Kentucky Power (102 rebates) at the higher incentive amount and lower heat pump efficiency requirement, during the transition to the new program, with the majority of customers installing a new manufactured home with a SEER 14. Only 10 applications were processed by DNV GL.

Figure 5-1 Homes Rebated by Month



The table below shows the rebates by dealership. Clayton Homes in Harold sold the most homes (25% of rebated homes) followed closely by Hylton Sales and Rentals and LUV homes.

Table 5-4 Homes Rebated by Dealer

Dealer	Number Sold	% of Total
Clayton Homes – Harold*	28	25%
Hylton Sales and Rentals*	23	21%
LUV Homes	23	21%
Parkplace Homes	9	8%
Clayton Homes - Pound	6	5%
Grayson Mobile Homes	6	5%
Clayton Homes - Grayson	4	4%
Dream Homes	4	4%
Brown's Mobile Home	1	1%
Clayton Homes - Louisa	1	1%
Lakeside Homes	1	1%
Mountain Homes	1	1%
Oakwood Homes	1	1%
Unknown*	2	2%
TOTAL	**110**	**100%**

*Includes one or more sales of an Energy Star home

Program Processes

Interviews with Kentucky Power and DNV GL assessed how well the program is performing in terms of staffing resources, communication, and quality assurance and quality control.

The relationship between Kentucky Power and DNV GL is good. DNV GL implements several other programs for Kentucky Power. Staff at the two companies have regular communication, typically weekly, but as often as daily, mainly by email. DNV GL also has a 1-800 telephone number for customer service. Kentucky Power has received some complaints from customers that those phone calls are not always answered.

DNV GL began implementation of the program in July and at the time of interview, were confident they can meet their goals given an entire program year. Since the interview, however, they have significantly reduced their 2017 forecast. The Energy Efficient Manufactured Homes incentive changed from $500 to $450 and the $50 dealer incentive was eliminated when DNV GL became the program implementer. DNV GL feels the current incentive amount is sufficient and the rebate has an especially large impact on customer purchasing decisions.

The rebate application was modified twice in 2016. The application was first modified on July 1st when DNV GL began implementing the program, to present the new program requirements and incentives. In September, DNV GL issued two applications, one for ENERGY STAR® Manufactured Home and one for Energy Efficient Manufactured Homes, in an effort to reduce customer and dealer confusion.

Program Tracking Database

DNV GL collects program tracking information and provides a monthly update to Kentucky Power on the performance metrics, the amount spent, and a forecast for the remaining year. AEG developed a program tracking data checklist to evaluate DNV GL's tracking database. All the required information is tracked by DNV GL except for the customer address, Heat Pump manufacturer or product identifier, Heat Pump efficiency level and estimated energy savings.

Tale 5-5 Program Tracking Checklist for New Manufactured Homes Program

Data Required	Tracked in Database
Customer Account Number	✓
Customer Contact Information	O
Vendor Name	✓
Vendor Contact Information	✓
Date of Sales	✓
Date of Installation	✓
Manufacturer or Product Identifier	O
Equipment Size & Quantity	✓
Efficiency Level	O
Amount of Incentive	✓
Date Incentive Paid	✓
Size of Home	✓
Estimated Savings	O

✓ Data included
O Data missing

Quality Control/Quality Assurance Procedures

To qualify for the rebate, mobile home installers are required to be certified[28]. The staff at DNV GL personally validate the account numbers of all participating dealers and inspect all of the ENERGY STAR® Manufactured Homes after installation. Incentives and invoices are processed and paid on a timely basis.

Program Marketing

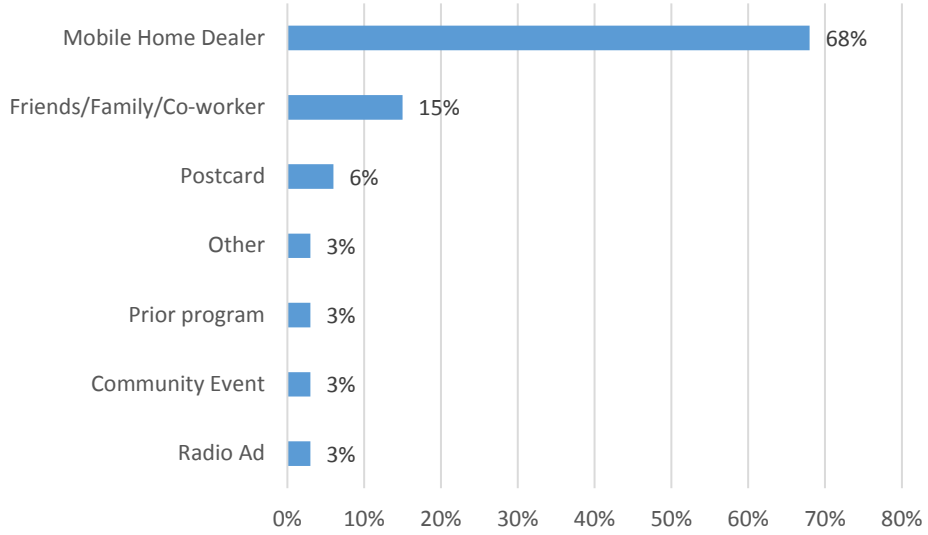
During the participant surveys, customers were asked about their awareness of the Kentucky Power program and their reason for participating. Marketing was also addressed in the staff, implementer and dealer interviews.

The program is marketed mainly through outreach with manufactured home dealers. DNV GL staff report they have met personally with a large number of dealers and have distributed promotional materials including flash drives, tri-fold brochures, printed copies of the applications, banners and pop-up

[28] Certification process includes requirements such as a 5-hour course from the Kentucky Manufactured Housing Institute.

displays. This is corroborated by the participant survey; the main way the majority of participants (68%) said they heard about the program was from their home dealer.

Figure 5-2 How Participants Heard About the Program

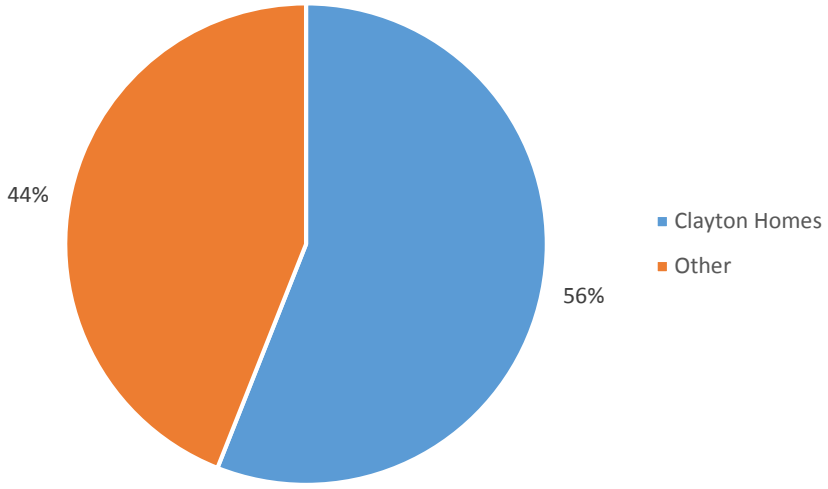


During the dealer interviews, however, none of the 8 dealers recalled being contacted by DNV GL or Kentucky Power or said they received any program materials. DNV GL reported that the local Clayton Homes dealers, the biggest dealer in the area, have been resistent to certain program services and, as a result, DNV GL has done less outreach with Clayton dealers.

Clayton Homes has their own version of an energy efficient home, called an Energy Smart home[29], that doesn't meet the ENERGY STAR® criteria without a few modifications. More than half of participants surveyed (56%) said they purchased their home from Clayton Homes. Another 18% of participants said they shopped at Clayton Homes before making a purchase at another dealer. Clayton Homes is a national corporation and on their corporate website they advertise ENERGY STAR® manufactured homes. At Kentucky locations, however, the websites only list the Energy Smart homes.

[29] http://media.claytonhomes.com/2015-06-09-Clayton-Homes-Introduces-Super-Efficient-Energy-Smart-Home

Figure 5-3 Where Surveyed Participants Purchased Their Home



Another issue arose during dealer interviews. Some dealers explained that the largest homes stocked are still too small to be compatible with the SEER 15 heat pumps required by the program.

"We stock 2, 3 and 4 ton units – all are incompatible with SEER 15" – Home Dealer

Only two dealers said the SEER 15 heat pumps could fit in their homes. Dealers reported that all manufactured homes have good insulation and sealing which decreases HVAC run time, thereby decreasing the benefits of an incremental efficiency upgrade in HVAC equipment. Thus, a SEER 15 heat pump, which carries a significant incremental cost and installation burden relative to a SEER 14 heat pump, is not worth it for customers regardless of the AEP incentive.

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Program Participation

Drivers and Barriers to Participation

According to DNV GL, the main reason customers choose to participate in the program is the sizeable rebate. The $1,200 rebate for an ENERGY STAR® home covers almost all the incremental cost of purchasing the upgraded home. The fact that an energy efficient home can save up to 50% on energy bills compared to the standard manufactured home is also a big driver of program participation. Interviewed dealers feel the cost savings of energy efficient homes are the main driver.

DNV GL feels the main barrier to participation is the lack of dealers stocking ENERGY STAR® homes. At the time of the interview with DNV GL, only one dealer in Kentucky stocked and promoted ENERGY STAR® homes. ENERGY STAR® homes that are not stocked can still be ordered from dealers but it generally takes 6 – 8 weeks to get a home, whereas stocked homes only take about 2 weeks. The economy is also a barrier. Kentucky Power's service territory includes the coal mining industry which has been hit hard by the economic downturn. Many lower income customers are either unable to purchase homes or are unable to spend any additional amount of money to upgrade to a more efficient home.

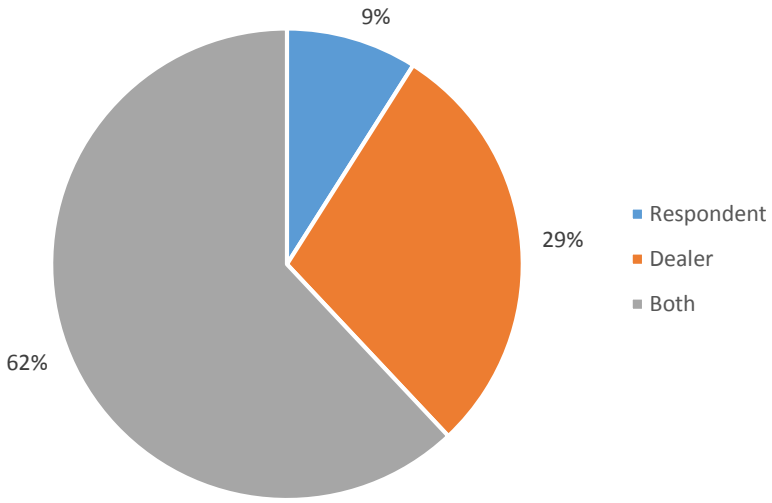
Dealers interviewed agree that the economy is a barrier, with the cost of an upgraded home often deterring prospective buyers. One dealer also said that some customers just do not like heat pumps and will not buy a home with that technology.

DNV GL feels that the program is beginning to drive the demand for ENERGY STAR® homes and may cause a paradigm shift in the future. If customers start demanding ENERGY STAR® homes, more dealers will stock them. DNV GL says they have already seen increased interest among some dealers partly because of the program and partly because a nonprofit organization is helping to promote the message that ENERGY STAR® is good.

Program Application

For most participants, the dealer either completed the application for them or helped them complete the application. Only 8% of participants filled out the application completely on their own.

Figure 5-4 Who Completed the Rebate Application



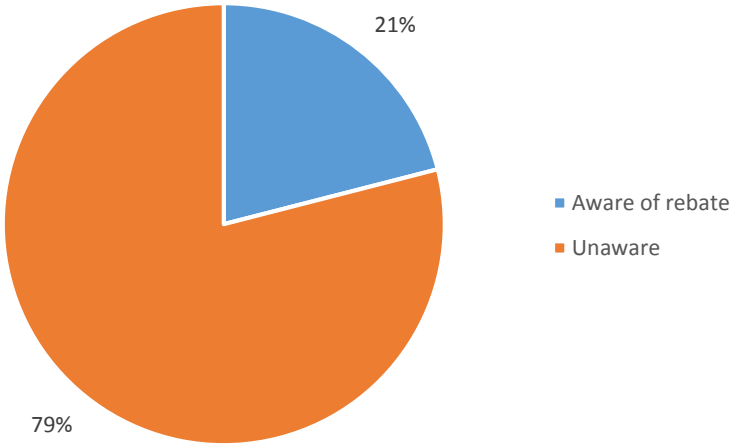
Almost all of the participants who had a role in completing the application (96%) said the application was easy to complete. The time it took to get the rebate once the application was completed ranged from 1 – 22 weeks with an average of 6 weeks. Eighty-five percent of participants felt this was a reasonable amount of time.

Program Effectiveness

Program Influence

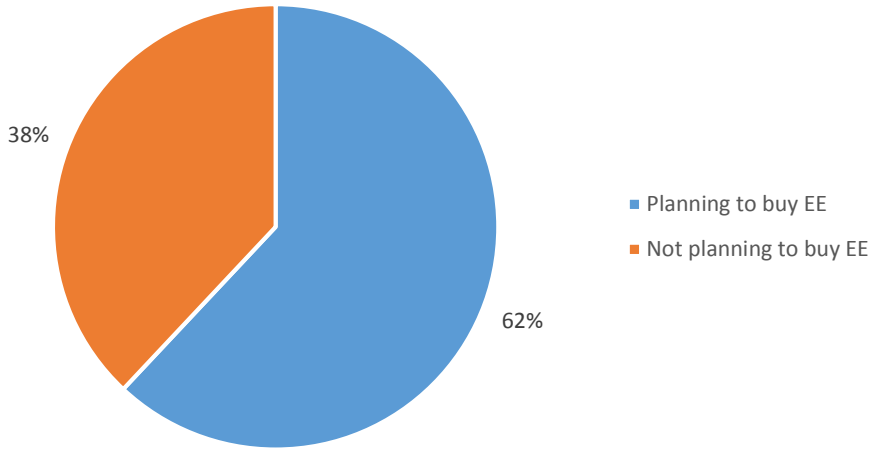
Only 21% of participants said they knew about the rebate before shopping for the homes, giving more evidence of the influence of home dealers on the purchase.

Figure 5-5 Participants Awareness of Rebate Prior to Visiting Dealer



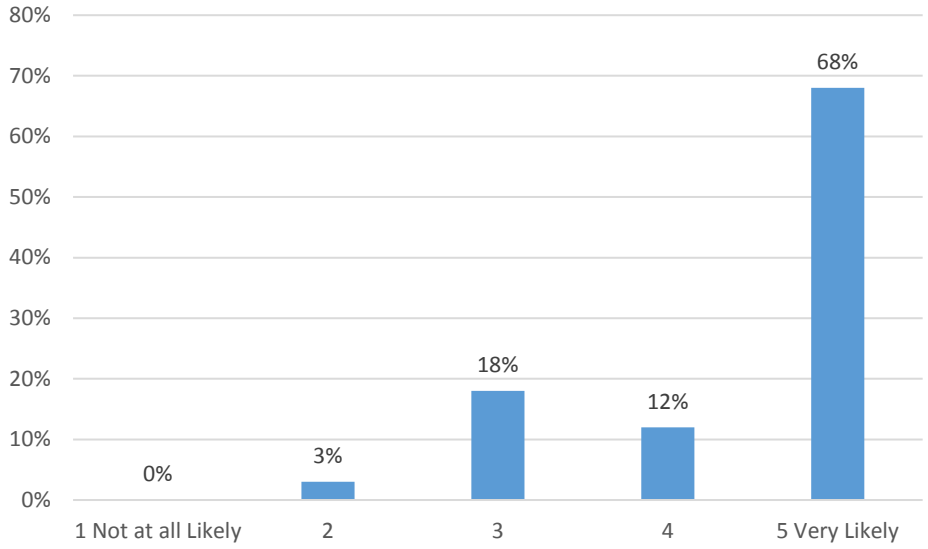
Sixty-two percent of participants, however, said they were planning on buying an energy efficient home that included Zone 3 insulation and a heat pump before they went shopping.

Figure 5-6 Participants Planning to Buy EE Unit Prior to Visiting Dealer



A large percentage of participants (68%) said it was very likely that they would have purchased the same home if the rebate had not been available. Most dealers feel that the rebate has a large influence on the majority of participants' purchasing decision.

Figure 5-7 Likelihood of Purchasing Same Home if Rebate Not Available

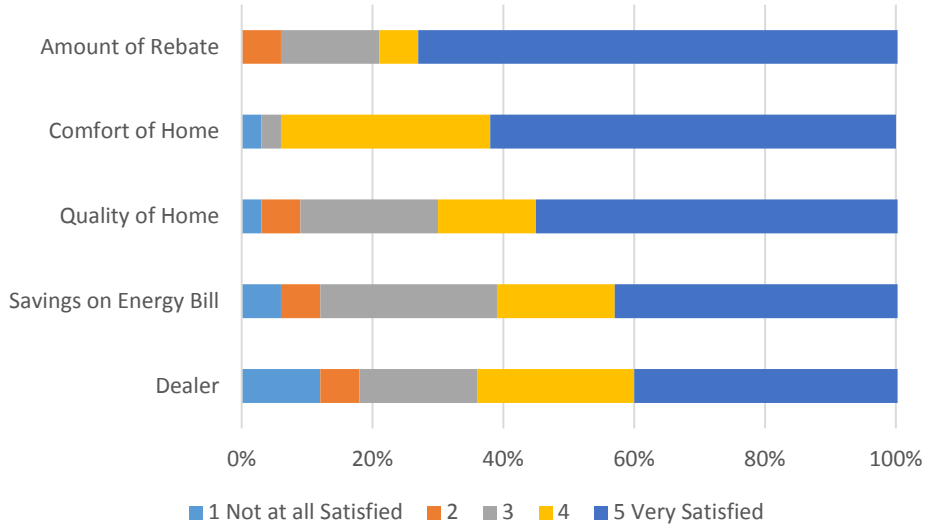


Twenty-four percent of participants said they purchased additional energy efficient equipment as a result of participating in the program and did not receive a rebate for their purchase.

Program Satisfaction

Satisfaction with all aspects of the program is high, particularly the amount of the rebate and the comfort of the home. Small groups, however, are dissatisfied with the dealer and the savings on their energy bill.

Figure 5-8 Participant Satisfaction with the Program



Awareness of Kentucky Power Programs

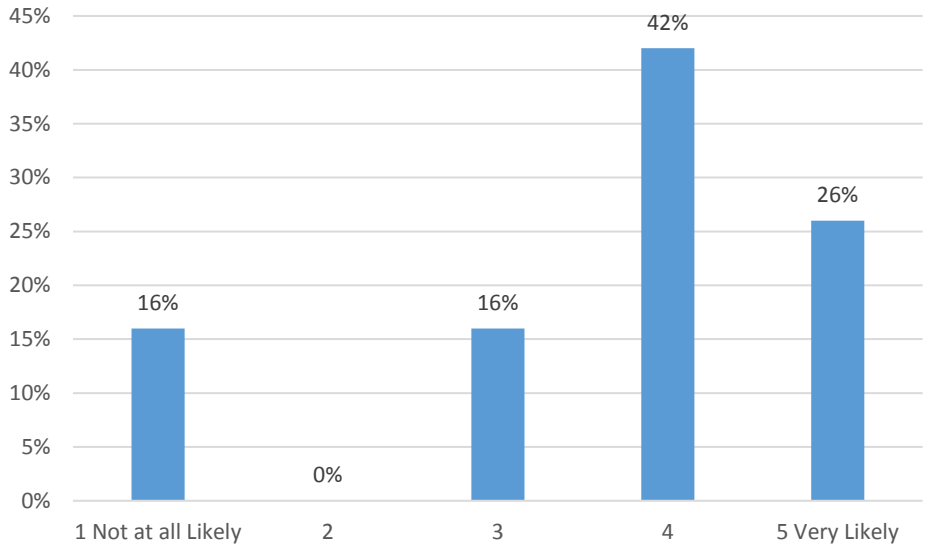
The majority of New Manufactured Homes program participants (56%) are aware of other Kentucky Power programs with the largest proportion being aware of the Appliance Recycling (33%) and Targeted Energy Efficiency (39%) programs.

Table 5-6 Awareness of Other Kentucky Power Programs

Program	Percent of Respondents
Appliance Recycling	33%
Residential Efficient Products	24%
Community Outreach	27%
Whole House Energy Efficiency	24%
Targeted Energy Efficiency	39%
None	44%

Sixty-eight percent of participants who were aware of one or more programs said it was at least somewhat likely that they will participate in other Kentucky Power energy saving programs in the future.

Figure 5-9 Likelihood of Participating in a Kentucky Power Program in the Future



Conclusions and Recommendations

Main Findings

Kentucky Power's New Manufactured Homes Program achieved 83% of its participation goal while spending 59% of the budget. Approximately 60% of the homes were purchased prior to July 1, 2016. The majority of customer applications in 2016 were processed by Kentucky Power at the higher incentive amount and lower heat pump efficiency requirement, with the majority of customers installing a new manufactured home with a SEER 14. Only 10 applications were processed by DNV GL.

Table 5-7 New Manufactured Homes Program Performance

Metric	Target	Actual	% of Achieved
Participants	135	112	83%
Budget	171,500	$101,072	59%

The evaluation revealed the following program strengths and challenges:

Program Strengths

- Dealers are the main avenue for marketing the program.
- Most customers heard about the program from the dealer.
- Most customers did not know about the rebate before they shopped for a new manufactured home.
- In most instances, the dealer either completed the application for the participant or helped the participant complete the application.
- The implementation contractor believes customer interest in the program is beginning to drive demand and may cause a paradigm shift in the market.
- Satisfaction with the program is good with the highest ratings given to the size of the rebate and the comfort of the home.
- More than half of participants are aware of other Kentucky Power programs.

Program Challenges

- There is room for improvement in the satisfaction ratings for dealers and for savings on customer energy bills. Dealers received a satisfaction rating of 65% and energy savings received a rating of 62% (given a rating of a 4 or 5 on a 5-point scale).
- The 8 dealers interviewed said they have never been contacted by DNV GL and have not received program materials.
- Few dealers serving the Kentucky Power service territory stock ENERGY STAR® homes.
- The majority of customer applications were processed at the pre-July 1st incentive amount and lower heat pump efficiency requirement, with the majority of customers installing a new manufactured home with a SEER 14. A SEER 14 heat pump is no longer eligible for a rebate and this may affect future participation.
    - Six of the 8 dealers interviewed reported that the SEER 15 units do not fit in their homes.
    - Dealers reported that all manufactured homes have good insulation and sealing which decreases HVAC run time, thereby decreasing the benefits of an incremental efficiency upgrade in HVAC equipment. Thus, a SEER 15 heat pump, which carries a significant incremental cost and installation burden relative to a SEER 14 heat pump, is not worth it for customers in spite of any AEP incentive.
- The largest participating dealer in the program, Clayton Homes accounted for 35% of the program sales including two ENERGY STAR® Homes[30]. But many of their projects were processed at the pre-July 1st incentive amount and lower heat pump efficiency requirement, with the majority of customers installing a new manufactured home with a SEER 14.
    - Three of the 4 employees interviewed from , Clayton Homes, said they sell ENERGY STAR® homes in addition to their own branded Energy Smart homes.. Their Energy Smart homes can qualify as ENERGY STAR® with a few modifications (as reported from the dealer interviews).

[30] According to the program tracking database provided by DNV GL.

- More than half of the participants surveyed said they purchased their home from Clayton Homes.
- Nationally, Clayton Homes sell ENERGY STAR® homes and advertise ENERGY STAR® prominently on their corporate website.

Recommendations

The evaluation team recommends the following actions to improve the program:

Recommendation 1: Arrange a meeting or workshop with all the largest area dealer to discuss how Kentucky Power, DNV GL and the dealer can collaboratively work together to sell more efficient homes.

- Larger home dealers have difficulty meeting program requirements.
  - The largest area dealer, Clayton Homes, has their own version of energy efficient homes, called Energy Smart,[31] a home rating that is different from ENERGY STAR®..
  - Some manufactured homes cannot fit the required 15 SEER heat pump.

    Rationale: The largest manufactured home dealer in the area is also the largest participating dealer in the program. Establishing a strong working relationship with them is imperative to future program success. A meeting or workshop discussing the program and the shared goal of selling homes is a good starting point.

Recommendation 2: When conducting outreach with dealers, ask for contact information for all sales people employed by the dealer. Follow up with each sales person via phone or email.

- The 8 dealers interviewed said they have never been contacted by DNV GL and have not received program materials.

  Rationale: Current outreach efforts are not reaching all parties who could influence customers purchasing decisions. Following up with all sales staff at individual dealer locations will increase dealer awareness of the program and increase program participation.

Recommendation 3: Conduct mass marketing, such as radio, TV, and newspaper ads that focuses on the benefits of an Energy Efficient or ENERGY STAR® Manufactured Home.

- The implementation contractor believes customer interest in the program is beginning to drive demand and may cause a paradigm shift in the market.
- Few dealers stock ENERGY STAR® Homes
- Only 18% of the marketing budget was used.

  Rationale: Mass marketing will help increase customer interest and hasten the paradigm shift DNV GL is predicting. If customer demand for ENERGY STAR® increases, more dealers will stock ENERGY STAR® homes.

Recommendation 4: Consider adding a tiered incentive for homes that are energy efficient but do not quite meet the ENERGY STAR® eligibility requirements.

- Clayton homes, the largest dealer in the area, has their own version of ENERGY STAR® homes, called Energy Smart, which are not as efficient.

[31] http://media.claytonhomes.com/2015-06-09-Clayton-Homes-Introduces-Super-Efficient-Energy-Smart-Home

- 6 of the 8 dealers interviewed reported that the SEER 15 units do not fit in their homes.

  Rationale: Few dealers will be promoting the Tier 1 rebate due to the problems with the size of the unit, and the low interest among both dealers and customers. A middle tier rebate that would provide an incentive for homes similar to the largest dealer's Energy Smart home, could increase participation and improve dealer satisfaction.

Recommendation 5: Reduce the annual participation goal.

- The majority of customer applications were processed at the pre-July 1st incentive amount and lower heat pump efficiency requirement, with the majority of customers installing a new manufactured home with a SEER 14.
- The program achieved 72% of its participation goal while spending 43% of the budget.

  Rationale: The 2016 program activity and results of this process evaluation do not support the program achieving the goal of 155 participants. In addition, there have been market changes, such as the increased heat pump efficiency standard and 15 SEER not being well received by dealers or participants. The program may reach a goal of 50 participants, particularly when coupled with the other recommendations.

6
TARGETED ENERGY EFFICIENCY PROGRAM

Program Characteristics

The Targeted Energy Efficiency Program provides weatherization and energy efficiency services to qualifying residential customers who need help reducing their energy bills. Kentucky Power provides funding through the Kentucky Community Action network of not-for-profit Community Action Agencies. The DSM program funding is supplemental to the funding received by Community Action Agencies through the federal Weatherization Assistance Program.

Program services can include the following, as applicable and per program guidelines:

- Energy audit
- Air infiltration diagnostic test to find air leaks
- Air leakage sealing
- Attic, floor, and side-wall insulation
- Duct sealing and insulation
- High efficiency lighting upgrades
- Domestic hot water heating insulation (electric)
- Energy efficient doors and windows
- Customer education on home energy efficiency
- Air Source Heat Pump

Customers who have primary electric heat and use an average of 700 kWh per month may be eligible for extensive weatherization and energy conservation measures. Customers without primary electric heat may be eligible for limited efficiency measures if they have electric water heat and use an average of 700 kWh from November through March. To qualify, a household's income cannot exceed the designated income guidelines.

Program Goals

The 2016 goals for the program are 175 participants with a budget of $298,654.

Table 6-1 Targeted Energy Efficiency Goals 2016

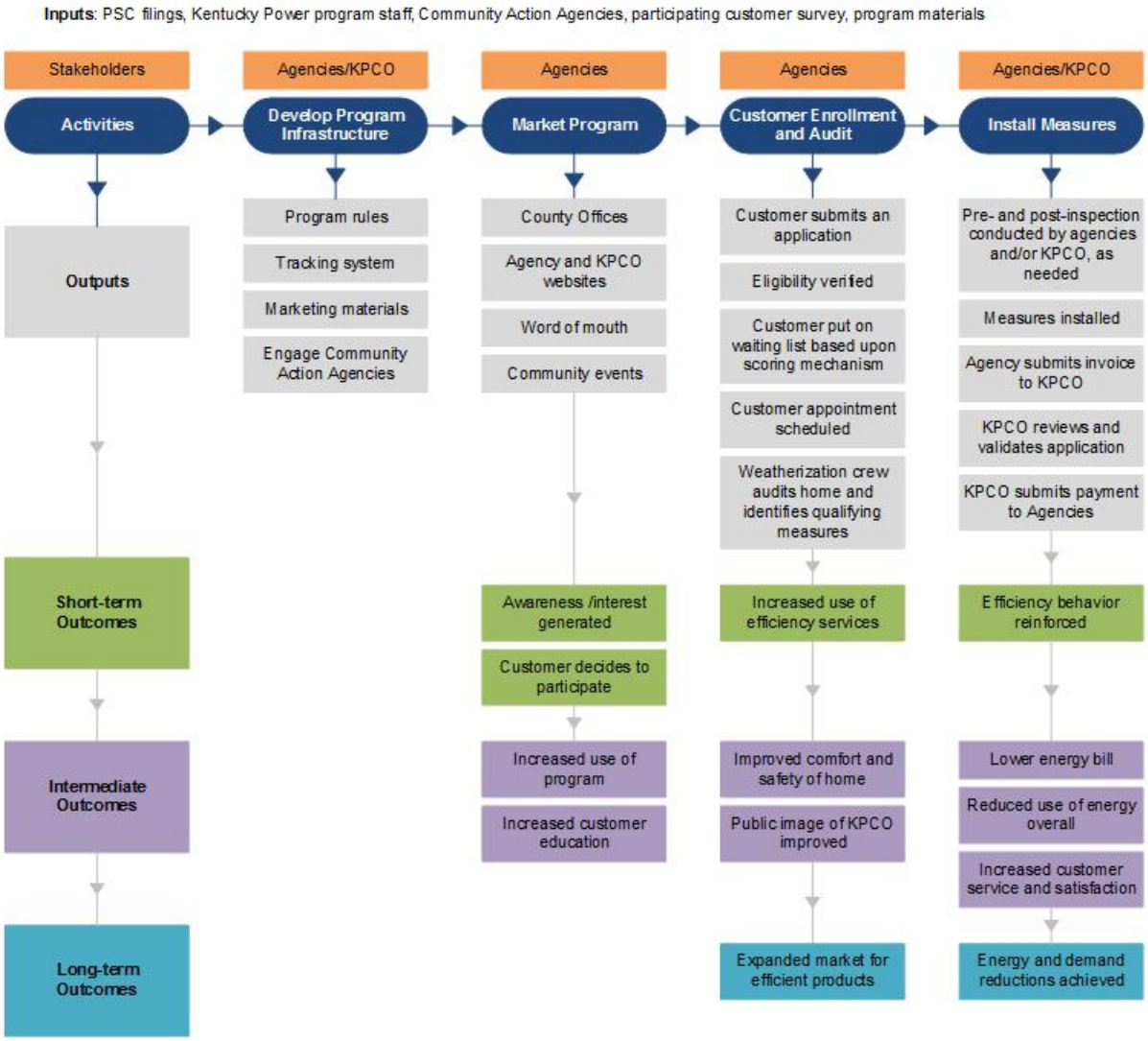
Metric	2016
Homes	175
Budget	**$352,410**

Program Flow

A program logic model is a graphic representation of a program and its processes. Logic models make the program's assumptions explicit, showing the causal relationships or linkages among the problem or situation the program is designed to address, the intervention (inputs and outputs), and program impact

(short, medium and long-term outcomes). Logic models also serve to identify processes and relationships critical to the program's performance.

Program Logic Model



Program Activities

The program activities and their corresponding outputs help to establish linkages between the situation the program is designed to address and the program's intended outcomes. Program activities include:

Program Infrastructure

Activities conducted by Kentucky Power include developing program rules, maintaining the program tracking system, developing marketing materials, and engaging Community Action Agencies.

Market Program

The Community Action Agencies market the program through their county offices. Other marketing outreach is done through word of mouth, at community events, and on the Community Action Agency and Kentucky Power websites.

Customer Enrollment and Audit

Customers enroll for the program through the Community Action Agencies and their eligibility is verified. They are put on a waiting list based on an eligibility score. When their turn comes, an appointment is scheduled and a free home audit is conducted. A weatherization crew conducts the audit and identifies qualifying measures.

Installation of Measures

Pre- and post-inspections are conducted by the Community Action Agencies or Kentucky Power. Measures are installed. The Agency invoices Kentucky Power. Kentucky Power reviews and validates the invoices and submits the payment.

Outcomes

Outcomes are the result of program partners and target audiences responding to the outputs of the program. There are short-term, intermediate, and long-term outcomes of the program.

Short-term Outcomes

Customers become aware of the program and decide to participate. The measures are installed at no cost. Customer use of energy efficient equipment is increased and their efficiency behavior is reinforced.

Intermediate Outcomes

Intermediate outcomes may include increased program participation and gains in customer education. Installation of measures leads to increased comfort of the participant's home and the public image of Kentucky Power is improved. The customer's overall energy use is reduced, their energy bill may be lowered and their customer satisfaction is improved.

Long-term Outcomes

The long-term outcomes may include an expanded market for energy efficiency services and energy and demand reductions.

External Factors

There are a variety of factors outside the control of Kentucky Power and the Community Action Agencies that may influence the program:

- Changes in political priorities (e.g., codes and standards, state and local regulations, federal policies, perceptions of energy and climate change)
- Increased efficiency standards
- Macro-economic conditions and associated impacts on customer actions
- Energy prices and regulation
- Changes in utility rate structures
- Perceptions in the value of conservation
- Competing interests among demand side customers

Documenting these factors helps improve program planning by identifying important program partners, the part(s) of the issue the program can realistically influence, which evaluation measures will accurately reflect project outcomes, and other needs that must be met to address this issue.

Methods

AEG designed the evaluation to examine program processes and customer responses to the program. The focus of the evaluation activities was to gain a better understanding of program operations, assess the overall effectiveness of program operations, and identify areas for program improvement. The evaluation was guided by the following key researchable issues:

- Is the tracking system effective for documenting and reporting program progress?
- Is the program achieving program goals?
- Do the Community Action Agencies have the tools needed to implement the program?
- Is data integration with utility tracking feasible with Community Action systems?
- What marketing/promotional efforts resonate with customers?
- Are auditors sufficiently knowledgeable about the program?
- Are customers satisfied with the program?
- Are invoices processed, approved and paid on a timely basis?
- What are the areas for program improvement?
- What are the barriers to program participation? How can those barriers be overcome?
- Has program participation generated interest in other Kentucky Power programs? In other energy efficiency actions outside of Kentucky Power energy savings programs?
- Are there Federal/State/Local codes or standards changes that impact the program (e.g., EISA)?

To arrive at the final recommendations in this report, AEG reviewed program materials and the program tracking system, conducted staff and Community Action Agency interviews, and surveyed program participants.

Program Materials

AEG reviewed current program documents and processes including, but not limited to, relevant PSC orders and filings, marketing materials, the program application, and the program tracking database. The review served as the basis for understanding whether the program has been implemented as planned and is on track to meet its goals.

Program Tracking System

AEG reviewed Kentucky Power's tracking database. AEG developed a program tracking data checklist to evaluate Kentucky Power's program tracking database and ensure that all critical pieces of program data were tracked.

Staff and Implementer Interviews

AEG conducted a comprehensive, group interview with Kentucky Power program staff in October 2016 to gather staff impressions of program implementation activities, program performance, program delivery issues, and opportunities for program improvements.

AEG interviewed 3 of the 5 Community Action Agencies in November 2016. The interview provided information on program implementation activities, tracking methods, customer participation, customer satisfaction, and program effectiveness. Interview guides can be found in Appendix A.

Participant Surveys

AEG administered a telephone survey to a random sample of participants from January 25 – 31, 2017. Kentucky Power provided data on 89 residential customers who participated in the Targeted Energy Efficiency Program in 2016. AEG calculated the sample size at a 90 percent confidence interval with an error margin of +/-10 percent. The resulting sample size to achieve the designated confidence was 39 participants. Participants were randomly selected and contacted to complete the survey.

Respondents were screened to ensure that they remembered participating in the program. The survey asked respondents to assess program experience and awareness, satisfaction, barriers to participation and areas for potential program improvement. The survey guide can be found in Appendix C.

A total of 33 surveys were completed with participating customers for a 90 percent confidence interval with an error margin of +/-11.4 percent.

Evaluation Results

This section provides key evaluation findings, including program performance, program processes, program marketing, program effectiveness and customer satisfaction.

Program Performance

In 2016, the Targeted Energy Efficiency Program achieved 51% of total participation and spent 79% of the budget.

A breakdown of expenditures shows that the program spent less than budgeted in education and delivery. The cost per participant was higher than the budgeted amount.

Table 6-2 2016 Goals vs. Actual – Budget

Metric	Target	Actual	% Achieved
Delivery	$137,500	$16,575	12
Evaluation	$2,200	$3,219	146%
Installed Measures	$203,960	$253,629	124%
Education	$8,8750	$4,450	51%
Total Cost ($)	**$352,410**	**$277,872**	**79%**
Total Participants	175	89	51%
Cost per Participant	**$2,013**	**$3,122**	**155**

The table below shows the participants by Community Action Agency. LKLP accounts for 47% of participants in 2016, while Middle Kentucky and Gateway did not have any participants.

Table 6-3 2016 Participation by Community Action Agency

Agency	Participants	% of Total
LKLP	42	47%
Big Sandy	18	20%
Northeast	29	33%
Middle Kentucky	0	0%
Gateway	0	0%

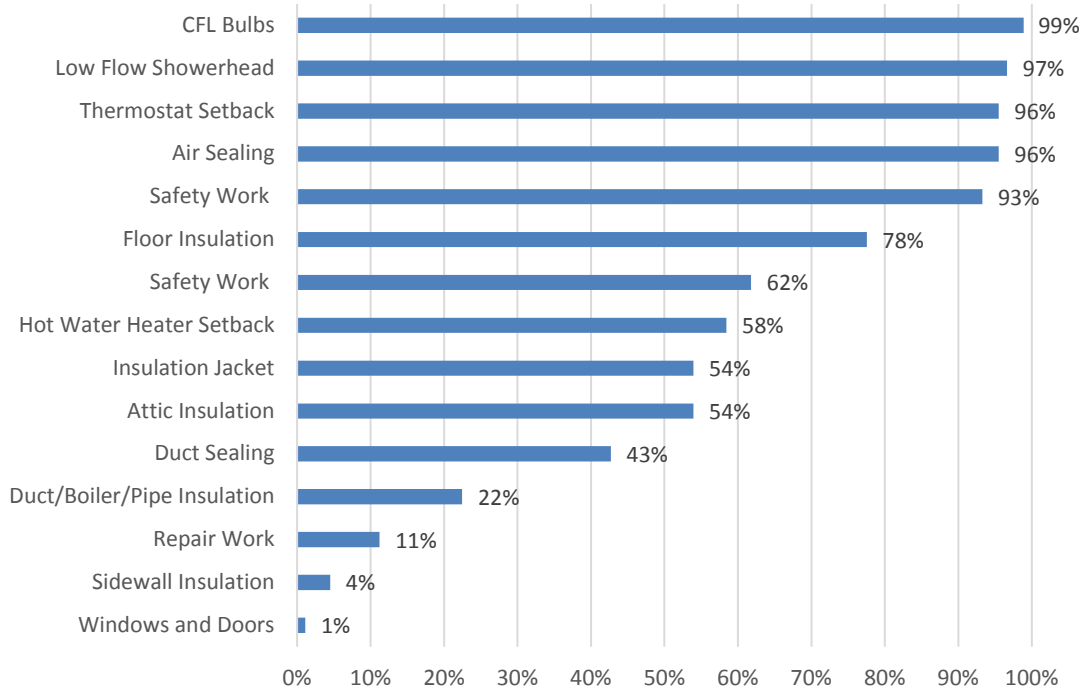
The table below shows the participant's housing type. More than half the homes served were mobile or modular homes.

Table 6-4 Housing Type

Type of Home	Participants	% of Total
Mobile Home	50	56%
Site-Built	37	42%
Modular	2	2%
Total	**89**	**100%**

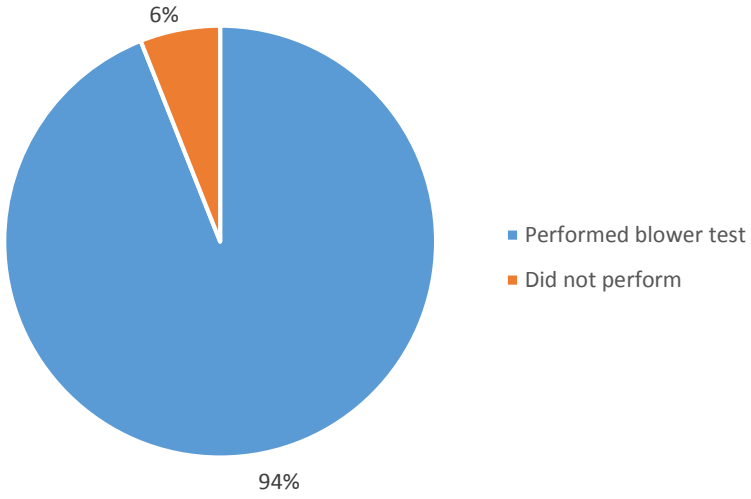
Non-all electric customers having electric water heating received CFL bulbs, low flow showerheads, and hot water heater setbacks. All-electric customers could receive additional measures, such as thermostat setback, air sealing, duct sealing, and insulation. Almost all of the all-electric participating homes received CFL bulbs, low flow showerheads, thermostat setbacks, air sealing and safety work.

Figure 6-1 Measures Installed – All Participants



Most participants (94%) reported having a blower test performed during the assessment.

Figure 6-2 Blower Door Test Performed



Program Processes

Interviews with Kentucky Power and the Community Action Agencies assessed how well the program is performing in terms of staffing resources, communication, and quality assurance and quality control.

The relationship between Kentucky Power and the Community Action Agencies is very good. The Community Action Agencies feel Kentucky Power is available and responsive. Two of the three Community Action Agencies interviewed said their programs often had a waiting list and additional resources were needed. The other Community Action Agencies said they had sufficient funding and did not use the Kentucky Power funds because they did not need them. Also, the two agencies with no participation for 2016 are located in Bath, Menifee, Morgan, Rowan, Breathitt, Lee, Owsley and Wolfe counties and have low numbers of Kentucky Power customers qualifying for the program.

The Kentucky Power Targeted Energy Efficiency Program provides funding that is supplemental to the federal Weatherization Assistance Program run by the Community Action Agencies. Participation in the Weatherization Assistance Program is based on income; customers come into a Community Action Agency office and complete an application if they are eligible. The Community Action Agency grades each application on a state mandated point system and the customer is put on a waiting list. Customers who are in Kentucky Power's service territory are eligible for additional DSM measures funded through the Targeted Energy Efficiency Program.

Program Tracking Database

Kentucky Power maintains a program tracking database for the program. The information for the database is compiled from the invoices sent from the Community Action Agencies to Kentucky Power. AEG developed a program tracking data checklist to evaluate Kentucky Power's program tracking database. Kentucky Power tracks most of the data, but is missing some information about the equipment being removed/replaced that will be valuable for the impact evaluation. It would also be helpful to know the status of existing applications so Kentucky Power could assess the pipeline and backlog of projects.

Table 6-5 Program Tracking Checklist for Targeted Energy Efficiency Program

Data Required	Tracked in Database
Customer Account Number	✓
Customer Contact Information	✓
Housing Type	✓
Number of Occupants	✓
Square Footage of Home	✓
Equipment Fuel Type	✓
Equipment Size	✓
Equipment Quantity	✓
Efficiency Level	✓
Efficiency Level of Equipment Removed	✓O
Model of Equipment Removed	O
Estimated Savings	O
Equipment Useful Life	O
Reported Age of Equipment Replaced	O
Date of Installation	✓
Cost of Installation	✓
Cost of Equipment	✓
Date of Initial Program Contact	✓

✓ Data included
O Data missing
✓O Data incomplete

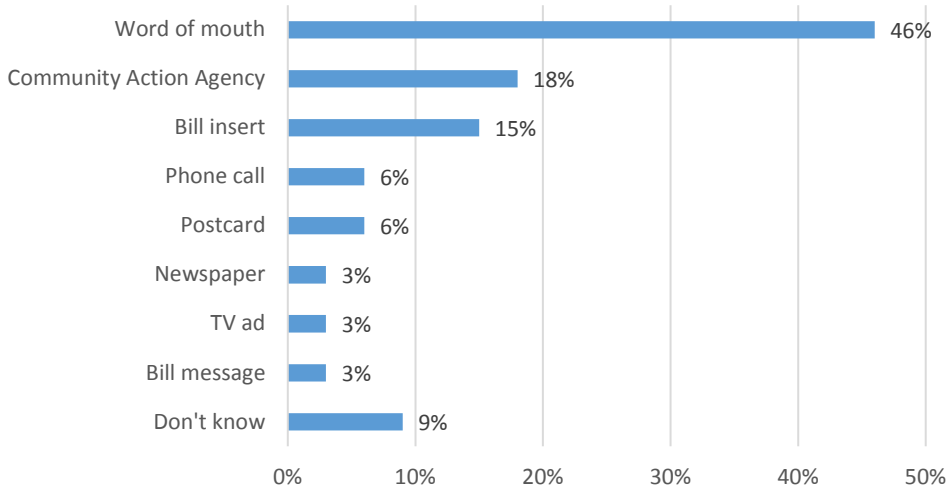
Quality Control/Quality Assurance Procedures

As state-run entities, the Community Action Agencies have several QA/QC procedures in place, including extensive verification to ensure customers are income qualified, the Director approving all applications and invoices, a software program that determine if measures qualify, employing a quality control officer to perform pre- and post-inspections, and random quality inspections performed by the state.

Program Marketing

Word of mouth has been the most effective tool for increasing customer awareness of the program. Almost half of participants said they heard about the program from friends, family and co-workers.

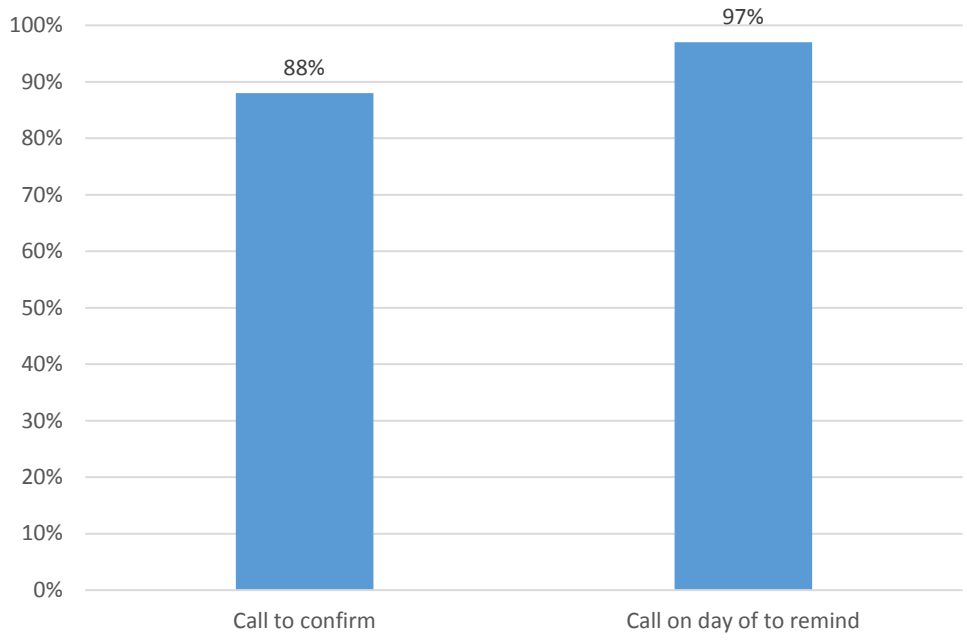
Figure 6-3 How Much Participants Heard about the Program



Almost all of the participants (94%) said they were able to contact the Community Action Agency and schedule an assessment at a convenient time. According to participants, the time it took between calling to schedule and having the assessment peformed ranged from 1 to 32 weeks, with an average of 6 weeks. An analysis of the program tracking data shows the wait time was actually a bit longer, ranging from 1.75 to 42 weeks, with an average of 8 weeks. Ninety-two percent of participants felt the wait time was reasonable.

Eight-eight percent of participants said they received a call to confirm their appointment and 97% said they were called ahead on the day of the appointment.

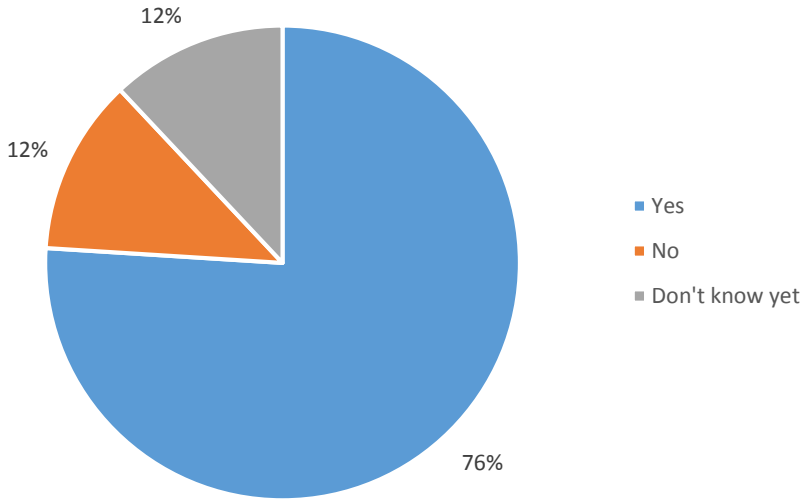
Figure 6-4 Reminder Calls Made by Community Action Agency



Program Effectiveness

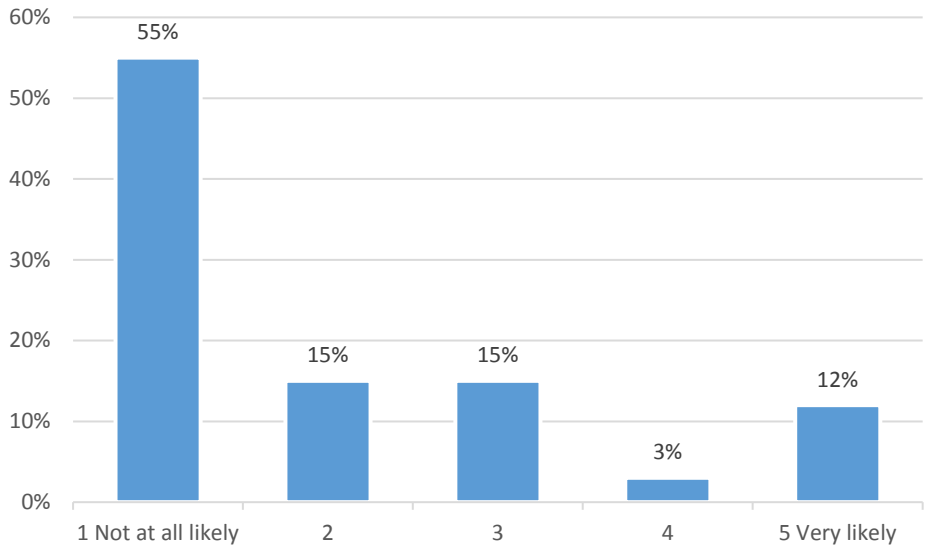
More than three-quarters (76%) of respondents said the measures installed helped them reduce their energy costs.

Figure 6-5 Program Helped Reduce Household's Energy Costs



Twelve percent of participants said they would have been very likely to install the measures if the Targeted Energy Efficiency Program had not been available. Community Action Agency staff felt that very few customers would have installed the measures on their own and if they did, it would probably only be a small number of CFLs.

Figure 6-6 Likelihood of Installing Measures without Program

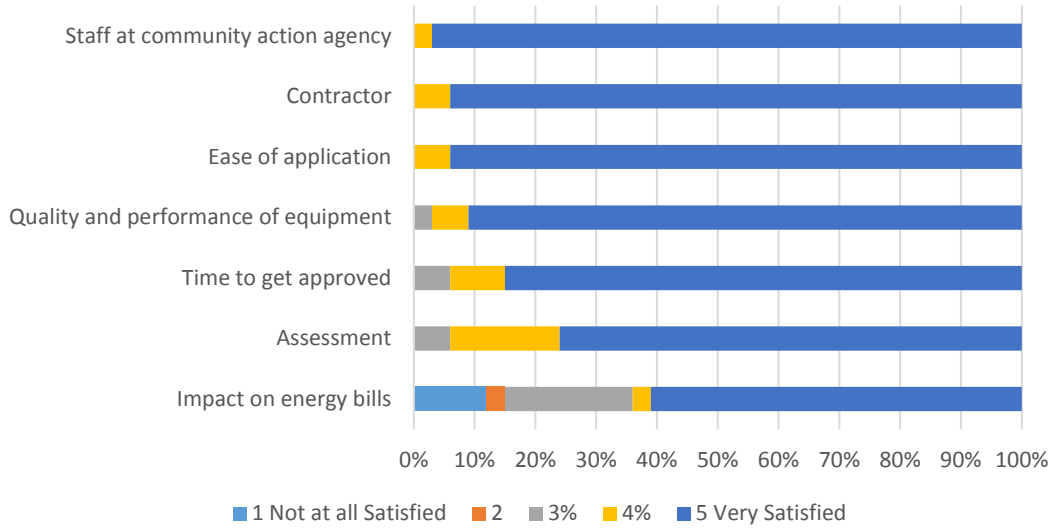


Fifteen percent of participants said they purchased additional energy efficient equipment as a result of participating in the program and did not receive a rebate for their purchase.

Program Satisfaction

Satisfaction with most aspects of the program is high, with most participants giving a rating of 4 or 5 on a 5-point scale. The impact on energy bills received the lowest satisfaction rating with over a third of participants giving a rating of 3 or lower.

Figure 6-7 Satisfaction with Various Aspects of the Program



Awareness of Kentucky Power Programs

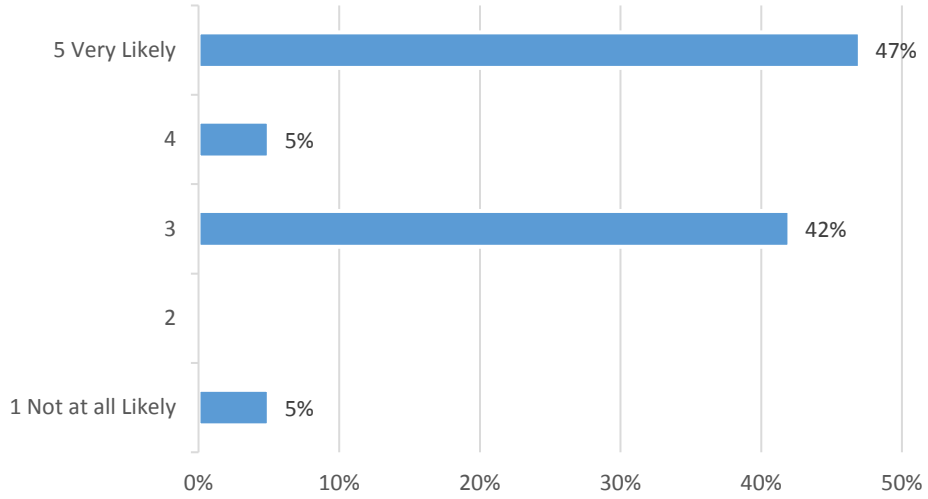
The majority of program participants (58%) are aware of other Kentucky Power programs, with the largest proportion (49%) being aware of the Appliance Recycling Program.

Table 6-6 Awareness of Kentucky Power Programs

Program	Percent of Respondents
Appliance Recycling	49%
Community Outreach	33%
New Manufactured Home	12%
None	42%

More than half of participants said it was at least somewhat likely that they will participate in other Kentucky Power energy saving programs in the future.

Figure 6-8 Likelihood of Participating in a Kentucky Power Program in the Future



Conclusions and Recommendations

Main Findings

The Targeted Energy Efficiency Program did not meet its goals in 2016, achieving 51% of total participation and spending 79% of its budget.

Table 6-7 Targeted Energy Efficiency Program Performance

Metric	Target	Actual	% Achieved
Total Participants	175	89	51%
Budget	$352,410	$277,872	79

The evaluation revealed the following program strengths and challenges:

Program Strengths

- Word of mouth is an effective tool for increasing customer awareness of the program.
- The program is performing very well logistically.
    - The Community Action Agencies feel Kentucky Power is good to work with.
    - The application and approval process receive high satisfaction ratings.
    - The time between scheduling and the assessment is reasonable.
- Satisfaction with the program, staff, and equipment is rated highly by participants.
- More than half of participants are aware of other Kentucky Power programs and say it is likely they will participate.

Program Challenges

- The program did not meet its goals which were based on the DSM Program Plan1[32].
- Two of the five Community Action Agencies did not complete any Kentucky Power projects, but they only

[32] DSM Case 2015-00271

serve 6,639 Kentucky Power customers and only a portion of those are eligible for program services..

- Some data on equipment replaced is not included in the program tracking database.

Recommendations

The evaluation team recommends the following actions to improve the program:

Recommendation 1: If possible, transfer some of the funds to the high performing Community Action Agencies.

- Two of the five Community Action Agencies did not have any Kentucky Power projects.

  Rationale: High performing Community Action Agencies interviewed felt they could use additional funds. The funds not currently being used by the two Community Action Agencies could be put to use in those areas, depending upon the outcome of Recommendation 1. There may however be political or regulatory reasons why Kentucky Power cannot do this.

7
APPLIANCE RECYCLING PROGRAM

Program Characteristics

The Appliance Recycling Program is designed to produce long-term electric energy savings by permanently removing operable secondary refrigerators and freezers from the power grid and recycling them in an environmentally safe manner. The program targets residential customers with more than one refrigerator and/or freezer and offers a $50-70 incentive for removing these units from service. The appliances must be between 10 to 30 cubic feet, readily accessible for removal, and plugged-in and operable.

Program Goals

The 2016 goals for the program are 575 participants with a budget of $95,869

Table 7-1 Appliance Recycling Goals 2016

Metric	2016
Participants	575
Budget	$95,869

Implementation Contractor

Kentucky Power contracted with ARCA Recycling, Inc. (ARCA) to implement the Appliance Recycling Program beginning March 1, 2016. The program was restarted following the receivership of the previous implementation contractor in November, 2015 With the closing of a major competitor, ARCA is now the main company that provides appliance recycling services for utility programs.

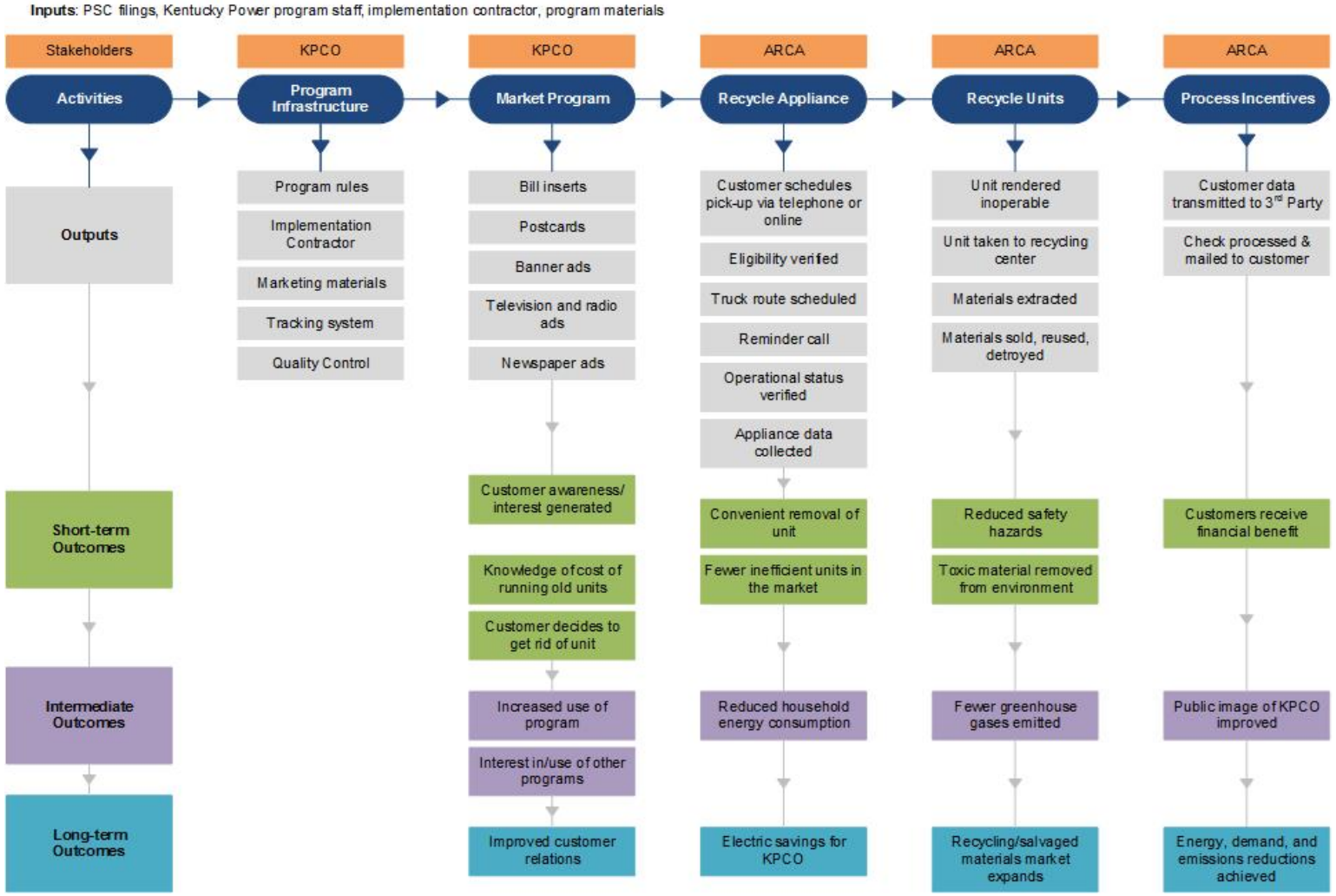
The responsibilities of ARCA include:

- Provide Kentucky Power input on marketing and advertising
- Schedule pick up appointments and verify customer eligibility
- Develop and host web enrollment tool
- Appliance collection, transportation to recycling center and recycle processing
- Hire and screen drivers, provide initial training and ensure adherence with program procedures
- Process customer incentives
- Provide customer service support and operate customer call center
- Provide and maintain a data management and report system

Program Flow

A program logic model is a graphic representation of a program and its processes. Logic models make the program's assumptions explicit, showing the causal relationships or linkages among the problem or situation the program is designed to address, the intervention (inputs and outputs), and program impact (short, medium and long-term outcomes). Logic models also serve to identify processes and relationships critical to the program's performance.

Program Logic Model



Program Activities

The program activities and their corresponding outputs help to establish linkages between the situation the program is designed to address and the program's intended outcomes. Program activities include:

Program Infrastructure

Activities conducted by Kentucky Power include developing the program rules, hiring ARCA to implement the program, maintaining the program tracking database, developing marketing materials and quality control.

Market Program

Kentucky Power markets the program in various ways, including bill inserts, direct mail postcards, radio and television, newspaper and online banner ads.

Recycle Appliance

ARCA schedules the appliance pick up with the customer, verifies eligibility to participate in the program, reminds the customer about the appointment the day of the pick-up, sends out staff to pick up the appliances, verifies the appliance is operational, and collects data on the appliances.

Recycle Units

ARCA renders the appliance inoperable and takes it to a recycling center. The materials are extracted and sold, reused or destroyed in an environmentally responsible manner.

Process Incentives

ARCA sends the customer data to a third party who processes the application and mails the customer a check for the incentive.

Outcomes

Outcomes are the result of program partners and target audiences responding to the outputs of the program. There are short-term, intermediate, and long-term outcomes of the program.

Short-term Outcomes

When customers hear about the program, their awareness and interest in participating is increased, they learn about the cost of running a second refrigerator or a freezer, and they may decide to recycle their unit.

The program provides convenient removal of appliances for the customer and, as a result, there are fewer inefficient units in the market. This results in a reduction of safety hazards, the removal of toxic materials in the environment, and a financial benefit for the customer.

Intermediate Outcomes

As the program matures participation in this and other Kentucky Power programs increase, household energy consumption is reduced, fewer greenhouse gases are emitted and the public image of Kentucky Power improves.

Long-term Outcomes

Long-term outcomes may include an expanded market for recycling/salvaging appliances, reductions in energy, demand and emissions, and overall improved relations with customers.

External Factors

There are a variety of factors outside the control of Kentucky Power and ARCA that may influence the program:

- Changes in political priorities (e.g., codes and standards, state and local regulations, federal policies, perceptions of energy and climate change)
- Increased appliance efficiency standards
- Macro-economic conditions and associated impacts on customer actions, (e.g., lower profit margins in the scrap metal market).
- Energy prices and regulation
- Changes in utility rate structures
- Perceptions in the value of conservation
- Competing interests for investment by demand side customers

Documenting these factors helps improve program planning by identifying important program partners, the part(s) of the issue the program can realistically influence, which evaluation measures will accurately reflect project outcomes, and other needs that must be met to address this issue.

Methods

AEG designed the evaluation to examine program processes and customer responses to the program. The focus of the evaluation activities was to gain a better understanding of program operations, assess the overall effectiveness of program operations, and identify areas for program improvement. The evaluation was guided by the following key researchable issues:

- Does the program implementer have sufficient resources to effectively implement the program?
- Is the tracking system effective for documenting and reporting program progress?
- Is the program achieving program goals?
- What marketing/promotional efforts resonate with customers?
- Are customers satisfied with the program?
- Are rebate applications processed, approved and paid on a timely basis?
- Is the rebate processing system effective in managing the application and payment process?
- What are the significant drivers of participation?
- What are the areas for program improvement?
- What are the barriers to program participation? How can those barriers be overcome?
- Has program participation generated interest in other Kentucky Power programs? In other energy efficiency actions outside of Kentucky Power energy savings programs?
- Are there Federal/State/Local codes or standards changes that impact the program (e.g., EISA)?

To arrive at the final recommendations in this report, AEG reviewed program materials and the program tracking system, conducted staff and implementer interviews, and surveyed program participants.

Program Materials

AEG reviewed current program documents and processes including, but not limited to, relevant PSC order and filings, marketing and promotional activity and the program tracking database. The review served as

the basis for understanding whether the program has been implemented as planned and is on track to meet its goals.

Program Tracking System

AEG reviewed Kentucky Power and ARCA's tracking databases. AEG developed a program tracking data checklist to evaluate the program tracking databases and ensure that all critical pieces of program data were tracked.

Staff and Implementer Interviews

AEG conducted a comprehensive, group interview with Kentucky Power program staff in October 2016 to gather staff impressions of program implementation activities, program performance, program delivery issues, marketing and customer awareness, and opportunities for program improvements.

AEG interviewed ARCA Recycling, Inc. (ARCA) in November 2016. The interview provided information on program implementation activities, tracking methods, customer participation, and customer satisfaction. Interview guides can be found in Appendix A.

Participant Surveys

AEG administered a telephone survey to a random sample of participants from January 16 – 17, 2017. Kentucky Power issued 432 rebates in 2016 through mid-December. The sample was developed by cleaning the data to remove duplicate accounts. AEG calculated the sample size at a 90 percent confidence interval with an error margin of +/-10 percent. The resulting sample size to achieve the designated confidence was 59 participants. Participants were randomly selected and contacted to complete the survey.

Respondents were screened to ensure that they remembered participating in the program. The survey asked respondents to assess program experience and awareness, satisfaction, barriers to participation and areas for potential program improvement. The survey guide can be found in Appendix C.

Evaluation Results

This section provides key evaluation findings, including program performance, program processes, program marketing, program effectiveness and customer satisfaction.

Program Performance

The Appliance Recycling Program fell short of its goal, recycling 498 units and spending 76% of its budget.

Table 7-2 Appliance Program Performance

Metric	Target	Actual	% Achieved
Units Recycled	575	498	87%
Budget	$95,869	$72,456	76%

A breakdown of expenditures show that the program spent less than budgeted in delivery, performance pay, marketing and IT. The cost per participant was also less than budgeted.

Table 7-3 2016 Goals vs. Actual

Metric	Target	Actual	% Achieved
Delivery	$46,431	$37,486	80%
Performance Pay	$2,444	$1,328	54%
Evaluation	$600	$876	146%
Promotion/Marketing	$11,644	$3,971	34%
Incentives	$28,750	$28,795	100%
Information Technology	$6,000	$0	0%
Total Cost ($)	**$95,869**	**$72,456**	**75%**
Total Units Recycled	575	498	87%
Cost per Participant	**$166.72**	**$145.50**	**87%**

The table below shows the type of appliances recycled through the program. Four hundred fifty-four (454) customers recycled 397 refrigerators and 101 freezers. The number of appliances recycled is higher than the number of participants because customers have the ability to recycle more than one appliance.

Table 7-4 Type of Appliances Recycled

Appliance	Target	Actual	% Achieved
Refrigerator	450	397	88%
Freezer	125	101	81%
Total	**575**	**498**	**87%**

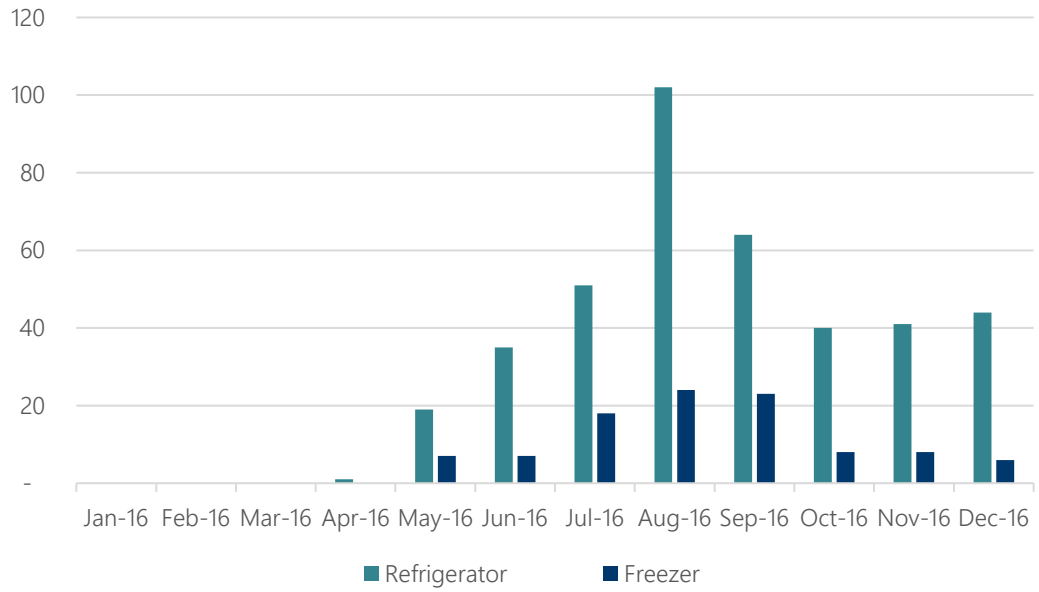
Program Processes

Interviews with Kentucky Power and ARCA assessed how well the program is performing in terms of staffing resources, communication, and quality assurance and quality control. The relationship between Kentucky Power and ARCA is very good. They speak on a regular basis, sometimes as often as every day. This includes frequent meetings on program updates, pending orders and accounts they need assistance on.

With the closing of a major competitor, ARCA is now the main company that provides appliance recycling services for utility programs. They have restructured their organization from the top down, including a new CEO and several new account managers to handle the influx of new clients.

The program did not start until April and was not fully up and running until May – only one unit was recycled in April. The late start is the main reason the program did not meet its goals. The target market for the program is residential customers with a secondary refrigerator and/or a freezer. Each customer can have up to 2 appliances recycled per program year.

Figure 7-1 Units Recycled per Month



Customers contact ARCA to schedule a pick up appointment via telephone or online. Currently, approximately 85% of participants schedule appointments through the call center. ARCA would like to see more customers schedule appointments online. Appliances are picked-up from 7:00 a.m. to 8:00 p.m. Monday – Friday and from 8:00 a.m. to 8:00 p.m. every other Saturday.

Customers are asked to provide an email address when scheduling an appointment, but those that sign up by phone do not always provide an email. If an email is provided, an email confirmation of the appointment is sent. ARCA calls the customer the day before the scheduled pick up to confirm the appointment and give the customer a 4-hour appointment window. The customer is also called prior to pick up to let them know the driver is on the way. Customers are asked to have the appliance plugged in when ARCA arrives, so they can verify it is in working condition. ARCA tries to pick up the appliance within 2 weeks of the initial customer call.

Program processes were also addressed in the participant survey. According to participants, the wait time between scheduling and having the appliance picked up ranged from 2 to 90 days, with an average wait time of 16 days. This is consistent with program tracking data, which showed a range of 2 to 63 days, with an average wait time of 18 days.

A third of participants did not remember how long the wait time was. Of those that could remember, almost all (92%) felt the wait time was reasonable. The two participants who thought the wait time was unreasonable had wait times of 33 and 60 days. The one participant with the 90 day wait time thought the wait time was reasonable, indicating there were probably extenuating circumstances that resulted in a longer than average wait time. Almost all participants said they received a follow up call or email to confirm the appointment (98%) and were also called on the day of the appointment (97%).

Program Tracking Database

ARCA maintains a program tracking database for the program. AEG developed a program tracking data checklist to evaluate ARCA's program tracking database. ARCA tracks all of the required data except estimated savings. Although customer name and address are tracked, the customer phone number is not included in the data.

Table 7-5 Program Tracking Checklist for Appliance Recycling Programs

Data Required	Tracked in Database
Customer Account Number	✓
Customer Name and Address	✓
Customer Telephone Number	✓O[33]
Appliance Type	✓
Appliance Size	✓
Appliance Quantity	✓
Brand Name and Model	✓
Estimated Savings	O
Age of Appliance	✓
Date Pick up Scheduled	✓
Date of Pick Up	✓
Date of Rebate	✓

✓ Data included
O Data missing
✓O Data available upon request to ARCA

Quality Control/Quality Assurance Procedures

ARCA has several QA/QC procedures in place. These procedures included having detailed written call center protocols, requiring the transportation crews to validate that each appliance was picked up within 3 days, requiring call center managers to verify daily that each scheduled pick up was completed and the unit was dropped off at the recycling center, and auditing the customer data weekly before it goes to the rebate processing center.

Program Marketing

During the participant surveys, customers who participated in the program were asked about their awareness of the Kentucky Power program and their reason for participating. Marketing was also addressed in the staff and ARCA interviews.

Kentucky Power advertises the program in a variety of ways including bill inserts, postcards, radio, television, newspaper and online banner ads.

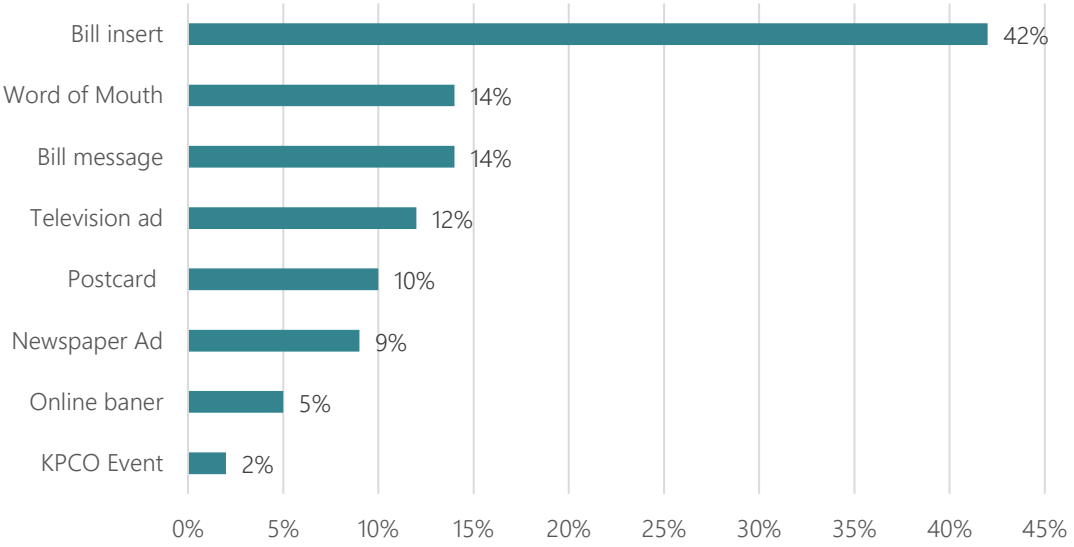
[33] Available from ARCA upon request.

Figure 7-2 Example of Online Banner Ad

According to ARCA, the messages that resonate the best with customers focus on energy savings, recycling and the cash incentive. They feel the main barriers to program participation is the finite group of people who have a second refrigerator or freezer[34] that they are willing to part with.

Forty-two percent of participants heard about the program from a Kentucky Power bill insert. Others said they heard about the program from family, friends and coworkers (14%), a bill message (14%), or a television ad (12%).

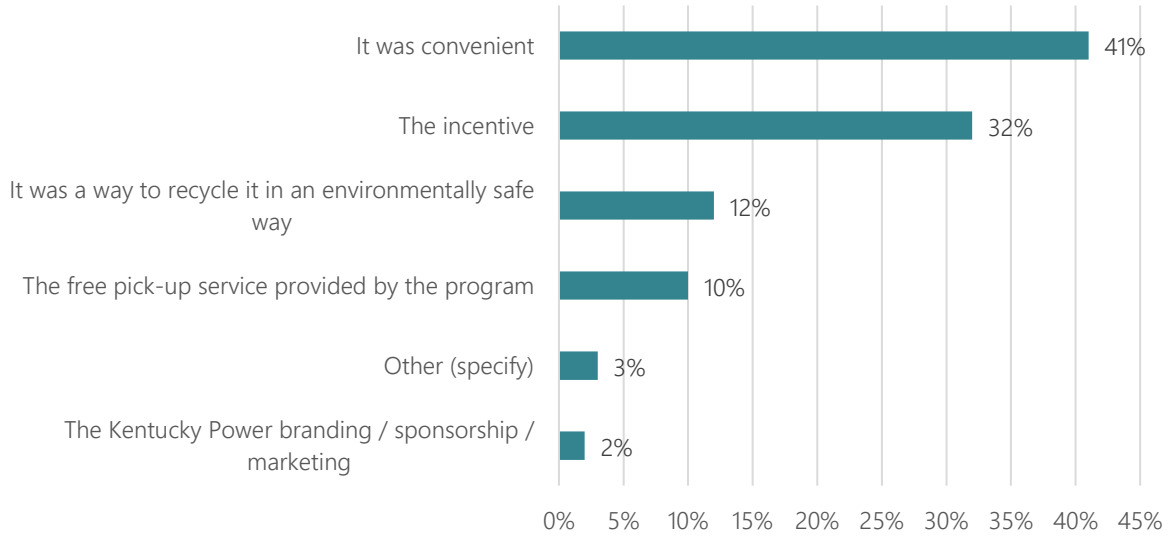
Figure 7-3 How Customers Heard about the Appliance Recycling Program



Most participants said they participated in the program because it was convenient (41%), they received a cash incentive (32%), it was a way to recycle the appliance in an environmentally friendly way (12%), or because the pick-up was free (10%).

[34] The Kentucky Power Market Potential Assessment, July 30, 2015 found that more than half of residential customers have a stand-alone freezer and 22% have a second refrigerator.

Figure 7-4 Reasons Customers Participated

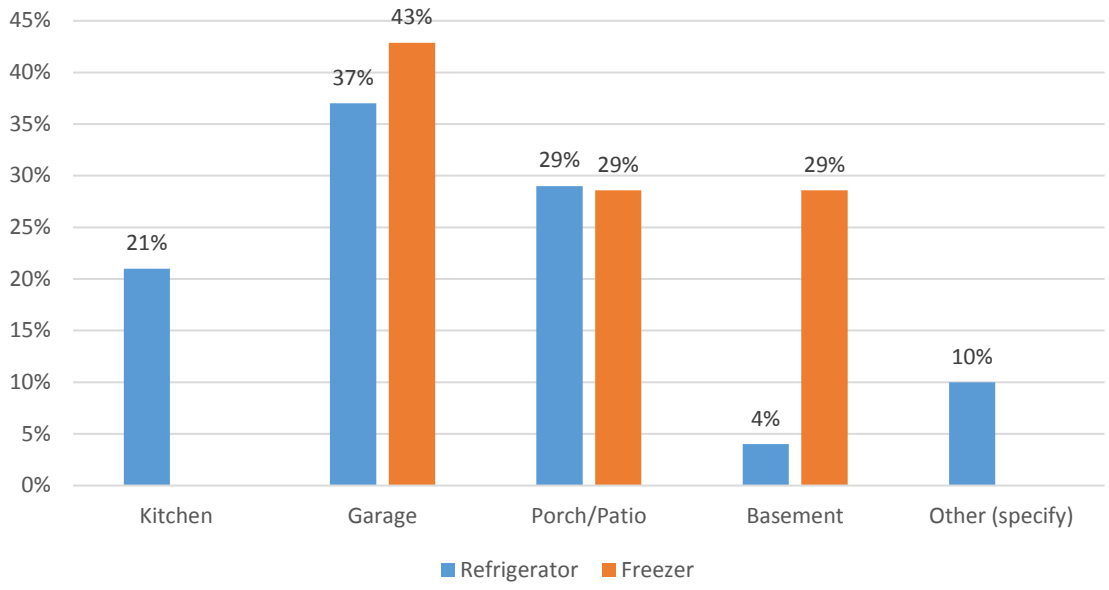


Program Effectiveness

Recycled Appliance Characteristics

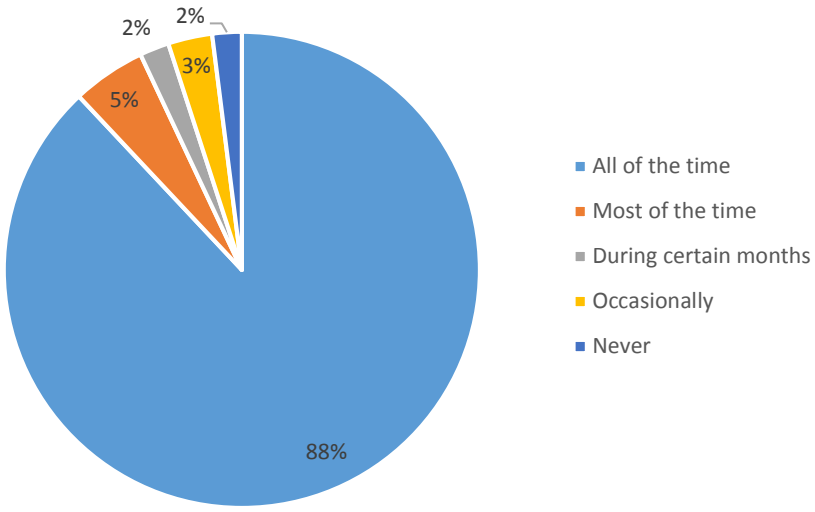
More than three-fourths of participants said they had refrigerators picked up (78%), 12% had freezers picked up and 10% recycled both their refrigerator and freezer. Most refrigerators were not located in the kitchen, indicating they were secondary units. Freezers were located in the garage, porch/patio or basement.

Figure 7-5 Location of Appliance Prior to Pick Up



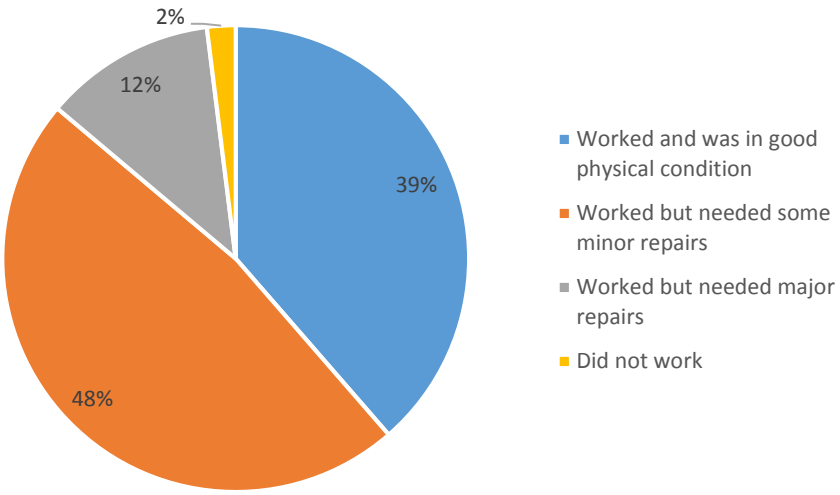
The vast majority (93%) of the recycled appliances were used all or most of the time prior to pick up. The age of the recycled appliance ranged from 2 to 48 years with an average age of 18.5 years. Seventeen percent of respondents did not know the age of their recycled appliance.

Figure 7-6 How Much Recycled Appliance was Used



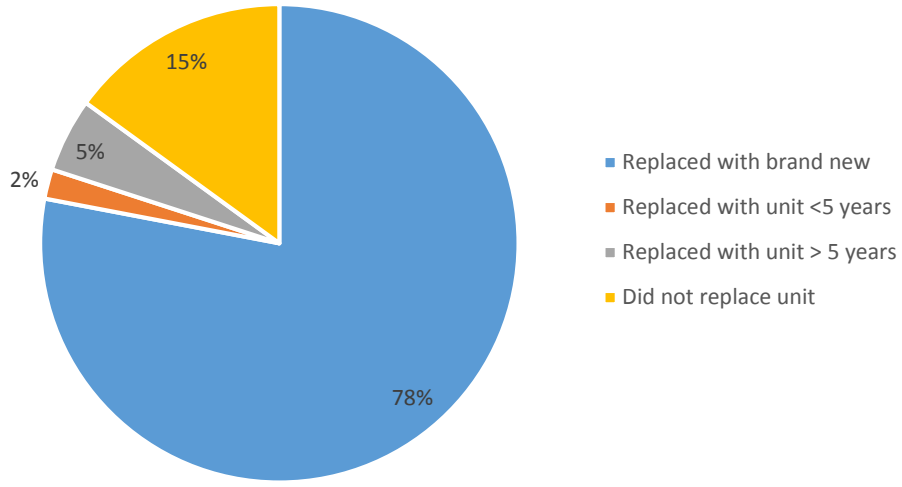
Most participants (98%) reported that the appliance was working, although the majority needed some level of repairs.

Figure 7-7 Condition of Recycled Appliance



Eighty-five percent of participants said they replaced their recycled appliance, which will erode much of the savings achieved. Seventy-eight percent replaced the recycled appliance with a brand new appliance.

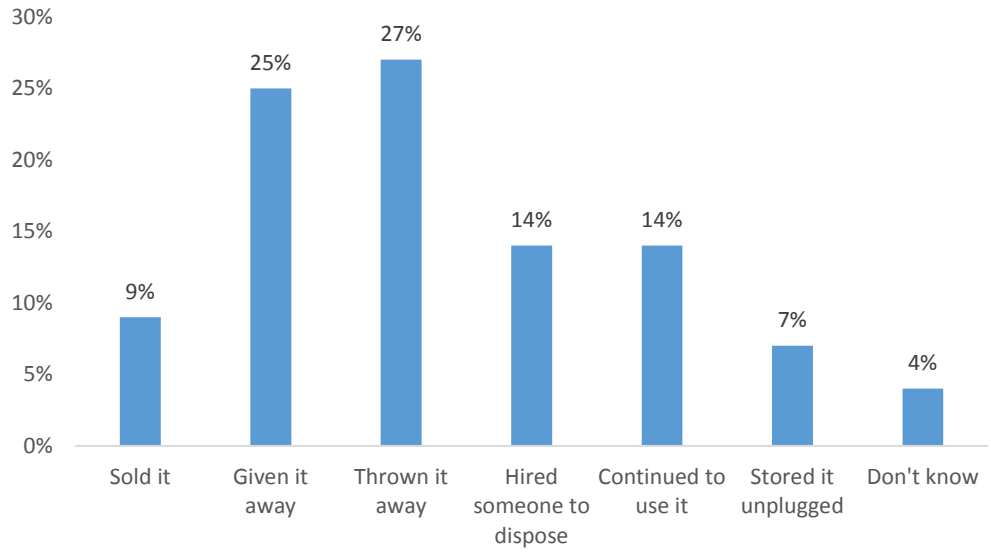
Figure 7-8 Replacement of Recycled Appliance



Program Influence

Participants were asked what they would have done with their appliance if the Appliance Recycling Program had not been available. Almost half (48%) of the appliances would have remained in use because participants would have sold it (9%), given it away (25%) or continued to use it (14%). Another 27% of the appliances would have been thrown away, mitigating the environmental gains from proper disposal. Fourteen percent of respondents would have paid for someone to dispose of the appliance and another 7% would have stored it unused.

Figure 7-9 Plans for Appliance if Program Had Not Been Available



Twenty-seven percent of participants said they purchased additional energy efficient equipment as a result of participating in the program. Five percent of those participants received a rebate for their energy efficient purchase. Seven percent said they purchased energy efficient refrigerators, which was likely replacing a recycled refrigerator.

Awareness of Kentucky Power Programs

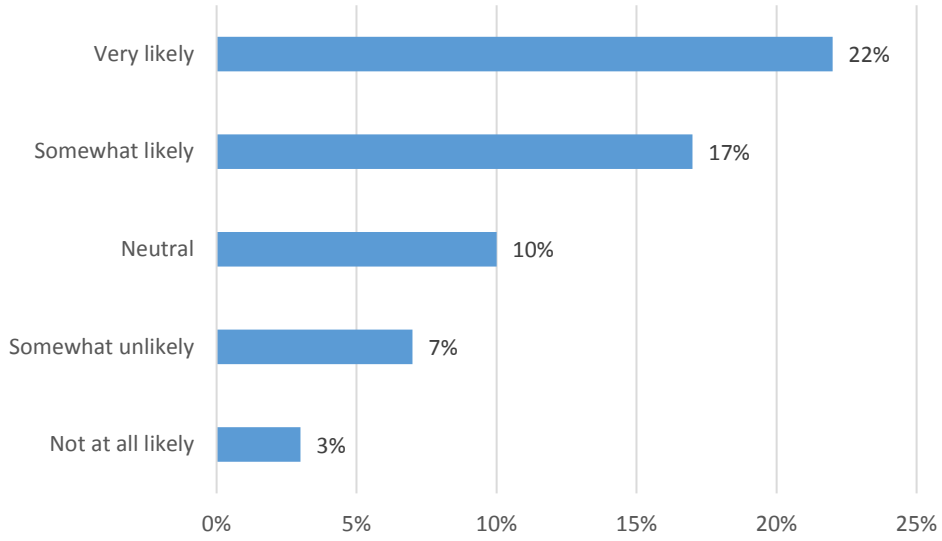
The majority of program participants (59%) are aware of other Kentucky Power programs, with the largest proportion (42%) being aware of the Whole House Efficiency Program.

Table 7-6 Awareness of Other Kentucky Power Programs

Program	Percent of Respondents
Residential Efficient Products	29%
Community Outreach	22%
New Manufactured Home	12%
Whole House Efficiency	42%
Targeted Energy Efficiency	34%
None	41%

More than a third of participants said it was at least somewhat likely that they will participate in other Kentucky Power energy saving programs in the future.

Figure 7-10 Likelihood of Participating in a Kentucky Power Program in the Future



Conclusions and Recommendations

Main Findings

The Appliance Recycling Program fell short of its goal, recycling 498 appliances and spending 72% of its budget. Kentucky Power contracted with ARCA to implement the program beginning March 1, 2016. Therefore, the program did not start until April and really didn't get fully implemented until May. The late start is the main reason, cited by the implementation contractor, that the program did not meet its goals.

Table 7-7 Appliance Recycling Program Performance

Metric	Target	Actual	% Achieved
Units Recycled	575	498	87%
Budget	$95,869	$72,456	75%

The evaluation revealed the following program strengths and challenges:

Program Strengths

- The program provides a convenient way for customers to recycle appliances.
- The program is performing very well logistically.
    - Kentucky Power and ARCA have a very good relationship and communicate frequently.
    - Scheduling and pick up are done in a timely manner.
    - Staff working with Kentucky Power customers is responsive and professional.
- The incentive is influential in convincing customers to participate in the program.
- Bill inserts are working well to inform customers about the program.
- Targeting second refrigerators is effective, more than three-fourths of participants recycled refrigerators that were located somewhere other than the kitchen.
- The program is effectively targeting appliances currently in use in customer homes. Almost all of the respondents said the recycled appliances had been in use prior to pick up.

Program Challenges

- The program did not meet its goals, although this is potentially due to full program start beginning in the 2nd quarter 2016.
- A large portion (85%) of the recycled units were replaced, which will erode savings from the program.

Recommendations

The evaluation team recommends the following actions to improve the program:

Recommendation 1: Use the entire marketing budget.

- Bill inserts are working well to inform customers about the program.
- A large proportion (85%) of the recycled units were replaced, which will erode savings from the program.
- The program did not meet its goals.

    Rationale: The Kentucky Power marketing is effective. Using the amount budgeted will likely increase program participation and help the program meet its goals.

Recommendation 2: Increase customer education efforts in an effort to reduce appliance replacement. According to ARCA, the marketing messages that resonate the best with customers focus on energy savings, recycling and the cash incentive. Kentucky Power should consider developing a marketing campaign to highlight energy and bill savings if the appliance is recycled and not replaced or develop customer literature to leave behind during the scheduled pick-up.

- A large portion (85%) of the recycled units were replaced, which will erode savings from the program.

Rationale: The majority of participants reported replacing the recycled unit. Developing a targeted marketing campaign or literature will serve to increase customer awareness and educate them on the potential energy and bill savings associated with recycling a unit and not replacing it.

Recommendation 3: Distribute energy saving kits to participants.

- A large proportion (85%) of the recycled units were replaced, which will erode savings from the program.

  Rationale: Since the program savings may be less than expected given the large number of customers who replace their recycled appliances, additional savings may be achieved cost-effectively by distributing energy saving kits during the scheduled pick up.

8
RESIDENTIAL HOME PERFORMANCE PROGRAM

Program Characteristics

The Residential Home Performance Program offers selected residential customers a Home Energy Report, which provides individualized energy use information to customers while simultaneously offering recommendations on how to save energy and money by making small changes to energy consuming behaviors. The reports are periodically mailed and emailed to customers to give them self-awareness and a peer comparison of their energy usage. Customers are also provided access to an online tool with a home energy calculator with additional tips to reduce usage.

Program Goals

The 2016 goals for the program are 60,000 participants with a budget of $604,700

Table 8-1 Home Performance Goals 2016

Metric	2016
Participants	60,000
Budget	$604,700

Implementation Contractor

Kentucky Power contracted with Oracle (formerly Opower) to implement the Home Performance Program. The responsibilities of Oracle include:

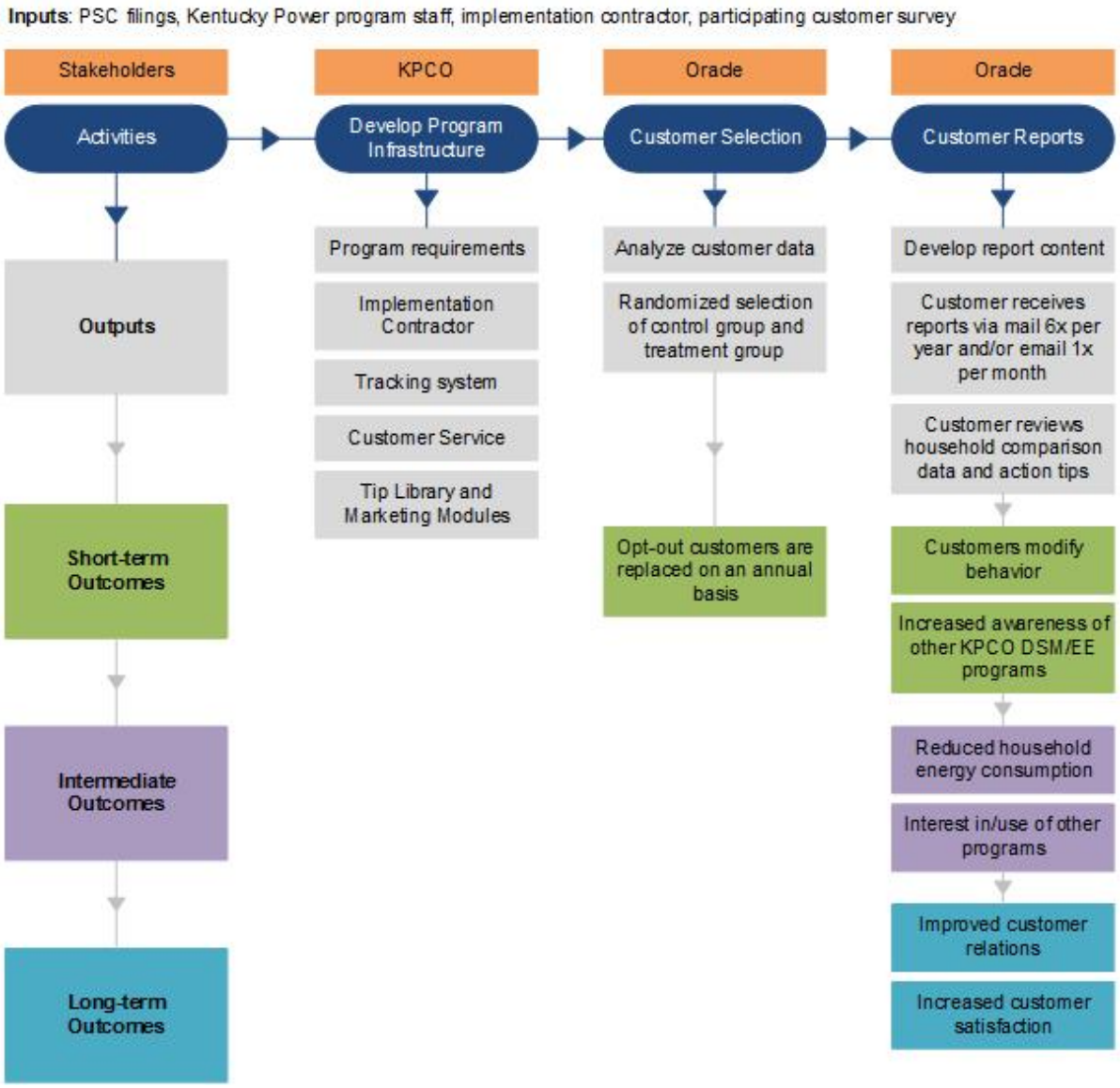
- Develop experimental design including creating at randomized control trial (RCT)[35] and selecting control and treatment groups to assess program performance
- With Kentucky Power oversight, develop report content and tips
- Develop online tool
- Develop and host website portal
- Provide secondary customer service s and customer call center support.
- Provide and maintain a data management and reporting system

Program Flow

A program logic model is a graphic representation of a program and its processes. Logic models make the program's assumptions explicit, showing the causal relationships or linkages among the problem or situation the program is designed to address, the intervention (inputs and outputs), and program impact (short, medium and long-term outcomes). Logic models also serve to identify processes and relationships critical to the program's performance.

[35] A study in which people are allocated at random to receive an intervention (e.g., home energy reports). One of these interventions is the standard of comparison or control. The control does not receive the intervention.

Program Logic Model



Program Activities

The program activities and their corresponding outputs help to establish linkages between the situation the program is designed to address and the program's intended outcomes. Program activities include:

Program Infrastructure

Activities conducted by Kentucky Power include creating program requirements, hiring an implementation contractor, maintaining the program tracking system, developing the Tip Library and marketing module for the reports, and customer service and customer call center support.

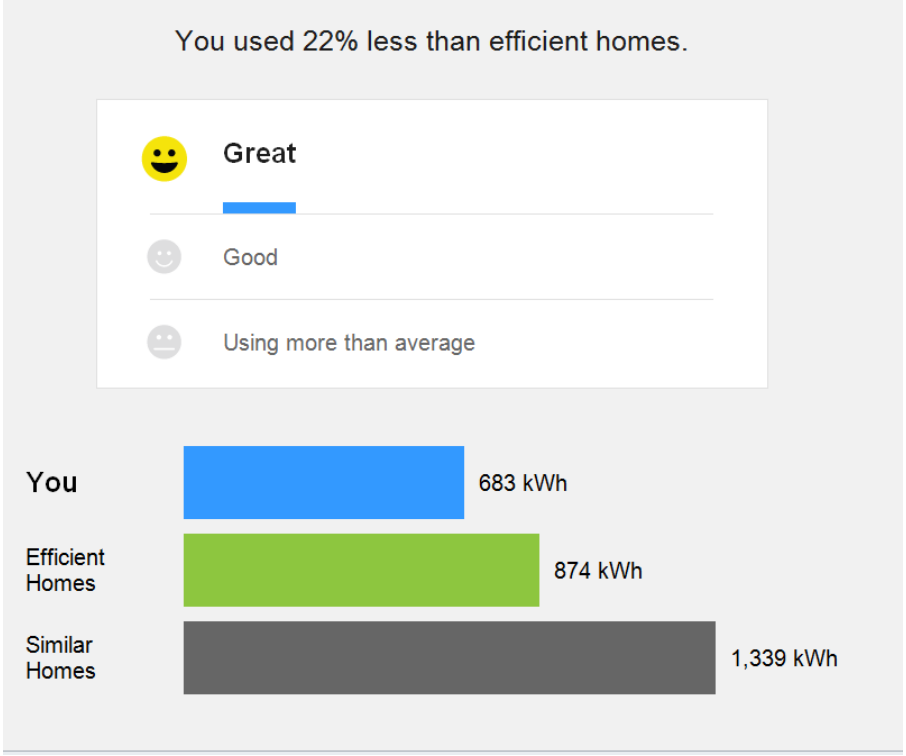
Customer Selection

Oracle analyzed customer data and designed a randomized control trial for the program. Customers were randomly selected for treatment and control groups.

Customer Reports

Oracle creates the content for the Home Energy Reports with Kentucky Power approval. The reports include comparisons of the customer's energy usage to similar homes and homes that are considered to be highly efficient. Oracle sends the approved reports to customers in the treatment group. Reports are emailed to customers monthly and mailed to customers several times per year.[36] Customers in the treatment group with an email address on file receive both the email and the mailed reports.

Figure 8-1 Example Email Report Image



Outcomes

Outcomes are the result of program partners and target audiences responding to the outputs of the program. There are short-term, intermediate, and long-term outcomes of the program.

Short-term Outcomes

Customers use the information in the reports and modify their behavior. Their awareness in Kentucky Power energy saving programs is increased.

Some customers in the treatment group may choose to opt out of the program. These customers are replaced with randomly selected customers on an annual basis.

[36] The number of reports mailed per year varies depending on which launch wave the customer is in.

Intermediate Outcomes

Intermediate outcomes may include reduced household energy usage and increased interest in Kentucky Power energy saving programs.

Long-term Outcomes

The long-term outcomes may include improved customer relations and an increase in overall customer satisfaction.

External Factors

There are a variety of factors outside the control of Kentucky Power and Oracle that may influence the program:

- Changes in political priorities (e.g., codes and standards, state and local regulations, federal policies, perceptions of energy and climate change)
- Increased efficiency standards
- Macro-economic conditions and associated impacts on customer actions
- Energy prices and regulation
- Changes in utility rate structures
- Perceptions in the value of conservation
- Competing interests among demand side customers

Documenting these factors helps improve program planning by identifying important program partners, the part(s) of the issue the program can realistically influence, which evaluation measures will accurately reflect project outcomes, and other needs that must be met to address this issue.

Methods

AEG designed the evaluation to examine program processes and customer responses to the program. The focus of the evaluation activities was to gain a better understanding of program operations, assess the overall effectiveness of program operations, and identify areas for program improvement. The evaluation was guided by the following key researchable issues:

- Does the program implementer have sufficient resources to effectively implement the program?
- Is the tracking system effective for documenting and reporting program progress?
- What report content resonates with customers?
- Are customers satisfied with the program?
- What are the areas for program improvement?
- Has program participation generated interest in other Kentucky Power programs? In other energy efficiency actions outside of Kentucky Power energy savings programs?

To arrive at the final recommendations in this report, AEG reviewed program materials and the program tracking system, conducted staff and implementation contractor interviews, and surveyed participants.

Program Materials

AEG reviewed current program documents and processes including, but not limited to, relevant PSC orders and filings, examples home energy reports, and the program tracking database. The review served as the

basis for understanding whether the program has been implemented as planned and is on track to meet its goals.

Program Tracking System

AEG reviewed Kentucky Power's tracking database. AEG developed a program tracking data checklist to evaluate the program tracking databases and ensure that all critical pieces of program data are being tracked.

Staff and Implementer Interviews

AEG conducted a comprehensive group interview with Kentucky Power program staff in October 2016 to gather staff impressions of program implementation activities, program performance, program delivery issues, and opportunities for program improvements. The interview guide can be found in Appendix A.

AEG interviewed Oracle in November 2016. The interview provided information on program implementation activities, tracking methods, customer participation, satisfaction, and behavior changes. The interview guide can be found in Appendix B.

Participant Surveys

AEG administered a telephone survey to a random sample of participants from January 16 – 20, 2017. Kentucky Power provided data on the treatment customers. The sample was developed by cleaning the data to remove inactive accounts, customers that elected to opt-out of the program and customers that participated in the Oracle Customer Engagement Tracker survey issued in summer 2016. AEG calculated the sample size at a 90 percent confidence interval with an error margin of +/-10 percent. The resulting sample size to achieve the designated confidence was 68 participants. Participants were randomly selected and contacted to complete the survey.

Respondents were screened to ensure that they remembered participating in the program. The survey asked respondents to assess program experience, satisfaction and areas for potential program improvement. The survey guide can be found in Appendix C.

Evaluation Results

This section provides key evaluation findings, including program performance, program processes, program effectiveness and customer satisfaction.

Program Performance

The Home Performance Program came very close to meeting its goal, providing reports to an average of 59,258 participants and spending 83% of its budget.

Table 8-2 Home Performance Program Performance

Metric	Target	Actual	% Achieved
Participants	60,000	59,258	99%
Budget	$604,700	$502,361	83%

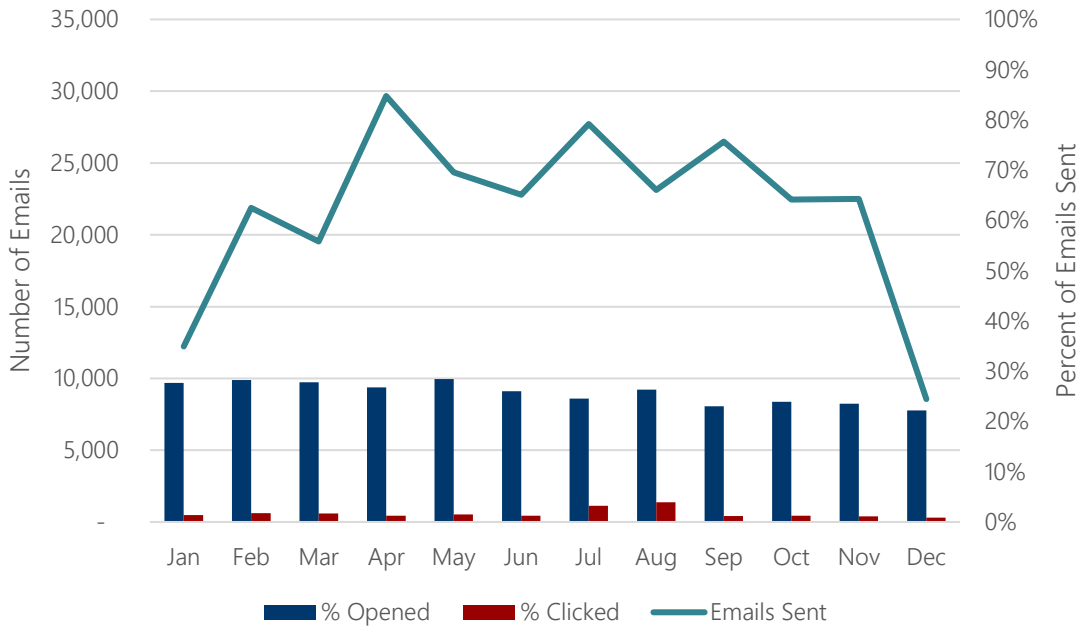
A breakdown of expenditures show that the program spent less in all categories. The cost per participant was also lower than originally budgeted. In 2016, there were 54 households that opted-out of the program and 4,476 households that moved and were removed from the program.

Table 8-3 2016 Goals vs. Actual – Budget

Metric	Target	Actual	% Achieved
Delivery	$595,000	$496,838	70%
Evaluation	$3,700	$5,523	149%
Total Cost ($)	**$604,700**	**$502,361**	**83%**
Total Participants	60,000	59,528	99%
Cost per Participant	**$10.07**	**$8.44**	**84%**

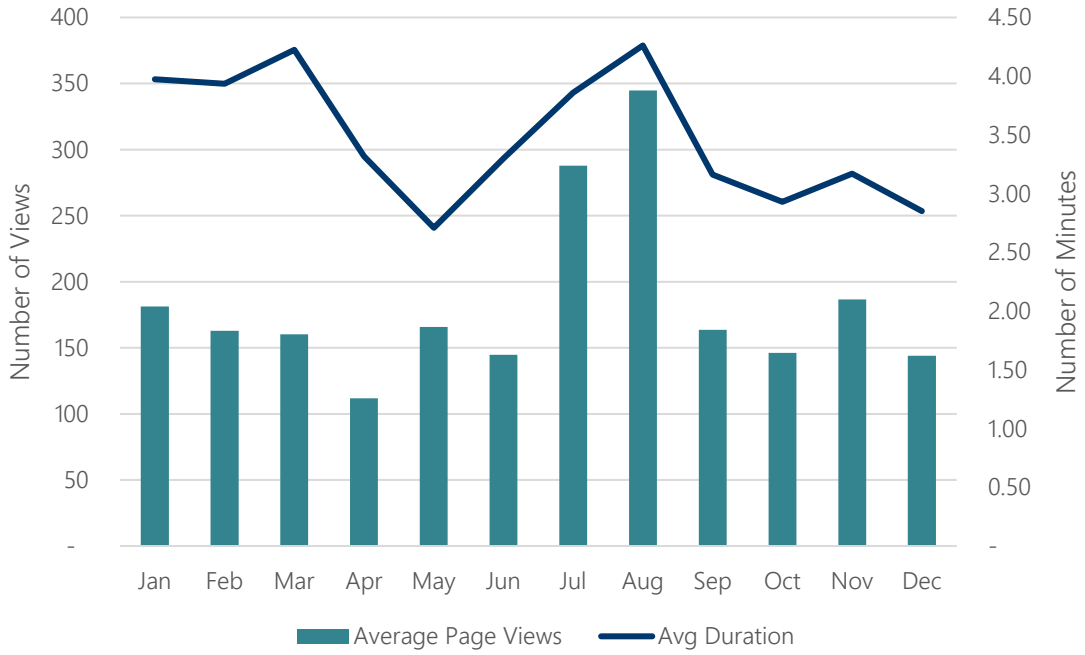
The program sent monthly engagement emails to customers that provided an email address. On average, the engagement emails had a 26% open rate and a 1.7% click through rate.

Figure 8-2 Email Engagement



The program tracks online engagement through the program webpage. On average, the program webpage is viewed approximately 180 times per month for an average duration of 3.5 minutes.

Figure 8-3 Web Engagement



Program Processes

Interviews with Kentucky Power and Oracle assessed how well the program is performing in terms of staffing resources, communication, and quality assurance and quality control.

The relationship between Kentucky Power and Oracle is very good. Staff have bi-weekly calls to discuss program processes and issues, and quarterly in-person meetings to discuss program status and review results. They use an online secure file sharing tool, Basecamp, to exchange program information. The use of Basecamp has improved program communications and transparency.

Participation in the program is based on a randomized control trial design. Participants consists of 2 cohorts, a treatment group and a control group. Customers in the treatment group may receive Home Energy Reports via email and/or mail. If a customer in the treatment group has signed up for Kentucky Power emails, they automatically receive the email report. All customers in the treatment group receive the mailed reports. Emailed reports are sent every month and mailed reports are sent 6 times per year. An example report can be found in Appendix D. Customers in the control group do not receive the reports and are used as the standard for comparison.

Oracle would like to do more customer segmentation to develop targeted messages in the report based on customer characteristics. They have purchased third party data and have done limited targeted messaging. For example, if a participant has a pool they may have received tips about lowering the energy costs of their pool heater or pump.

Program Tracking Database

Kentucky Power maintains a program tracking database for the program. Oracle provides Kentucky Power monthly reports that include opt-outs and savings estimates. AEG developed a program tracking data checklist to evaluate the tracking database. Kentucky Power tracks all of the required data.

Table 8-4 Program Tracking Checklist for Home Performance Program

Data Required	Tracked in Database
Customer Account Number	✓
Customer Contact Information	✓
Status (control, treatment, opt out, discontinued service)	✓
Date of First Report	✓
Number of Reports Sent	✓
Report Delivery Mechanism (e.g., print, email)	✓
Estimated Savings	✓
Web Engagement Statistics	✓
Email Engagement Statistics	✓

✓ Data included
O Data missing

Quality Control/Quality Assurance Procedures

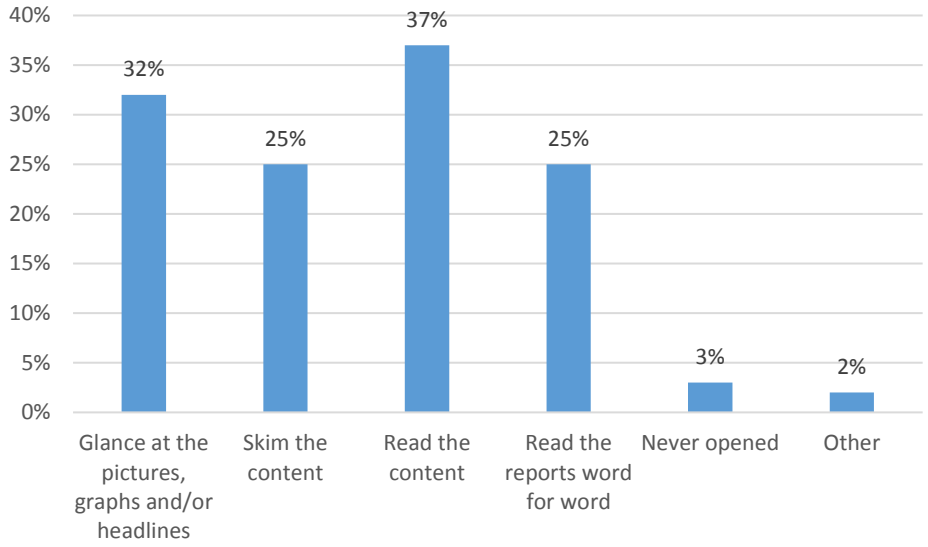
Oracle conducted a Customer Engagement Tracker survey in summer 2016 in an effort to better understand customer reactions to the Home Energy Reports. Results led them to promote specific Kentucky Power programs that have low awareness levels. Oracle also responded to issues raised by calls to the Kentucky Power call center. For example, some customers have called the call center to raise concerns about the neighbor comparisons. Oracle changed the name of the comparisons to "Similar Homes," which has been better received by customers.

Program Effectiveness

Value of Information

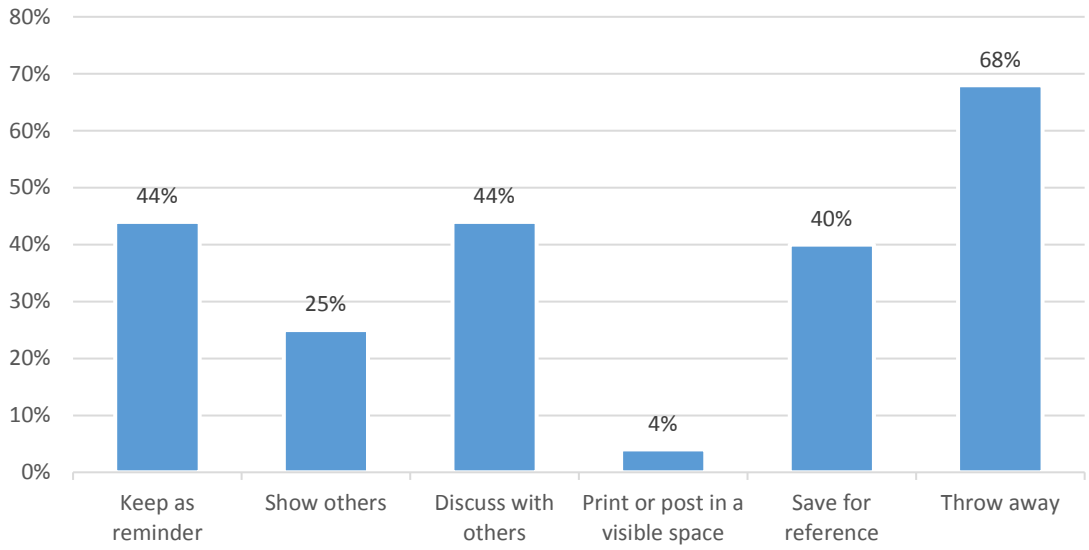
Almost all participants (97%) say they typically opened the report, with most (87%) reading or skimming the content.

Figure 8-4 How Much Participants Typically Read the Reports



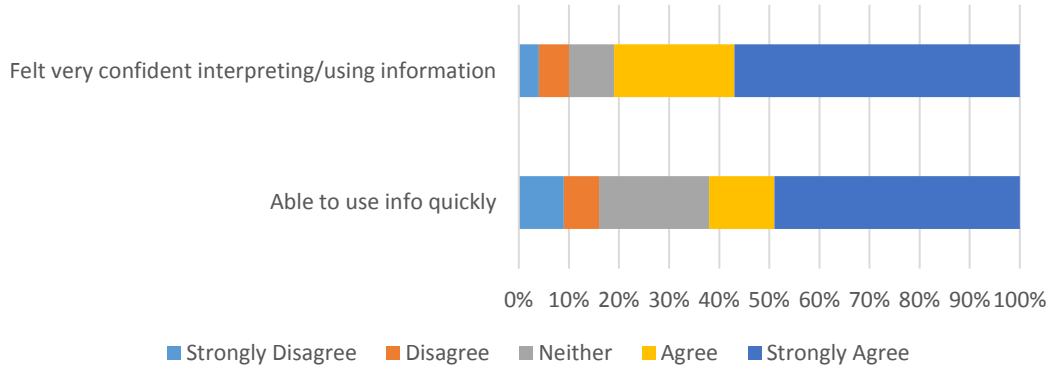
Forty percent of participants have saved at least one of the reports for reference and 44% have kept the report as a reminder and/or discussed it with others. A quarter have shown it to others and 4% have printed it or posted it in a visible space. Sixty-eight percent of respondents say they have thrown at least one of the reports away.

Figure 8-5 What Participants Do with Report after Viewing



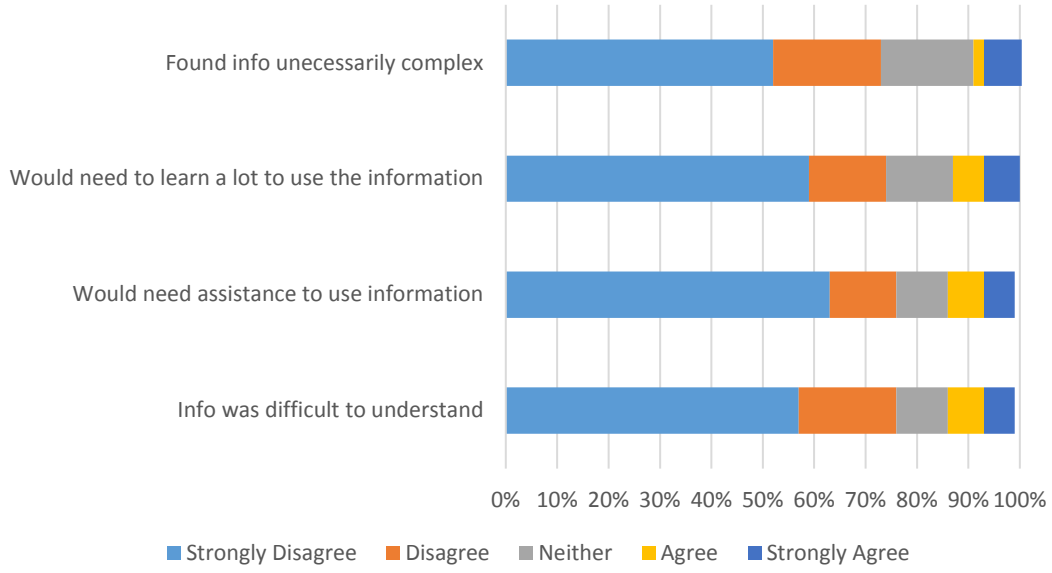
Most participants found the information in the reports easy to understand and use. The majority agreed with the statements "I felt very confident interpreting/using the information" and "I was able to use the information quickly."

Figure 8-6 Participants' Use of the Information in the Reports



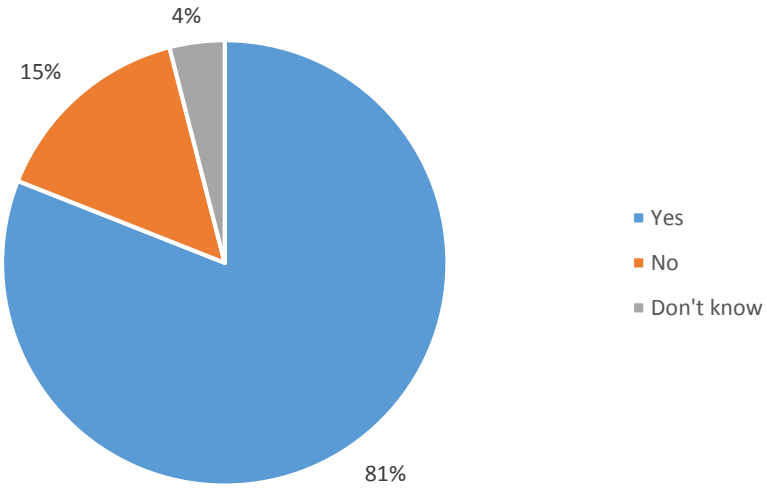
The majority of participants disagreed with the statements "I would need assistance to use the information," "I would need to learn a lot to use the information," "The information was difficult to understand," and "I found the information unnecessarily complex."

Figure 8-7 Participants' Understanding of the Information in the Reports



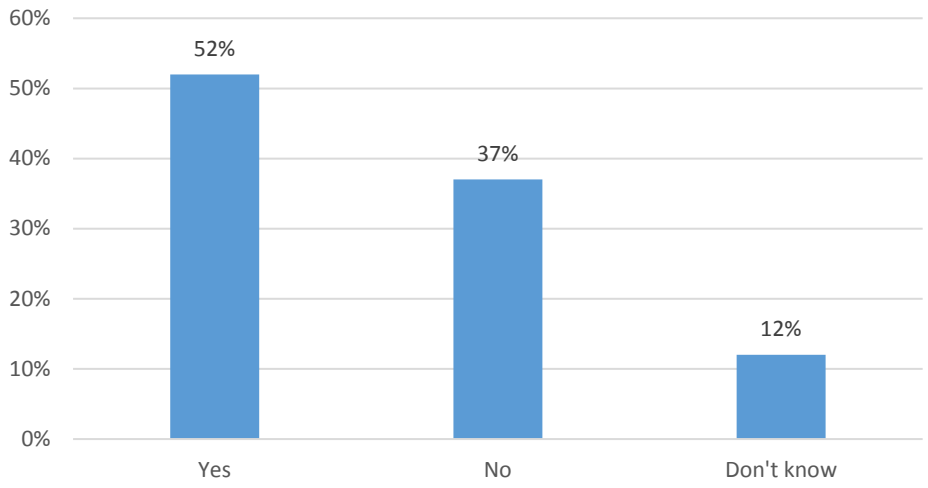
Eighty-one percent of participants said that after receiving the reports they have a better understanding of their household's energy usage.

Figure 8-8 Reports Improved Participants' Understanding of Household Energy Use



A little over half of participants said the reports provided new ideas on how to save energy.

Figure 8-9 Reports Provided New Ideas on How to Save Energy



Changes in Behavior

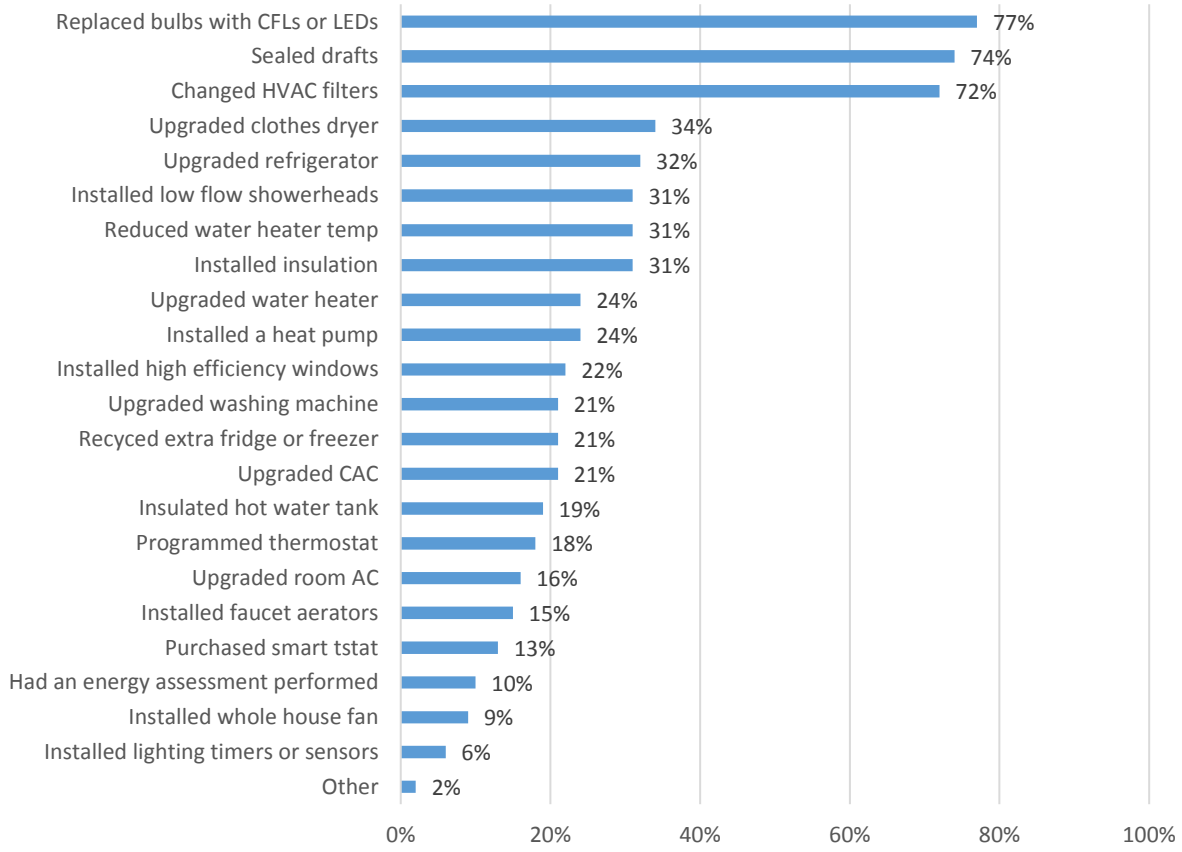
Since receiving the reports almost all participants say they often turn off lights and appliances. Large percentages also say they at least sometimes adjust their thermostat, cover pans while cooking, wait for a full load before running the dishwasher, clean or replace filters, wash laundry on colder temperatures, and unplug rechargeable appliances and electronics.

Table 8-5 Behaviors since Receiving Home Energy Reports

Behavior	Sometimes	Often	Total
Turn off lights	7%	93%	100%
Turn off appliances	10%	84%	94%
Cover pans while cooking	29%	60%	89%
Wait for full load before running dishwasher	9%	79%	88%
Clean or replace filters	12%	75%	87%
Unplug rechargeable appliances and electronics	12%	71%	83%
Wash laundry on colder temperatures	15%	66%	81%
Adjust thermostat	13%	62%	75%
Limit time in shower	25%	50%	75%
Unplug appliances	28%	37%	65%
Reduce heating in unoccupied rooms	15%	44%	59%
Dry laundry on clothes line	9%	10%	19%

More than three-fourths of participants have replaced standard lightbulbs with CFLs or LEDs since receiving the reports, while 74% have sealed drafts, and 72% have changed HVAC filters. Few have made more significant investments in energy efficient appliances or equipment.

Figure 8-10 Energy Efficient Actions Taken Since Receiving the Home Energy Reports

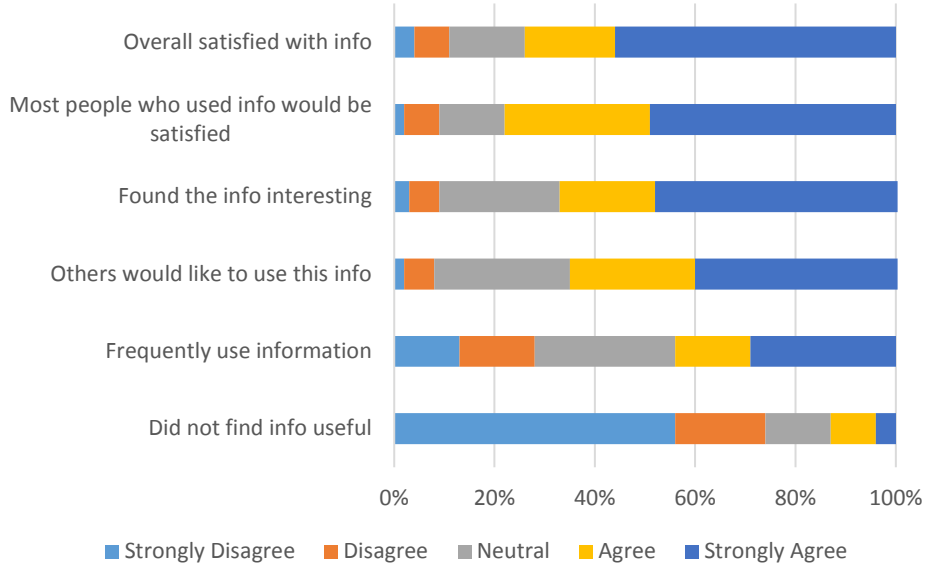


Nine percent of participants said they went to the Kentucky Power website since receiving the Home Energy Reports.

Program Satisfaction

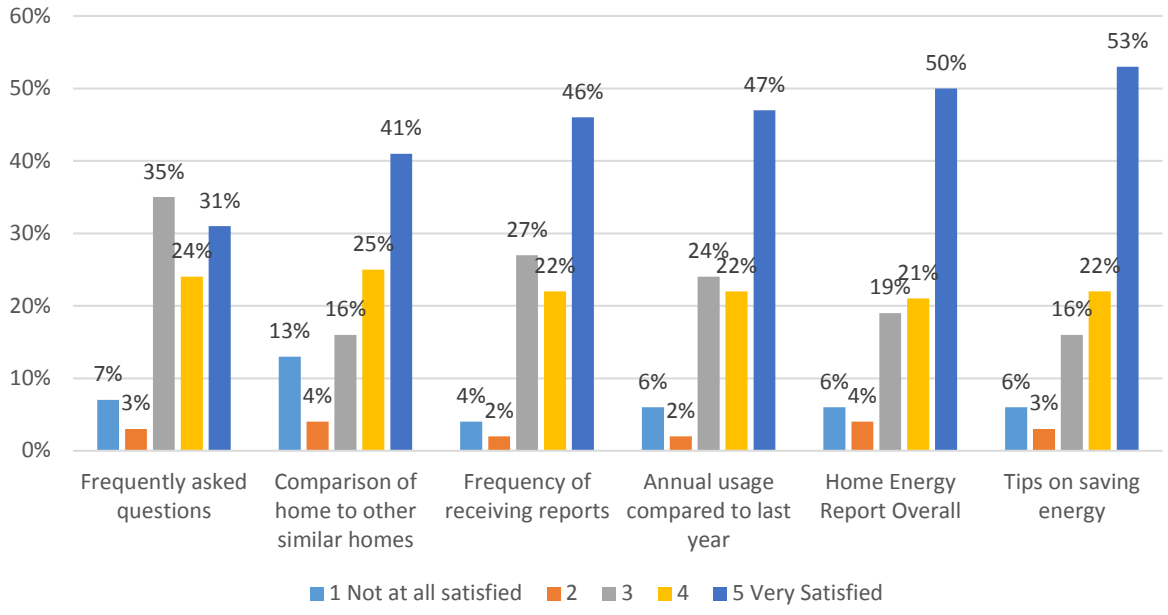
Overall, customers said they were satisfied with the information provided in the reports with more than half agreeing with the statements "Overall I'm satisfied with the information," "Most people who used this information would be satisfied," and "I found the information interesting." The majority of customers disagreed with the statement "I did not find this information useful." Forty-four of the participants agreed with the statement "I frequently use the information," indicating an opportunity to improve the usefulness of the information provided.

Figure 8-11 Satisfaction with Information Provided in the Home Energy Reports



When asked about satisfaction with the various components of the report, satisfaction was high with the tips on saving energy, the report overall, annual usage information and the comparison of homes, with most participants giving a satisfaction rating of 4 or 5 on a 5-point scale. Satisfaction was also high with the frequency of receiving the reports. Participants were more neutral when rating the frequently asked questions included in the reports.

Figure 8-12 Satisfaction with Components of the Home Energy Reports



Awareness of Kentucky Power Programs

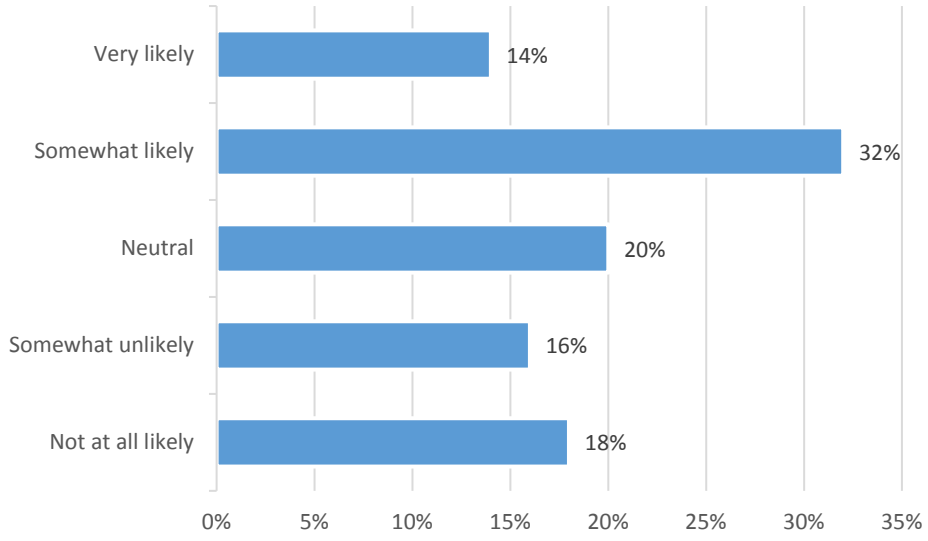
Almost three-fourths of program participants are familiar with at least one other Kentucky Power program, with the majority aware of the Whole House Efficiency Program.

Table 8-6 Awareness of Kentucky Power Programs

Program	Percent of Respondents
Residential Efficient Products	37%
Community Outreach	34%
New Manufactured Home	16%
Whole House Efficiency	54%
Targeted Energy Efficiency	46%
Appliance Recycling	40%
None	27%

Almost half of participants familiar with at least one program say they are somewhat or very likely to participate.

Figure 8-13 Likelihood of Participating in a Kentucky Power Program in the Future



Conclusions and Recommendations

Main Findings

The Residential Home Performance Program came very close to meeting its goal, providing Home Energy Reports to 59,258 participants and spending 83% of its budget.

Table 8-7 Home Performance Program Performance

Metric	Target	Actual	% Achieved
Participants	60,000	59,258	99%
Budget	$602,940	$502,361	83%

The evaluation revealed the following program strengths and challenges:

Program Strengths

- The reports are well received by customers; most customers review the reports, find the information easy to understand, trust the information and are satisfied overall with the content.
- Most customers said that after reading the reports they have a better understanding of their household's energy usage.
- Most participants say they have exhibited energy saving behavior and/or taken energy efficiency actions since receiving the home energy reports.
- Most participants are familiar with other Kentucky Power programs.
- Oracle proactively tracks customers' attitudes about the reports, adjusts procedures and content as needed and reacts quickly to customer complaints.

Program Challenges

- A little more than a third of customers receiving the report said the reports did not provide new ideas on how to save energy.
- Less than half of participants agreed with the statement "I frequently use the information."

Recommendations

The evaluation team recommends the following actions to improve the program:

Recommendation 1: Work with Oracle to develop segmented customer messages

- A little more than third of customers receiving the reports said the reports did not provide new ideas on how to save energy.
- Less than half of participants agreed with the statement "I frequently use the information."

  Rationale: Oracle would like to do more customer segmentation to develop targeted messages based on customer characteristics (e.g., low income). Doing so may improve the usefulness of the information provided to each customer segment.

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AEG
Applied Energy Group

KENTUCKY POWER PROCESS & MARKET EVALUATION
VOLUME 3: BUSINESS PROGRAMS

October 5, 2017

Report specifically developed for:
KENTUCKY POWER COMPANY

Energy Solutions. Delivered.

This work was performed by

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INTRODUCTION

Kentucky Power Company (Kentucky Power) retained Applied Energy Group (AEG) to conduct a comprehensive evaluation of its 2016 - 2018 Demand Side Management (DSM) Program Portfolio. Kentucky Power serves approximately 168,000 electric customers in all or part of 20 eastern Kentucky counties. The utility is part of the American Electric Power (AEP) system, which is one of the largest electric utilities in the United States.[1] The DSM Program Portfolio is implemented as a cost-effective resource to help customers lower their electricity bills, and encourage long-term change in the market through the adoption of energy efficiency technologies and services.

The Kentucky Power Demand Side Management Program Plan (DSM Case 2015-00271) is the basis for the existing portfolio of DSM programs[2]. AEG designed the process and market evaluation to examine program processes and customer responses to the program. The evaluation identifies methods for gathering data and measuring program results and makes recommendations for program improvements. Evaluation, measurement and verification (EM&V) demonstrates the value of energy efficiency programs by providing accurate, transparent and consistent assessments of program performance and cost-effectiveness.

For this evaluation AEG interviewed three staff members at Kentucky Power, 3 implementation contractors, 60 participating commercial customers, and 13 trade allies. The participant survey samples were designed to ensure the results had a 90 percent confidence interval with an error margin of +/-10 percent.

Process and market evaluations identify whether key elements, such as incentive levels, program delivery, program tracking mechanisms and quality assurance/quality control (QA/QC) procedures, are performing as designed and identifies issues or opportunities to improve these key elements. A comprehensive process and market evaluation will:

- Assist program implementers and managers in restructuring existing programs and/or designing new programs to achieve cost-effective savings while maintaining high levels of customer satisfaction.
- Determine awareness levels to refine marketing strategies and reduce barriers to participation.
- Provide recommendations for changing the program's structure, management, administration, design, delivery, operations or targets.
- Determine if specific best practices should be incorporated.
- Gather information from a variety of sources to address the issues stated above.

A comprehensive process and market evaluation provides valuable information to Kentucky Power, its Demand Side Management Collaborative (DSM Collaborative), and various stakeholders to help structure programs to achieve cost-effective savings while maintaining a high level of customer satisfaction.

The Commercial Business DSM programs evaluated include:

- Commercial Incentive Prescriptive/Custom Program
- New Construction Program
- Express Install Program

[1] American Electric Power delivers electricity to more than 5 million customers in 11 states and ranks among the nation's largest generators of electricity, with almost 38,000 megawatts of generating capacity in the U.S.

[2] Two programs, Community Outreach and Energy Education for Students, were not included with the Demand Side Management Program Plan but were retained by Kentucky Power Company and updated for operation beginning with program year 2016.

- School Energy Manager Program
- Retro-Commissioning Program

Overall the portfolio performed very well achieving 106% of participation goals and spending 134% of the budget. Customer satisfaction is consistently high across all the programs in the portfolio. The relationships with Kentucky Power and the implementation contractors is strong and all of the necessary processes are in place and running smoothly.

With the exception of retrocommissioning, the market for the C&I programs is very good and will be able to sustain some increases in the targeted number of participants in the future.

Commercial Programs –Program Performance vs. Goals

	Metric	Target	2016 Actual	% Achieved
Prescriptive/Custom	Participants	170	300	176%
	Budget	$1,023,984	$1,964,489	192%
New Construction	Participants	8	13	163%
	Budget	$71,370	$62,296	87%
Express Install	Participants	40	40	100%
	Budget	$392,631	$304,643	78%
School Energy Manager	Participants	23	17	74%
	Budget	$203,000	$201,854	99%
Retrocommissioning	Participants	5	0	0%
	Budget	$205,342	$4,365	2%

This volume describes the methodology, key evaluation findings and provides recommendations for improving the Business DSM Programs. Volume 1 summarizes the key findings from the process and market evaluation. Volume 2 describes the methodology, key evaluation findings and provides recommendations for improving the Residential DSM Programs. Volume 4 presents the Appendices.

Abbreviations

AEG	Applied Energy Group, Inc.
AEP	American Electric Power
C&I	Commercial and Industrial
DSM	Demand Side Management
EISA	Energy Independence and Security Act
EM&V	Evaluation, Measurement and Verification
ESR	Energy Service Representative
EUI	Energy Utilization Index

HVAC	Heating, Ventilation and Air Conditioning
KSBA	Kentucky School Boards Association
LED	Light Emitting Diode
PSC	Kentucky Public Service Commission
QA/QC	Quality Assurance/Quality Control
RCx	Retro-Commissioning Program

Definitions

Demand Side Management Rider: Customer rate tariff designed to recover specific expenses and lost revenue associated with conservation and energy efficiency programs. The rider is customer class specific.

Energy Independence and Security Act: Public Law signed on December 19, 2007 by President Bush. The law (EISA) that pertains to DSM programs is the increase in efficiency of products and buildings.

Prescriptive: Standardized list of energy efficient equipment and incentives that has been pre-qualified.

CONTENTS

1
COMMERCIAL INCENTIVE PRESCRIPTIVE/CUSTOM PROGRAM

Program Characteristics

The Commercial Incentive Prescriptive/Custom Program is designed to help commercial customers save energy through a broad range of energy efficiency options that address all major end uses and processes. The program provides customer rebates for prescriptive and custom projects.

- Prescriptive Rebates. Participants select energy efficient equipment from a list of pre-qualified measures. Rebates are issued upon completion of the project and submission of the rebate application. The measures incentivized, include:
    - Lighting
    - Heating, Ventilation and Air Conditioning (HVAC)
    - Motors, Pumps and Drives
    - Refrigeration
    - Food Service
    - Miscellaneous
- Custom Rebates. Equipment that does not qualify for a prescriptive rebate is eligible for a custom rebate. Projects must have a Total Resource Cost Test benefit-cost ratio of at least 1.0.

Custom applications must be pre-approved by Kentucky Power before the equipment is purchased and installed; while pre-approval is not a requirement for the prescriptive rebates, it is strongly recommended to reserve the funds. The maximum incentive payout is 50% of the incremental equipment cost, up to $20,000 per project per year. Multiple rebate applications for different measures may be submitted.

Program Goals

The 2016 program goals are 170 participants and a budget of $1,023,984.

Table 1-1 2016 Budget and Participation Goal

Metric	Target
Participation	170
Budget	$1,023,984

Implementation Contractor

Kentucky Power contracted with DNV GL to continue to implement the Commercial Incentive Prescriptive/Custom Program in 2016. The responsibilities of DNV GL include:

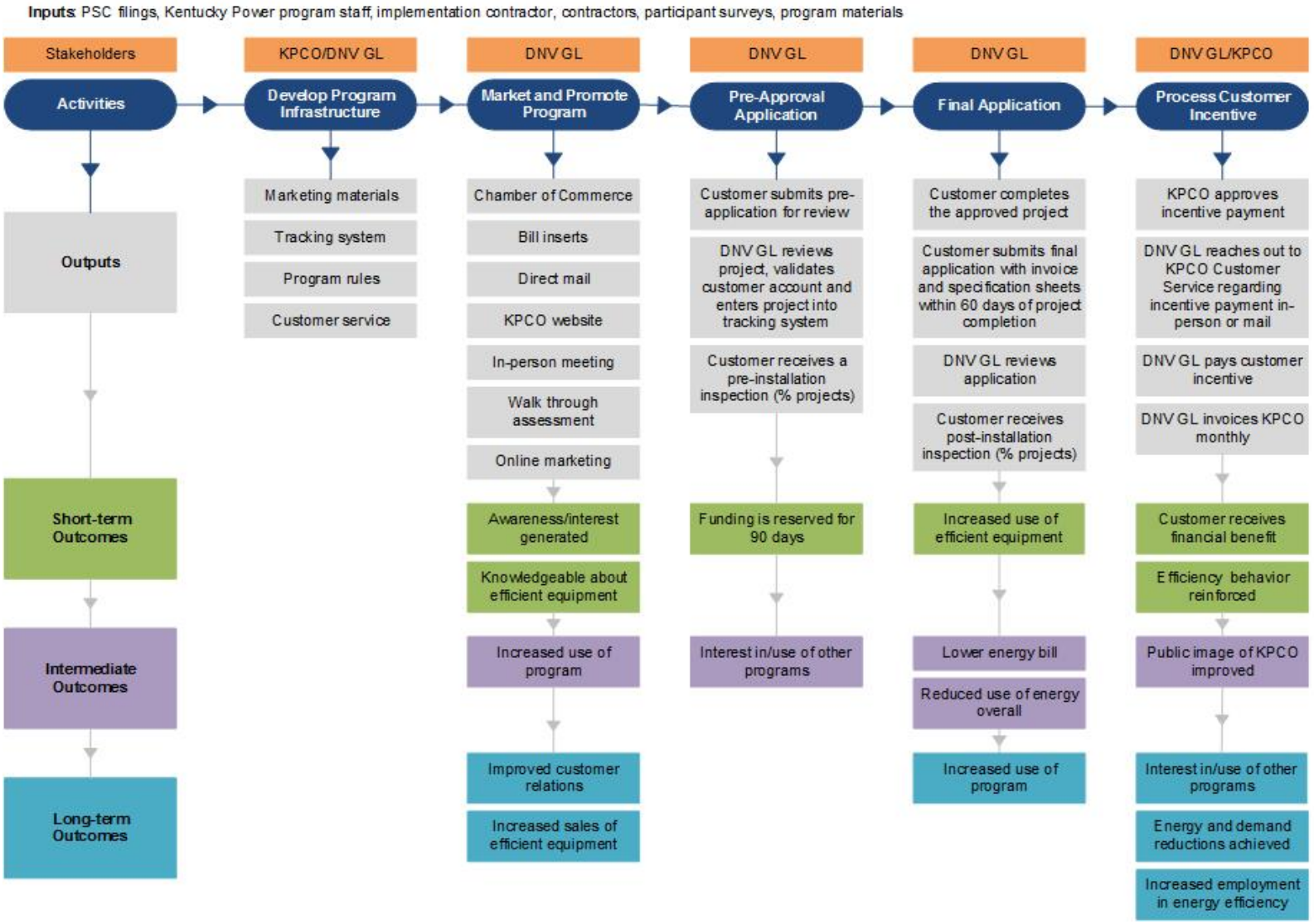
- Provide full service implementer and administrator support services
- Program planning and design
- Plan and implement marketing and outreach services, in collaboration with Kentucky Power
- Improve and expand contractor network

- Process rebate applications, including pre-approval application review, pre/post installation inspections and incentive payment
- Provide customer service support, operate and maintain inbound toll-free telephone lines for receiving customer requests for information, services and inquiries.
- Track program participation and activities

Program Flow

A program logic model is a graphic representation of a program and its processes. Logic models make the program's assumptions explicit, showing the causal relationships or linkages among the problem or situation the program is designed to address, the intervention (inputs and outputs), and program impact (short, medium and long-term outcomes). Logic models also serve to identify processes and relationships critical to the program's performance.

Program Logic Model



Program Activities

The program activities and their corresponding outputs help to establish linkages between the situation the program is designed to address and the program's intended outcomes. Program activities include:

Program Infrastructure

Kentucky Power program staff and DNV GL developed the program infrastructure, including eligible measures and incentive levels, rebate applications and application processes, data tracking system and marketing materials.

Market Program

Marketing activities are targeted towards contractors, businesses and individuals likely to have direct contact with eligible customers. Field staff attend and speak at community and rotary events and actively engage with the local Chamber of Commerce. Field staff additionally conduct ad hoc in person meetings and walk through assessments. The program is marketed through training events, local meetings, the Kentucky Power website, program fact sheets, direct mailings, bill inserts and online marketing.

Pre-Approval Application

The customer completes and submits a pre-approval application to DNV GL via mail, email or fax prior to purchasing equipment or committing to a project. DNV GL reviews the application for completeness and verifies customer eligibility and enters the application into their tracking system. DNV GL and Kentucky Power must pre-approve all projects. Upon approval of the pre-approval application, the customer receives a letter confirming the funding reservation and detailing program terms and conditions. The reservation period is 90 days for projects. A portion of projects receive a pre-installation inspection.

Final Application

The customer completes and submits the final application to DNV GL within 60 days of project completion. Customers must note any work/measures that vary from the pre-approval application, sign the application and provide supporting documentation. DNV GL reviews the application and conducts post-installation inspections on a portion of completed projects. Once approved by DNV GL, the application is sent to Kentucky Power for review and approval.

Process Customer Incentive

Kentucky Power program staff review completed project applications and approve customer payment. DNV GL processes customer incentives and issues incentive checks. Kentucky Power maintains the right to conduct random inspections to verify the services are being performed properly and to determine customer satisfaction.

Outcomes

Outcomes are the result of program partners and target audiences responding to the outputs of the program. There are short-term, intermediate, and long-term outcomes of the program.

Short-term Outcomes

When the program is marketed, customer awareness and interest in more energy efficient equipment may increase. Other short-term outcomes include increased awareness of environmental and energy issues, reinforcement of efficiency behavior and financial benefits from participation.

Intermediate Outcomes

Intermediate outcomes may include increased use of the program, interest in, and use of, other Kentucky Power energy efficiency programs, and reduced energy consumption. Kentucky Power may enhance its public image as a utility that responds to customer needs without sacrificing consideration of environmental issues.

Long-term Outcomes

The long-term outcomes may include increased use of the program and increased sales of energy efficient equipment and increased deployment of energy efficiency. These may result in reduced utility emissions and fewer greenhouse gases emitted.

External Factors

There are a variety of factors outside the control of Kentucky Power and DNV GL that may influence the program:

- Changes in political priorities (e.g., codes and standards, state and local regulations, federal policies, perceptions of energy and climate change)
- Weather and associated impacts on customer actions and energy bills
- Economic conditions
- Energy prices and regulation
- Changes in utility rate structures
- Perceptions in the value of energy efficiency
- Competing interests among demand side customers
- Cost, performance and availability of efficient technologies

Documenting these factors helps improve program planning by identifying important program partners, the part(s) of the issue the program can realistically influence, which evaluation measures will accurately reflect project outcomes, and other needs that must be met to address this issue.

Methods

AEG designed the evaluation to examine program processes and customer responses to the program. The focus of the evaluation activities was to gain a better understanding of program operations, assess the overall effectiveness of program operations, and identify areas for program improvement. The evaluation was guided by the following key researchable issues:

- Does the program implementer have sufficient resources to effectively implement the program?
- Is the tracking system effective for documenting and reporting program progress?
- Is the program achieving program goals?
- What marketing/promotional efforts resonate with participants?
- Are customers receiving adequate support from the Implementation Contractor?
- Are rebate applications processed, approved and paid on a timely basis?
- Is the tracking system effective in managing customer applications, inspections, and the rebate payment process? Is the tracking system effective in tracking customer status?

- Is the Implementation Contractor inspecting a sufficient number of projects? Are the inspections conducted on a timely basis?
- Are customers satisfied with the program? The participation process?
- What are the areas for program improvement?
- What are the barriers to program participation? How can those barriers be overcome?
- Has program participation generated interest in other Kentucky Power programs? In other energy efficiency actions outside of the Kentucky Power energy savings programs?
- Are there Federal/State/Local codes or standards changes that impact the program (e.g., EISA)?

To arrive at the final recommendations in this report, AEG reviewed program materials and the program tracking system, conducted staff, implementer and contractor interviews, and surveyed participants.

Program Materials

AEG reviewed current program documents and processes including, but not limited to, Kentucky Power's Demand Side Management (DSM) Program Plan, the implementation contractor work authorization, samples of program materials (i.e., measure specification requirements, application form), and samples of marketing materials (i.e., bill inserts, fact sheet). The review served as the basis for understanding whether the program has been implemented as planned and is on track to meet program goals.

Program Tracking System

AEG reviewed Kentucky Power and DNV GL's program tracking systems. AEG developed a program tracking data checklist to evaluate the program tracking databases and ensure that all critical pieces of program data are tracked.

Staff and Implementer Interviews

AEG conducted a comprehensive group interview with Kentucky Power program staff in October 2016 to gather staff impressions of program implementation activities, program performance, program delivery issues, marketing and customer awareness, and opportunities for program improvements.

AEG interviewed DNV GL in November 2016. The interview provided information on program implementation activities, tracking methods, program marketing, customer participation, satisfaction, free ridership and spillover. Interview guides can be found in Appendix A.

Participating Contractor Interviews

Participating contractors were interviewed to assess the impact of their participation in the Commercial Incentive Prescriptive/Custom Program. The interviews were conducted by telephone with knowledgeable employees at commercial businesses that participated in the program in 2016. A total of 10 interviews were completed. An interview guide can be found in Appendix B.

Participant Surveys

AEG administered a telephone survey to a random sample of customers from January 18 – 23, 2017. Kentucky Power provided data for 198 projects that were completed in 2016 through mid-December. The sample was developed by cleaning the data to remove duplicate accounts and duplicate contacts (i.e., a client with multiple locations). AEG calculated the sample size at a 90 percent confidence interval with an error margin of +/-10 percent. The resulting sample size to achieve the designated confidence was 43 participants. Participants were randomly selected and contacted to complete the survey.

Respondents were screened to ensure that they remembered participating in the program. The survey asked respondents to assess program experience and awareness, satisfaction, barriers to participation and areas for potential program improvement. The survey guide can be found in Appendix C.

Evaluation Results

This section provides key evaluation findings, including program performance, program processes, program marketing, program effectiveness and customer satisfaction.

Program Performance

The program performed well in 2016. The program was over budget with $1,964,489 in expenditures and achieved 176% of the participation goal.

Table 1-2 2016 Goals vs. Actual – Budget and Participation

Metric	Target	Actual	% Achieved
Evaluation	$4.900	$9,352	190%
Delivery	$282,360	$766,735	272%
Promotion/Marketing	$54,023	$23,600	44%
Customer Incentive	$595,701	$1,047,136	176%
Operation & Maintenance	$0	$42,646	
Performance Payment	$0	$75,020	
Information Technology	**$87,000**	**$0**	**0%**
Total Cost ($)	**$1,023,984**	**$1,964,489**	**192%**
Participation	**170**	**300**	**176%**

Two hundred ninety-nine participants[3] completed 330 projects in 2016, one custom project and 329 prescriptive projects. Projects ranged from HVAC to lighting to refrigeration. Eighty four percent of participants completed a lighting project, whereas only 2% completed a food service equipment project.

Table 1-3 Participation in Prescriptive Measure Categories

Project Type	Measures	Projects	Percentage of Total Projects
HVAC	66	34	10%
Food Service	13	7	2%
Lighting	997	275	84%
Refrigeration	18	13	4%
Custom	1	1	0.3%
Total Measures	**1,095**	**330**	**100%**

A requirement of the program is 10% of projects must receive a pre-or post-installation inspection. Eight percent of completed projects received a pre-installation inspection and 6% received a post-installation

[3] The detailed program tracking data had 299 participants versus the Kentucky Power tracking database, which had 300 participants. Data on the 299 participants is presented in the following tables.

inspection, achieving the program inspection requirement of 10%. However, ten projects were waived from inspection; the tracking system does not indicate a reason for the waivers.

Table 1-4 Number of Projects that Received Pre/Post Inspection by Inspection Status

	Pre-Inspection	Post-Inspection
Inspection Waived	9	1
Passed	25	18
Total Inspections	34	19
% Projects Passed	**8%**	**6%**

It took an average of 12 days to process customer incentives. The maximum number of days was 73 days to process the incentive.

Table 1-5 Number of Days for Incentive Processing

Number of Days	2016
Min	1
Max	73
Average	**12**

Program Processes

Interviews with Kentucky Power, DNV GL, and participating contractors assessed how well the program is performing in terms of staffing resources, communication, and quality assurance and quality control.

A positive working relationship exists between Kentucky Power and DNV GL. Past issues regarding project pipeline, business development, and data have been resolved in 2016. If concerns about data and savings arise, DNV GL works with Kentucky Power to address and explain the projects on a case by case basis.

DNV GL hired a new employee devoted to customer outreach, which improved the project pipeline. Additionally, DNV GL has two field staff located in Kentucky that work on the program; one is located in the northern region of the service territory and one in the southern region. The field staff provide outreach and engineering services for all of the programs that DNV GL implements for Kentucky Power. Kentucky Power and DNV GL both acknowledge the importance of having field staff in the service territory that can interact directly with customers. The program benefits from having resources on the ground, forming relationships with businesses/organizations and understanding the culture. Staff receive online and in-person training at the DNV GL headquarters, and are encouraged to take specific trainings on lighting, HVAC, refrigeration, etc.

Communication between DNV GL and Kentucky Power is frequent and constructive. DNV GL provides a monthly update on performance metrics (goals, savings, marketing activities, complaints/ resolutions) and expenditures as well as a forecast for the remainder of the year. DNV GL also provides an annual report of goals versus results, goals versus projections, expenditures, marketing results, program enhancements, and a forecast for the next year. DNV GL believes they have adequate resources and support to achieve and exceed the program goals.

DNV GL acknowledges that program awareness and the application are barriers to participation and are working to address them.

"We have to be hands on, we really spend a lot time working with individuals. Because it is the only way we can get the applications in. People don't want to take the time, they are busy. And we don't have a standard contractor network." – DNV GL Staff Member

DNV GL worked to streamline the application and assist individuals in filling out applications to secure participation, realizing that many commercial customers and contractors are small operations who do not have the time to complete the applications. A formal contractor network is not maintained by DNV GL. However, they do maintain relationships with the contractors that participate in the program. DNV GL is in touch with them regularly and receives leads.

Participating Contractor Interviews

In-depth interviews with participating contractors reveal that not all are traditional local contractors. The contractors ranged from small local one-person businesses to national performance contracting firms.

In general, the contractors are satisfied with the program and program processes. Most contractors interviewed had little to no direct contact with Kentucky Power, and when there was interaction it was reported as primarily positive. One respondent did indicate they had difficulty getting someone on the phone. All contractors reported direct contact with DNV GL, and 9 out of 10 described the interactions with DNV GL as helpful and responsive.

"They were great and very responsive. I asked a lot of questions and it went well."

"Excellent, very responsive."

"Very responsive and helpful – went beyond his job."

Contractors usually design a proposal of equipment and measure upgrades with a list of applicable incentives offered by Kentucky Power. The customer then evaluates the proposal and the final measure list is documented in the pre-approval application. In a couple of cases, the proposal is put together without rebates in mind by the contractor. In these cases, analysts scurry to gather the rebate applications for which the proposal may be eligible.

The owner of an HVAC company says that the application takes too much time, so he sends his clients the applications, points them in the right direction, and lets them take care of it. One contractor stated that the pre-approval process was confusing and he couldn't get adequate help from DNV GL. In 7 out of 9 cases, the contractor filled out the pre-approval and final rebate applications for the client with help from DNV GL. Rebates go directly to the customer in the vast majority of cases. For the contractors who were involved in the application process, all but one noted that the application was mostly easy to complete. Respondents report that it typically took 1-2 weeks or less for a project to get pre-approved and approximately 1 month for customers to receive the rebate after installation.

All respondents report energy and cost savings as the greatest benefit of purchasing effiicent equipment, while two report less frequent maintenance as a benefit.

According to the contractors, the barriers to selling efficient equipment and measures include:

- General cost and lack of extra upfront capital
    - One respondent indicates that payback must be 10 years or less
    - Some respondents cite the stagant economy as a barrier to equipment upgrades

- Customer knowledge of appropriate equipment for specific retrofits and custom projects. Customers often need to be educated and engineers need to evaluate appropriate options that fit the budget.

Program Tracking Database

DNV GL tracks program data through their own program tracking system. AEG developed a program tracking data checklist to evaluate the tracking database. DNV GL collects all the recommended data except that several data points are incomplete for many of the projects. The following data points are incomplete for several projects: contractor information, project completion date, pre-approval date received, pre-approval by Kentucky Power staff, and customer approval date. The tracking system includes customer information, measure descriptions, project costs, savings and more.

Table 1-6 Program Tracking Checklist for Commercial Incentive Prescriptive/Custom Program

Data Required	Tracked in Database
Participating Customer Information	✓
Participating Contractor Information	✓O
Project Number and Type	✓
Measure Description	✓
Custom Project Description	✓
Project Status	✓
Project Total Cost	✓O
Incentive Amount – by Project & Measure	✓
Project Completion Date	✓O
Eligibility Review Date and Staff Assignment	✓
Pre-Approval Received Date	✓O
Pre -Approval Review by DNV GL & Kentucky Power Staff Member	✓O
Pre/Post Inspection Date	✓
Pre/Post Inspection Status and Staff Assignment	✓
Pre/Post Inspection Passes Date	✓
Final Application Date	✓
Client Approval Date	✓O
Payment Amount	✓
Payment Mailed Date	✓
kWh and kW Savings	✓O

✓ Data included
O Data missing
✓O Data Incomplete

Quality Control/Quality Assurance Procedures

DNV GL utilizes a QC model to review operational issues around safety, accounting practices, and operational performance and reports the findings to Kentucky Power as part of the continuous improvement plan. All projects must receive pre-approval by DNV GL and Kentucky Power before installation. Upon project completion, DNV GL reviews the final application, compares it to the measures installed and the invoices. Once approved by DNV GL, the application is sent to Kentucky Power for review and approval.

DNV GL is required to complete a pre- or post-installation inspection of at least 10% of completed projects. For the 2016 program year, DNV GL met the 10% inspection requirement. However, 10 projects were waived from inspection and 52 projects did not receive pre-approval.

Program Marketing

During the participant surveys, customers who participated in the program were asked about their awareness of the Kentucky Power program and their reason for participating. Marketing was also addressed in the program staff, implementer and participating contractor interviews. AEG reviewed the marketing schedule and marketing materials provided by DNV GL.

DNV GL and Kentucky Power's 2016 marketing campaign included in-person meetings, ad hoc walk through assessments, bill inserts, fact sheets, and information on the Kentucky Power website. DNV GL has actively worked to foster relationships with community members, commercial customers and contractors in the service territory. Field staff have attended and spoke at community events, rotary club meetings, and chamber of commerce events. They were able to speak with attendees and hand out program materials. Kentucky Power program materials are included in the welcome packets provided to new members of the chamber of commerce.

In addition, 2017 kick-off events were completed in November 2016 in preparation of the 2017 program.

Table 1-7 2017 Kick-off Event Schedule

Date	Location	City
11/15/16	Perry County Library	Hazard
11/15/16	Pikeville Library	Pikeville
11/16/16	Pikeville Library	Pikeville
11/16/16	Floyd County Library	Prestonsburg
11/17/16	Kyova Branch, Boyd County Library	Ashland
11/17/16	Main Branch, Boyd County Library	Ashland

Below is a sample of a bill inserts issued throughout the program year.

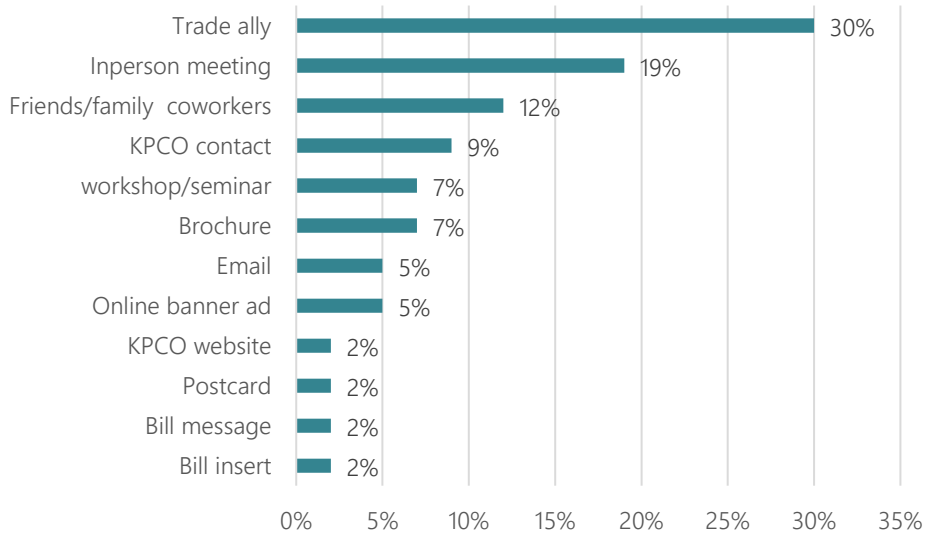
Figure 1-1 Sample Bill Insert

Program Participation

Customer Participation

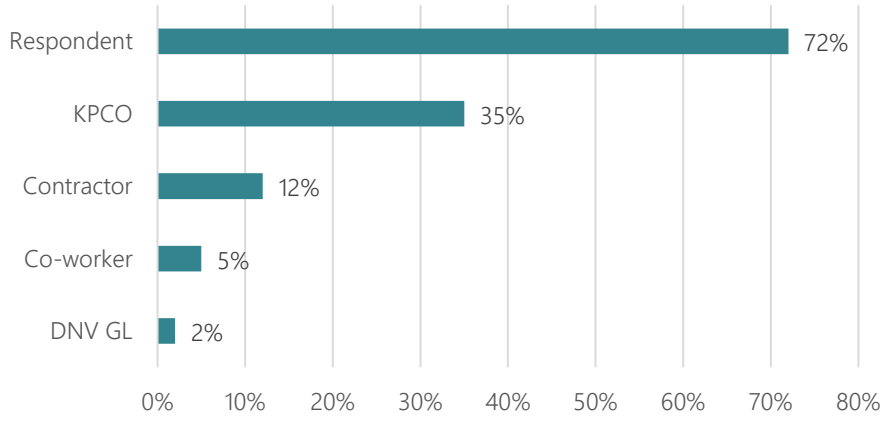
Thirty percent of participants heard about the program from a contractor. Others said they heard about the program during an in-person meeting (19%), from family, friends and coworkers (12%), from a contact with Kentucky Power (9%), a workshop or seminar (7%) or a brochure (7%)

Figure 1-2 How Participants Heard about Program



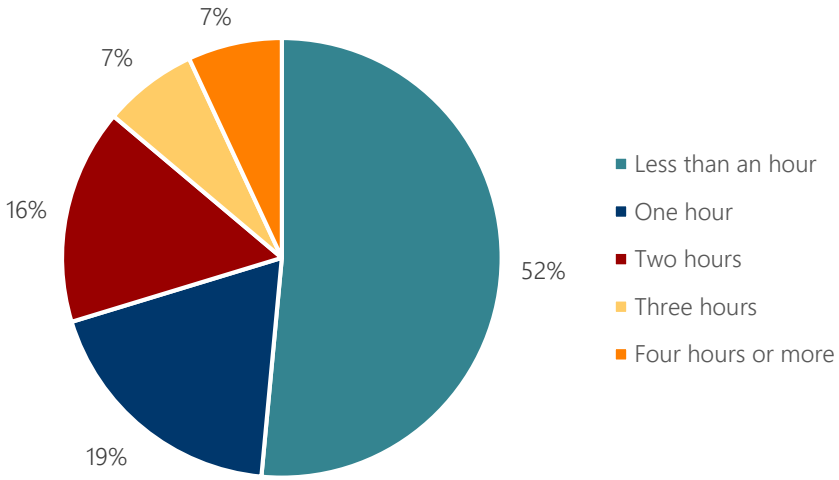
Almost 75% of respondents said they completed the program application, and more than a third said that Kentucky Power helped them complete the applications. Others said their contractor or a co-worker completed the application.

Figure 1-3 Who Completed the Application (respondents could choose more than one answer



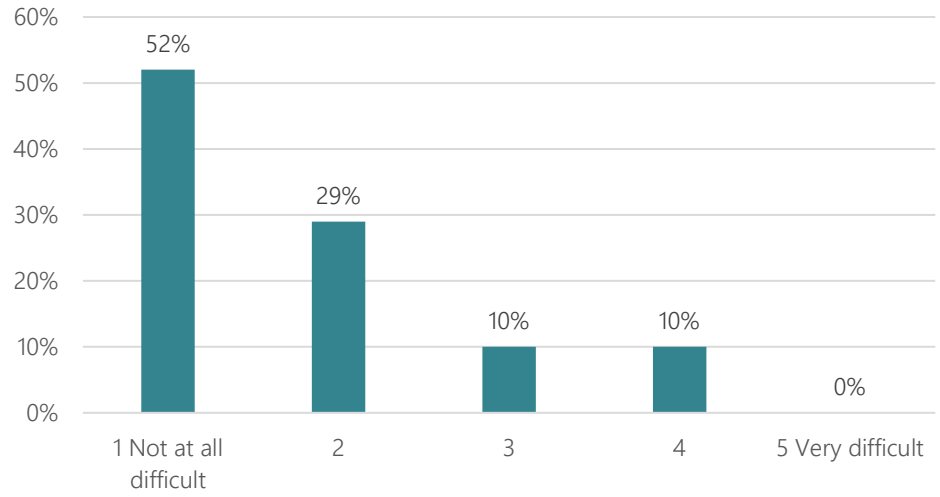
More than half of respondents said the application took less than an hour to complete while 14 percent said it took 3 or more hours. Ninety-four percent said the length of time was reasonable.

Figure 1-4 Time it Took to Complete Application



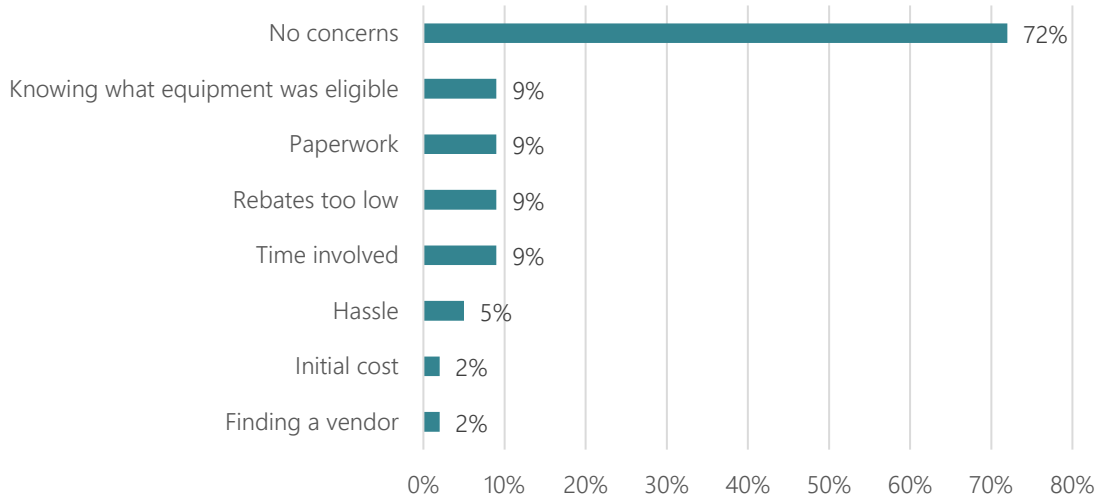
Most customers did not have any difficulty completing the application, with more than half saying completing the application was not at all difficult.

Figure 1-5 Ease of Completing Application



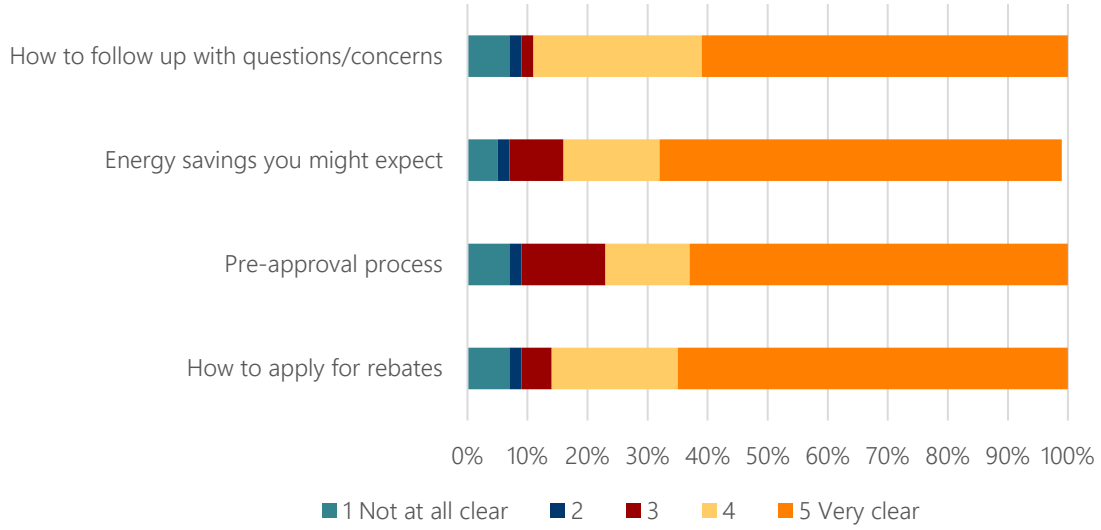
When asked what, if anything, concerned respondents about participating in the program, 72% said they had no concerns. Nine percent of participants were concerned about eligibility, paperwork, low rebates and the time involved.

Figure 1-6 Concerns about Participation



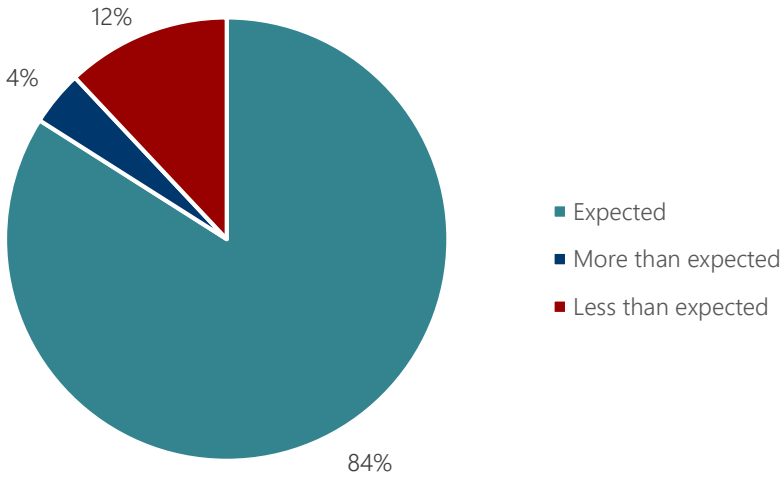
Participants rated the program information highly, with the majority saying information about the expected energy savings, pre-approval process, how to apply for rebates and how to follow up with questions and concerns was very clear.

Figure 1-7 Clearness of Information Provided about Program



According to participants, the length of time it took to get the rebate check was 2 to 16 weeks, with an average of 7 weeks. Eighty-seven percent of participants felt this was reasonable.

Figure 1-8 Expectations of Rebate Amount



Contractor Participation

Ten contractors were interviewed and asked about their participation in the program and their client's experience with the program.

Three of the ten respondents heard about the program through either a Kentucky Power training or mailer. Two respondents had previously been involved in Kentucky Power programs and three heard about the program because they received clients in the service territory and researched incentives.

In most cases, the customer is unware of the Kentucky Power incentives prior to contractor involvement. Six of ten respondents reported that their clients were unware of the program, one reported their client being aware and the remaining two indicated it varied.

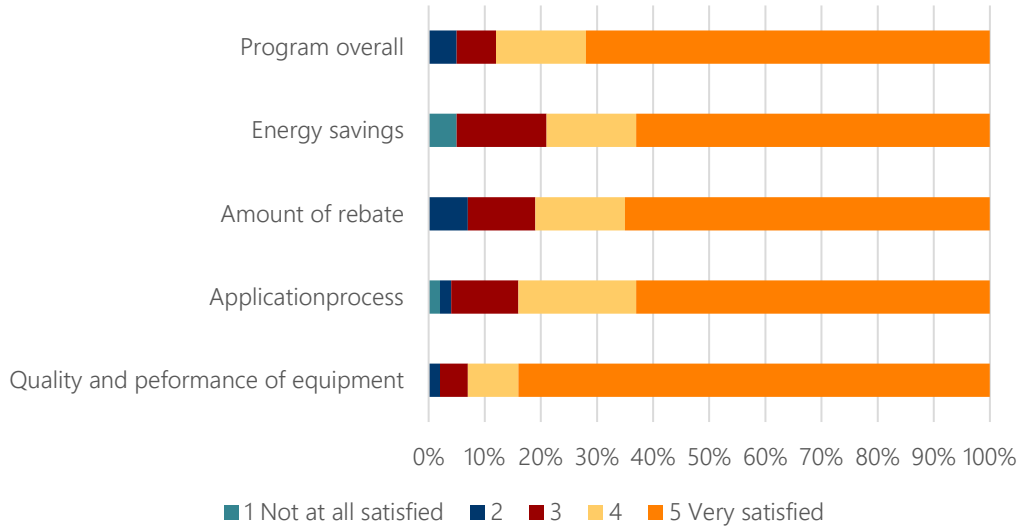
All respondents report promoting energy efficient equipment and success in doing so. However, several report that they research eligible items first and then promote these to their customer or client. Budget considerations are also a concern when promoting efficient products.

Program Effectiveness

Customer Satisfaction

Satisfaction with the various attributes of the program is high, particularly for the program overall and the quality and performance of the equipment

Figure 1-9 Satisfaction with Various Aspects of the Program



Participating Contractor Satisfaction

Overall, the contractors (8 of 10) are satisfied with the program. Nine of the ten respondents recommend the program to customers.

> *"Everyone was happy on both ends. I think the program benefits the community and benefits all those involved."*

Seven of ten respondents had positive things to say about the program. Thses respondents reported the following aspects that are working well in the program:

- Interactions with DNV GL
- Prescriptive rebate amounts
- Program processes and incentives are straightforward
- Application completion and timing

> *"The process is fairly straightforward which is nice and the application is easy – but just more differentiation between the pre and post. Customer service has been really good."*

> *"The application is easy, and simple. Easy to interact with DNV GL."*

For the contractors who were involved in the application process, all but one explained the application easy to complete for the most part. However, several issues were conveyed:

- Fixture name entry is a big blank space with no guidance as whether to include wattage and incentive type
- Separating pre- and post-entries into 2 separate fields would make it clearer

- Lighting codes are hard to identify
- Application length, makes it not worth the customer and the contractor participating

Rebates go directly to the customer in the vast majority of cases. All respondents believe the rebates are appropriate or even outstanding. All respondents reported the client was satisfied with the rebate and program.

> *"The rebates were appropriate. We knew what the rebate would be before the work was completed. A really good estimate."*

Six of the ten contractors believe the program is good for their business – several noted that they utilize the program as a sales tool.

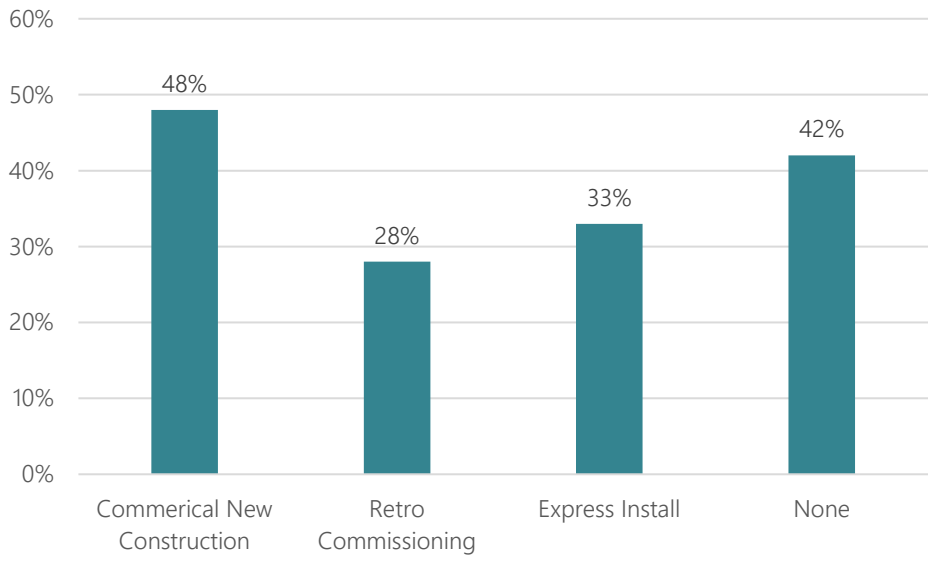
While most contractors were satisfied with the program and the rebates, several highlighted concerns about the program. When prompted to recommend improvements, respondents suggested the following:

- Increase incentives
- More differentiation between pre- and post-application
- Simplify the application and review timeline
- Streamline the pre-approval process by reducing the wait time or removing requirement for certain measures
- Add more qualifying products (e.g., tubuluar LEDS)
- Continue allowing T-12 as a baseline. One contractor reported that they are still removing T-12s from buildings.
- One respondent specified that more training would be useful to learn more about the market for efficient equipment and associated rebates

Awareness of Kentucky Power Programs

The majority of participants (58%) are aware of other Kentucky Power programs, with the largest proportion (48%) being aware of the New Construction Program.

Figure 1-10 Likelihood of Participating in a Kentucky Power Program in the Future



Conclusions and Recommendations

Main Findings

In 2016, the Commercial Incentive Prescriptive/Custom Program provided 300 customers with incentives, while spending 192% of the budget.

Table 1-8 2016 Program Performance versus Goal

Metric	Target	Actual	% Achieved
Participants	170	300	176%
Program Expenditures	$1,023,984	$1,964,489	192%

The evaluation revealed the following program strengths and challenges:

Program Strengths

- The application is able to be completed in a reasonable amount of time.
- Satisfaction with various program components is high.
- The rebate is influential in convincing customers to make an investment in high efficiency equipment.
- Most participants who are aware of other Kentucky Power programs are likely to participate in the future.
- Processes are running smoothly:
    - The relationship between Kentucky Power and DNV GL has been positive.
    - Responsiveness of DNV GL with contractors has been good.

Program Challenges

- Although the participant survey did not identify any major challenges to the program from a customer's perspective, small percentages of participants identified a few minor challenges:
  - 12% of participants said the rebate was lower than expected.
  - 14% of participants said it took them 3 or more hours to complete the application.
- Low participation in custom incentives.
- Several important data points were incomplete for several projects.
- Participating contractors identified the follow program challenges:
  - Exclusion of a key lighting measures, T-LEDs (tubular LEDs).
  - Application length, confusion surrounding pre-approval and final application entries, difficulty in entering lighting codes.
  - Wait time on pre-approval process and entire application review process.

Recommendations

The evaluation team recommends the following actions to improve the program:

Recommendation 1: Ensure proper QA/QC protocols are being followed.

- DNV GL waived inspections for ten projects.

  Rationale: Following the proper QA/QC procedures will reduce potential program issues and ensure the program is being administered as designed.

Recommendation 2: Consider increasing the program budget and participation goal to meet demand.

- The program exceeded the participation goal (176%) and the budget (192%).

  Rationale: Based on 2016 program performance, consider increasing the program budget to $2,000,000 and participation goals to 300 for 2017 and 2018.

2
NEW CONSTRUCTION PROGRAM

Program Characteristics

The New Construction Program is designed to encourage decision-makers in new construction and major renovation projects to incorporate greater energy efficiency into their building design and construction practices. Commercial customers who are designing new additions, planning major renovations, or building new facilities can take advantage of incentives for electric energy efficiency above and beyond the building energy code.

New construction or major renovation projects may include: new building projects, additions or expansion of an existing building or site footprint, removal and redesign of at least two major building systems, or major tenant improvements that change the use of the space and/or add new load.

Eligible customers may participate through one of two approaches:

- Whole Building Approach. For projects pursuing integrated design and demonstrating high performance goals through energy simulation modeling. Early design intervention and a holistic building design will enhance savings and optimize building performance. Incentives are only available for projects that are at least 10 percent more energy efficient than a baseline building designed to ASHRAE 90.1-2007 Standards. Applicants must provide an energy simulation model utilizing software programs that estimate annual energy savings.
- Systems Approach. Encourages designers to optimize individual systems to increase building energy efficiency. This approach offers a flexible solution for less complex projects. Throughout the design phase, simple spreadsheet tools quickly estimate typical energy savings and calculate corresponding incentives. Standardized incentives include, but are not limited to, lighting, HVAC, and refrigeration measures.

Program Incentives

For customers who take the whole building approach, the following incentives are available:

Table 2-1 Whole Building Approach Incentives

Percent Savings	Incentive
≥10 and <20% more efficient	$0.08/kWh
≥20 and <20% more efficient	$0.10/kWh
≥30% more efficient	$0.12/kWh

The systems approach provides prescriptive incentives based upon the measures installed. Incentives are limited to 50% of the incremental equipment costs, up to $20,000 per year per customer account.

Program Goals

The goal for the program was to achieve 8 participants in 2016.

Table 2-2 Participation and Budget Goals 2016

Goal	2016
Participation	8
Budget	$71,370

Implementation Contractor

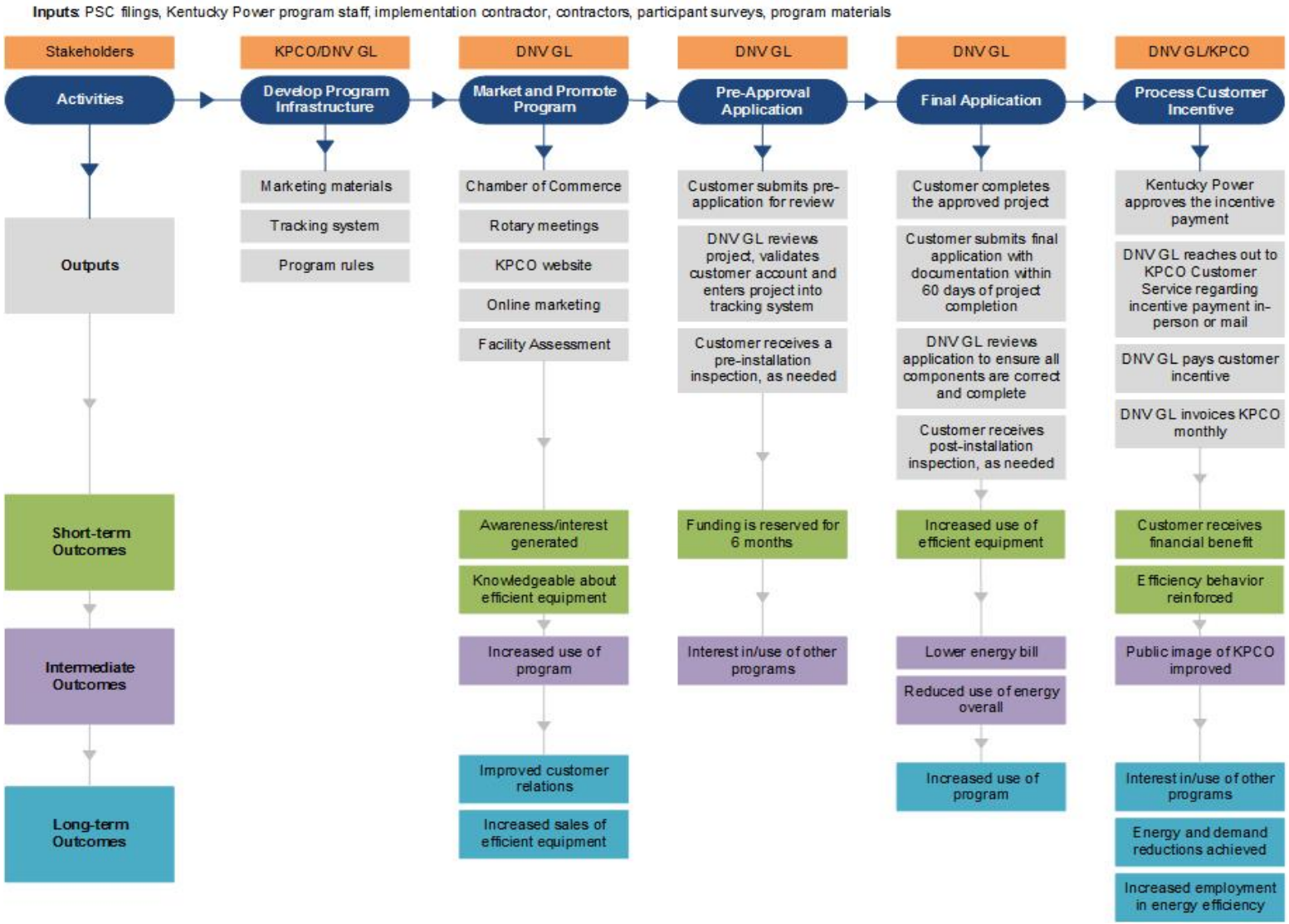
Kentucky Power contracted with DNV GL to continue to implement the New Construction Program in 2016. The responsibilities of DNV GL include:

- Provide full service implementer and administrator support services
- Program planning and design
- Plan and implement marketing and outreach services, in collaboration with Kentucky Power
- Process rebate applications, including pre-approval application review, pre/post installation inspections and incentive payment
- Provide customer service support, operate and maintain inbound toll-free telephone lines for receiving customer requests for information, services and inquiries.
- Track program participation and activities

Program Flow

A program logic model is a graphic representation of a program and its processes. Logic models make the program's assumptions explicit, showing the causal relationships or linkages among the problem or situation the program is designed to address, the intervention (inputs and outputs), and program impact (short, medium and long-term outcomes). Logic models also serve to identify processes and relationships critical to the program's performance.

Program Logic Model



Program Activities

The program activities and their corresponding outputs help to establish linkages between the situation the program is designed to address and the program's intended outcomes. Program activities include:

Program Infrastructure

Kentucky Power program staff and DNV GL developed the program infrastructure, including eligible measures and incentive levels, rebate applications and application processes, data tracking system and marketing materials.

Market Program

Marketing activities are targeted towards contractors, businesses and individuals likely to have direct contact with eligible customers. Field staff attend and speak at community events and rotary events, and actively engage with the local Chamber of Commerce. The program is marketed through training events, local meetings, the Kentucky Power website, program fact sheets, direct mailings, bill inserts and online marketing.

Pre-Approval Application

The customer completes and submits a pre-approval application to DNV GL via mail, email or fax prior to purchasing equipment or committing to a project. DNV GL reviews the application for completeness, verifies customer eligibility and enters the application into their tracking system. Upon approval of the pre-approval application, the customer receives a letter confirming the funding reservation and detailing program terms and conditions. The funding reservation period is 6 months. Pre-installation inspections are completed on a random selection of projects.

Final Application

The customer completes and submits the final application to DNV GL within 60 days of project completion. Customers must note any work/measures that vary from the pre-approval application, sign the application and provide supporting documentation. DNV GL reviews the application and conducts a post-installation inspection on a random selection of projects.

Process Customer Incentive

Kentucky Power program staff review completed projects and approve customer payment. DNV GL processes customer incentives and issues incentive checks. Kentucky Power maintains the right to conduct random inspections to verify services are being performed properly and to determine customer satisfaction.

Outcomes

Outcomes are the result of program partners and target audiences responding to the outputs of the program. There are short-term, intermediate, and long-term outcomes of the program.

Short-term Outcomes

When the program is marketed, customer awareness and interest in more efficient equipment may increase. Other short-term outcomes include increased awareness of environmental and energy issues, reinforcement of efficiency behavior and financial benefits from participation.

Intermediate Outcomes

Intermediate outcomes may include increased use of the program, interest in, and use of, other Kentucky Power efficiency programs and reduced energy consumption. Kentucky Power may enhance its public image as a utility that responds to customer needs without sacrificing consideration of environmental issues.

Long-term Outcomes

The long-term outcomes may include increased use of the program and increased sales of efficient equipment, increased employment of energy efficiency. These may result in reduced utility emissions and fewer greenhouse gases emitted.

External Factors

There are a variety of factors outside the control of Kentucky Power and DNV GL that may influence the program:

- Changes in political priorities (e.g., codes and standards, state and local regulations, federal policies, perceptions of energy and climate change)
- Weather and associated impacts on customer actions and energy bills
- Economic conditions
- Energy prices and regulation
- Changes in utility rate structures
- Perceptions in the value of energy efficiency
- Competing interests among demand side customers
- Cost, performance and availability of efficient technologies

Documenting these factors helps improve program planning by identifying important program partners, the part(s) of the issue the program can realistically influence, which evaluation measures will accurately reflect project outcomes, and other needs that must be met to address this issue.

Methods

AEG designed the evaluation to examine program processes and customer responses to the program. The focus of the evaluation activities was to gain a better understanding of program operations, assess the overall effectiveness of program operations, and identify areas for program improvement. The evaluation was guided by the following key researchable issues:

- Does the program implementer have sufficient resources to effectively implement the program?
- Is the tracking system effective for documenting and reporting program progress?
- Is the program achieving program goals?
- What marketing/promotional efforts resonate with customers?
- Are customers receiving adequate support from the Implementation Contractor?
- Are rebate applications processed, approved and paid on a timely basis?
- Is the tracking system effective in managing customer applications, inspections, and the rebate payment process? Is the tracking system effective in tracking customer status?
- Is the Implementation Contractor inspecting a sufficient number of projects? Are the inspections conducted on a timely basis?
- Are customers satisfied with the program? The participation process?

- What are the areas for program improvement?
- What are the barriers to program participation? How can those barriers be overcome?
- Has program participation generated interest in other Kentucky Power programs? In other energy efficiency actions outside of Kentucky Power energy savings programs?
- Are there Federal/State/Local codes or standards changes that impact the program (e.g., EISA)?

To arrive at the final recommendations in this report, AEG reviewed program materials and the program tracking system, conducted staff, implementer and participant interviews.

Program Materials

AEG reviewed current program documents and processes including, but not limited to, Kentucky Power's Demand Side Management (DSM) Program Plan, the implementation contractor work authorization samples of program materials (i.e., application form, work authorization form), and samples of marketing materials (i.e., bill inserts, fact sheet). The review served as the basis for understanding whether the program has been implemented as planned and is on track to meet program goals.

Program Tracking System

AEG reviewed Kentucky Power and DNV GL's program tracking systems. AEG developed a program tracking data checklist to evaluate the program tracking databases and ensure that all critical pieces of program data are tracked.

Staff and Implementer Interviews

AEG conducted a comprehensive, group interview with Kentucky Power program staff in October 2016 to gather staff impressions of program implementation activities, program performance, program delivery issues, marketing and customer awareness, and opportunities for program improvements. The interview guide can be found in Appendix A.

AEG interviewed DNV GL in November 2016. The interview provided information on program implementation activities, tracking methods, program marketing, customer participation and satisfaction. The interview guide can be found in Appendix B.

Participant Interviews

AEG administered in-depth telephone interviews with participants from February 7 – 16, 2017. The New Construction Program had 13 participants in 2016. Due to the small number of participants, the AEG team administered in-depth interviews rather than a random telephone survey of a sample of participants. A total of four interviews were completed with participants. Respondents were asked to assess program experience and awareness, satisfaction, barriers to participation and areas for potential program improvement. The interview guide can be found in Appendix C.

Evaluation Results

This section provides key evaluation findings, including program performance, program processes, program marketing, program effectiveness and customer satisfaction.

Program Performance

The New Construction program performed well in 2016. The program was under budget with $62,296 in expenditures, or 87% of the budget.

Table 2-3 2016 Goals vs. Actual – Budget

Metric	Target	Actual	% Achieved
Evaluation	$500	$652	130%
Delivery	$32,533	$13,779	42%
Promotion and Marketing	$5,986	$0	0%
Customer Incentive	$17,351	$44,995	259%
Operation & Maintenance	$0	$1,339	
Performance & Payment	$0	$1,531	
Information Technology	$15,000	$0	0%
Total Cost ($)	**$71,370**	**$62,296**	**87%**

The program exceeded the participation goal with 13 participants, or 163%, of the program target.

Table 2-4 2016 Goals vs. Actual – Participation by Customer

	Target	Actual	% Achieved
New Construction	8	13	163%

Thirteen participants installed 31 qualified measure, including lighting and HVAC measures.

Table 2-5 Participation in Measure Categories

	Number of Measures Installed
Lighting Power Density	13
HVAC	18
Air Conditioner, <65 kBtuh	*12*
Air Conditioner, 65 kBtuh < 135 kBtuh	*4*
Air Conditioner, 135 kBtuh < 240 kBtuh	*2*
Total Measures Installed	**31**

Table 2-6 Participation by Type of Business

	Number of Participants
Church	4
Restaurant	1
Retail	3
Office	2
School	3
Total Participants	**13**

The total project timeline from reservation application to final application took an average of 124 days. It took an average of 77 days to process and issue the incentive after the final application was submitted. The average incentive paid out to new construction customers was $4,074.

Table 2-7 Number of Projects that Received Pre/Post Inspection by Inspection Status

	Min	Max	Average
Number of Days between Reservation Application and Final Application	0	230	**124**
Number of Days between Final Application and Payment Issued	16	418	**77**
Incentive Amount	$660	$12,168	**$4,074**

Two projects did not submit reservation applications. One pre-inspection was scheduled and then waived. Three post inspections were scheduled, two passed and one was waived.

Program Processes

Interviews with Kentucky Power and DNV GL assessed how well the program is performing in terms of staffing resources, communication, and quality assurance and quality control.

A positive working relationship exists between Kentucky Power and DNV GL. Past issues regarding project pipeline, business development, and data have been resolved in 2016. If concerns about data and savings arise, DNV GL works with Kentucky Power to address and explain the projects on a case by case basis.

DNV GL hired a new employee devoted to customer outreach, which improved the project pipeline. Additionally, DNV GL has three field staff located in Kentucky that work on the program; one is located in the northern region of the service territory and two in the southern region. The field staff provide outreach and engineering services for all of the programs that DNV GL implements for Kentucky Power. However, one of them works more on engineering services for the New Manufactured Homes Program. Kentucky Power and DNV GL both acknowledge the importance of having field staff in the service territory that can directly interact with customers. The program benefits from having resources on the ground, forming relationships with businesses/organizations and understanding the business culture. The staff receive online training and in-person training at the DNV GL headquarters, and are encouraged to take specific trainings on lighting, HVAC, refrigeration, etc.

Communication between DNV GL and Kentucky Power is frequent and constructive. DNV GL formally provides a monthly update on performance metrics (goals, savings, marketing activities, complaints/resolutions) and expenditures as well as a forecast for the remainder of the year. DNV GL also provides an annual report of goals versus results, goals versus projections, expenditures, marketing results, program enhancements, and a forecast for the next year. DNV GL believes they have adequate resources and support to achieve and exceed the program goals. However, DNV GL acknowledges that there are barriers for participation for the New Construction Program and are working to address them.

DNV GL recognizes that program awareness and the application are barriers for participations.

> *"We have to be hands on, we really spend a lot time working with individuals. Because it is the only way we can get the applications in. People don't want to take the time, they are busy. And we don't have a standard trade ally network." – DNV GL Staff Member*

DNV GL worked to streamline the application and assist individuals in filling out applications to secure participation, realizing that many commercial customers and contractors are small operations who do not have the time to complete the applications. DNV GL is continuing to make improvements to the application for the 2017 program year – adding kitchen equipment and streamlining with retrofit components.

A formal trade ally network is not maintained by DNV GL. However, they do maintain relationships with trade allies that participate in the program. DNV GL is in touch with them regularly and receives leads.

Program Tracking Database

DNV GL tracks program data through their own program tracking system. AEG developed a program tracking data checklist to evaluate the tracking database. DNV GL collects all the recommended data except data points that are incomplete for two projects: project completion data, pre-approval date received, and the DNVGL staff who reviews the pre-approval. The tracking system includes customer information, measure descriptions, project costs, savings and more.

Table 2-8 Program Tracking Checklist for the New Construction Program

Data Required	Tracked in Database
Customer Information	✓
Contractor Information	✓O
Project Number and Type	✓
Measure Description	✓
Custom Project Description	✓
Project Status	✓
Project Total Cost	✓
Incentive Amount – by Project & Measure	✓
Project Completion Date	✓O
Eligibility Review Date and Staff Assignment	✓
Pre-Approval Received Date	✓O
Pre-Approval Review by DNV GL & Kentucky Power Staff	✓O
Pre/Post Inspection Date	✓
Pre/Post Inspection Status and Staff Assignment	✓
Pre/Post Inspection Passes Date	✓
Final Application Date	✓
Client Approval Date	✓
Payment Amount	✓
Payment Mailed Date	✓
kWh and kW Savings	✓

✓ Data included
O Data missing
✓O Data incomplete

Quality Control/Quality Assurance Procedures

DNV GL utilizes a QC model to review operational issues around safety, accounting practices, and operational performance and reports the findings to Kentucky Power as part of the continuous improvement plan. All projects must receive pre-approval by DNV GL and Kentucky Power before installation. DNV GL reviews the application, compares it to the measures installed and the invoices. Once approved by DNV GL, the application is sent to Kentucky Power for review and approval.

DNV GL completes random pre- and post-installation inspections, there is no specific target. For the 2016 program year, DNV GL completed two post-inspections. Additionally, one pre-inspection and one post-inspection were scheduled, but waived.

Program Marketing

During the participant surveys, customers who participated in the program were asked about their awareness of the Kentucky Power program and their reason for participating. Marketing was also addressed in the program staff and implementer interviews. AEG reviewed the marketing schedule and marketing materials provided by DNV GL

The 2016 marketing campaign included bill inserts, fact sheets, and information on the Kentucky Power website. DNV GL has actively worked to foster relationships with community members, commercial customers and contractors in the service territory. Field staff have attended and spoke at community events, rotary club meetings, and chamber of commerce events. They were able to speak with attendees and hand out program materials. Kentucky Power program materials are included in the welcome packets provided to new members of the chamber commerce.

Program Participation

In-depth participant interviews were conducted by telephone with knowledgeable employees at entities that participated in the New Construction Program in 2016. A total of 4 interviews were conducted with an office manager, energy incentive analyst, facilities director and energy manager.

Three of the four respondents were actual participants of the program and coordinated the project work. The remaining respondent was an energy incentive analyst that was hired by the participant. The energy incentive analyst researched appropriate incentives for the client's project and completed the application on behalf of the client. The energy incentive analyst works for a broader energy manangement company that was overseeing the project's completion.

All of the respondents were familiar with the Kentucky Power programs. Three of the respondents had previously participated in other Kentucky Power commercial programs and one participates as an energy manager in the Kentucky Power School Energy Manager Program. Two of the four heard about the program through a Kentucky Power or DNV GL representative. The other two learned about the program from other sources, a client and a local lighting distributor. All respondents were motivated to participate in the program by energy and bill savings.

Three respondents were knowledgeable of the program before their projects began and one respondent learned of it halfway through the project's completion because they were brought in by the client after work had begun.

Three of the four respondents reported working with a general contractor, architect or other building design professional. Two of those three contracted professionals that recommended efficient construction practices and the New Construction Program specifically

All interviewees reported the rebate pre-approval application was easy to complete. Two received some form of assistance in completing the application from a program representative. The respondents indicated that it took about 4-8 weeks for pre-approval on a project. Respondents indicated this was often too long as respondents need to present project costs to board members quickly and include rebate impacts.

Three of the four respondents report that the final application was easy to understand and complete. However, one respondent stated that the invoice requirements are difficult to complete when change

orders from contractors alter the project from what was described in the original proposal. It took about 2-8 weeks to receive the check after the final application was completed.

Program Effectiveness

Customer Satisfaction

All respondents were satisfied with the program. Two respondents believed that energy efficiency was the biggest benefit from participating in the program. One respondent stated that the students in the schools he manages get better learning environments and the school district saves money.

> *"KCPO and representatives were very helpful through the application process, any time we had questions they were responsive."*
>
> *"Yes, I'm satisfied and we have definitely noticed a difference in the bills."*
>
> *"Overall everything went very well. Forms were easy, communication was good. The process was smooth."*
>
> *"The schools are better constructed for the students and the students end up getting a better learning environment. The program saves the district money."*

Two of the four respondents reported purchasing energy efficient equipment again after participating in the program and receiving more incentives for that equipment.

Respondents supplied the following recommended changes to the New Construction Program:

- New construction should receive equally large incentives as retrofits.
- Improving awareness in businesses is vital, marketing education should be increased to entice businesses.
- Year-to-year changes to the program need to be better publicized and minimized because it disrupts projectst that span multiple years.

Awareness of Kentucky Power Programs

The four respondents were asked about their knowledge of Kentucky Power's other business programs. A "yes" in the table below indicates the respondent is knowledgable of the appropriate program.

Table 2-9 Awareness of Kentucky Power Programs

Program Name	Respondent			
	1	2	3	4
Commercial Incentive Prescriptive/Custom Program	Yes	No	Yes	Yes
Retrocommissioning Program	No	No	Yes	Yes
Express Install Program	No	No	Yes	Yes

All respondents reported that they are likely to participate in a Kentucky Power program in the future.

Conclusions and Recommendations

Main Findings

In 2016, the New Construction Program surpassed its goals, providing 13 participants with incentives, while only spending 87% of the budget.

Table 2-10 2016 Program Performance versus Goal

	Target	Actual	% Achieved
Participation	8	13	163%
Total Cost	$71,370	$62,296	87%

The evaluation revealed the following program strengths and challenges:

Program Strengths

- The program performed well, exceeded the participant goal and was under budget.
- Overall, participants were satisfied with the program and incentives; although one respondent believed incentives should match retrofit projects.
- Pre-approval and final applications are easy to understand and complete.
- The relationship between Kentucky Power and DNV GL is good.
- Cross program promotion activities are effective – several participants were active in other programs and heard about the program through Kentucky Power representatives.

Program Challenges

- Data tracking can be improved – a few data points were missing for a few of the projects.
- Pre-approval processes were not followed for all projects – two projects did not submit reservation applications and pre-approval dates were not recorded for two projects.
- Participants were not satisfied with the project pre-approval time of 4-8 weeks.

Recommendations

The evaluation team recommends the following actions to improve the program:

Recommendation 1: Ensure proper QA/QC and data tracking protocols are being followed.

- All projects are required to be pre-approved by DNV GL and Kentucky Power before customer can proceed with the project.
- According to the data tracking system analysis, two projects did not submit pre-approval applications.
- Important project milestones and dates are required to be tracked and are important for QA/QC and evaluation processes.

  Rationale: Ensuring that all projects are properly pre-approved and vetted by both DNV GL and Kentucky Power corresponds with proper QA/QC procedures and reduces potential program issues.

Recommendation 2: Improve project application processing timelines.

- Participants were not satisfied with the project approval time of 4-8 weeks.
- In the data tracking system review, the average number of days between DNV GL receiving the final

application and payment being issued was 77 days, with a maximum of 418 days.

Rationale: Long application and incentive processing times negatively impact project timelines and customer satisfaction. Streamlining approval processes will help to reduce processing times and improve the overall customer experience.

3
EXPRESS INSTALL PROGRAM

Program Characteristics

The Express Install Program, approved in April 2016 and launched in July 2016, provides targeted, highly cost-effective measures to small commercial customers in a quickly deployable program delivery mechanism. The program is targeted at small commercial customers with a peak electric demand of less than 100 kW per year.

The program offers small commercial customers an energy assessment that includes information on potential energy savings and anticipated payback as well as incentives that cover up to 70% percent of equipment and installation costs. Eligible measures include, but are not limited to, lighting and refrigeration.

The implementation strategy incorporates three components:

- Walk-Through Energy Assessment. Trained auditors complete a walk-through examination of the business using standard audit software, identifying specific energy saving opportunities. The auditor reviews the anticipated costs and savings of the measures with the customer, along with information on financial resources available to help defray costs. Customers are provided with a report and list of recommendations.
- Direct Installation of Measures. Upon customer approval of a job scope, a contractor reviews the job scope and the implementation contractor orders the materials. The contractor installs the measures identified during the assessment and approved in the job scope.
- Customer Education. Customers are educated on energy efficient equipment and Kentucky Power's full suite of DSM programs. Particular attention is paid to areas identified in the assessment.

The incentives are assigned directly to the implementation contractor, so the value of utility incentives is reduced directly from the project cost.

Measure Listing and Rebate

Incentives cover up to 70% percent of the equipment and installation costs, adjusted based on hours of operation and kWh saved. Customers either pay their portion of the project cost or, alternately, the implementation contractor (Lime Energy) offers customers 0% financing for 12 months to pay the customer portion over time. The measures installed vary based on the energy assessment.

Program Goals

The 2016 goal for the program was to complete 40 projects (recommended measures from the audit installed) for small business customers at a budget of $392,631.

Table 3-1 Measure and Budget Goals 2016

	2016
Projects	40
Budget	$392,631

Implementation Contractor

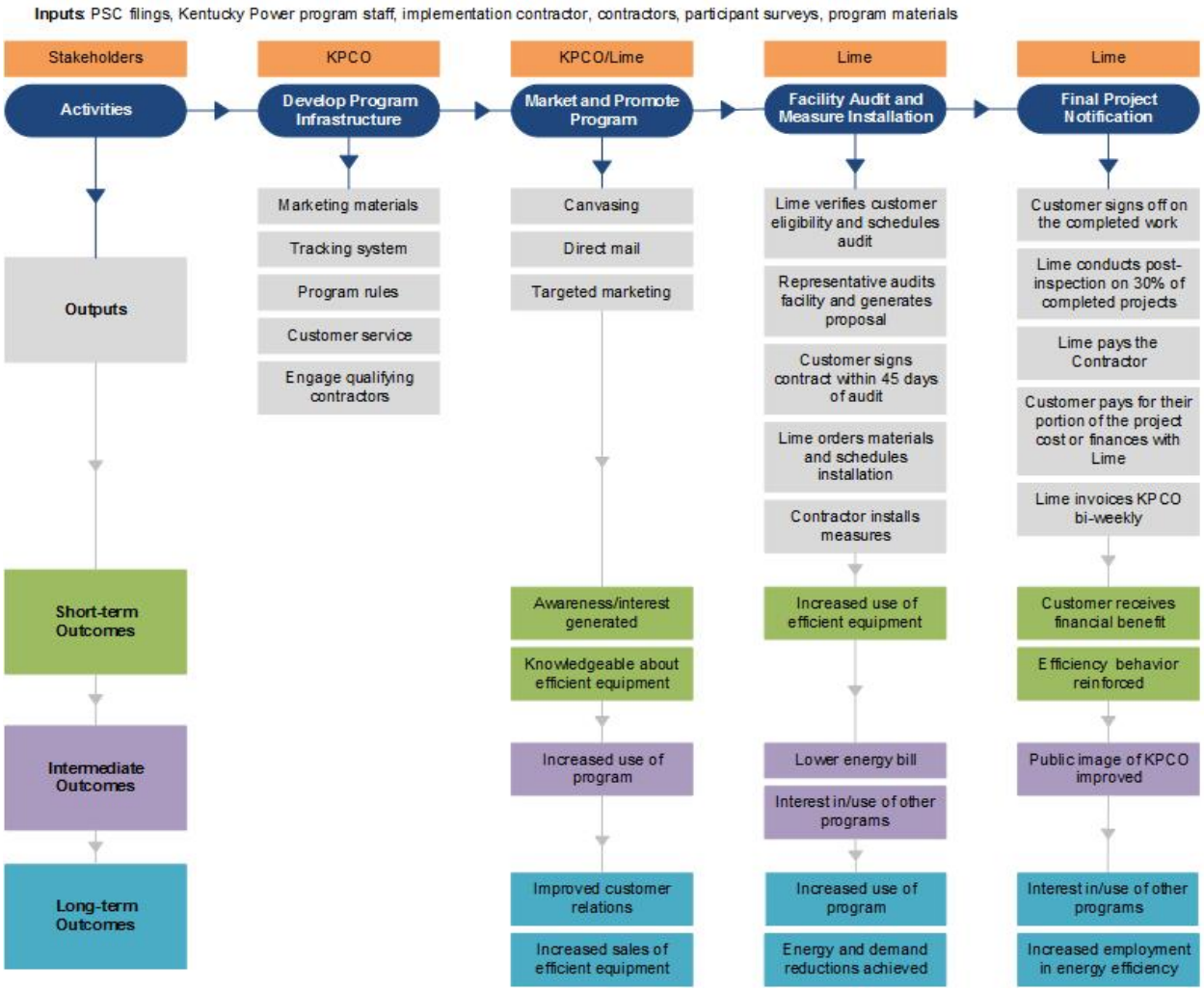
Kentucky Power contracted with Lime Energy in April 2016 to administer the Express Install Program. The responsibilities of Lime Energy include:

- Provide full service implementer and administrator support services
- Plan and implement marketing and outreach services, in collaboration with Kentucky Power
- Recruit and train Energy Service Representatives and participating contractors
- Schedule energy assessments and verify customer eligibility
- Schedule measure installation
- Order and send project materials to contractor
- Process project proposals, including proposal review and incentive payment
- Provide customer service support, intercept and process customer complaints through hotline
- Track program participation and activities

Program Flow

A program logic model is a graphic representation of a program and its processes. Logic models make the program's assumptions explicit, showing the causal relationships or linkages among the problem or situation the program is designed to address, the intervention (inputs and outputs), and program impact (short, medium and long-term outcomes). Logic models also serve to identify processes and relationships critical to the program's performance.

Program Logic Model



Program Activities

Program Infrastructure

Activities conducted by Kentucky Power include developing program requirements, marketing materials, and a tracking system. Kentucky Power also handles customer service and engages qualifying contractors.

Market Program

Lime Energy markets the program via neighborhood canvassing to engage small businesses on the ground and also uses targeted marketing (e.g., direct mailers targeted to potentially qualified small business customers).

Conduct Energy Assessment and Measure Installation

Customers have three avenues to schedule an energy assessment:

1. Call the hotline number 844-XPRS-AEP
2. Fill out an online form via Kentucky Power's website

3. During canvassing, schedule an assessment or immediately have an assessment completed with the Energy Service Representative (ESR)

Lime Energy verifies the customer's eligibility and schedules the audit. The ESR conducts an energy assessment of the facility and generates a proposal for the customer containing the assessment results, recommended efficient improvements and anticipated costs. If the customer decides to proceed with the recommendations, they must sign the contract within 45 days of the assessment. Lime Energy schedules the contractor appointment for installation and orders the project materials. The materials are sent to the contractor and the contractor installs the measures.

Final Project Notification

The contractor assigned to the installation has the customer sign off on the completed work. The contractor sends the project finalization paperwork to Lime Energy. Lime Energy conducts post-inspection on 30% of completed projects. Lime Energy pays the contractor and the customer pays their portion of the project costs or finances with Lime Energy. Lime Energy invoices Kentucky Power bi-weekly.

Outcomes

Outcomes are the result of program partners and target audiences responding to the outputs of the program. There are short-term, intermediate, and long-term outcomes of the program.

Short-term Outcomes

The marketing materials generate customer awareness and interest in the program. Customers receive an energy assessment at no cost. As a result, the customer learns about their options to save energy and money. The customer may decide to have the recommended efficient measures installed, thus leading to the customer receiving financial benefit as well as increased use of efficient equipment and reinforced efficiency behavior.

Intermediate Outcomes

Intermediate outcomes may include increased program participation, lower energy bills, interest in and participation in other programs and improved public image of Kentucky Power.

Long-term Outcomes

The long-term outcomes may include improved customer relations, increased sales of efficient equipment, achievement of energy and demand reductions, interest in/use of other Kentucky Power programs, and increased employment in energy efficiency.

External Factors

There are a variety of factors outside the control of Kentucky Power and Lime Energy that may influence the program:

- Changes in political priorities (e.g., codes and standards, state and local regulations, federal policies, perceptions of energy and climate change)
- Increased efficiency standards
- Macro-economic conditions and associated impacts on customer actions
- Energy prices and regulation
- Changes in utility rate structures
- Perceptions in the value of conservation
- Competing interests among demand side customers

Documenting these factors helps improve program planning by identifying important program partners, the part(s) of the issue the program can realistically influence, which evaluation measures will accurately reflect project outcomes, and other needs that must be met to address this issue.

Methods

AEG designed the evaluation to examine program processes and customer responses to the program. The focus of the evaluation activities was to gain a better understanding of program operations, assess the overall effectiveness of program operations, and identify areas for program improvement. The evaluation was guided by the following key researchable issues:

- Does the program implementer have sufficient resources to effectively implement the program?
- Is the tracking system effective for documenting and reporting program progress?
- Is the program achieving program goals?
- What marketing/promotional efforts resonate with participants?
- Are the participating contractors sufficiently knowledgeable about the program?
- Are customers/participating contractors satisfied with the program?
- Are invoices processed, approved and paid on a timely basis?
- Is the tracking system effective in managing customer applications, inspections, and the rebate payment process? Is the tracking system effective in tracking customer status?
- Is the Implementation Contractor inspecting a sufficient number of projects? Are the inspections conducted on a timely basis?
- What are the significant drivers of participation (e.g., free energy assessment)?
- What are the areas for program improvement?
- What are the barriers to program participation? How can those barriers be overcome?
- Has program participation generated interest in other Kentucky Power programs? In other energy efficiency actions outside of Kentucky Power energy savings programs?
- Are there Federal/State/Local codes or standards changes that impact the program (e.g., EISA)?

To arrive at the final recommendations in this report, AEG reviewed program materials and the program tracking system, conducted staff, implementer and contractor interviews, and surveyed participants.

Program Materials

AEG reviewed current program documents and processes including, but not limited to, Kentucky Power's Demand Side Management (DSM) Program Plan, the Direct Install Construction Workflow Process Report, Construction Administrative Processes list, samples of program materials (i.e., sample customer audit proposal, work authorization form), and samples of marketing materials (i.e., digital banners, direct mailers, fact sheets, newspapers ads). The review served as the basis for understanding whether the program has been implemented as planned and is on track to meet program goals.

Program Tracking System

AEG reviewed Kentucky Power and Lime Energy's program tracking systems. AEG developed a program tracking data checklist to evaluate the program tracking databases and ensure that all critical pieces of program data are tracked.

Staff and Implementer Interviews

AEG conducted a comprehensive, group interview with Kentucky Power program staff in October 2016 to gather staff impressions of program implementation activities, program performance, program delivery issues, marketing and customer awareness, and opportunities for program improvements. The interview guide can be found in Appendix A.

AEG interviewed Lime Energy in November 2016. The interview provided information on program implementation activities, tracking methods, program marketing, customer participation, and satisfaction. An interview was conducted with an Energy Service Representative (ESR) in January 2017. The interview guide can be found in Appendix B.

Participating Contractor Interviews

Two contractors currently participate in the program, with one main contractor completing the majority of projects. The two participating contractors were interviewed to assess the impact of their participation in the Express Install Program. AEG conducted one full interview with the contractor that installed the majority of the projects for the program. An abridged interview was conducted with the remaining contractor that only completed one project and was less willing to discuss the program. The interview guide can be found in Appendix B.

Participant Interviews

AEG administered in-depth telephone interviews with participants from January 24 – February 8, 2017. Twenty-four customers participated in the Express Install Program as of early December 2016. Due to the small number of participants, the AEG team administered in-depth interviews of participants rather than a random telephone survey of a sample of participants. Eight interviews were completed. Respondents were asked to assess program experience and awareness, satisfaction, barriers to participation and areas for potential program improvement. The interview guide can be found in Appendix C.

Evaluation Results

This section provides key evaluation findings, including program performance, program processes, program marketing, program effectiveness and customer satisfaction.

Program Performance

Kentucky Power contracted with Lime Energy to implement the Express Install Program in April 2016 and the ESRs entered the field in July 2016. Despite the slow start, the program met the participation goal. All of the projects completed in 2016 were lighting projects.

Table 3-2 2016 Goals vs. Actual – Budget

Metric	Target	Actual	% Achieved
Evaluation	$2,400	$3,586	149%
Delivery	$199,036	$15,053	8%
Promotion/Marketing (Vendor)	$27,795	$13,482	48%
Customer Incentive	$148,400	$272,522	184%
Information Technology	$15,000	$0	0%
Total Cost ($)	**$392,631**	**$304,643**	**78%**
Total Completed Projects	40	40	100%
Cost per Project	**$9,815**	**$7,616**	**77%**

An analysis of the 2016 program tracking data shows that of the audits that were completed, 17% went on to complete a direct install project and 12% of projects were lost due to the customer not accepting the proposal within the 45-day window. A substantial number (71%) of projects are either pending or projected, signaling that there is a large pipeline of potential opportunities for 2017.

Table 3-3 Number of Projects by Project Status

Project Status	Number of Projects	% Audits
Completed	40	17%
Lost[4]	29	12%
Pending[5]	16	7%
Projected[6]	148	64%
Total Audits	**233**	**100%**

The table below shows the number of audits and project status by type of business. The majority of audits were conducted with small retail businesses, and as a result the majority of completed projects (34 projects or 85%) were also small retail.

[4] Assessments that were completed and passed the 45-day window without the customer accepting the proposal. A new assessment would need to be performed if the customer chose to initiate a project.

[5] The customer has accepted the audit proposal and Lime Energy is working to order the materials and schedule the installation.

[6] The assessment has been completed but the customer has not decided whether to have the work completed.

Table 3-4 Number of Projects by General Business Type and Project Status

	Completed	Lost	Pending	Projected	Total	% of Total
Small Retail	34	15	13	87	149	64%
Small Office	2	3	1	13	19	8%
Assembly				1	1	0%
Auto repair		3	1	3	7	3%
Big Box		1			1	0%
Fast Food	2	2		9	13	6%
Full Service Restaurant		2		2	4	2%
Grocery	1			6	7	3%
Large Retail		1		1	2	1%
Warehouse		1		2	3	1%
Other	1		1	15	17	7%
None		1		9	10	4%
Total Projects	**40**	**29**	**16**	**148**	**233**	**100%**

Program Processes

Interviews with Kentucky Power, Lime Energy, and participating contractors assessed how well the program is performing in terms of staffing resources, communication, and quality assurance and quality control.

The relationship with Kentucky Power and Lime Energy is a positive one. Lime Energy has an extensive staff that administers the program – a regional director that oversees the program, a sales and program manager that interacts directly with Kentucky Power and office support staff at Lime headquarters, as well as two Energy Service Representative (ESRs) in Kentucky. The communication between Kentucky Power and Lime Energy is very good. Lime Energy meets with Kentucky Power in person once a month in addition to meetings via telephone. Kentucky Power specified that the ESRs are accessible and Lime indicated that Kentucky Power is very involved in the program, even coming out to QC projects. Lime Energy feels they have enough support and resources from Kentucky Power, and indicate the ESRs are doing well and exceeding their goals.

The ESRs are trained using the Lime Direct Install Platform (audit tool) via mobile tablet. ESRs complete a two-week training on the audit tool and installations. They are instructed on the relationship between the customer and Kentucky Power, program messaging, program requirements and incentives, and how to conduct themselves in the field. ESRs must meet individual goals of 12-15 audits per week.

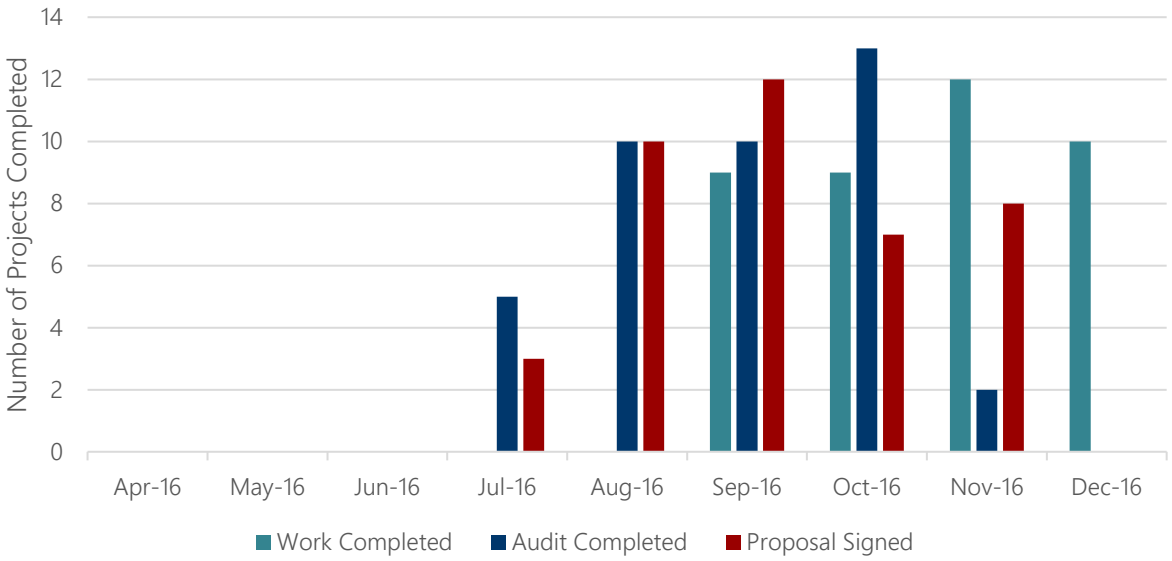
Participation has been gained through mailers, cold calling, canvassing, and, increasingly, customer referrals. Lime Energy noted that a barrier to participation is program awareness. Therefore, increased marketing and follow up after canvassing is important to the program. Small businesses are harder to reach customers that typically do not have energy as a top concern and may not have the upfront resources (time and/or money) to make efficient upgrades. Lime Energy explained that the first goal is to educate the customer with a no-cost energy assessment and that the customer usually realizes the savings they can achieve and becomes interested in participating.

The ESRs conduct an energy assessment of the customer facility and generate a proposal containing the assessment results and recommended efficient improvements. If the customer decides to proceed with

the recommendations, they must sign the contract within 45-days of the audit. Lime Energy schedules the installation and orders the project materials. The materials are sent to the contractor and the contractor installs the measures.

According to Lime Energy, it typically takes two to four weeks between the assessment and measure installation, two of those weeks are taken up by sending the materials to the contractor and scheduling the installation. A review of the program tracking data shows that it took an average of 5 days for the customers who completed a project to approve the proposal and 44 days to complete the installation from the customer approval of the proposal.

Figure 3-1 Number of Projects by Month



A program barrier is contractor participation. Lime Energy has had difficulty finding contractors who meet the strict requirements for licensing, insurance and training. The program currently has two contractors; however, one contractor has completed almost all of the projects.[7] Lime Energy is looking to expand contractor participation with particular focus in the southern region of the service territory.

Participating Contractor Interviews

One contractor has completed all but one of the completed Express Install Program projects. The contractor was asked about participation in the program, the energy efficiency measures installed, their satisfaction and the customer's satisfaction with the program.

Approximately one quarter to third of the contractor's business is derived from the Express Install Program. The contractor had to employ two additional employees to help complete the influx on work. The contractor is satisfied with the support, training and information provided by the program.

> *"It was easy to get involved – it's a well-oiled program. We have had a few issues with reinstalls but those have gone smoothly."*

The contractor does not work directly with the customers, but interacts directly with Lime Energy. She personally "works with [Lime] to get the orders, and arrange shipping and receiving." After the measures

[7] The second contractor resisted completing the required paperwork.

are installed, she creates an invoice for the completed job. She receives exactly what is ordered and then invoices Lime Energy for the installation work.

> *"[The program is] very good, it is easy to participate and they are enjoyable to work with. We have only dealt with Lime Energy."*
>
> *"If we need anything, Lime Energy is just a phone call away."*

Although not working directly with the customer, she believes the customers are satisfied based on feedback from the installers and that one customer has used the program six times.

> *"Anytime you can save money, it is financed as a part of the electric bill which is great for the customer. The projects pay for themselves."*
>
> *"Other than the travel for the workers – everything is great. It had given our workers opportunities to work and get experience. Things are working well and smoothly."*

While the contractor has been satisfied with the program, the company has encountered some issues with travel and project materials. The contractor started to pay employees a mileage adjustment due to the distance of the projects, as most jobs are not local. The contractor has encountered issues with outdated fixtures that are not easily retrofitted, this has led to having to perform extra work. In addition, a few times orders have arrived incorrectly. As a result, the contractor now double checks the lamps received.

The other contractor interviewed completed one project for the Express Install Program. This contractor did not have a positive experience with the program and does not want to continue participation. He mentioned that the program is good, but the process in which the contractor gets paid for projects needs to be improved. He had to wait over 4 months to receive payment for a job completed, which in his opinion was too long and made the jobs not worth completing. He also experienced issues with incorrect orders and broken lamps. He added that the incentive per fixture is not enough.

> *"They were accommodating and responsive – but stuff goes wrong. The circuitry was wrong for one job, but Lime said they don't do that."*

He was also frustrated that he had to speak to the customer in order to get the customer to pay for the extra work needed to complete the retrofit because Lime Energy would not pay for it. He indicated that working with Lime Energy was still an overall positive experience and found them knowledgeable and professional.

Energy Service Representative (ESR) Interview

An interview was also conducted with an ESR employed by Lime Energy.

The ESR believes that the customers are satisfied with the program. On several occasions, he visited with a few of the customers post installation and received positive feedback. He reported that customers had positive comments on how the project was handled.

The ESR indicated that the kW cap is limiting program participation. He interacted with a few customers and received referrals, however those customers only had one meter and were just beyond the cap – such as a church or hardware store. He suggested raising the cap to 150 kW to include medium sized customers.

"For some customers, I don't understand why they don't do it. For the customers that are only open 40 hours a week, they don't really get the incentives they need. Those are harder to sell. Some are all over the incentives."

He reported experiencing a few issues with the data from the energy assessment when he sends it to Lime Energy. He reported issues with access to the audit tool and proposal when the customer does not have Wi-Fi. If the customer does not have Wi-Fi, the ESR completes the assessment, then drives to a location that provides Wi-Fi, generates the proposal and drives back to the customer location. The proposal is shown to the customer, the customer signs it and he has to drive to a location with Wi-Fi in order to submit the proposal.

Program Tracking Database

Lime Energy tracks program data through their own audit tool software and program tracking system. AEG developed a program tracking data checklist to evaluate the tracking database. Lime Energy collects all the recommended data except for auditor information, proposal approval date, payment approval, incentive payment dates, and building data (own/lease, sqft. etc.). The tracking system includes date of audit completion, proposal signage data, total project cost, total incentive, hours of operation, building type – which are sufficient for the evaluation.

Table 3-5 Program Tracking Checklist for Express Install Program

Data Required	Tracked in Database
Participating Customer Information	✓
Participating Contactor Information	✓
Auditor Information	**O**
Audit Completion Date	✓
Estimated Annual kWh	✓
Proposal Sent Date and Customer Signage Data	✓
Proposal Approval Date	**O**
Work Scheduled, Begin, & Completion Dates	✓
Cancel Date (Lost Projects)	✓
Project ID	✓
Measure ID, Description, Lifetime (Base & Efficient)	✓
Measure Cost	✓
Total Project Cost	✓
Total Incentive	✓
Total Customer Payment	✓
Payment Approval and Incentive Payment Dates	**O**
Extended Payment Fee (Financing)	✓
Building Data (Own/Lease, Sqft.)	**O**
Building Type	✓
Existing System Data (HVAC, Ventilation)	✓
Hours of Operation	✓

✓ Data included
O Data missing

Quality Control/Quality Assurance Procedures

Kentucky Power and Lime Energy have several layers of QA/QC. Lime Energy screens all customers for eligibility. After the work is completed the customer must sign off on the work completed. The proposal and project completion forms are reviewed by Lime Energy. Two ESRs perform post-installation inspections on 30% of the projects by doing a final walkthrough. Kentucky Power will also occasionally QC the projects with Lime Energy. In addition, the Lime Energy Program Coordinator comes down once a month to meet with and review the ESRs.

Program Marketing

During the in-depth customer interviews, customers who participated in the program were asked about their awareness of the Kentucky Power program and their reason for participating. Marketing was also addressed in the program staff, implementer and contractor interviews. AEG reviewed the marketing schedule and marketing materials provided by Lime Energy.

The marketing campaign included targeted direct mailing, website development and canvassing. The ESRs canvass small business customers across the service territory to speak directly with customers, leave program materials, a business card, and, in some cases, perform an energy assessment on the spot.

Below are samples of the direct mailings and bill inserts issued in 2016.

Figure 3-2 Sample Mailer

Figure 3-3 Sample Postcard

Program Participation

Interviews were conducted with eight of the 24 Express Install Program participants as of early December 2016. Three of the eight participants own their facility/building while the other five participants lease the space.

Energy Assessment

All of the respondents were able to schedule an assessment at a convenient time. Six of the eight participants reported it took about a week to ten days for the assessment to take place from the scheduling of the assessment appointment. Approximately half of respondents (5 of 8) reported receiving a confirmation call or email. The same respondents (5 of 8) reported receiving a notification call on the day of the assessment. One did not recall, one reported they did not receive confirmation, and the final participant said the representative did the assessment on the spot.

All participants reported that the ESR acted professionally and they received a proposal with recommendations, costs and savings. All participants were satisfied with the proposal content.

EE Improvements

All participants reported making the recommended improvements. All participants were satisfied with the contractor, timing, and installation. Additionally, all participants were satisfied with the performance overall – but some reported not seeing the savings they had expected. Three of the eight participants have reported seeing energy savings. Three additional respondents had not reported seeing energy savings, but believe it is too soon.

> *"Yes, the performance has been good. But I have not looked closely at the energy savings. Going to get a 3 or 4-month average soon." – Express Install Participant*
>
> *"A day or two ahead of schedule. The contractor was great. The equipment has been fine, but I am going to do an average in a few months." – Express Install Participant*

It was the remaining two participants interviewed perception that they had not saved any energy.

> *"Satisfied [with the program], the contractor was great." "Satisfied with the quality but not performance. Saved not one dollar." – Express Install Participant*
>
> *"Very satisfied [with the program in general] – [the energy bill] has been about even right now. So, I haven't seen an improvement". – Express Install Participant*

Awareness of Kentucky Power Programs

Almost all (7 of 8) of the respondents were not aware of any of the other Kentucky Power programs. The one participant said he received a brochure explaining the other programs offered. Two participants said it was likely they would participate in another program, with one indicating they are already looking into the Custom Program.

> *"Very likely, very likely I would check into it." – Express Install Participant*

Four of the eight participants would consider participating in another Kentucky Power program. The remaining two participants said that would not participate because they have not seen the expected savings.

Conclusions and Recommendations

Main Findings

The Express Install Program contract was executed April 2016 and the program launched in July 2016. The program completed 40 audits and installations in 6 months. Given a full year, the program would likely have exceeded its participation goal. A total of 233 audits were performed in 2016, 17% led to completed projects, 71% are pending or projected for completion, and 12% did not result in a project.

Table 3-6 2016 Program Performance versus Goal

Metric	Target	Actual	% Achieved
Participants	40	40	100%
Total Cost ($)	$392,631	$304,643	78%

The evaluation revealed the following program strengths and challenges:

Program Strengths

- Processes are running smoothly:
  - The relationship between Kentucky Power and Lime has been positive.
  - Successful and knowledgeable ESRs.
  - Timing of energy assessment and installation scheduling has been good.
  - No problems were identified with program data or invoicing.
  - Effective QA/QC procedures are in place.
- High participant satisfaction with the program overall, excluding the measure savings performance.
- The project pipeline shows a strong interest in the program and provides evidence of a successful marketing and canvassing campaign.

Program Challenges

- One participating contractor was somewhat dissatisfied with the amount of the payment and time it took to receive the payment.
- There is a lack of qualified participating contractors[8] to carry out the project work that is scattered throughout the service territory.
- Program requirements for contractors may be limiting program success.
- Participants were primarily convenience stores, indicating there is a participation gap among other business types and there is opportunity to target those customers going forward.
- Difficulty with audit tool when customer does not have Wi-Fi.

Recommendations

The evaluation team recommends the following actions to improve the program:

[8] According to Lime Energy several contractors do not make it through the screening process. Lime feels the requirements by both Lime and Kentucky Power are strict – they require unemployment insurance, licenses, etc., and some contractors do not keep that up to date. They also have to sign a masters of service agreement and Lime requires that they have experience with energy efficient measures.

Recommendation 1: Recruit and train more local contractors to complete the approved projects. If more contractors are not found, consider engaging contractors who were willing to obtain any missing certifications. Consider subsidizing the certifications needed to participate.

- Only one contractor completed almost all of the projects approved in 2016.
- The contractor expressed concern about the distance traveling, they had to hire more employees to handle the influx and distance of jobs.
- Lime Energy mentioned that there are willing contractors that did not meet the program requirements.
- There is an extended pipeline of projects that are waiting to be completed.

Rationale: Recruiting and training more contractors will increase participation and reduce any pressure/strain placed on the one active contractor. More contractors will be able to cover more locations in the service territory and relieve the congested project pipeline.

Recommendation 2: Adjust compensation for contractors.

- Only one contractor completed almost all of the projects approved in 2016.
- The contractor expressed concern about the distance traveled to complete the jobs. They hired more employees and began paying them a mileage compensation due to the distance of many of the jobs.
- Difficulty with audit tool when customer does not have Wi-Fi and contractor has to travel to find a Wi-Fi location

Rationale: Due to the current shortage of contractors, consider instituting a mileage compensation for travel to the customer site and having to find a Wi-Fi location to help to keep the one active contractor engaged and satisfied with the Express Install Program.

Recommendation 3: Increase the 2017 and 2018 budget and targets based on actual expenditures and performance for 2016.

- The program met the participation goal in 2016 with only 6 months of operation.

Rationale: Using actual data from 2016 for program forecast will make the targets more likely to be achieved and the budget more accurate.

4
SCHOOL ENERGY MANAGER

Program Characteristics

The School Energy Manager Program is a partnership between Kentucky Power and the Kentucky School Boards Association (KSBA) to support the School Energy Managers Project to maintain a major presence within schools in eastern Kentucky. The project employs school energy manager(s) to work with eligible school districts to identify behavioral changes and better utilize automation equipment to improve energy efficiency. The statewide program is managed and implemented by the KSBA. Kentucky Power provides funding to support the program.

Program Goals

The 2016 program budget was $203,000. There is a participation of 17 school districts.

Table 4-1 Participation and Budget Goals 2016

Goal	2016
Participation	17
Budget	$203,000

Implementation Partner

The KSBA manages and implements the program, and is responsible for the following:

- Hire the school energy manager(s) and ensure their performance is meeting program standards
- Provide managerial and energy efficiency training for school energy managers
- Review and compile tracked data in an annual report for Kentucky Power

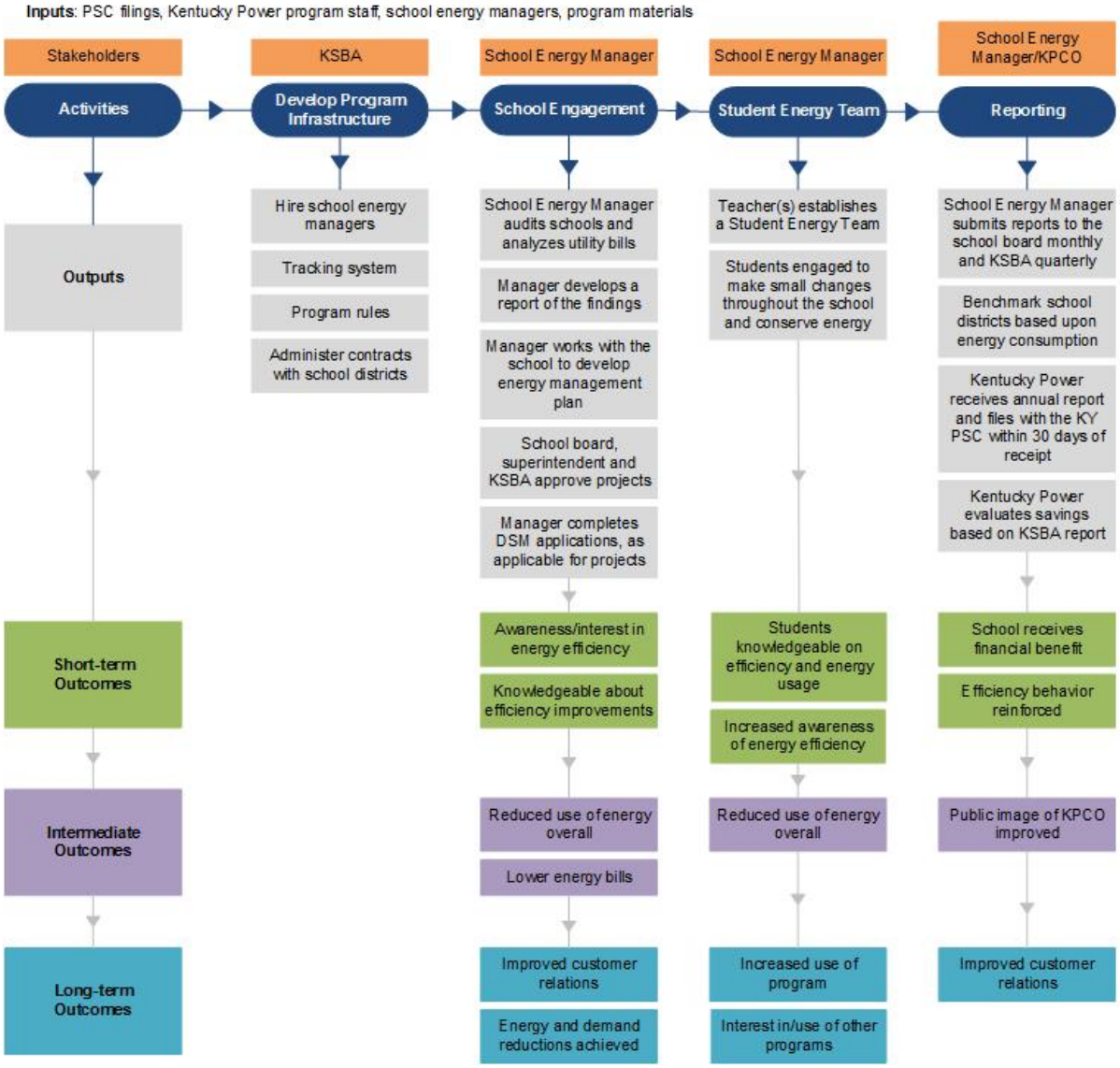
The school energy managers have the following responsibilities:

- Outreach and education to eligible school districts
- Engage school districts to take steps to improve energy efficiency through behavioral changes, purchase and installation of efficient equipment and better utilization of automation equipment
- Establish student energy teams
- Audit schools, monitor and analyze utility bills, and track program performance
- Provide reports on program operations and energy savings achieved

Program Flow

A program logic model is a graphic representation of a program and its processes. Logic models make the program's assumptions explicit, showing the causal relationships or linkages among the problem or situation the program is designed to address, the intervention (inputs and outputs), and program impact (short, medium and long-term outcomes). Logic models also serve to identify processes and relationships critical to the program's performance.

Program Logic Model



Program Activities

The program activities and their corresponding outputs help to establish linkages between the situation the program is designed to address and the program's intended outcomes. Program activities include:

Program Infrastructure

Activities conducted by the KSBA include designing the program, establishing program rules, developing the tracking systems, hiring school energy managers and administering the contracts with school districts. Several districts pooled resources to share an energy manager across school districts.

School Engagement

The school energy manager conducts an audit of the school and analyzes the utility bills. The school energy manager develops a report of the findings and works with the school to develop an energy

management plan. The school board, superintendent, and the KSBA review the plan and approve any energy efficiency projects. After approval, the manager completes any applicable DSM applications.

School Energy Team

The managers work with the school staff and the teachers to establish student energy teams. Students are encouraged to join the team and are engaged to make small changes throughout the school. The energy team creates a shutdown checklist,[9] administers the checklist, and educations students/staff of the importance of energy conservation.

Reporting

The school energy managers submit monthly reports to the school board and quarterly reports to the KSBA. School districts are benchmarked based upon energy consumption. Kentucky Power receives an annual report and files the report with the Kentucky Public Service Commission (PSC) within 30 days of receipt. The annual report contains the following: district funding, initiatives implemented, energy utilization indices, consumption reductions, preceding and current year peak demand and energy usage, and associated energy and demand savings. Kentucky Power evaluates the savings based on the KSBA reports.

Outcomes

Outcomes are the result of program partners and target audiences responding to the outputs of the program. There are short-term, intermediate, and long-term outcomes of the program.

Short-term Outcomes

When the school energy managers engage the schools, school district awareness and interest in more energy efficient equipment may increase. Knowledge about potential energy efficiency improvements is increased. The development of the student energy team increases student and staff's knowledge on efficiency and energy usage. Schools receive a financial benefit for participating in the program if installing equipment that qualifies for a DSM incentive. Efficient behavior within the schools is reinforced.

Intermediate Outcomes

Intermediate outcomes may include reduced energy consumption and lower energy bills. Kentucky Power may enhance its public image as a utility that works with the community to improve the student's education and learning environments.

Long-term Outcomes

The long-term outcomes may include improved customer relations, increased use of the program, interest in/use of other programs, and energy/demand reductions achieved.

External Factors

There are a variety of factors outside the control of Kentucky Power and the KSBA that may influence the program:

- Changes in political priorities (e.g., codes and standards, state and local regulations, federal policies, perceptions of energy and climate change)
- School district budget and policies

[9] A shutdown checklist is a list of procedures carried out to shutdown certain equipment or processes with in the school (i.e., turning off classroom lights, turn off lights in hallways and closets, turn off all water faucets & report any leaks, shut all windows and doors, turn down thermostat, etc.) Shutdown checklists can be implemented daily, during school breaks, or on any other schedule.

- Weather and associated impacts on customer actions and energy bills
- Economic conditions
- Energy prices and regulation
- Changes in utility rate structures
- Perceptions in the value of energy efficiency
- Competing interests among demand side customers
- Cost, performance and availability of efficient technologies

Documenting these factors helps improve program planning by identifying important program partners, the part(s) of the issue the program can realistically influence, which evaluation measures will accurately reflect project outcomes, and other needs that must be met to address this issue.

Methods

AEG designed the evaluation to examine program processes. The focus of the evaluation activities was to gain a better understanding of program operations, assess the overall effectiveness of program operations, and identify areas for program improvement. The evaluation was guided by the following key researchable issues:

- Do the school energy managers have sufficient resources to effectively implement the program?
- Are the programs achieving program goals?
- Is the program being successfully marketed/promoted?
- Is the tracking system effective for documenting and reporting program progress?
- Are reported savings attributed to equipment / measures rebated through other Kentucky Power commercial programs?
- What are the areas for program improvement?
- What are the barriers to program participation? How can those barriers be overcome?
- Has program participation generated interest in other Kentucky Power programs? In other energy efficiency actions outside of Kentucky Power energy savings programs?
- Are there Federal/State/Local codes or standards changes that impact the program (e.g., EISA)?

To arrive at the final recommendations in this report, AEG reviewed program materials and the program tracking system and conducted staff, implementer and school energy manager interviews.

Program Materials

AEG reviewed current program documents and processes including, but not limited to, Kentucky Power's Demand Side Management (DSM) Program Plan, samples of program materials (i.e., KSBA 2016 Annual Report, energy project-initiative form), and program tracking data. The review served as the basis for understanding whether the program has been implemented as planned and is on track to meet program goals.

Program Tracking System

AEG reviewed Kentucky Power and the KSBA's program tracking system. AEG developed a program tracking data checklist to evaluate the program tracking databases and ensure that all critical pieces of program data are tracked.

Staff and Implementer Interviews

AEG conducted a comprehensive group interview with Kentucky Power program staff in October 2016 to gather staff impressions of program implementation activities, program performance, program delivery issues, marketing and customer awareness, and opportunities for program improvements.

AEG interviewed the KSBA in November 2016. The interview provided information on program implementation activities, tracking methods, and school participation. Interview guides can be found in Volume 4: Appendices..

School Energy Manager Interviews

The school energy managers were interviewed to assess the impact of their participation and program processes in the School Energy Manager Program. In-depth interviews were conducted from January 12 – 27, 2017. Surveys were conducted by telephone with five school energy managers that participated in the program in 2016.

Evaluation Results

This section provides key evaluation findings, including program performance, program processes, program marketing, program materials, program effectiveness and program satisfaction.

Program Performance

The data presented below is for the 2015/2016 school year (i.e., July 2015 to June 2016) because the program is tied to a school year funding cycle. The program worked with 17 participating school districts, while spending slightly less than budgeted.

Table 4-2 2016 Goals vs. Actual – Budget and Participation

Metric	Target	Actual	% Achieved
Delivery	$200,000	$200,000	100%
Evaluation	$3,000	$1,854	62%
Total Cost ($)	**$203,000**	**$201,854**	**99%**
School Districts	**23**	**17**	**74%**

Of the 23 eligible school districts within Kentucky Power's service territory, a total of 17 districts participated in the program with 12 energy managers. Twelve districts[10] have initiated energy improvements at 90 schools in the 2015/2016 school year, either by completing projects, establishing a student energy team or having projects under consideration.

[10] Ten school districts have completed projects, the remaining two districts have established student energy teams and one of the schools has a lighting project under consideration.

Table 4-3 Number of Schools and Managers Involved

School District	Number of Schools that Completed Projects	% of Total Schools	Number of Managers
Breathitt Co	11	12%	1
Carter County	4	4%	1
Fairview Ind.	2	2%	1
Floyd County	5	6%	1
Hazard Ind.	3	3%	1
Johnson County	-	-	Shared[11]
Jackson Ind.	7	8%	1
Jenkins Ind.	6	7%	Shared w/ Letcher
Knott County	-	-	1
Lawrence County	-	-	Shared
Leslie County	2	2%	1
Letcher County	27	30%	Shared w/ Jenkins
Magoffin County	-	-	Shared
Martin County	-	-	Shared
Paintsville Ind.	1	1%	Shared
Perry County	3	3%	1
Pike County Schools	19	21%	1
17 School Districts	**90 Schools**		**12 Managers**

Ten school districts completed 67 projects in the 2015/2016 school year. More projects were completed in 2016 than in 2015 and Pike County schools completed the most projects. The majority of completed projects were lighting projects (51).

Only about half of the projects have applied for Kentucky Power rebates; however, it is unclear how many of those projects were eligible for rebates. Two HVAC projects have applied for rebates through Kentucky Power programs. Twenty-nine lighting projects have applied or are in the process of applying for rebates. Two other projects (food service equipment) have applied for rebates.

[11] Johnson County Lawrence County, Magoffin County, Martin County, and Paintsville County all share a School Energy Manager

Table 4-4 Participation in Prescriptive Measure Categories

School District	July to December 2015		January to June 2016			Total Projects
	HVAC	Lighting	HVAC	Lighting	Other	
Breathitt County			1	10		**11**
Carter County				2	2	**4**
Fairview Ind.			2	1		**3**
Floyd County	2	3		1		**6**
Jackson County	7					**7**
Leslie County				2		**2**
Letcher County	1	2		8		**11**
Paintsville Ind.				1		**1**
Perry County		1		1	1	**3**
Pike County.		12		7		**19**
Total Projects	**10**	**18**	**3**	**33**	**3**	**67**

Sixteen schools in the Kentucky Power service territory received an ENERGY STAR® certification. Ten of those schools have been labeled since 2015.

Table 4-5 ENERGY STAR® Labeled Schools

Building Name	School District	Label Years
North Magoffin Elementary School	Magoffin County	2009
Allen Central High	Floyd County	2010
Allen Elementary	Floyd County	2012
Stumbo Elementary	Floyd County	2010
Adams Middle School	Floyd County	2012
Besty Layne High School	Boyd County	2012
Body County High School	Boyd County	2014, 2015
Greysbranch Elementary School	Greenup County	2015, 2016
McKell Elementary School	Greenup County	2015, 2016
McKell Middle School	Greenup County	2015, 2016
Wurtland Elementary School	Greenup County	2015, 2016
Wurtland High School	Greenup County	2015, 2016
Fleming Neon Middle School	Letcher County	2015
McDowell Intermediate School	Russel Independent Schools	2015
Russel High School	Russel Independent Schools	2015, 2016
Russell Primary School	Russel Independent Schools	2015

An energy utilization index (EUI)[12] is used to track and benchmark school performance. The statewide average EUI in FY2010 was 64.2 and decreased to 57.6 by FY2015.[13] The figure below indicates that most districts are reducing the energy consumption, some districts with more success than others (i.e., Jenkins and Johnson Counties).

[12] A measure of all the energy use in a district divided by the square footage of the conditioned area (kBtu/square foot).

[13] 2016 KSBA School Energy Manager Report prepared for Kentucky Power for the 2015-2016 school year.

Figure 4-1 KSBA School District EUI History

Table 1 EUI History (kBtu/sf) *Participating Districts*				
District	2014 Electric EUI	2015 Electric EUI	2014 total EUI	2015 total EUI
Breathitt	53.42	54.30	78.74	75.33
Carter	40.74	43.31	54.26	53.07
Fairview	47.95	49.87	86.20	85.89
Floyd	40.52	38.15	52.85	49.51
Hazard	49.42	46.38	57.00	54.17
Jackson Ind	100.19	93.26	112.78	106.51
Jenkins	58.90	48.80	58.90	48.80
Johnson	43.39	42.12	61.19	59.46
Knott	49.58	46.60	54.43	51.58
Lawrence	38.56	39.92	51.12	52.47
Leslie	58.84	56.47	63.90	63.10
Letcher	44.94	44.65	48.12	48.84
Magoffin	44.33	50.37	50.84	58.76
Martin	53.30	47.81	70.50	67.50
Paintsville	37.93	38.83	50.40	49.98
Perry	58.85	57.71	63.33	61.96
Pikeville	60.53	57.48	66.71	62.62

Program Processes

Interviews with Kentucky Power, the KSBA and school energy managers assessed how well the program is performing in terms of staffing resources, communication, and QA/QC.

The relationship between Kentucky Power and the KSBA is very good. Communication was described as helpful and responsive. The program has a director, coordinator, and two engineers that supply analytical and engineering support to the school energy managers, as well as office support for processing invoices. The program coordinator interacts with the school energy managers daily and is also the school energy manager for one of the school districts.

The school energy managers assist the district manager in devising and implementing the energy master plan for the district. The school energy managers monitor building performance, identify and execute efficient building strategies to improve efficiency as well as identify any funding opportunities through Kentucky Power incentive programs. Projects must receive approval from the school board and superintendent. The KSBA and the school energy managers indicated that securing funding and applying for rebates has been difficult. The school districts often have limited capital for efficiency upgrades and it has been hard to work with/gain information from the school boards to complete the rebate applications[14]. The managers also help to educate student energy teams at the schools. They prepare a monthly report for the school boards and stay up-to-date with market information and Kentucky Power programs.

Professional development and energy efficiency training is provided to the school energy managers. Several managers have experience as a facilities manager or related role, but many are new, with only one

[14] Interviews with KSBA and School Energy Managers

year applicable experience contributing to a large learning curve. The KSBA indicates new school energy managers need time to feel comfortable in their role before being able to properly make an impact on the schools. Several districts have had to pool resources and share a school energy manager. However, districts are moving towards having one manager per district. KSBA believes this change is due to increased program and energy efficiency awareness.

Table 4-6 School Energy Manager Training, 2015/2016

Date	Training
August 2015	Webinars for new school energy managers: • Utility Grant Funding Basics • Utility Tracking • Energy Auditing • Converting Utility Tracking to Grant Reporting • District Communications
January/February 2016	Energy Manager Project Review Sessions
March 2016	Performance Contracting Basics

According to KSBA the main driver for participation is a statutory mandate for school boards to deal with rising energy costs and create an energy management plan. KSBA indicated that those involved in the school systems are primarily concerned with educating children, therefore energy and efficiency are often not top concerns. Having a dedicated staff member in the school district focused on energy has yielded effective results.

School energy managers benefit from continuity of employment, technical training and improved skills. There was concern expressed about the future of program funding and the timing of school budgets. Funding is slated to end in June 2017. Most school districts make funding decisions in the spring for the following year.

Program Tracking Database

The KSBA tracks program data through their own tracking system and procedures. The KSBA develops an annual report for Kentucky Power, detailing the program results from the participating school districts. The report contains the following: district funding, initiatives implemented, energy utilization indices, consumption reductions, preceding and current year peak demand and energy usage, and associated energy and demand savings. Kentucky Power evaluates the savings based on the KSBA reports.

AEG developed a program tracking data checklist. The KSBA collects most of the recommended data. However, the following data points are incomplete for several projects: measure details, project savings, completion date, rebate receipt, energy initiatives. In addition, projects under consideration is not well tracked. Only three or four schools have a project that is under consideration. However, the school energy manager interviews reveal that many schools have project wish lists. The tracking system includes district information, project descriptions, building usage data and savings.

Table 4-7 Program Tracking Checklist for School Energy Manager Program

Data Required	Tracked in Database
District	✓
School Name or Facility	✓
Account Number	✓
Project Description (HVAC, Lighting, Other)	✓
Measure Details (quantity, baseline, efficient type, measure life)	✓0
Completion Date	✓0
Rebate Application Submitted	0
Rebated Receipt	✓0
kW and kWh Measure/Project Savings	✓0
Energy Initiatives Descriptions	✓0
Energy Utilization Index	⊙
Energy Certification	⊙
Benchmark Usage and Savings	⊙
Under Consideration/Project Wishlist	✓0

✓Data included
0 Data missing
✓0 Data incomplete
⊙Data included, but in separate tracking system not provided to Kentucky Power or AEG

Most of the data points listed above are tracked and organized in the form presented below. The figure below depicts the project initiative form that is filled out by the school energy managers when a school is completing a project. The data points are not complete for every project and are not organized well in the tracking system. For example, there is no rebate application submittal date. The rebate receipt column includes a date even if an application is in process or was submitted. These dates should be tracked in separate columns that clearly identify when the application was submitted, approved, and the rebate received. In addition, the project/measure details are lumped into one category that is not easily viewed or tracked. When the measure that was installed, the baseline and efficient conditions, and the quantity should all be listed separately for easy data processing and QA/QC procedures.

Figure 4-2 Example of Project Initiative Form

Energy Projects												Energy Initiatives	
HVAC				Lighting				Other					
Project Description	Completion date	Rebate :Receipt Date	KW and KWh savings	Project Description	Completion date	Rebate :Receipt Date	KW and KWh savings	Project Description	Completion date	Rebate :Receipt Date	KW and KWh savings		
Installed new HVAC control system (BAS) to provide time of day and temperature control of campus HVAC equipemnt			811,514 kWh annual savings	T12 to T8; 400w Metal Halide to 3LT5 and 4LT5 (50 fixtures)			7621 kWh savings figured at 1600 hr/yr	Replaced double convection oven with UNOX Combi Oven	Feb-16	in process		Resource and Principal's office still under constructio n.	Identified control issue, allowing HVAC running on occupied 24/7 - setback to 12 hrs

The KSBA separately tracks the EUI, energy saved per school and per district, and ENERGY STAR® certification. The KSBA benchmarks the energy usage and savings against a target of 2.5% annual energy and demand reduction (weather normalized). The results of these data points are summarized and included in the KSBA School Energy Manager Annual Report. This data is tracked in separate spreadsheets, a District Summary and a Building Input Summary. Kentucky Power does not routinely receive the detailed data.

The following data points are tracked by month, building, and district:

- Usage (in billing units - kW, metered and unmetered kWh, total electricity, natural gas, propone, fuel oil, and coal)
- Costs by Fuel Type
- Rates by Fuel Type
- Usage by Fuel Type Converted to kBtu
- Square Footage
- Total Energy Usage (kBtu)
- Total Cost
- Total kBtu/sqft

Program Participation

School Energy Manager Participation

Participation of the school energy managers is going well. The school energy managers are invested and eager to reduce school's energy consumption and educate students/staff. Prior to becoming a school energy manager, all of the managers interviewed had worked in the school district for several years and either applied for the position or were assigned the role by the district. Two of the five managers replaced existing school energy managers. The other three assumed the new role within the district, but previously had related roles in the facilities or maintenance departments.

All reported similar responsibilities. All but one manager reported conducting energy efficient upgrades. All of these upgrades incorporated LED change outs. Two schools reported adding HVAC controls and one manager mentioned a HVAC replacement during an elementary school renovation.

Three of the five managers said that the energy efficiency upgrades qualified for Kentucky Power rebates. Two of the managers had applied for rebates, the remaining manager did not because of the timing, however indicated he would apply in the future.

Two of the managers have student energy teams in place. However, only one is actively involved with the team. The remaining three managers mention they either do not have the support from the principals or the resources/knowledge to be able to start the team.

> *"Haven't developed enough of an understanding on how I can integrate it, I was concerned about interfering with the curriculum – where and when the group would be most appropriate."*
>
> *"Discussed it with the principals, but hard to get them on board, more concerned about test scores."*

Each manager reported budgetary barriers as the only obstacle. A few indicate that the school boards and staff were on board for projects if the appropriate funding is in place. When pressed for barriers other than monetary, two managers mentioned time – one indicated they don't have enough time because the school energy manager responsibilites are not the only ones he has. The other mentioned the timing for upgrades is difficult because there is a lot of transition with the buildings – schools closing and new ones opening.

> *"Money is the biggest. If money was available, then the schools and board members would be receptive."*

All of the managers reported several benefits their districts have encountered, centered around an improved learning environment.

> *"Creates a better climate for the schools and students." "More efficient use of funds."*
>
> *"Some schools have been able to cut costs. But there is a large awareness issue I am working on, getting the administrations to be aware of the opportunities and what they are doing wrong now."*

Energy Efficiency Measures

None of the school energy managers reported major issues with the efficient equipment installed. The school energy managers and administrations are satisfied with the equipment. Each manager indicated that there were several projects they hope to complete in 2017. Many would like to move forward with the incremental LED upgrades in their buildings. One manager wants to tackle an educational project, not necessarily equipment projects.

> *"Biggest thing is trying to get everyone to be aware – energy conservation. They don't want to treat it differently than their home."*

Satisfaction

All of the school energy managers report a high level of satisfaction with the program overall and from students/staff. Interactions with the school board and support from the school have been positive. Interactions with the KSBA have been good, specifically mentioning the KSBA representative. Being able to activity track the school usage has been helpful for the managers and the schools.

When asked about improvements to the program, managers discussed the following:

- School district awareness of energy efficiency
- Limited understanding of energy/energy efficiency – two managers indicated they are still learning
- Funding – two managers mentioned a need for more funding
- Time – more support for these endeavors. Many of the managers have to split their time with several different roles

Conclusions and Recommendations

Main Findings

In the 2015/2016 funding year, the School Energy Manager Program engaged 17 school districts, while spending the program budget.

Table 4-8 2016 Program Performance versus Goal

Goal	Target	Actual	% Goal Achieved
Participation	23	17	74%
Budget	$203,000	$201,854	99%

The evaluation revealed the following program strengths and challenges:

Program Strengths

- Processes are running smoothly:
  - The relationship between Kentucky Power and the KSBA is positive.
  - Responsiveness of the KSBA with the school energy managers is good.
- The program is shifting towards one school energy manager per district.
- School energy managers are actively tracking building performance and implementing efficiency improvement.
- School energy managers are knowledgeable and are benefiting from the training sessions conducted every few months.
- School energy managers are eager to make a difference in the schools and want to learn more about energy efficiency.
- The KSBA has accumulated enough data to begin benchmarking performance, which is showing that school districts have been able to reduce the school's energy consumption.

Program Challenges

- Student energy team activities are lacking and not well tracked. Not all the school energy managers have established student energy teams and those that have are not actively involved.
- Program data tracking and reporting is not comprehensive.
  - Data points, like measure details or student energy team activities, are not tracked or organized efficiently in the tracking system.
  - Data points like project completion date and rebate application status dates are not entered for every project.
  - Benchmarking data detail is not passed along to Kentucky Power, only summarized in the annual status report.

- Projects under consideration or project wish lists are not well documented. Documenting and understanding what school energy managers would like to complete in their school districts can help to advance the program.
- Project application to other Kentucky Power programs is low. Only 33 of the 67 projects have completed applications to other programs for rebates.

Recommendations

The evaluation team recommends the following actions to improve the program:

Recommendation 1: Schedule an informational session with the school districts that have not participated thus far.

- The program did not engage all of the eligible school districts; 17 of 23 (74%) eligible school districts participated in the program.

  Rationale: The goal would be to understand the barriers the school district has to participating in the program, document the reasons why school districts are not participating and to see if the program resources can reduce those barriers and increase participation.

Recommendation 2: Provide Kentucky Power with detailed benchmarking data and improve data tracking quality by reorganizing the data tracking sheet and ensuring project details (measure detail, milestone dates, and rebate information) is completed for each project.

- Program data tracking and reporting is not comprehensive.
  - Data points, like measure details or student energy team activities, are not tracked and organized efficiently in the tracking system.
  - Data points like project completion date and rebate application status dates are not entered for every project.
- Benchmarking data detail is provided along to Kentucky Power, only summarized in the annual status report.

  Rationale: Ensuring that all data is thoroughly collected for all program activities will create a smoother QA/QC process and confirm that the program is being implemented properly. The detailed benchmarking data will be informative to Kentucky Power to understand better how particular schools are performing. The current reports provide a summary of the program, not detailed data by school and/or school district.

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Recommendation 3: Track projects under development/wish list. This can be a process that is a part of the monthly reporting to the school boards and/or included on annual basis in annual report to Kentucky Power.

- Projects under consideration are not well documented.
- The tracking spreadsheet contains a data point "under consideration", which some managers have filled out, but is underutilized.
- Only about 50% of the projects that were completed applied for rebates through Kentucky Power programs, if KSBA and Kentucky Power know far in advance what projects energy managers are considering more projects could be identified as eligible.

Rationale: Documenting and understanding what energy managers would like to complete in their school districts can help to advance the program. KSBA and Kentucky can better assist the school energy managers to complete projects if they understand the project pipeline and school needs. In 2017 KSBA-SEMP staff has been working with energy managers to complete identification and prioritization of all potential energy efficiency opportunities to facilitate short and long-term work plans to be implemented as funding becomes available.

Recommendation 4: Encourage more Kentucky Power program participation, providing more frequent information on additional Kentucky Power programs, either through additional meetings, email blasts, program material distribution, etc.

- Project application to other Kentucky Power programs is low. Only 33 of the 67 projects (50%) have completed applications to other programs for rebates.
- Projects under development /wish lists are not tracked by the school energy managers.

Rationale: Increasing awareness and encouraging participation in additional Kentucky Power programs will benefit the School Energy Manager Program by highlighting additional funding opportunities to make projects more attractive to the school boards and will benefit the other Kentucky Power programs through increasing participation. In 2017 a breakout session on Kentucky Power rebates was presented by Kentucky Power personnel at the recent May KSBA School Energy Summit.

5
RETRO-COMMISSIONING

Program Characteristics

The Retro-Commissioning (RCx) Program is a new addition to the portfolio in 2016. The objective of the program is to encourage commercial and industrial customers to optimize their facility systems and reduce energy consumption.

The program provides a study to optimize a customer's building systems. Eligible customers can receive one of the following fully funded studies depending upon their building size:

- RCx Lite: Buildings with 50,000 and 150,000 square feet and 150 < 500 kW peak demand. A program affiliated contractor completes a targeted assessment and recommend improvements. Customers agree to spend a minimum of $5,000 towards improvements with ≤18-month payback identified through the study.
- RCx Standard: Facilities larger than 150,000 square feet and with ≥ 500 kW peak demand. A program affiliated contractor completes a comprehensive study and a verification report with pre- and post-results. Customers agree to spend a minimum of $15,000 towards improvements with ≤18-month payback identified through the study.

To qualify for the program, customers must pay the DSM rider, meet the minimum building sizes outlined above, and must have a functioning building automation system. Customers who enter into performance contracts are not eligible to participate. A list of contractors to conduct the retrocommissioning study is provided on the Kentucky Power website.

Incentive

Incentives are paid based on qualified measures identified from the study once the measures have been verified as installed or implemented at customer's facility. Incentives average $0.12 per first year kWh saved for RCx Lite participants and $0.08 per first year kWh saved for RCx Standard participants. Rebates are limited to $50,000 per customer per year.

Program Goals

The 2016 program goals are 5 participants and a budget of $205,342.

Table 5-1 2016 Budget and Participation Goal

Metric	Target
Participation	5
Budget	$205,342

Implementation Contractor

Kentucky Power contracted with DNV GL to implement the program in 2016. The responsibilities of DNV GL include:

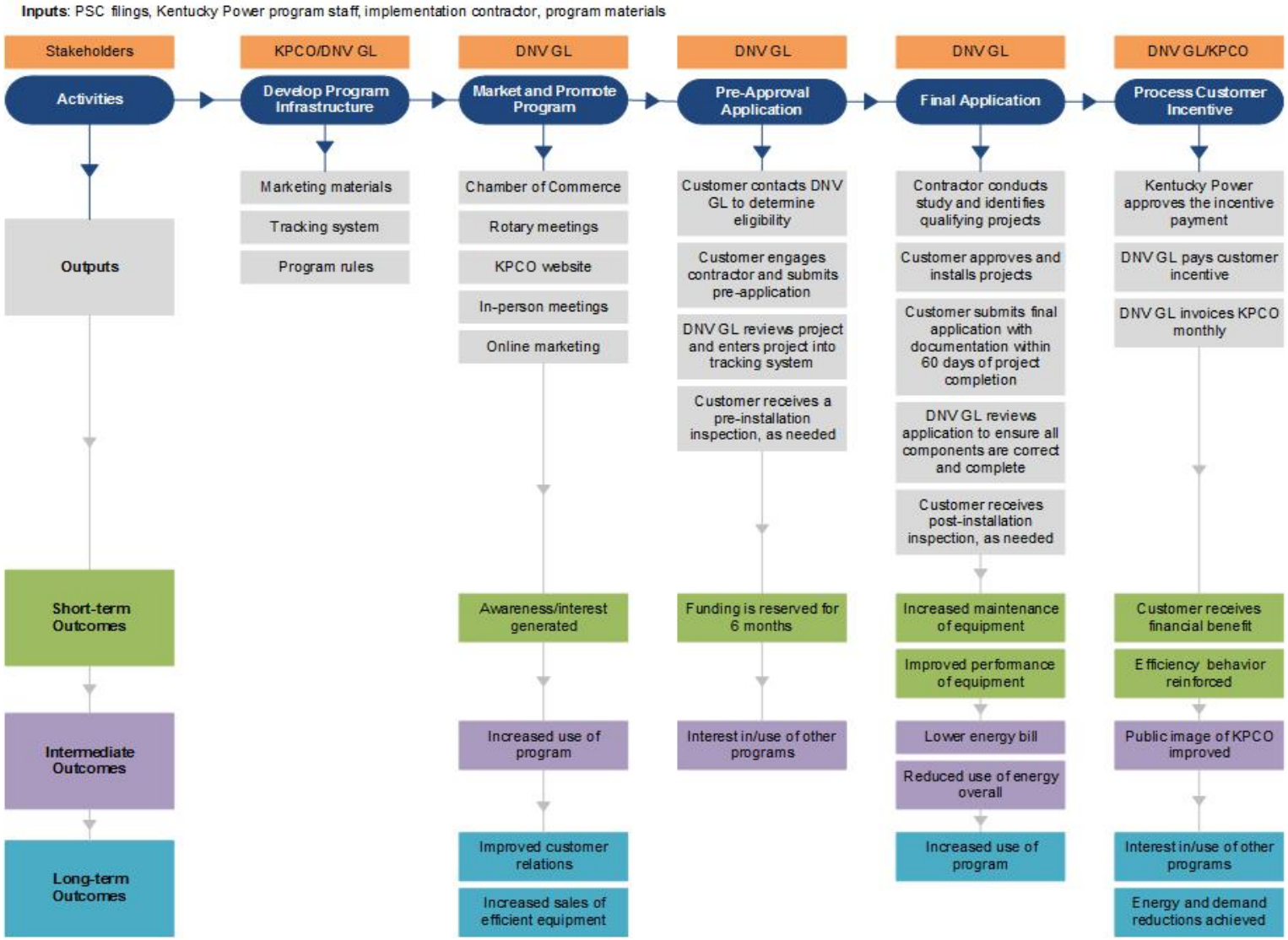
- Provide full service implementer and administrator support services
- Program planning and design

- Plan and implement marketing and outreach services, in collaboration with Kentucky Power
- Establish relationships with local contractors to perform the retrocommissioning studies
- Process and review applications
- Assist in coordination of the retrocommissioning study
- Provide customer service support
- Track program participation and activities

Program Flow

A program logic model is a graphic representation of a program and its processes. Logic models make the program's assumptions explicit, showing the causal relationships or linkages among the problem or situation the program is designed to address, the intervention (inputs and outputs), and program impact (short, medium and long-term outcomes). Logic models also serve to identify processes and relationships critical to the program's performance.

Program Logic Model



Program Activities

The program activities and their corresponding outputs help to establish linkages between the situation the program is designed to address and the program's intended outcomes. Program activities include:

Program Infrastructure

Kentucky Power and DNV GL developed the program infrastructure, including establishing program rules, data tracking system and marketing materials.

Market Program

Marketing activities are targeted towards businesses and individuals likely to have direct contact with eligible customers. Field staff attend and speak at community and rotary events and actively engage with the local Chamber of Commerce. Field staff additionally conduct ad hoc in person meetings and walk through assessments. The program was marketed through local meetings, the Kentucky Power website, and online marketing.

Pre-Approval Application

The customer completes and submits a pre-approval application to DNV GL via mail, email or fax prior to receiving the retrocomissioning study. DNV GL reviews the pre-approval application for completeness and verifies customer eligibility and enters the application into their tracking system. DNV GL and Kentucky Power must pre-approve all projects. Upon approval of the application, the customer receives a letter confirming the funding reservation and detailing program terms and conditions. The reservation period is 120 days for RCx Standard and 60 days for RCx Lite.

Final Application

The customer selects an approved contractor to conduct the retrocommissioning study. A list of contractors is included on the Kentucky Power website. The contractor completes the study and works with Kentucky Power and DNV GL to obtain approval to implement the identified improvements. The improvements must have a payback period of 18-months or less to receive incentives.

The customer completes and submits the final application to DNV GL. Customers must note any work/measures that vary from the pre-approval application, sign the application and provide any supporting documentation. DNV GL reviews the application and conducts a post-installation inspection on an as needed basis.

Process Customer Incentive

Kentucky Power program staff review completed projects and approve customer payment. DNV GL processes and pays the customer payment. DNV GL invoiced Kentucky Power monthly.

Outcomes

Outcomes are the result of program partners and target audiences responding to the outputs of the program. There are short-term, intermediate, and long-term outcomes of the program.

Short-term Outcomes

When the program is marketed, customer awareness and interest in more efficient equipment may increase. Other short-term outcomes include increased awareness of environmental and energy issues, reinforcement of efficiency behavior and financial benefits from participation.

Intermediate Outcomes

Intermediate outcomes may include increased use of the program, interest in, and use of, other Kentucky Power energy efficiency programs and reduced energy consumption. Kentucky Power may enhance its public image as a utility that responds to customer needs without sacrificing consideration of environmental issues.

Long-term Outcomes

The long-term outcomes may include increased use of the program and increased sales of efficient equipment, increased deployment of energy efficiency. These may result in reduced utility emissions and fewer greenhouse gases emitted.

External Factors

There are a variety of factors outside the control of Kentucky Power and DNV GL that may influence the program:

- Changes in political priorities (e.g., codes and standards, state and local regulations, federal policies, perceptions of energy and climate change)
- Weather and associated impacts on customer actions and energy bills
- Economic conditions
- Energy prices and regulation
- Changes in utility rate structures
- Perceptions in the value of energy efficiency
- Competing interests among demand side customers
- Cost, performance and availability of efficient technologies

Documenting these factors helps improve program planning by identifying important program partners, the part(s) of the issue the program can realistically influence, which evaluation measures will accurately reflect project outcomes, and other needs that must be met to address this issue.

Methods

AEG designed the evaluation to examine program processes. The focus of the evaluation activities was to gain a better understanding of program operations, assess the overall effectiveness of program operations, and identify areas for program improvement. The evaluation was guided by the following key researchable issues:

- Does the program implementer have sufficient resources to effectively implement the program?
- Is the tracking system effective for documenting and reporting program progress?
- Are the programs achieving program goals?
- Is the program being successfully marketed/promoted?
- Is the tracking system effective at documenting?
- What are the barriers to program participation? How can those barriers be overcome?
- How can participation be increased?
- What are the areas for program improvement?

To arrive at the final recommendations in this report, AEG reviewed program materials, conducted staff and implementer interviews and conducted market research.

Program Materials

AEG reviewed current program documents and processes including, but not limited to, Kentucky Power's Demand Side Management (DSM) Program Plan and Potential Study, the implementation contractor work authorization, samples of program materials (i.e., program tariff, application form), samples of marketing materials (i.e., fact sheet). The review served as the basis for understanding whether the program has been implemented as planned and is on track to meet its program goals.

Staff and Implementer Interviews

AEG conducted a comprehensive group interview with Kentucky Power program staff in October 2016 to gather staff impressions of program implementation activities, program performance, program delivery issues, marketing and customer awareness, and opportunities for program improvements.

AEG interviewed DNV GL in November 2016. The interview provided information on program implementation activities, program marketing, and eligible market. Interview guides can be found in Appendix A.

Evaluation Results

Program Performance

The program did not have any participants for 2016. However, program dollars were spent on program start up and evaluation activities.

Table 5-2 2016 Goals vs. Actual – Budget

Metric	Target	Actual	% Achieved
Evaluation	$1,300	$1,875	144%
Delivery	$111,043	$2,430	2%
Customer Incentive	$83,283	-	0%
Promotion/Marketing	$9,716	$60	1%
Total Cost ($)	**$205,342**	**$4,365**	**2%**

Program Processes

Interviews with Kentucky Power and DNV GL assessed how the program is performing in terms of staffing resources, communication, and marketing.

A positive working relationship exists between Kentucky Power and DNV GL. Communication between DNV GL and Kentucky Power is frequent and constructive. DNV GL formally provides a monthly update on program progress, but the two parties communicate on a weekly basis.

In addition to the program manager located at DNV GL headquarters, there are three full time employees that work in the service territory; one field staff located in the northern region of the service territory and two located in the southern region. The field staff provide outreach and engineering services for all of the programs that DNV GL implements for Kentucky Power. However, one of them works more on engineering services for the New Manufactured Homes Program. It appears the field staff are typically more involved in the other programs that DNV GL runs (i.e.,

Commercial Incentive Prescriptive/Custom and New Manufactured Homes), as those programs have had more participation. DNV GL does not have a dedicated employee that works solely on the RCx program, but program activities are shared across field staff.

DNV GL believes they have adequate resources to support the program. DNV GL believes that the barrier to participation is eligibility due to the strict program requirements and lack of market for the program not the resources allocated to promoting the program.

Kentucky Power and DNV GL both acknowledge and are concerned about the lack of participants in 2016. DNV GL reports that the number of potential participants for RCx are much smaller than for the other commercial and industrial programs. DNV GL explained that the combination of the requirements – square footage, kW demand, and building automation system – dramatically narrow the pool of participants. In addition, many schools in the service territory have performance contracts and are therefore ineligible. DNV GL has initiated contact with known potential participants, but has unsuccessfully garnered participation from those leads.

Program Marketing

Marketing for the RCx program was discussed with Kentucky Power and DNV GL. AEG reviewed the marketing materials provided by DNV GL.

DNV GL and Kentucky Power's 2016 marketing campaign included in-person meetings, ad hoc walk through assessments, a fact sheet, and website language. DNV GL has actively worked to foster relationships with community members and target potential participants in the service territory. Field staff have attended and spoke at community and rotary club meetings, and chamber of commerce events. They were able to speak with attendees and hand out program materials. Kentucky Power program materials are included in the welcome packets provided to new members of the chamber commerce.

Market Analysis

Program Design and Market Size

The RCx program was originally designed and proposed as a part of the Kentucky Power DSM Potential Study and Portfolio Design process completed by AEG in 2015. The program included the following eligibility requirements:

> *The program provides a study to optimize customer's building automation systems. Eligible customers receive one of the following fully funded studies depending upon their building size:*
>
> - ***RCx Lite:*** *Buildings with 50,000 and 150,000 square feet and 150 < 500 kW peak demand. A program affiliated dealer completes a targeted assessment and recommend improvements. Customers agree to spend a minimum of $5,000 towards improvements with ≤18-month payback identified through the study.*
> - ***RCx Standard:*** *Facilities larger than 150,000 square feet and with ≥500 kW peak demand receives a comprehensive study and a verification report with pre- and post-results. Customers agree to spend a minimum of $15,000 towards improvements with ≤18-month payback identified through the study.*
>
> *To qualify for the program, customers must pay the DSM rider and meet the minimum building sizes outlined above.*

The table below presents the estimated eligible customers based upon a review of the Kentucky Power customer database. Note that this doesn't account for customers that have entered into performance contracts and those without building automation systems.

Table 5-3 Estimated Eligible Customers by Square Footage and kW Peak Demand

Business Type	RCx Lite	RCx Standard
K – 12 Schools	137	17
Hospitals	36	13
Large Retailers	0	11
Grocery Stores	0	2
Federal Prisons	0	2
Government Utility	24	4
Non-Office Facilities	0	2
Office Buildings	0	1
Colleges/Universities	19	0
Public Housing Developments	9	0
Lodging	9	0
Total	**380**	**56**

According to DNV GL they have reviewed every possible prospect in the Kentucky Power service territory to determine if they were eligible for the program. The majority of the businesses that meet the program the kW and square footage requirements either have a performance contract or do not have a building automation system. DNV GL has determined that only 32 Kentucky Power customers are eligible for the program.

Market Research

AEG reviewed retrocommissioning programs currently implemented by other utility companies across the country. The table below describes program attributes benchmarked against Kentucky Power's program.

Overall, the Kentucky Power program has the strictest eligibility requirements. The Kentucky Power program has a square foot requirement, demand requirement, a minimum spend, and a building automation system requirement, while most of the programs have a combination of a few of those eligibility requirements. Most RCx programs do not have a demand or building automation system requirement.

Table 5-4 Retrocommissioning Program Benchmark

State	Utility	Program	Customer Type	Sqft	Demand	Minimum Spend	Building Automation System	Vintage
KY	**KPCO**	**Retro-Commissioning Program (Lite)**	**C&I**	**50k - 150k**	**150 - 500 kW**	**$5,000**	**Yes**	
		Retro-Commissioning Program (Standard)	**C&I**	**>150k**	**>500 kW**	**$15,000**	**Yes**	
MD	Delmarva	Full Retro-Commissioning for Existing Buildings	C&I	>75k	No	No	Yes	>2 years
MO	Ameren MO	Whole Building Performance/Retro-Commissioning Incentives (RCx)	C&I	>100k	No	No	Yes, with direct digital controls	
WI	Focus on Energy	Retrocommissioning Program	C&I	>100k	No	No	No	>5 years old
OH	AEP Ohio	Retro-Commissioning Program (Lite)	C&I	50k - 150k	No	$5,000	No	
		Retro-Commissioning Program (Standard)	C&I	>150k	No	$15,000	No	
CT	Energize CT	Retrocommissioning Program	C&I	>100k	No	No	Yes, with trending capability	No
IL	Ameren IL	Compressed Air Retro Commissioning	Compressed Air	No	>300 HP	No	No	
		Large Facilities Retro Commissioning	Large Facilities	>100k	No	No	Yes	>5 years old
		Industrial Refrigeration Retro Commissioning	Industrial Refrigeration	No	>500 HP	No	No	No
		Grocery Store Retro Commissioning	Grocery Store	>20k	No	No	No	No
IL	ComEd	RCx Building Tune Up	C&I	<150k	0.5 - 3 GWh/Year	No		
		Retrocommissioning Express (RCxpress)	C&I	150k-500k	3-10 GWh/Year	$5k - $10k		
		Retrocommissioning (RCx)	C&I	>500k	>10 GWh/year	>$25k		
		Monitoring Based Commissioning (MBCx)	C&I	>150k	>3 GWh/year	No	MBCx software integration	No

DNV GL Outreach and Input

The results of the market research and database review were discussed with the implementation contractor to determine if changing the kW eligibility requirement and omitting the requirement to have a building automation system would make the program viable.

DNV GL feels that the program requirements are not the problem. They are similar to several other programs including AEP Ohio, Com Ed, and PG&E. DNV GL feels there is just no market for this program. They feel having a building automation system is essential to the program design.

> *"Retro-commissioning is, by definition, a systematic process for identifying and implementing operational and maintenance improvements in a building to ensure continue good performance over time. The intent of the process is to optimize the performance of building subsystems as well as how they function together. Retro-commissioning focuses on operations and maintenance improvements and diagnostic testing. Programs require a building automation system to be able to track and monitor the performance of the building's systems. Without requiring a building automation system to provide the data required to substantiate energy savings through the "low-cost, no-cost" implementation of measures, it would be very difficult to ensure adequate tracking to determine the effectiveness installed measures."* -- DNV GL

Conclusions and Recommendations

Main Findings

In 2016, the RCx Program did not have any participants and only spent 4% of the budget.

Table 5-5 2016 Program Performance versus Goal

Metric	Target	Actual	% of Goal
Participation	5	0	0%
Budget	$205,342	$4,365	2%

The evaluation revealed the following program challenges:

Program Challenges

- The program had no participants in 2016.
- Eligibility requirements and performance contracting significantly narrow the pool of participants. Few eligible customers have building automation systems and having such a system is necessary to determine the effectiveness of installed measures.

Recommendations

The evaluation team recommends the following actions to improve the program:

Recommendation 1: Discontinue offering this program at this time.

- The program had no participants in 2016.
- Eligibility requirements and performance contracting significantly narrow the pool of participants. Few eligible customers have building automation systems and having such a system is necessary to determine the effectiveness of installed measures.

  Rationale: There is not a viable market for the program in Kentucky Power's service territory.

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AEG
Applied Energy Group

KENTUCKY POWER PROCESS & MARKET EVALUATION
VOLUME 4: APPENDICES

April 7, 2017

Report specifically developed for:
KENTUCKY POWER COMPANY

Energy Solutions. Delivered.

This work was performed by

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INTRODUCTION

Kentucky Power Company (Kentucky Power) retained Applied Energy Group (AEG) to conduct a comprehensive process and market evaluation of its 2016 Demand Side Management (DSM) Program Portfolio. Kentucky Power serves approximately 175,000 electric customers in all or part of 20 eastern Kentucky counties. The utility is part of the American Electric Power (AEP) system, which is one of the largest electric utilities in the United States.[1] The DSM Program Portfolio is implemented to help Kentucky Power reduce electricity use and peak demand, help customers lower their electricity bills, and encourage long-term change in the market through the adoption of energy efficiency technologies and services.

AEG designed the process and market evaluation to examine program processes and customer responses to the program. The evaluation identifies methods for gathering data and measuring program results and makes recommendations for program improvements. Evaluation, measurement and verification (EM&V) demonstrates the value of energy efficiency programs by providing accurate, transparent and consistent assessments of program performance and cost-effectiveness.

Process and market evaluations identify whether key elements, such as incentive levels, program delivery, program tracking mechanisms and quality assurance/quality control (QA/QC) procedures, are performing as designed and identifies issues or opportunities to improve these key elements. A comprehensive process and market evaluation will:

- Assist program implementers and managers in restructuring existing programs and/or designing new programs to achieve cost-effective savings while maintaining high levels of customer satisfaction.
- Determine awareness levels to refine marketing strategies and reduce barriers to participation.
- Provide recommendations for changing the program's structure, management, administration, design, delivery, operations or targets.
- Determine if specific best practices should be incorporated.
- Gather information from a variety of sources to address the issues stated above.

A comprehensive process and market evaluation provides valuable information to Kentucky Power, its Demand Side Management Collaborative (DSM Collaborative), the Kentucky Public Service Commission (PSC) and various stakeholders to understand Kentucky Power's existing programs and potentially improve Kentucky Power's energy efficiency programs based on the results of the evaluations.

AEG evaluated thirteen DSM programs, including:

- Whole House Efficiency Program
- Efficient Products Program
- Community Outreach Program
- Energy Education for Students Program
- New Manufactured Homes Program
- Targeted Energy Efficiency Program
- Appliance Recycling Program
- Residential Home Performance Program

[1] American Electric Power delivers electricity to more than 5 million customers in 11 states and ranks among the nation's largest generators of electricity, with almost 38,000 megawatts of generating capacity in the U.S.

- Commercial Incentive Prescriptive/Custom Program
- New Construction Program
- Express Install Program
- School Energy Manager Program
- Retrocommissioning Program

Volume 1 summarizes the key findings from the process and market evaluation. Volume 2 describes the methodology, key evaluation findings and provides recommendations for improving the Residential DSM Programs. Volume 3 describes the methodology, key evaluation findings and provides recommendations for improving the Business DSM Programs. Volume 4 presents the Appendices.

Abbreviations

AEG	Applied Energy Group, Inc.
AEP	American Electric Power
CFL	Compact Fluorescent Light Bulb
DSM	Demand Side Management
EM&V	Evaluation, Measurement and Verification
KPCO	Kentucky Power Company
LED	Light Emitting Diode
PSC	Kentucky Public Service Commission
QA/QC	Quality Assurance/Quality Control

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1
STAFF AND IMPLEMENTER INTERVIEW GUIDES

Kentucky Power Staff Interview Guide

Background

1. Please describe your job responsibilities related to the portfolio of energy efficiency programs.
2. Do you feel like you have sufficient time to devote to each program?
3. What other Kentucky Power staff work on the programs? What is their role? Who, if anyone, provides you with support? What support do they provide?

Program Implementation

4. What implementers do you work with? What is the implementation contractor's role?
5. Do you feel that the implementers have dedicated sufficient resources to successfully implement the programs?
6. How would you rate the communication between Kentucky Power and the Implementation Contractors?
7. Do you have any issues or concerns about working with implementation contractors? If yes, what are your concerns?

Program Goals

8. What metrics are used to track the success of the programs? *(Probe for electric savings, participation rates, number of units, etc.)*? Can we get access to these metrics for each program?
9. How are goals for the portfolio and each program established?
10. Is the portfolio on track to meet its goals for 2016*?* Are certain programs doing better than others? What specific programs are performing well? What do you attribute to that success? What programs are under performing? Why do you think that is?

Program Marketing

11. How are potential customers identified for marketing purposes?
12. What has been done to market the portfolio? How effective have each of these methods been in identifying and enrolling potential participants? How the marketing responsibilities are split between Kentucky Power and the implementation contractors?
13. How are trade allies involved in the portfolio? What do trade allies have to do to participate in programs? Do they need to meet specific requirements to be a participating trade ally?
14. Do you offer any information or training events to trade allies?
15. Are some marketing strategies or messages more beneficial than others? How is success of the marketing strategies or messages measured?
16. What are the main barriers to participation? Are there certain groups of customers that are less likely to participate? How does the portfolio address these barriers?

Program Operations

17. We'd like to learn about the enrollment and participation process for each program. What are the participation steps from the customers' perspective?
18. What quality control/quality assurance procedures are in place? Are these documented? Is any verification done? What does this entail? Who does the verification?
19. Do the incentive levels seem appropriate? If not, why not? What, if any, changes in the incentive levels do you think may be needed?
20. Have there been any modifications made to the original program design for any of the programs? Were the implementation contractors involved in that process?
21. Are customers satisfied with the programs overall? With the measures installed? Are they satisfied with the incentive amount? With the savings achieved? How is satisfaction with the program measured? (i.e., is this based on survey information or is it anecdotal?)
22. What is your opinion of free ridership in the portfolio? Do you think customers would pay for the measures on their own, outside of the programs, without the incentive? Why do you say that?
23. Do you think the portfolio is changing customers' energy efficiency attitudes and actions? *(Probe for specifics)*

Program Data and Documentation

24. Do the tracking databases collect all the information you need? Is there information/data that you wish were available but are not? Is there information in the database that you don't use?
25. For each program, what type of documentation is required to support the purchase and installation of the measure?

Program Impacts

26. How do you estimate savings for each program? How is the baseline determined? For deemed savings, how were they determined?
27. What type of information or data is collected to determine the savings for each participant?
28. Do you provide incentives for early replacement of equipment? How is the original equipment's remaining useful life determined? What additional documentation is required for an early replacement project?

Evaluation

29. What do you hope to learn from this evaluation? Are there specific issues you would like the evaluation to address?
30. Is there anything else we should have discussed on program operations or opportunities that we missed?

Whole House Efficiency Program

Background

1. Please provide a brief description of the services you provide for the Whole House Efficiency program?
2. Please describe your job responsibilities related to the program.
3. What other Honeywell staff work on the program? What is their role regarding the program? Who, if anyone, provides you with support? What support do they provide?
4. What training does program staff receive?
5. Do you feel like you have enough resources devoted to the Kentucky Power program? Would you like to have additional resources internally or from Kentucky Power to help implement the program?

Program Implementation

6. Describe your communications and working relationship with Kentucky Power? What works well? Are there areas that could be improved?
7. What is the target market for the program? How are potential customers identified?
8. What are the primary marketing tactics you use to advertise the program? How successful have these strategies been?
9. Do you plan to expand the marketing scope as the program matures?
10. What are the main drivers of participation?
11. What are the main barriers to participation? What is being done to address these barriers?
12. What specific branding does Honeywell employ with field staff to differentiate the program as a Kentucky Power customer program?
13. Are there any changes in the market for the program that has affected the success of the program?

Program Goals

14. What metrics are used to track the success of the program? (Probe for electric savings, participation rates, number of units, etc.)?
15. How is the program performing in regards to those metrics? (Probe for YTD numbers on specific metrics such as participation, savings, etc.)
16. Do you analyze program performance and program expense for cost-effective operation?
17. Do you feel the program goals are reasonable? If no, why not?

Program Operations

18. Please briefly describe how the program operates? What is the sequence of steps from the customer's perspective?
19. Are there any specific aspects of the program that are working very well? Any not working well? *(Probe for details*) What could be done to improve the program?
20. Are rebate applications processed, approved and paid on a timely basis?
21. Is the rebate processing system effective in managing the application and payment process?

22. Are invoices processed, approved and paid on a timely basis?
23. What quality control/quality assurance procedures are in place? Are these documented? Is any verification done? What does this entail? Who does the verification?
24. Do the incentive levels seem appropriate? If not, why not? What, if any, changes in the incentive levels do you think may be needed?
25. How does the Kentucky Power program compare to other similar programs you implement? Any lessons learned or take-a-ways from other programs that could benefit Kentucky Power?
26. Are customers satisfied with the program overall? With the measures installed? Are they satisfied with the incentive amount? With the savings achieved? How is satisfaction with the program measured? (i.e., is this based on survey information or is it anecdotal?)
27. What is your opinion of free ridership for this program? Do you think customers would pay for the measures on their own, outside of the program, without the incentive? Why do you say that?
28. Do you think the program is changing customers' energy efficiency attitudes and actions? *(Probe for specifics)* Does the program generate interest in other Kentucky Power programs?
29. What do you see as future challenges to the program?

Trade Allies

30. What trade allies support the program – (e.g., auditors? contractors?) Do you offer training to any trade allies? How do they qualify for participation in the program?
31. Are the trade allies sufficiently knowledge about the program? About energy efficiency measures?
32. Do you receive any feedback from trade allies about the program? Are they satisfied with the program? Does it help their business?
33. What steps are being made to bolster the trade ally network?
34. Do you feel there is sufficient number of weatherization contractors in the Kentucky Power service territory to participate in the program?

Program Data and Documentation

35. What type of information and data do you collect and track for the program?
36. What type of documentation is required to support the purchase and installation of the measures?

Evaluation

37. What do you hope to learn from this evaluation? Are there specific issues you would like the evaluation to address?
38. Is there anything else we should have discussed on program operations or opportunities that we missed?

Efficient Products Program

Background

1. Please provide a brief description of the services you provide for the Residential Efficient Products program?
2. Please describe your job responsibilities related to the program.
3. What other CLEAResult staff work on the program? What is their role regarding the program? Who, if anyone, provides you with support? What support do they provide?
4. What training does program staff receive?
5. Do you feel like you have enough resources devoted to the Kentucky Power program? Would you like to have additional resources internally or from Kentucky Power to help implement the program?

Program Implementation

6. Describe your communications and working relationship with Kentucky Power? What works well? Are there areas that could be improved?
7. What is the target market for the program? How are potential retailers/customers identified?
8. What are the primary marketing tactics you use to advertise the program? How successful have these strategies been?
9. Do you plan to expand the marketing scope as the program matures?
10. What are the main drivers of participation?
11. What are the main barriers to participation? What is being done to address these barriers?
12. What specific branding does CLEAResult employ in retail stores to differentiate the program as a Kentucky Power customer program?
13. Are there any changes in the market for the program that has affected the success of the program?

Program Goals

14. What metrics are used to track the success of the program? (Probe for electric savings, participation rates, number of units, etc.)?
15. How is the program performing in regards to those metrics? (Probe for YTD numbers on specific metrics such as participation, savings, etc.)
16. Do you analyze program performance and program expense for cost-effective operation?
17. Do you feel the program goals are reasonable? If no, why not?

Program Operations

18. Please briefly describe how the program operates? What is the sequence of steps from the customer's perspective?
19. Are there any specific aspects of the program that are working very well? Any not working well? *(Probe for details*) What could be done to improve the program?
20. For the appliances, are rebate applications processed, approved and paid on a timely basis?

21. Is the rebate processing system effective in managing the application and payment process?
22. Are invoices processed, approved and paid on a timely basis? Can customers track their rebate through the process? (customer interface portal)
23. What quality control/quality assurance procedures are in place? Are these documented? Is any verification done? What does this entail? Who does the verification?
24. Do the incentive levels seem appropriate? If not, why not? What, if any, changes in the incentive levels do you think may be needed?
25. How does the Kentucky Power program compare to other similar upstream and rebate programs you implement? Any lessons learned or take-a-ways from other programs that could benefit Kentucky Power?
26. Are customers satisfied with the program overall? With the measures purchased? Are they satisfied with the incentive amount? How is satisfaction with the program measured? (i.e., is this based on survey information or is it anecdotal?)
27. Are there additional measures that you would like to see added to the program?
28. Do you think the program could have an online retail component? What would that involve? Could the online component track the necessary information for evaluation?
29. What is your opinion of free ridership for this program? Do you think customers would pay for the measures on their own, outside of the program, without the incentive? Why do you say that?
30. Do you think the program is changing customers' energy efficiency attitudes and actions? *(Probe for specifics)* Does the program generate interest in other Kentucky Power programs? Do customers recognize Kentucky Power affiliation and investment with program?
31. What do you see as future challenges to the program?

Retailers

32. How do retailers participate in the program? Do you offer training to any retailers?
33. Are the store personnel sufficiently knowledge about the program? About energy efficiency lighting and appliances?
34. Do you receive any feedback from the retailers about the program? Are they satisfied with the program? Does it help their business?
35. What steps are being made to bolster the retailer network?
36. How are retailer able to suggest changes to the program?
37. What input do retailers have on the marketing material?

Program Data and Documentation

38. What type of information and data do you collect and track for the program?
39. What type of documentation is required to support the purchase and installation of the appliances?

Evaluation

40. What do you hope to learn from this evaluation? Are there specific issues you would like the evaluation to address?

41. Is there anything else we should have discussed on program operations or opportunities that we missed?

Energy Education for Students Program

Background

1. Please provide a brief description of the services you provide for the Student Energy Education program.
2. Please describe your job responsibilities related to the program.
3. What other NEED staff work on the program? What is their role regarding the program? Who, if anyone, provides you with support? What support do they provide?
4. Do you feel like you have enough resources devoted to the Kentucky Power program? Would you like to have additional resources internally or from Kentucky Power to help implement the program?

Program Implementation

5. Describe your communications and working relationship with Kentucky Power. What works well? Are there areas that could be improved?
6. Describe your outreach activities with schools and teachers. What kind of marketing activities are done for the program?
7. How do schools participate in the program? What are the steps they take to participate?
8. What is involved in the teacher training?
9. Please walk us through how the teacher receives the materials, who do they contact, how is it scheduled, how do they get the kits, how are the kits distributed to the students.
10. How do you ensure that teachers are implementing the curriculum they receive into their student's lesson plan?
11. Why do teachers choose to participate in the program?
12. What are the barriers to teacher participation in the program? How does the program address those barriers?

Program Goals

13. What metrics are used to track the success of the program? *(Probe for teacher participation, kits handed out, etc.)*?
14. How is the program performing in regards to those metrics*? (Probe for YTD numbers on specific metrics.)*
15. Do you feel like the goals for the program are reasonable? If no, why not?

Program Operations

16. What information do the teachers receive? How is that information developed? Do teachers receive other benefits from the program like CEU?
17. How is the instructional material incorporated into the classroom? What information and measures do the students receive?
18. Are there specific types of information that resonate the most with teachers or students? Are their specific measures students/parents are excited about?

19. What aspects of the program do you feel are working very well? Any not working well? *(Probe for details*) What could be done to improve the program?
20. Do you get any feedback from teachers, students or parents about the program? Are teachers satisfied with the program? (i.e., is this based on survey information or is it anecdotal?)
21. Do you think the program is changing students' energy efficiency attitudes and actions? *(Probe for specifics)*
22. How does the Kentucky Power program compare to other energy education programs that you implement? Any lessons learned or take-a-ways from other programs that could benefit Kentucky Power?
23. Do you have full participation of the eligible schools within the Kentucky Power service area? If not, what are recommendations to engage with non-participating schools?

Program Data and Documentation

24. What type of data do you track and collect for the program? Is that data available for us to review during this evaluation?
25. Are any savings attributed to the program? If yes, how are those savings estimated?
26. [If Q25 = yes] What type of information or data is collected to determine the savings for each participant?
27. There is a survey that teachers hand out to students – correct? What type of questions are on the survey? Is the survey completed by parents of the students? How many of those surveys are returned? Have you done anything to try to improve the response rate of the surveys?
28. Do you do any other follow up with teachers or students?

Evaluation

29. What do you hope to learn from this evaluation? Are there specific issues you would like the evaluation to address?
30. Is there anything else we should have discussed on program operations or opportunities that we missed?

New Manufactured Homes Program

Background

1. Please provide a brief description of the services you provide for the New Manufactured Home program.
2. Please describe your job responsibilities related to the program.
3. What other DNV GL staff work on the program? What is their role regarding the program? Who, if anyone, provides you with support? What support do they provide?
4. What training does program staff receive?
5. Do you feel like you have enough resources devoted to the New Manufactured Homes program? Would you like to have additional resources internally or from Kentucky Power to help implement the program?

Program Implementation

6. Describe your communications and working relationship with Kentucky Power? What works well? Are there areas that could be improved?
7. What is the target market for the program? How are potential customers identified?
8. What specific branding do you use to differentiate the program as a Kentucky Power Customer program?
9. What are the main drivers of participation?
10. What are the main barriers to participation? What is being done to address these barriers?
11. What has been done to market the program? How successful have these strategies been?
12. Are there trade allies associated with the program? How is the network of trade allies developed and supported?
13. Are there any changes in the market for the program that has affected the success of the program?
14. How are updates with program goals including participation and budget expense forecast? Has the program achieve contracted goals to date? Is the program forecast to achieve the contracted goals for the coming year? Why or why not?

Program Goals

15. What metrics are used to track the success of the program? *(Probe for electric savings, participation rates, homes sold)*?
16. How is the program performing in regards to those metrics*? (Probe for YTD numbers on specific metrics such as participation, savings, etc.)*
17. Do you feel the program goals are reasonable? If no, why not?
18. Do you analyze program performance and program expense for cost-effective operation?

Program Operations

19. Please briefly describe how the program operates. What is the sequence of steps from the customer's perspective?

20. Are there any specific aspects of the program that are working very well? Any not working well? *(Probe for details*) What could be done to improve the program?
21. Are rebate applications processed, approved and paid on a timely basis?
22. Is the rebate processing system effective in managing the application and payment process?
23. Are invoices processed, approved and paid on a timely basis?
24. What quality control/quality assurance procedures are in place? Are these documented? Is any verification done? Do you for example verify that the homes sold are Energy Star? What does this entail? Who does the verification?
25. Do the incentive levels seem appropriate? If not, why not? What, if any, changes in the incentive levels do you think may be needed?
26. Do you implement any Manufactured Home programs for other utilities? If yes, how does the Kentucky Power program compare to other similar programs you implement? Any lessons learned or take-a-ways from other programs that could benefit Kentucky Power?
27. Are customers satisfied with the program overall? With the homes they buy? Are they satisfied with the incentive amount? How is satisfaction with the program measured? (i.e., is this based on survey information or is it anecdotal?)
28. Have you received any complaints from customers or trade allies?
29. What is your opinion of free ridership for this program? Do you think customers would pay for the more efficient homes on their own, outside of the program, without the incentive? Why do you say that?
30. Do you think the program is changing customers' energy efficiency attitudes and actions? *(Probe for specifics)* Does the program generate interest in other Kentucky Power programs?
31. What do you see as future challenges to the program?

Dealers

32. How are the dealers engaged in the program? What outreach do you do? Do you contact them via email, phone calls, and visits? What is the frequency of this outreach?
33. Do you offer training to any dealers? How do they qualify for participation in the program?
34. Are the dealers sufficiently knowledge about the program? About energy efficiency?
35. Are there a sufficient number of dealers in the Kentucky Power service territory that sell Energy Star manufactured homes?
36. Do you receive any feedback from dealers about the program? Are they satisfied with the program? Does it help their business?

Program Data and Documentation

37. What type of information and data do you collect and track for the program? Does the documentation or procedures vary by home type?
38. What type of documentation is required to support the purchase of the homes in order to get the rebate?

39. How do you determine energy savings for the program? What is the baseline?

Evaluation

40. What do you hope to learn from this evaluation? Are there specific issues you would like the evaluation to address?

41. Is there anything else we should have discussed on program operations or opportunities that we missed?

Targeted Energy Efficiency Program

Background

1. Please provide a brief description of the services you provide for Kentucky Power's Targeted Energy Efficiency program?
2. Please describe your job responsibilities related to the program.
3. What geographical area do you serve?
4. What other staff work on the program? What is their role regarding the program? Who, if anyone, provides you with support? What support do they provide?
5. What training does program staff receive?
6. Do you feel like you have enough resources devoted to the Kentucky Power program? Would you like to have additional resources internally or from Kentucky Power to help implement the program?

Program Implementation

7. Describe your communications and working relationship with Kentucky Power? What works well? Are there areas that could be improved?
8. What is the target market for the program? How are potential customers identified?
9. How is the program marketed to qualifying customers?
10. What are the main drivers of participation?
11. What are the main barriers to participation? What is being done to address these barriers?
12. Are there any changes in the market for the program that has affected the success of the program?

Program Goals

13. What metrics are used to track the success of the program? (Probe for electric savings, participation rates, number of units, etc.)?
14. How is the program performing in regards to those metrics? (Probe for YTD numbers on specific metrics such as participation, savings, etc.)
15. Do you analyze program performance and program expense for cost-effective operation?
16. Do you feel the program goals are reasonable? If no, why not?

Program Operations

17. Please briefly describe how the program operates? What is the sequence of steps from the customer's perspective?
18. Are there any specific aspects of the program that are working very well? Any not working well? *(Probe for details*) What could be done to improve the program?
19. What quality control/quality assurance procedures are in place? Are these documented? Is any verification done? What does this entail? Who does the verification?
20. How do you review and adopt new technologies as a program measure (i.e. CFLs to LEDs)?

21. How does the Kentucky Power program compare to other similar programs you implement? Any lessons learned or take-a-ways from other programs that could benefit Kentucky Power?
22. Are customers satisfied with the program overall? With the improvements made? Are they satisfied with the incentive amount? With the savings achieved? How is satisfaction with the program measured? (i.e., is this based on survey information or is it anecdotal?)
23. Are there specific challenges with getting doors and windows installed? Are the requirements for installation too strict? What would you like to see changed?
24. Is there additional equipment or improvements you would like to see covered under Kentucky Power's portion of the program?
25. Do you think customers would pay for the measures on their own, if the program was not available? Why do you say that? Adequately explain what free ridership entails
26. Do you think the program is changing customers' energy efficiency attitudes and actions? *(Probe for specifics)*
27. What do you see as future challenges to the program?

Auditors/Contractors

28. Do you have auditors on staff? If no, who performs the audits? What other contractors do you work with?
29. Are the auditors and/or contractor sufficiently knowledge about the program? About energy efficiency measures?
30. Do you receive any feedback from auditors and contractors about the program? Are they satisfied with the program?
31. Do you feel there is sufficient number of auditors and/or weatherization contractors in the Kentucky Power service territory to participate in the program?

Program Data and Documentation

32. What type of information and data do you collect and track for the program?
33. Are there any challenges with integrating your data with the Kentucky Power customer data?
34. How are program savings determined?

Evaluation

35. What do you hope to learn from this evaluation? Are there specific issues you would like the evaluation to address?
36. Is there anything else we should have discussed on program operations or opportunities that we missed?

Appliance Recycling Program

Background

1. Please provide a brief description of the services you provide for the Appliance Recycling Program.
2. Please describe your job responsibilities related to the program.
3. What other ARCA staff work on the program? What is their role regarding the program? Who, if anyone, provides you with support? What support do they provide?
4. What training does ARCA program staff receive?
5. Do you feel like you have enough resources devoted to the Kentucky Power program (Probe specifically for call center staff)? Would you like to have additional resources internally or from Kentucky Power to help implement the program?
6. What steps are being taken to expand your operations after the large influx of clients this past year?

Program Implementation

7. Describe your communications and working relationship with Kentucky Power. What works well? Are there areas that could be improved?
8. What informational training do you provide to utility staff?
9. What is the target market for the program? How are potential customers identified?
10. What are the main drivers of participation?
11. What are the main barriers to participation? What is being done to address these barriers?
12. What has been done to market the program? How successful have these strategies been?
13. What specific branding does ARCA use to differentiate the program as a Kentucky Power Customer program?
14. Are there any changes in the market for the program that has affected the success of the program?
15. What are the steps you plan to take to expand the target market and program operations to include small commercial customers in 2017?

Program Goals

16. What metrics are used to track the success of the program? (Probe for electric savings, participation rates, number of units, etc.)?
17. How is the program performing in regards to those metrics? (Probe for YTD numbers on specific metrics such as participation, savings, etc.)
18. Do you feel the program goals are reasonable? If no, why not?
19. Do you analyze program performance and program expense for cost-effective operation?

Program Operations

20. Please briefly describe how the program operates? What is the sequence of steps from the customer's perspective?
    a. How long does it take from the time a customer calls to the time the appliance is picked up?

b. Can customers schedule appliance pick-ups online?

c. Is Saturday pick up available?

d. Do you contact customers to remind them of the pick up date and time?

21. What happens to the refrigerator/freezer after you pick it up?

22. Are there any specific aspects of the program that are working very well? Any not working well? *(Probe for details*) What could be done to improve the program?

23. Are rebate applications processed, approved and paid on a timely basis?

24. Is the rebate processing system effective in managing the application and payment process?

25. What quality control/quality assurance procedures are in place? Are these documented? Is any verification done? What does this entail? Who does the verification?

26. Is the incentive appropriate? If not, why not? What, if any, changes in the incentive do you think may be needed?

27. How does the Kentucky Power program compare to other similar programs you implement? Any lessons learned or take-a-ways from other programs that could benefit Kentucky Power?

28. Are customers satisfied with the program overall? Are they satisfied with the incentive amount? How is satisfaction with the program measured? (i.e., is this based on survey information or is it anecdotal?)

29. Does the program generate interest in other Kentucky Power programs?

30. What do you see as future challenges to the program?

Program Data and Documentation

31. What type of information and data do you collect and track for the program?

32. Do you record whether the unit is currently being used and where it is located?

Evaluation

33. What do you hope to learn from this evaluation? Are there specific issues you would like the evaluation to address?

34. Is there anything else we should have discussed on program operations or opportunities that we missed?

Residential Home Performance Program

Background

1. Please provide a brief description of the services you provide for the Residential Home Performance program?
2. Please describe your job responsibilities related to the program.
3. What other Oracle staff work on the program? What is their role regarding the program? Who, if anyone, provides you with support? What support do they provide?

Program Implementation

4. Describe your communications and working relationship with Kentucky Power? What works well? Are there areas that could be improved?
5. How are the participants and control groups selected?
6. What are the barriers to creating behavior change in customers? How does the program address those barriers?

Program Goals

7. What metrics are used to track the success of the program? (Probe for website activity, participation in other programs, etc.)?
8. How is the program performing in regards to those metrics? (Probe for YTD numbers on specific metrics.)
9. Do you analyze program performance and program expense for cost-effective operation?
10. Do you feel the program goals are reasonable? If no, why not?

Program Operations

11. What information do the participants receive? How is that information developed?
12. Are there any specific aspects of the program that are working very well? Any not working well? *(Probe for details*) What could be done to improve the program?
13. Are customers satisfied with the reports they receive? How is satisfaction with the program measured? (i.e., is this based on survey information or is it anecdotal?)
14. How do you receive feedback from customers to adjust their personal messages?
15. What steps do you go through to modify messages to affect behavior changes?
16. How does Oracle determine the message will have the desired effect on the customer?
17. How does Oracle determine which message goes out to each customer (and is it relevant to the customer)?
18. What types of information included in the report resonate the most with customers?
19. How are customers assisted with questions? Is there support with on-line services?
20. Can new customers request to participate in the program? How are new customers enrolled? How does that effect the experimental design?

21. Do you think the program is changing customers' energy efficiency attitudes and actions? *(Probe for specifics)*
22. How does this program compare to other residential behavior modification programs you implement? Any lessons learned or take-a-ways from other programs that could benefit Kentucky Power?
23. What do you see as future challenges to the program?

Program Data and Documentation

24. What type of data do you collect on participates? How is that data tracked? Is that data available for us to review during this evaluation?
25. Are any savings attributed to the program? If yes, how are those savings estimated?
26. [If Q23 = yes] What type of information or data is collected to determine the savings for each participant?

Evaluation

27. What do you hope to learn from this evaluation? Are there specific issues you would like the evaluation to address?
28. Is there anything else we should have discussed on program operations or opportunities that we missed?

Commercial Incentive Prescriptive/Custom and New Construction Programs

Background

1. Please provide a brief description of the services you provide for Kentucky Power's C&I Prescriptive, Custom, New Construction and Retro Commissioning programs.
2. Please describe your job responsibilities related to the programs.
3. What other DNV GL staff work on the C&I programs? What is their role regarding the programs? Who, if anyone, provides you with support? What support do they provide?
4. What training does program staff receive?
5. Do you feel like you have enough resources devoted to the Kentucky Power C&I programs? Would you like to have additional resources internally or from Kentucky Power to help implement the programs?

Program Implementation

6. Describe your communications and working relationship with Kentucky Power? What works well? Are there areas that could be improved?
7. What is the target market for the programs? How are potential customers identified for each program?
    a. I'd like to talk a bit more specifically about retro commissioning. Who is eligible for that program? How big do you think that market is? How did you determine the market size? What about this program makes promotion/outreach more difficult?
8. What are the main drivers of participation for each program?
9. What are the main barriers to participation for each program? What is being done to address these barriers?
10. What has been done to market each program? How successful have these strategies been?
11. Do you ever recommend the Express Install program to smaller businesses?
12. Do you implement or maintain list of trade allies and/or subcontractors for any of the programs? If so, please identify trade craft applicable for each program and development of network
13. Are there any changes in the market for any of the programs that has affected the success of the programs?

Program Goals

14. What metrics are used to track the success of the programs? (Probe for electric savings, participation rates, measures installed, etc.)?
15. How is each program performing in regards to those metrics? (Probe for YTD numbers on specific metrics such as participation, savings, etc.)
16. How do you develop target participation for each program? How do you design marketing to achieve participation goals?
17. Have you achieved target participation and budget goals for each program? If not describe why program achievements are below contracted participation and budget goals.

18. Do you feel the program goals are reasonable? If no, why not?
19. Do you analyze program performance and program expense for cost-effective operation?

Program Operations

20. Please briefly describe how each program operates. What is the sequence of steps from the customer's perspective?
21. How do you determine if a project is a retro-fit (thus a CI P/C program) and a New Construction program? Could there be an over-lap?
22. Are there any specific aspects of the programs that are working very well? Any not working well? *(Probe for details*) What could be done to improve the program?
23. Are rebate applications processed, approved and paid on a timely basis?
24. Are invoices processed, approved and paid on a timely basis?
25. What quality control/quality assurance procedures are in place? Are these documented? Are verification inspections done? What does this entail? Who does the verification? Are the inspections conducted on a timely basis?
26. Do the incentive levels seem appropriate? If not, why not? What, if any, changes in the incentive levels do you think may be needed?
27. How do the Kentucky Power programs compare to other similar C&I programs you implement? Any lessons learned or take-a-ways from other programs that could benefit Kentucky Power?
28. Are customers satisfied with the programs overall? With the measures installed? Are they satisfied with the incentive amount? With the savings achieved? How is satisfaction with the programs measured? (i.e., is this based on survey information or is it anecdotal?)
29. What is your opinion of free ridership for each of the programs? Do you think customers would pay for the measures on their own, outside of the programs, without the incentive? Why do you say that?
30. Do you think the programs are changing customers' energy efficiency attitudes and actions? *(Probe for specifics)*
31. What do you see as future challenges to the C&I programs?

Trade Allies

32. What trade allies support the programs – (e.g., contractors?) Do you offer training to any trade allies? How do they qualify for participation in the programs?
33. Are the trade allies sufficiently knowledgeable about the programs? About energy efficiency measures?
34. Do you receive any feedback from trade allies about the programs? Are they satisfied with the programs? Does it help their business?

Program Data and Documentation

35. What type of information and data do you collect and track for the program? Is the tracking system effective in managing customer applications, inspections, and the rebate payment process? Is the tracking system effective in tracking customer status?

36. What type of documentation is required to support the purchase and installation of the measures?

37. How do you calculate savings for each program? For the custom program, how is the baseline determined?

38. Do you give incentives for early replacement of equipment? (e.g., the new equipment installed is equal to the federal minimum standard in terms of efficiency, but there are energy savings because it replaced older inefficient equipment that still had an effective useful life of more than 2 years)

    a. If yes, what do you use as the baseline when calculating savings for this equipment?

Evaluation

39. What do you hope to learn from this evaluation? Are there specific issues you would like the evaluation to address?

40. Is there anything else we should have discussed on program operations or opportunities that we missed?

Express Install Program

Background

1. Please provide a brief description of the services you provide for Kentucky Power's Express Install program.
2. Please describe your job responsibilities related to the program.
3. What other Lime Energy staff work on the program? What is their role regarding the program? Who, if anyone, provides you with support? What support do they provide?
4. What training does program staff receive?
5. Do you feel like you have enough resources devoted to the Kentucky Power Direct Install program? Would you like to have additional resources internally or from Kentucky Power to help implement the program?

Program Implementation

6. Describe your communications and working relationship with Kentucky Power? What works well? Are there areas that could be improved?
7. What is the target market for the program? How are potential customers identified?
8. What are the main drivers of participation?
9. What are the main barriers to participation? What is being done to address these barriers?
10. What has been done to market the program? How successful have these strategies been?
11. What specific branding does Lime Energy use to differentiate the program as a Kentucky Power Customer program?
12. Do you ever recommend Kentucky Power's custom or prescriptive program to customers who contact you but want or need measures other than lighting and refrigeration?
13. Are there any changes in the market for any of the program that has affected the success of the program?

Program Goals

14. What metrics are used to track the success of the program? (Probe for electric savings, participation rates, measures installed, etc.)?
15. How is the program performing in regards to those metrics? (Probe for YTD numbers on specific metrics such as participation, savings, etc.)
16. Do you feel the program goals are reasonable? If no, why not?
17. Do you analyze program performance and program expense for cost-effective operation?
18. How do you validate program goals for the year and whether updated forecast for participation and/or budgeted expense are necessary?

Program Operations

19. Please briefly describe how the program operates? What is the sequence of steps from the customer's perspective?
    a. Are any measures installed immediately during the audit visit?
    b. What are the responsibilities of the subcontractor versus the implementation contractor (i.e., does the subcontractor review the audit; who orders the equipment, schedules the install, etc.)?
    c. How long does the entire participation process take?
20. How were the subcontractors engaged in the program? What steps are being taken to engage additional subcontractors (outside of the Ashland area)?
    a. Do you offer training to the subcontractors? How do they qualify for participation in the program?
    b. Do you receive any feedback from subcontractors about the program? Are they satisfied with the program?
    c. What barriers do subcontracts face when becoming a subcontractor?
    d. What barriers does Lime Energy face when acquiring subcontractors?
21. Are there any specific aspects of the program that are working very well? Any not working well? *(Probe for details*) What could be done to improve the program?
22. Are customers required to pay any money up-front prior to installation? How many customers are taking advantage of the financing?
23. Are invoices processed, approved and paid on a timely basis?
24. What quality control/quality assurance procedures are in place? Are these documented? Are verification inspections done? What does this entail? Who does the verification? Are the inspections conducted on a timely basis?
25. Do the incentive levels seem appropriate? If not, why not? What, if any, changes in the incentive levels do you think may be needed?
26. How are customer project incentives impacted by customers' hours of operation? Are incentive levels based on net or gross savings?
27. How do the Kentucky Power programs compare to other small business programs you implement? Any lessons learned or take-a-ways from other programs that could benefit Kentucky Power?
28. Are customers satisfied with the program overall? With the measures installed? Are they satisfied with the incentive amount? With the savings achieved? How is satisfaction with the program measured? (i.e., is this based on survey information or is it anecdotal?)
29. Are there any liabilities associated with installing equipment within customers' facilities? What is the rate of replacement for defective equipment or customer call-back for an installed equipment issue?
30. What is your opinion of free ridership for the program? Do you think customers would pay for the measures on their own, outside of the program, without the incentive? Why do you say that?
31. Do you think the program is changing customers' energy efficiency attitudes and actions? *(Probe for specifics)* Does it encourage participation in other Kentucky Power program?

32. What do you see as future challenges to the program?

Program Data and Documentation

33. What type of information and data do you collect and track for the program? Is the tracking system effective in managing customer applications, inspections, and the rebate payment process? Is the tracking system effective in tracking customer status?

34. What type of documentation is required to support the purchase and installation of the measures?

35. How do you calculate savings for the program?

Evaluation

36. What do you hope to learn from this evaluation? Are there specific issues you would like the evaluation to address?

37. Is there anything else we should have discussed on program operations or opportunities that we missed?

School Energy Manager Program

Background

1. Please provide a brief description of KSBA's role in Kentucky Power's School Energy Manager program.
2. Please describe your job responsibilities related to the program.
3. What other KSBA staff work on the program? What is their role regarding the program? Who, if anyone, provides you with support? What support do they provide?

Program Goals and Implementation

4. Describe your communications and working relationship with Kentucky Power. What works well? Are there areas that could be improved?
5. How do individual schools get involved in the program? What is the process from the school's perspective?
6. What are the main drivers for schools to participate?
7. What are the barriers to participation? How does the program address those barriers?
8. What metrics are used to track the success of the program? How often are the metrics reported to KSBA?
9. How is the program performing in regards to those metrics*?*
10. Do you analyze program performance and program expense for cost-effective operation?
11. Do you feel the program goals are reasonable? If no, why not?

Program Operations

12. Describe the role of the school energy manager and his/her main responsibilities.
13. How specifically does having a school energy manager onsite lead to energy savings? What type of changes are made? What type of measures are installed? Are the measures installed rebated through other Kentucky Power programs?
14. What interaction does the school energy manager have with the county school board/superintendent? How much influence does the superintendent and the school board have on the projects that get completed?
15. Are there any specific aspects of the program that are working very well? Any not working well? *(Probe for details*) What could be done to improve the program?
16. Are the schools satisfied with the program overall?
17. Do you think the program is changing the school administrations' energy efficiency attitudes and actions? *(Probe for specifics)*
18. What do you see as future challenges to the program?

Program Data and Documentation

19. What type of information and data do you collect and track for the program?
20. Do you track energy savings? If so, how are the energy savings measured?

Evaluation

21. What do you hope to learn from this evaluation? Are there specific issues you would like the evaluation to address?

22. Is there anything else we should have discussed on program operations or opportunities that we missed?

2
TRADE ALLY INTERVIEW GUIDES

Whole House Efficiency Program - Contractors

We understand your company is one of the contractors that worked with participants of Kentucky Power's Whole House Energy Efficiency Program. Are you the best person to speak to about this program?

- *If not, ask for contact information for the best person.*
- *If yes, ask if this is a good time or should reschedule – the interview will take approximately 20 minutes.*

Thank you for talking with me today about Kentucky Power's Whole House Energy Efficiency Program. The goal of this discussion is to talk more fully about your experience with the program, and find out what works in the program and any suggestions you have for improving it. All comments will remain confidential and be provided to Kentucky Power in summary form.

First, I'd like to get a little better understanding of your company's background and your role there.

1. What is your current title? What are your responsibilities?
2. Please describe what your company does.
3. How long has your company been in business?

Next, I'd like to discuss your experience with the Whole House Energy Efficiency Program

Program Participation

4. How did you first hear about the Whole House Energy Efficiency Program?
5. How many projects have you done in 2016 for customers who received rebates from the Whole House Energy Efficiency Program?
6. What is your role in this program?
7. Was this your first experience with Kentucky Power's energy efficiency programs? If no, what other programs have you been involved in? Did you previously participate in Kentucky Power's high efficiency heat pump programs?
8. What is your relationship with Honeywell? With Kentucky Power?
9. What was required for you to be a participating contractor in the program?
10. Do you feel that Honeywell and Kentucky Power provide enough information, support and training for contractors involved in the program?
11. In the past, the program provided a $50 incentive per customer application to contractors. That was discontinued in 2016. What are your feelings about that? How has the discontinuation of the incentive affected your participation in the program?
12. Does your company benefit from Kentucky Power's Whole House Energy Efficiency Program? Do you think you make more money because of the program? Have more satisfied customers? Get more repeat business? Do you feel you benefit from being listed as a preferred contractor on the company webpage?

Customer Participation

13. Do you typically complete the rebate application for the customer, or does the customer complete the application?
14. How easy is the application to understand and complete? How long does it typically take to complete the application?
15. Do you typically receive the rebate or does the rebate go to the customer?
16. How long does it typically take to receive the rebate check after the application is completed and sent?

HVAC Equipment

17. Do you typically promote energy efficient equipment to customers? Why or why not?
18. What do you see as the benefits to customers of installing energy efficient equipment?
19. What are the biggest barriers to selling energy efficient equipment? Are there barriers other than cost?
20. Have you had any problems/challenges associated with the installation of the equipment rebated by the program? How were those problems/challenges overcome?

Satisfaction

21. Overall, are participants in the Whole House Energy Efficiency Program satisfied with the energy efficient equipment they have purchased?
22. Are the participants in the program satisfied with the program overall? What type of feedback have you heard from customers?
23. From your point of view, what is working well in the program?
24. What changes do you recommend to improve the program?
25. Do you feel the program's incentives for installing high efficient equipment benefit the local economy?

Free Ridership

26. Do you think participants in the Whole House Energy Efficiency program would have installed the same high efficiency equipment without the rebate provided by the program? Why or why not?
27. How influential do you think the audit and the rebate was in their purchasing decision?
28. Do you think that after participating in the program, these customers are more likely to buy other high efficiency equipment in the future, either on their own or through another Kentucky Power program? Why or why not?

Closing

29. Do you have any other comments you would like to add about your experience with the program?

Efficient Products Program - Retailers

We understand your store participates in Kentucky Power's Residential Efficient Products Program. Are you the best person to speak to about this program?

- *If not, ask for contact information for the best person.*
- *If yes, ask if this is a good time or should reschedule – the interview will take approximately 20 minutes.*

Thank you for talking with me today about Kentucky Power's Residential Efficient Products Program. The goal of this discussion is to talk more fully about your experience with the program, and find out what works in the program and any suggestions you have for improving it. All comments will remain confidential and be provided to Kentucky Power in summary form.

First, I'd like to get a little better understanding of your background and your role there.

1. What is your current title? What are your responsibilities?
2. How long have you worked at this store?

Next, I'd like to discuss your experience with the Residential Efficient Products Program.

Program Participation

3. How did your store become involved in the Kentucky Power program?
4. What is your relationship with program staff (either CLEAResult or Kentucky Power)?
5. Do you feel like your staff is sufficiently knowledgeable about the program and the products that are discounted or rebated?
6. Did you or any store staff receive any training about the Kentucky Power discounts?
    a. If yes, what type of training did you receive? Was it helpful? How could it be improved?
    b. If no, do you think training would be beneficial? What type of information would you like to see included in the training?
7. Do the program field representatives (CLEAResult) visit the store on a regular basis?
    a. If yes, how often does he/she visit? Is he/she helpful?
    b. Do you think the amount of time the field reps spend in your store is appropriate? Would you like to see more visits, fewer visits, longer visits, etc.
8. Do you set up the point of sale materials signage or is that handled by the program rep? Do you think the signage is adequate? Does your company have specific restrictions on signage for this type of program? What could be improved? Are you responsible for maintaining the signage? If not, who is?
9. Has the program increased your sales?
10. Has the program impacted the items you stock? Would you have stocked the same amount of products without the discounts and rebates provided by Kentucky Power? Has the discount and rebates influenced what you will stock in the future?
11. Are you responsible for providing any data to program representatives (CLEAResult)? What type of data do you provide? Are there any challenges to providing the data?

Customer Participation

12. Are customers typically aware of the discounts and rebates before they come to your store?
13. Do you typically provide any help or education to customers about completing the rebate application when they purchase an energy efficient appliance that qualifies for a Kentucky Power rebate?
14. Do you think the appliance application is easy for the customers to understand and complete? Is there anything you would change or improve about the application?

Measures

15. Do you typically promote energy efficient equipment to customers? Why or why not?
16. What do you see as the benefits to customers of purchasing energy efficient products?
17. What are the biggest barriers to selling energy efficient products? Are there barriers other than cost?
18. Have you had any problems/challenges associated with the products discounted or rebated by the program? How were those problems/challenges overcome?
19. Are there additional products you would like to see discounted as part of the program?

Satisfaction

20. Overall do you think customers are satisfied with the discounted or rebated energy efficient products they have purchased?
21. Do you think the customer is aware that Kentucky Power is providing these rebates and discounts? From your point of view, what is working well in the Residential Efficient Products Program?
22. Do you have any changes or recommendations to improve the program?
23. Do you feel the program's incentives for installing high efficient equipment benefit the local economy?

Free Ridership

24. Do you think customers would pay full price for the energy efficient products if the Kentucky Power discounts were not available? Why do you say that?
25. Do you think once they try energy efficient products, customers will be more likely to purchase them in the future?
26. Do you think purchasing energy efficient products, such as LEDs, leads to increased customer interest in other energy savings products?

Closing

27. Do you have any other comments you would like to add about your experience with the Residential Efficient Products Program?

Energy Education for Students Program - Teachers

We are conducting a survey of Kentucky Power's Student Energy Education Program. We would like to have teachers involved in the program tell us their impressions and get important feedback about the program. The survey should only take 10 minutes. All comments will remain confidential.

1. Do you recall participating in the Kentucky Power Energy Education for Students Program administered by NEED (National Energy Education Development)?

   Yes
   No (THANK AND TERMINATE)

Program Participation

2. How did you first become aware of the NEED Energy Education Program?

   KPCO Staff
   Other teachers or administration at school
   NEED Representative
   Other
   DK/Refused

3. Why did you decide to participate in this program? (Check all that apply)

   School required it
   Needed additional curriculum resources
   NEED representative convinced me
   Wanted to get students thinking about energy education
   Other (specify)

4. Did you attend the full day professional development training conducted by NEED?

   Yes
   No

5. [IF Q4 = NO] Why didn't you attend the full day professional development training? (Check all that apply)

   Did not know about training
   Training was too far to travel
   Training was an inconvenient date/time
   My administration would not allow me to go
   Could not get a substitute
   I didn't think it would be useful
   Other (specify)

6. [IF Q4 = YES] How did you hear about the training event?

   KPCO staff
   NEED staff
   School
   Kentucky Educational Development Corporation (KEDC)
   Other

Satisfaction

7. [Q4 = IF YES] On a scale of 1 to 5, with 1 meaning "Not at all Beneficial" and 5 meaning "Very Beneficial" how beneficial did you find the full day training?

   1 Not at all beneficial
   2
   3
   4
   5 Very beneficial

8. [IF Q4 = YES] Did you receive a NEED Science of Energy Kit at the training?

   Yes
   No

9. [Q8 = IF YES] On a scale of 1 to 5, with 1 meaning "Not at all Satisfied" and 5 meaning "Very Satisfied" how satisfied are you with the NEED Science of Energy kit?

   1 Not at all satisfied
   2
   3
   4
   5 Very satisfied

10. As part of the program you should have received lesson plans, a water flow bag and a flicker checker. Do you recall receiving those materials?

    Yes
    No

11. [IF Q10 = YES] On a scale of 1 to 5, how useful were those materials in helping you teach your science curriculum?

    1 Not at all useful
    2
    3
    4
    5 Very useful

12. Do you visit the NEED website to get additional resources for your classroom?

    Yes
    No

13. Please rate your satisfaction with the following program components on a five-point scale, where 1 means “Not at all Satisfied” and 5 means "Very Satisfied".

    For 13a to 13f:
    1 Not at all Satisfied
    2
    3
    4
    5 Very Satisfied
    NA

    1. Training event location
    2. Timing of training events
    3. Training curriculum
    4. NEED Website
    5. KPCO Staff
    6. NEED Staff

Energy Saving Kits

14. As part of the program you also received energy saving kits to distribute to your students. How many energy savings kits did you distribute to the class?

    _____Number of Kits

15. Do you provide any education to the students about the kits?

    Yes
    No

16. [IF Q15 = YES] What type of education do you provide to students about the kits?

    [OPEN ENDED]

17. Along with the energy saving kit do you give the students letters to take home to have their parents complete and return?

    Yes
    No

18. [IF Q17 = No] Why not?

    [Open ended]

19. [IF Q17 = YES] How many letters were returned?

    _____Number of letters returned

20. Do you double check the letters to make sure they are completed and no fields are left blank?

    Yes
    No

21. [Q20 = Yes] What do you do if fields on the letter are left blank? (Check all that apply)

    Ask the student for the information
    Send them back home with the student
    Contact the parent for the information
    Don't return the letter to NEED
    Turn in form with as much information completed as possible
    Other (specify)

Free Ridership/Spillover

22. If your school had not participated in the program, how likely is it that you would have included math and science education related to energy efficiency as part of your curriculum? Would you say it is…?

    Very likely
    Somewhat likely
    Not likely

23. Since participating in the program have you included more energy efficiency lessons into your curriculum?

    Yes
    No

Final Comments

24. How could the Energy Education for Students Program be improved?

    [Open ended]

New Manufactured Home Program - Dealers

We are calling to talk with mobile home dealers in Kentucky to get their feedback on Kentucky Power's New Manufactured Homes Program. I'd like to talk to someone who is directly involved with selling homes to customers. Are you the correct person to talk to?

- *If not, ask for contact information for the best person.*
- *If yes, ask if this is a good time or should reschedule – the interview will take approximately 20 minutes.*

Thank you for talking with me today about Kentucky Power's New Manufactured Home Program. The goal of this discussion is to talk more fully about your awareness of the program, and find out about dealer and customer interest in the program and get any suggestions you have for improving it. All comments will remain confidential and be provided to Kentucky Power in summary form.

First, I'd like to get a little better understanding of your company's background and your role there.

1. What is your current title? What are your responsibilities?
2. How long has your company been in business in Kentucky?

Next, I'd like to discuss your awareness of the New Manufactured Homes Program.

Program Participation

3. Are you aware that Kentucky Power offers rebates for energy efficient mobile homes? (IF YES, continue to next question. If no, read description of program below)

   Kentucky Power provides a $450 incentive to manufactured home buyers who purchase a new home with zone 3 insulation and a high efficiency air-source heat pump. Heat pump requirements include Seasonal Energy Efficiency Ratio (SEER) ≥ 15 and Heating Seasonal Performance Factor (HSPF) ≥ 8.5. They also provide a $1,200 incentive to manufactured home buyers who purchase a new ENERGY STAR certified home.

4. Have you had any customers receive a rebate from Kentucky Power through the New Manufactured Homes program? If yes, how many?
5. How many mobile homes do you sell per year at this location?
6. Do you sell Energy Star certified homes? Why or why not?
7. Have you been contacted by DNV GL or Kentucky Power about the program? Please describe.
8. Have you seen or received any marketing materials about the program?
9. Does the fact that Kentucky Power offers an incentive to mobile home buyers, help increase the sales for mobile homes in your area?

Customer Interest in E.E.

10. When customers come to purchase a mobile home, how important are energy costs or energy savings in their purchasing decision?
11. Do you typically promote energy efficient homes to customers? Why or why not?
12. What do you see as the benefits to customers of purchasing an energy efficient home?
13. What are the biggest barriers to selling energy efficient homes? Are there barriers other than cost?
14. (IF SELL ENERGY STAR HOMES) Have you had any problems/challenges associated with the Energy Star Certified Homes? How were those problems/challenges overcome?

Incentives

15. Do you think Kentucky Power's rebates can be effective in helping customers purchase more energy efficient mobile homes? If no, why not? What else is needed?
16. Do you feel the program's incentives can benefit the local economy?
17. Can you recommend any changes or improvements to the program?

Free Ridership (Only ask if sold to a customer who received an incentive)

18. Do you think customers who received an incentive from Kentucky Power would have purchased the same energy efficient home without the rebate provided by the program? Why or why not?
19. How influential do you think the rebate was in their purchasing decision?
20. Do you think that after participating in the program, these customers are more likely to buy other high efficiency equipment in the future, either on their own or through another Kentucky Power program? Why or why not?

Closing

21. Do you have any other comments you would like to provide to Kentucky Power?

Commercial Incentive Prescriptive/Custom and New Construction Programs - Contractors

We understand your company is one of the contractors that worked with participants of Kentucky Power's commercial energy efficiency programs. Are you the best person to speak to about this program?

- *If not, ask for contact information for the best person.*
- *If yes, ask if this is a good time or should reschedule – say how long it will take which is?*

Thank you for talking with me today about Kentucky Power's Programs. The goal of this discussion is to talk more fully about your experience with the program, and find out what works in the program and any suggestions you have for improving it. All comments will remain confidential and only provided to Kentucky Power in summary form.

First, I'd like to get a little better understanding of your company's background and your role there.

1. What is your current title? What are your responsibilities?
2. Please describe what your company does.
3. How long has your company been in business?
4. What geographical area do you serve?
5. How did you first hear about Kentucky Power's commercial programs?
6. How many commercial projects have you done in 2016 for customers who received rebates from Kentucky Power? How many of those projects were new construction? How many were custom? Prescriptive?
7. Was this your first experience with Kentucky Power's energy efficiency programs? If not, what other programs have you been involved in?

EE Equipment

8. Do you specifically promote energy efficient equipment to customers? Why or why not?
    a. [IF YES] Do you feel you are effective in promoting energy efficient equipment?
9. What do you see as the benefits to customers of purchasing energy efficient equipment?
10. What are the biggest barriers to selling energy efficient equipment? Are there barriers other than cost?
11. Do you regularly stock energy efficient equipment? Compared to standard equipment does it take longer for customers to get EE equipment installed? When you go out on a repair call is an EE replacement unit on the truck?
12. Is your stocking of equipment limited to what your distributors stock? What is the influence of distributor stocking decisions on the equipment you sell?

Experience with Kentucky Power and DNV GL

13. How did you first become aware of Kentucky Power's commercial programs?
14. Would you like training either about the programs or about the benefits of energy efficient equipment and processes?
15. Do you have any direct contact with Kentucky Power? IF YES, how is your relationship with Kentucky Power? Are they responsive to your needs?

16. How is your relationship with DNV GL? Are they able to address questions about the program? Do you get responses in a timely manner?

Program Operations

17. Please briefly describe how the Kentucky Power program operates. What is the sequence of steps for a customer to receive a rebate?
18. When they first come to you, are your customers aware that Kentucky Power offers rebates, or are you the one who tells them?
19. Do you recommend the program to your customers? If no, why not?
20. What is the typical timeline for a project? How long does it typically take for a customer to get a project approved?
21. Do you typically help the customer complete the application for the incentive? Is the program application easy to complete? Is there anything about the application you would like to change?
22. Does the customer typically receive the rebate from Kentucky Power, or do you have them sign over the rebate to you?
    a. [IF SIGNED OVER] How long does it take on average for you to receive the rebate from Kentucky Power once you submit the final application?
23. Does the amount of the rebates seem appropriate? If not, why not? What, if any, changes to the rebates do you think may be needed?

Customer Satisfaction

24. Are there any specific aspects of the program that are working very well? Any not working well? *(Probe for details*) What could be done to improve the program?
25. Are customers satisfied with the program overall? With the measures installed? Are they satisfied with the rebate amount?
26. Are you satisfied with the program?
27. Do you have any recommended changes or improvements to the program?

Program Effectiveness

28. For customers that received a rebate from Kentucky Power, do you think they would have installed the same equipment without the rebate? Why or why not?
29. Do you think that customers who participate in the program are more likely to buy other high efficiency equipment in the future, either on their own, or through a Kentucky Power program? Why or why not?
30. Is the program good for your business? Do you get more customers because of the program? Does the program increase your revenue? Increase your profit?

Closing

31. Do you have any other comments you would like to provide to Kentucky Power?

Express Install Program - Contractors

We understand that your company is one of the subcontractors that worked with Lime Energy for Kentucky Power's Express Install Program. Are you the best person to speak to about this program?

- *If not, ask for contact information for the best person.*
- *If yes, ask if this is a good time or should reschedule – the interview will take approximately 20 minutes.*

Thank you for talking with me today about Kentucky Power's Express Install Program. The goal of this discussion is to talk more fully about your experience with the program, and find out what works in the program and any suggestions you have for improving it. All comments will remain confidential and be provided to Kentucky Power in summary form.

First, I'd like to get a little better understanding of your company's background and your role there.

1. What is your current title? What are your responsibilities?
2. Please describe what your company does.
3. How long has your company been in business?

Next, I'd like to discuss your experience with the Express Install Program.

Program Participation

4. How did you first hear about the Express Install Program?
5. How many projects have you completed in 2016 for the Express Install Program? Approximately what % of your total customers come through the program?
6. What is your role in this program?
7. Was this your first experience with Kentucky Power's energy efficiency programs? If no, what other programs have you been involved in?
8. What is your relationship with Lime Energy? With Kentucky Power?
9. What was required for you to be a participating contractor in the program? Do you think the requirements for contractors are too strict and discourage other contractors from participating in the program?
10. Do you feel that Lime Energy and Kentucky Power provide enough information, support and training for contractors involved in the program?
11. Does your company benefit from the Express Install program? Do you think you make more money because of the program? Have more satisfied customers? Get more repeat business?

Energy Efficiency Measures

12. What do you see as the benefits to customers of installing energy efficient equipment?
13. Have you had any problems/challenges associated with the installation of the equipment rebated by the program? How were those problems/challenges overcome?
14. Once the equipment is installed, do you go over what was installed and make sure it matches the proposal provided to the customer by Lime Energy? Has there been any issues or discrepancies between what was installed and what was recommended in the audit proposal?

Satisfaction

15. Overall are participants in the Express Install program satisfied with the energy efficient equipment they have purchased?
16. Are the participants in the Express Install program satisfied with the program overall? What type of feedback have you heard from customers?
17. From your point of view, what is working well in the Express Install Program?
18. What changes do you recommend to improve the Express Install Program?

Free Ridership

19. Do you think participants in the Express Install program would have installed the same energy efficiency equipment without the rebate and turnkey installation services provided by the program? Why or why not?
20. How influential do you think the audit, installation services, and the rebate was in their purchasing decision? How influential is the financing available through Lime Energy?
21. Do you think that that after participating in the program, these customers are more likely to buy other high efficiency equipment in the future, either on their own or through another Kentucky Power program? Why or why not?

Closing

22. Do you have any other comments you would like to add about your experience with the Express Install program?

School Energy Manager Program – Managers

Thank you for talking with me today about Kentucky Power's School Energy Manager Program. The goal of this discussion is to talk more fully about your experience with the program, and find out what works in the program and any suggestions you have for improving it. All comments will remain confidential and be provided to Kentucky Power in summary form.

First, I'd like to discuss your role as a School Energy Manager.

School Energy Manager Role

1. How did you get hired as a school energy manager? How did you hear about the opportunity?
2. What are your main duties and responsibilities?
3. How many energy efficiency projects have you done in 2016 through the program?
4. Do you provide formal reports on the program performance and results? What is included in those reports? Who is given the reports?
5. Do the projects you fund qualify for rebates from other Kentucky Power programs?
6. Have you started a student energy team? If yes, how successful has that been? (PROBE FOR NUMBER OF STUDENTS INVOLVED AND PROJECTS COMPLETE)
7. What type of oversight is performed by the Kentucky School Boards Association (KSBA)?
8. What are the main barriers to implementing energy efficiency projects? What specific obstacles do you face?
9. How have the schools benefited from having a school energy manager?

Energy Efficiency Measures

10. Have you had any problems/challenges associated with the installation and performance of energy efficient equipment? How were those problems/challenges overcome?
11. Overall are you and the administration satisfied with the energy efficient equipment purchased?
12. What other improvements do you hope to make in 2017? What are the obstacles to implementing those improvements?

Satisfaction

13. Are you satisfied with the program overall? What type of feedback have you heard from administration, school teachers and staff, students or parents?
14. From your point of view, what is working well in the School Energy Manager Program?
15. What changes do you recommend to improve the School Energy Manager Program?

Free Ridership

16. Do you think the schools would have implemented the same projects in the same time frame if they didn't have an energy manager? Why or why not?
17. Do you think the schools would have hired an energy manager without the funding from Kentucky Power?
18. [IF RECEIVED REBATES FROM OTHER PROGRAMS] How influential do you think the rebates from Kentucky Power have been in the decision to move forward with the energy efficiency projects?

19. Do you think that after participating in the program, and having you as an energy manager the schools are more likely to buy other high efficiency equipment in the future? Why or why not?

Closing

20. Do you have any other comments you would like to add about your experience with the School Energy Manager program?

3
PARTICIPANT SURVEY GUIDES

Whole House Efficiency Program

Hello, my name is [INSERT INTERVIEWER NAME], and I'm calling on behalf of Kentucky Power regarding your household's participation in their Whole House Energy Efficiency Program.

(IF NECESSARY: I'm not selling anything; I'd just like to ask your opinion about this program. Your responses will be kept confidential and your individual responses will not be revealed to anyone.)

S1. Would you be willing to participate in a short survey to help Kentucky Power evaluate and improve the Whole House Energy Efficiency Program? All your answers will be kept confidential.

- Yes
- No (THANK AND TERMINATE)

(IF ASKED TIMING OF STUDY: This survey should take about 10 minutes)

(IF KENTUCKY POWER CONTACT IS REQUESTED: If you would like to talk with someone from Kentucky Power about this study, feel free to contact: Barrett Nolen at (606) 929-1696 or blnolen@aep.com

S2. Do you recall participating in the Whole House Energy Efficiency Program?

(IF NECESSARY: Program participants receive a free home energy assessment performed by a professional auditor and/or rebates on heating and cooling equipment. If you had a home energy assessment, the auditor would have provided recommendations to make your home more energy efficient which can include recommendation on the installation of energy efficient HVAC equipment and weatherization improvements that may qualify for a rebate from Kentucky Power. During the home energy assessment, you may have also received free installation of energy conservation equipment such as LED bulbs, water heater wrap, etc.)

- Yes
- No – Is there someone else in the household more familiar with the program? (IF YES GET CORRECT PERSON ON PHONE AND GO BACK TO S1; IF NO THANK AND TERMINATE)

Awareness and Scheduling

1. How did you learn about the Whole House Energy Efficiency Program? (DO NOT READ; CHECK ALL THAT APPLY)

   Bill insert
   Bill Message
   Postcard
   Television ad
   Newspaper ad
   Radio ad
   Phone call
   Online banner ad
   Community Event
   Social media (e.g. Facebook or Twitter)
   Friends/family/co-workers
   Other (specify: _____)

(IF HVAC ONLY SKIP TO Q19)

2. Were you able to schedule a home energy assessment at a time that was convenient for you?

   Yes
   No

3. Starting from the time you scheduled your home energy assessment, how many days passed before the assessment took place?

   _____Days

4. Do you think that was a reasonable amount of time?

   Yes
   No

Home Energy Assessment

5. Before your home energy assessment did someone call or email you to confirm the date and time of the scheduled audit?

   Yes
   No

6. On the date of your home energy assessment, were you called to let you know someone would be arriving soon?

   Yes
   No

7. Did the energy advisor conducting the home assessment act professionally?

   Yes
   No

8. [IF Q7 = NO] Can you please describe any unprofessional behavior?

9. Did the auditor install equipment during the home energy assessment such as LED light bulbs, faucet aerators, low flow showerheads, water heating and pipe insulation, duct sealing or weather stripping?

   Yes
   No

10. [IF Q9 = YES] On a scale of 1 to 5, with 1 meaning "Not at all Satisfied" and 5 meaning "Very Satisfied" how satisfied were you with the equipment the auditor installed?

    1 Not at all Satisfied
    2
    3
    4
    5 Very Satisfied

11. [IF Q9 = YES] Have you removed any of the equipment that the auditor installed?

    Yes
    No

12. [IF Q11 = YES] What did you remove?

    LED bulb
    Faucet Aerator
    Low flow showerhead
    Weather stripping
    Duct Sealing
    Water Heater Insulation
    Water Pipe Insulation

13. [IF Q11 = YES] Why did you remove the equipment?

14. Did you receive and review a report from the energy advisor that listed recommended improvements for your home?

    Yes
    No

15. [IF Q14 = YES] On a scale of 1 to 5, with 1 meaning "Not at all Satisfied" and 5 meaning "Very Satisfied" how satisfied were you with the home energy assessment report?

    1 Not at all Satisfied
    2
    3
    4
    5 Very Satisfied

Other Energy Efficiency Rebates

16. Did you receive information in the home assessment report about the cash incentives available from Kentucky Power for additional energy efficiency improvements (heat pumps, smart communicating thermostats, extensive duct sealing, insulation)?

    Yes
    No

17. [IF Q14 = YES] Did you purchase and install any of the recommended improvements in the home energy assessment report?

    Yes
    No

18. [IF Q17 = No] Why not?

19. [IF Q17 = YES OR HVAC ONLY] Did you purchase any heating or cooling equipment that qualified for a rebate from Kentucky Power such as a heat pump or a smart thermostat?

    Yes
    No -→SKIP TO FREE RIDERSHIP SECTION

20. [IF Q19 = YES] What type of equipment did you purchase?

    Heat pump
    Heat pump ductless mini split
    Smart programmable communicating thermostat
    Extensive duct sealing
    Insulation (attic, basement, side-wall)

21. [IF Q19 = YES] On a scale of 1 to 5 with 1 meaning "Not at all Satisfied" and 5 meaning "Very Satisfied" how satisfied were you with the contractor who installed your new [INSERT EQUIPMENT TYPE FROM Q20]?

    1 Not at all Satisfied
    2
    3
    4
    5 Very Satisfied

22. [IF Q19 = YES] Using the same scale how satisfied are you with your new [INSERT EQUIPMENT TYPE FROM Q20]?

    1 Not at all Satisfied
    2
    3
    4
    5 Very Satisfied

23. [IF Q19 = YES] Did you complete the Kentucky Power rebate application or did your contractor?

    Respondent completed
    Contractor completed

24. [IF Q19 = YES] Approximately how many weeks did it take to receive your rebate from Kentucky Power once your [INSERT EQUIPMENT TYPE FROM Q20] was installed?

    _____Weeks

25. [IF Q19 = YES] Do you think that was a reasonable amount of time?

    Yes
    No

Free Ridership

(IF HVAC ONLY SKIP TO Q29)

26. On a scale of 1 to 5, with 1 meaning "Not at all Likely" and 5 meaning "Very Likely", how likely is it that you would have paid for a home energy assessment if the Kentucky Power program had not been available?

    1 Not at all likely
    2
    3
    4
    5 Very likely

27. [IF Q9 = YES] You mentioned the auditor installed free equipment such as LEDs and faucet aerators during the home energy assessment. Using the same scale, how likely is it that you would have purchased and installed the energy efficiency equipment on your own, if you did not receive the free home energy assessment from Kentucky Power?

    1 Not at all likely
    2
    3
    4
    5 Very likely

28. [IF Q17 = YES] Using a scale of 1 to 5, how likely is it that you would have purchased and installed the recommended energy efficiency improvements on your own, if you did not receive the home energy assessment recommendations?

    1 Not at all likely
    2
    3
    4
    5 Very likely

29. [IF Q19 = YES OR HVAC ONLY] Using a scale of 1 to 5, how likely is it that you would have purchased the [INSERT EQUIPMENT FROM Q20] on your own, if you did not receive the rebate from Kentucky Power?

    1 Not at all likely
    2
    3
    4
    5 Very likely

30. As a result of participating in the program, did you purchase any additional energy efficient equipment that wasn't recommended in the energy assessment report?

    Yes
    No

31. [IF Q30 = YES] What energy efficient equipment did you purchase? (Check all that apply)

    Lighting
    HVAC
    Refrigeration
    Appliances
    Water Heating
    Other (specify: _____)

32. [IF Q30 = YES] Did you receive a rebate for purchasing this equipment?

    Yes
    No

Kentucky Power Programs

33. Are you aware of any of the following Kentucky Power programs? (READ LIST; CHECK IF AWARE)

    Appliance Recycling Program. A contractor pick ups and disposes of refrigerators and freezers and provides customers with a $50 incentive.
    Residential Efficient Products Program that provides incentives for the purchase and installation of efficient lighting and appliances.
    Community Outreach Program. Kentucky Power distributes energy conservation measures and customer energy education to customers at company-sponsored community events.
    New Manufactured Homes. Provides incentives to customers that purchase an energy efficient mobile home.
    Targeted Energy Efficiency that provides weatherization and energy efficiency services to qualifying residential customers who need help reducing their energy bills.
    None (SKIP TO Q35)

34. On a scale of 1 to 5, how likely is it that you will participate in one or more of these Kentucky Power programs?

    1 Not at all Likely
    2
    3
    4
    5 Very Likely

Demographics

Now I'd like to ask a few final questions about your household.

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

    Single-family detached house
    Single-family attached house
    Building with 2 to 4 units
    Building with 5 or more units
    Mobile home or house trailer or
    Other (specify)

36. Do you own or rent your home?

    Own
    Rent

37. Do you have central air conditioning in your home?

    Yes
    No

38. What type of fuel is used to heat your home?

    Electricity
    Natural gas
    Propane
    Fuel Oil
    Other (specify)

Energy Efficiency Products Program

Sample includes only those who received a rebate for an appliance purchase

Hello, my name is [INSERT INTERVIEWER NAME], and I'm calling on behalf of Kentucky Power regarding your household's participation in their Residential Efficient Products Rebate Program.

(IF NECESSARY: I'm not selling anything; I'd just like to ask your opinion about this program. Your responses will be kept confidential and your individual responses will not be revealed to anyone.)

S1. Would you be willing to participate in a short survey to help Kentucky Power evaluate and improve the Residential Efficient Products Program? All your answers will be kept confidential.

- Yes
- No (THANK AND TERMINATE)

(IF ASKED TIMING OF STUDY: This survey should take about 10 minutes)

(IF KENTUCKY POWER CONTACT IS REQUESTED: If you would like to talk with someone from Kentucky Power about this study, feel free to contact Scott Bishop at (606) 929-1694 or sebishop@aep.com)

S2. Do you recall participating in the Residential Efficient Products Program?

(IF NECESSARY: Participants in the program receive a rebate for purchasing Energy Star certified clothes washers, dehumidifiers or air purifiers)

- Yes
- No – Is there someone else in the household more familiar with the program? (IF YES GET CORRECT PERSON ON PHONE AND GO BACK TO S1; IF NO THANK AND TERMINATE)

Awareness and Purchase

1. How did you learn about the Residential Efficient Products Program? (DO NOT READ; CHECK ALL THAT APPLY)

   Bill insert
   Bill message
   Newspaper ad
   Radio ad
   Point of Purchase Materials at Store
   Store personnel
   Online banner ad
   Social media (e.g. Facebook or Twitter)
   Friends/family/co-workers
   Other (specify: _____)

2. Did you know about the rebate from Kentucky Power before you went to the store?

   Yes
   No

3. When you purchased the appliance did the retailer discuss with you the potential energy savings you could achieve by installing a more energy efficient unit?

   Yes
   No

4. Who completed the rebate application, was it you, the retailer or both of you together?

   Respondent
   Retailer (SKIP TO Q7)
   Both

5. Did you find the application easy to complete?

   Yes
   No

6. (IF Q5 = No) What about the application was difficult to complete?

7. Approximately how many weeks did it take to receive your rebate from Kentucky Power once the application was mailed?

   _____Weeks

8. Do you think that was a reasonable amount of time?

   Yes
   No

Satisfaction

9. On a scale of 1 to 5 with 1 meaning "Not at all Satisfied" and 5 meaning "Very Satisfied" how satisfied were you with the following:

   1 Not at all Satisfied
   2
   3
   4
   5 Very Satisfied

   a. The amount of the rebate
   b. The quality and performance of your new appliance
   c. The savings on your energy bill
   d. The appliances rebated

10. (If 9D = 1, 2 or 3) Which additional products should be rebated?

Free Ridership

11. Before you went to the store, were you planning on buying an Energy Star appliance?

    Yes
    No

12. Using a scale of 1 to 5, with 1 meaning Not at all likely and 5 being Very likely, how likely is it that you would have purchased an Energy Star appliance on your own, if you did not receive the rebate from Kentucky Power?

    1 Not at all likely
    2
    3
    4
    5 Very likely

13. As a result of participating in the program and receiving the rebate from Kentucky Power, did you purchase any additional energy efficient equipment?

    Yes
    No

14. [IF Q13 = YES] What energy efficient equipment did you purchase? (Check all that apply)

    Lighting
    HVAC
    Refrigeration
    Appliances
    Water Heating
    Other (specify: _____)

15. [IF Q13 = YES] Did you receive a rebate for purchasing this equipment?

    Yes
    No

Kentucky Power Programs

16. Are you aware of any of the following Kentucky Power programs? (READ LIST; CHECK IF AWARE)

    Appliance Recycling Program. A contractor pick ups and disposes of refrigerators and freezers and provides customers with a $50 incentive.
    Community Outreach Program. Kentucky Power distributes energy conservation measures and customer energy education to customers at company-sponsored community events.
    New Manufactured Homes. Provides incentives to customers that purchase an energy efficient mobile home.
    Whole House Efficiency. An in-home audit and rebates on weatherization products and heating and cooling equipment.
    Targeted Energy Efficiency that provides weatherization and energy efficiency services to qualifying residential customers who need help reducing their energy bills.
    None of the above (SKIP TO Q18)

17. On a scale of 1 to 5, how likely is it that you will participate in one or more of these Kentucky Power programs?

    1 Not at all Likely
    2
    3
    4
    5 Very Likely

Demographics

Now I'd like to ask a few final questions about your household.

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

    Single-family detached house
    Single-family attached house
    Building with 2 to 4 units
    Building with 5 or more units
    Mobile home or house trailer or
    Other (specify)

19. Do you own or rent your home?

    Own
    Rent

20. Do you have central air conditioning in your home?

    Yes
    No

21. What type of fuel is used to heat your home?

    Electricity
    Natural gas
    Propane
    Fuel Oil
    Other (specify)

Community Outreach Program

How did you hear about the outreach event?

Why did you choose to attend the event?

How many of the LEDs lamps that you received today do you plan to immediately install in your home?

____ 0

____ 1

____ 2

In what rooms in your home do you plan to install the LEDs? (Check all that apply)

____ Bedroom ____ Bathroom

____ Kitchen ____ Living Room

____ Exterior (outside lights)

Other (specify) _____

What type of light bulbs will the LEDs replace? (Check all that apply)

____ Traditional incandescent

____ CFLs

____ LEDs

____Other (specify) _____

Have you considered replacing all or some of the light bulbs in your home with LEDs?

____ Yes

____ No

How likely is it that you would have purchased and installed similar LEDs if Kentucky Power was NOT DISTRIBUTING them for FREE?

____ Very Likely ____ Somewhat Unlikely

____ Somewhat Likely ____ Very Unlikely

____ Neutral

Approximately how many LEDs are currently installed in your home?

____ 0 ____ 6 – 10

____ 1 - 2 ____ More than 10

____ 3 – 5

What has prevented you from using LEDs in the past? (Check all that apply)

____ I thought it would cost too much money ____ I was not sure how long I would remain in my home

____ I was not convinced I would save more money ____ I did not like the light quality of LEDs

____ LEDs do not properly fit my lighting fixtures Other (please specify) _____

Do you plan to install the faucet aerator and the refrigerator thermometer immediately in your home?

_____Yes, both _____Yes, Aerator Only

_____Yes, Thermometer Only

_____No, Why not? _____

Do you currently have any faucet aerators or a refrigerator thermometer installed in your home?

____ Yes, both. Number of aerators_____

____ Yes, aerators only. Number of aerators_____

____ Yes, refrigerator thermometer

____ No

How likely is it that you would have purchased and installed a similar refrigerator thermometer if Kentucky Power was NOT DISTRIBUTING them for FREE?

____ Very Likely ____ Somewhat Unlikely

____ Somewhat Likely ____ Very Unlikely

____ Neutral

How many outreach events have you attended? Most recent year?

How influential was the Kentucky Power energy savings program(s) on your decision to attend the Community Outreach Event?

____ Very Influential ____ Slightly Influential

____ Somewhat Influential ____ Not Influential

____ Neutral

How do you prefer to receive information on Kentucky Power energy savings program (check all that apply)?

____Television ____Radio

____Newspaper ____Online/Web

____Bill Inserts ____Community Events

Thank you for taking the time to answer the survey!

In what room do you plan to install the faucet aerator?

____ Bathroom

____ Kitchen

Other (Please Specify) _____

How likely is it that you would have purchased and installed similar faucet aerators if Kentucky Power was NOT DISTRIBUTING them for FREE?

____ Very Likely ____ Somewhat Unlikely

____ Somewhat Likely ____ Very Unlikely

____ Neutral

Have you participated in any Kentucky Power energy savings programs? (Check all that apply)

____ Residential Efficient Products Program

____ Appliance Recycling Program

____ Residential Home Performance Program

____ Residential New Manufactured Home Program

____ Whole House Energy Efficiency Program

____ Targeted Energy Efficiency Program

How likely are you to participate in one of these Kentucky Power energy savings program?

____ Very Likely ____ Slightly Likely

____ Somewhat Likely ____ Not Likely

____ Neutral

Are you a customer of Kentucky Power?

____Yes ____No

Is your home a:

____House ____ Apartment

____Condominium ____Townhouse

____Mobile Home

Other (specify) _____

Energy Education for Students – Parents

Hello, my name is [INSERT INTERVIEWER NAME], and I'm calling on behalf of Kentucky Power regarding your child's participation in the Energy Education Program they participated in at school.

(IF NECESSARY: I'm not selling anything; I'd just like to ask your opinion about this program. Your responses will be kept confidential and your individual responses will not be revealed to anyone.)

S1. Would you be willing to participate in a short survey to help Kentucky Power evaluate and improve the Energy Education for Students Program? All your answers will be kept confidential.

- Yes
- No (THANK AND TERMINATE)

(IF ASKED TIMING OF STUDY: This survey should take about 10 minutes)

(IF KENTUCKY POWER CONTACT IS REQUESTED: If you would like to talk with someone from Kentucky Power about this study, feel free to contact: Barrett Nolen at (606) 929-1696 or blnolen@aep.com)

S2. Do you recall your child bringing home an energy saving kit from school?

(IF NECESSARY: Students in the program receive an energy savings kit to take home that includes LED light bulbs, a faucet aerator and a refrigerator thermometer)

- Yes
- No – Is there someone else in the household more familiar with the program? (IF YES, GET CORRECT PERSON ON PHONE AND GO BACK TO S1; IF NO THANK AND TERMINATE)

Energy Saving Kits

1. Your energy saving kit included 2 LED bulbs. How many of the LEDs that you received in the kit did you install in your home?

   None
   One
   Two

2. (IF Q1 = None or One) What did you do with the LEDs that you have not installed?

   Have them in storage
   Gave them away
   Threw them away
   Other (specify: _____)
   Don't know

[IF Q1 = None SKIP TO Q7)

3. In what rooms did you install the LEDs? (CHECK ALL THAT APPLY)

   Bedroom
   Bathroom
   Kitchen
   Living Room
   Exterior
   Other (specify: _____)

4. What type of light bulbs did the LEDs you installed from the kit replace? (CHECK ALL THAT APPLY)

   Traditional Incandescent
   CFL
   LED
   Other (specify: _____)

5. Have you removed any of the LEDs were installed?

   Yes
   No

6. (IF Q5 = YES) Why did you remove the LEDs?

7. Did you install the faucet aerator in your home?

   Yes
   No

8. (IF Q7 = YES) In what room did you install the faucet aerator?

   Kitchen
   Bathroom
   Other (specify: _____)

9. Did you install the refrigerator thermometer?

   Yes
   No

10. Along with the energy saving kit, did your child bring home a letter for you to complete and return?

    Yes
    No

11. Did you complete the letter and have your child return it to school?

    Yes
    No

12. [IF Q11 = No] Why not?

Satisfaction

13. On a scale of 1 to 5 with 1 meaning "Not at all Satisfied" and 5 meaning "Very Satisfied" how satisfied were you with the following:

    1 Not at all Satisfied
    2
    3
    4
    5 Very Satisfied

    a. The energy saving kit overall
    b. The quality of the products in the energy saving kit
    c. The information your child learned in school about energy

Free Ridership

14. Using a scale of 1 to 5, with 1 meaning Not at all likely and 5 being Very likely, how likely is it that you would have purchased the products included in the Energy Saving kit on your own, if your child had not brought the energy saving kit home from school?

    1 Not at all likely
    2
    3
    4
    5 Very likely

15. Has your household made any changes in your home in an effort to save energy or lower your utility bill as a result of your child learning about energy in school?

    Yes
    No

16. [IF Q15 = YES] What changes have you made?

Kentucky Power Programs

17. Are you aware of any of the following Kentucky Power programs? (READ LIST; CHECK IF AWARE)

    Appliance Recycling Program. A contractor picks up and disposes of refrigerators and freezers and provides customers with a cash incentive.
    Community Outreach Program. Kentucky Power distributes energy conservation measures and customer energy education to customers at company-sponsored community events.
    New Manufactured Homes. Provides incentives to customers that purchase an energy efficient mobile home.
    Targeted Energy Efficiency that provides weatherization and energy efficiency services to qualifying residential customers who need help reducing their energy bills.
    Residential Efficient Products Program that provides incentives for the purchase and installation of efficient lighting and appliances.
    Whole House Efficiency that includes an in-home audit and rebates on weatherization products and heating and cooling equipment.
    None of the above (SKIP TO Q19)

18. On a scale of 1 to 5, how likely is it that you will participate in one or more of these Kentucky Power programs?

    1 Not at all Likely
    2
    3
    4
    5 Very Likely

Demographics

Now I'd like to ask a few final questions about your household.

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

    Single-family detached house
    Single-family attached house
    Building with 2 to 4 units
    Building with 5 or more units
    Mobile home or house trailer or
    Other (specify)

20. Do you own or rent your home?

    Own
    Rent

21. Do you have central air conditioning in your home?

    Yes
    No

22. What type of fuel is used to heat your home?

    Electricity
    Natural gas
    Propane
    Fuel Oil
    Other (specify)

New Manufactured Homes Program

Hello, my name is [INSERT INTERVIEWER NAME], and I'm calling on behalf of Kentucky Power regarding your household's participation in their New Manufactured Home Program.

(IF NECESSARY: I'm not selling anything; I'd just like to ask your opinion about this program. Your responses will be kept confidential and your individual responses will not be revealed to anyone.)

S1. Would you be willing to participate in a short survey to help Kentucky Power evaluate and improve the New Manufactured Home program? All your answers will be kept confidential.

- Yes
- No (THANK AND TERMINATE)

(IF ASKED TIMING OF STUDY: This survey should take about 10 minutes)

(IF KENTUCKY POWER CONTACT IS REQUESTED: If you would like to talk with someone from Kentucky Power about this study, feel free to contact Scott Bishop at (606) 929-1694 or sebishop@aep.com)

S2. Do you recall participating in the New Manufactured Home Program?

(IF NECESSARY: For this program, you would have received a rebate check from Kentucky Power for purchasing a more energy efficient mobile home.)

- Yes
- No – Is there someone else in the household more familiar with the program? (IF YES GET CORRECT PERSON ON PHONE AND GO BACK TO S1; IF NO THANK AND TERMINATE)

Awareness and Scheduling

1. How did you learn about the New Manufactured Home Program? (DO NOT READ; CHECK ALL THAT APPLY)

   Mobile home dealer
   Bill insert
   Bill Message
   Postcard
   Television ad
   Newspaper ad
   Radio ad
   Phone call
   Online banner ad
   Community Event
   Social media (e.g. Facebook or Twitter)
   Friends/family/co-workers
   Other (specify: _____)

2. What was the name of the mobile home dealer where you purchased your home?

   Clayton Homes
   Other (specify: _____)

3. Did you shop at any other dealers before you made your final purchase?

   Yes
   No

4. [IF Q3 = Yes] What other dealers did you shop at?

   Clayton Homes
   Other (specify: _____)

5. Did you know about the rebate from Kentucky Power before you went to the mobile home dealer?

   Yes
   No

6. When you purchased the mobile home did the sales person discuss with you the potential energy savings you could achieve by purchasing a more energy efficient unit?

   Yes
   No

7. Who completed the rebate application, was it you, the dealer or both of you together?

   Respondent
   Dealer (SKIP TO Q10)
   Both

8. Did you find the application easy to complete?

   Yes
   No

9. (IF Q8 = No) What about the application was difficult to complete?

10. Approximately how many weeks did it take to receive your rebate from Kentucky Power once the application was mailed?

    _____Weeks

11. Do you think that was a reasonable amount of time?

    Yes
    No

Satisfaction

12. On a scale of 1 to 5 with 1 meaning "Not at all Satisfied" and 5 meaning "Very Satisfied" how satisfied were you with the following:

    1 Not at all Satisfied
    2
    3
    4
    5 Very Satisfied

    a. The amount of the rebate
    b. The quality of your new home
    c. The comfort of your new home
    d. The savings on your energy bill
    e. The dealer that you purchased the home from

13. (If 12e = 1, 2 or 3) Why were you not very satisfied with the dealer?

Free Ridership

[IF SAMPLE – TIER ONE ASK Q14 and Q15]

14. Before you went to the mobile home dealer, were you planning to buy an energy efficient mobile home?

    Yes
    No

15. Using a scale of 1 to 5, with 1 meaning Not at all likely and 5 being Very likely, how likely is it that you would have purchased an energy efficient mobile home that included Zone 3 insulation and a high efficiency air source heat pump on your own, if you did not receive the rebate from Kentucky Power?

    1 Not at all likely
    2
    3
    4
    5 Very likely

[IF SAMPLE – ENERGY STAR ASK Q16 and Q17; TIER ONE SKIP TO Q18]

16. Before you went to the mobile home dealer, were you planning to buy an Energy Star mobile home?

    Yes
    No

17. Using a scale of 1 to 5, with 1 meaning Not at all likely and 5 being Very likely, how likely is it that you would have purchased an Energy Star mobile home on your own, if you did not receive the rebate from Kentucky Power?

    1 Not at all likely
    2
    3
    4
    5 Very likely

18. As a result of participating in the program and receiving the rebate from Kentucky Power, did you purchase any additional energy efficient equipment?

    Yes
    No

19. [IF Q18 = YES] What energy efficient equipment did you purchase? (Check all that apply)

    Lighting
    HVAC
    Refrigeration
    Appliances
    Water Heating
    Other (specify:_____)

20. [IF Q18 = YES] Did you receive a rebate for purchasing any of this equipment?

    Yes
    No

Kentucky Power Programs

21. Are you aware of any of the following Kentucky Power programs? (READ LIST; CHECK IF AWARE)

    Appliance Recycling Program. A contractor pick ups and disposes of refrigerators and freezers and provides customers with a $55 incentive.
    Community Outreach Program. Kentucky Power distributes energy conservation measures and customer energy education to customers at company-sponsored community events.
    Residential Efficient Products –Discounted lighting at retail stores and rebates for qualifying appliances
    Targeted Energy Efficiency that provides weatherization and energy efficiency services to qualifying residential customers who need help reducing their energy bills.
    Whole House Efficiency that includes an in-home audit and rebates on weatherization products and heating and cooling equipment.
    None of the above (SKIP TO Q23)

22. On a scale of 1 to 5, how likely is it that you will participate in one or more of these Kentucky Power programs?

    1 Not at all Likely
    2
    3
    4
    5 Very Likely

Demographics

Now I'd like to ask a few final questions about your household.

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

    Single-family detached house
    Single-family attached house
    Building with 2 to 4 units
    Building with 5 or more units
    Mobile home or house trailer or
    Other (specify)

24. What type of fuel is used to heat your home?

    Electricity
    Natural gas
    Propane
    Fuel Oil
    Other (specify)

Targeted Energy Efficiency Program

Hello, my name is [INSERT INTERVIEWER NAME], and I'm calling on behalf of Kentucky Power regarding your household's participation in their Targeted Energy Efficiency Program.

(IF NECESSARY: I'm not selling anything; I'd just like to ask your opinion about this program. Your responses will be kept confidential and your individual responses will not be revealed to anyone.)

S1. Would you be willing to participate in a short survey to help Kentucky Power evaluate and improve the Targeted Energy Efficiency Program? All your answers will be kept confidential.

- Yes
- No (THANK AND TERMINATE)

(IF ASKED TIMING OF STUDY: This survey should take about 10 minutes)

(IF KENTUCKY POWER CONTACT IS REQUESTED: If you would like to talk with someone from Kentucky Power about this study, feel free to contact: Barrett Nolen at (606) 929-1696 or blnolen@aep.com

S2. Do you recall participating in the Targeted Energy Efficiency Program?

(IF NECESSARY: This program is run by your local community action agency. They provide energy audits, the installation of home weatherization/energy conservation items and customer education on home energy efficiency.)

- Yes
- No – Is there someone else in the household more familiar with the program? (IF YES GET CORRECT PERSON ON PHONE AND GO BACK TO S1; IF NO THANK AND TERMINATE)

Awareness and Scheduling

1. How did you learn about the Targeted Energy Efficiency Program? (DO NOT READ; CHECK ALL THAT APPLY)

   Community Action Agency
   Bill insert
   Bill Message
   Postcard
   Television ad
   Newspaper ad
   Radio ad
   Phone call
   Online banner ad
   Community Event
   Social media (e.g. Facebook or Twitter)
   Friends/family/co-workers
   Other (specify: _____)

2. Were you able to easily contact your local community action agency and schedule a home energy audit at a time that was convenient for you?

   Yes
   No

3. [IF Q2 =No] What made the scheduling process difficult for you?
4. Starting from the time you scheduled your home energy audit, how many weeks passed before the audit took place?

   _____Weeks
   Unknown
5. Do you think that was a reasonable amount of time?

   Yes
   No

Home Energy Audit

6. Before your home energy audit did someone call or email you to confirm the date and time of the scheduled audit?

   Yes
   No
7. On the date of your home energy audit, were you called to let you know someone would be arriving soon?

   Yes
   No
8. Did the auditor perform a blower door test to find air leaks?

   Yes
   No
9. Did the auditor act professionally?

   Yes
   No
10. [IF Q8 = NO] Can you please describe any unprofessional behavior?
11. On a scale of 1 to 5, with 1 meaning "Not at all Satisfied" and 5 meaning "Very Satisfied" how satisfied were you with the home energy audit?

    1 Not at all Satisfied
    2
    3
    4
    5 Very Satisfied

Measures Installed

12. Which of the following improvements were made in your home through the program? (Read list; check all that apply)

    Air leakage sealing
    Duct Sealing
    Attic, floor, or wall insulation
    Ducts/Boiler Pipes Insulated
    High efficiency lighting upgrades
    Hot water heating insulation/low flow showerhead
    Energy efficient doors or windows
    High efficiency heat pump upgrade
    Other (specify: _____)

13. On a scale of 1 to 5 with 1 meaning "Not at all Satisfied" and 5 meaning "Very Satisfied" how satisfied were you with the following:

    1 Not at all Satisfied
    2
    3
    4
    5 Very Satisfied

    a. The time it took to get approved for the program
    b. The ease of completing the application materials
    c. The staff at the community action agency
    d. The contractor who installed the equipment
    e. The quality and performance of the equipment
    f. The impact on my energy bills

Free Ridership

14. On a scale of 1 to 5, with 1 meaning "Not at all Likely" and 5 meaning "Very Likely", how likely is it that you would have installed the recommended energy efficiency improvements on your own, if you did not receive the equipment through the Targeted Energy Efficiency program?

    1 Not at all likely
    2
    3
    4
    5 Very likely

15. Has the services and energy efficient equipment received helped you reduce energy cost for your home?

    Yes
    No
    Don't know yet

16. [IF Q15 = Don't know yet] Do you anticipate the program improvements will help to reduce your home energy costs?

    Yes
    No
    Don't know

17. As a result of participating in the program, did you purchase any additional energy saving improvements for your home?

    Yes
    No

18. [IF Q17 = YES] What energy efficient equipment improvements did you purchase? (Check all that apply)

    Lighting
    HVAC
    Refrigeration
    Appliances
    Water Heating
    Other (specify: _____)

19. [IF Q17 = YES] Did you receive a rebate for purchasing this equipment?

    Yes
    No

Kentucky Power Programs

20. Are you aware of any of the following Kentucky Power programs? (READ LIST; CHECK IF AWARE)

    Appliance Recycling Program. A contractor pick ups and disposes of refrigerators and freezers and provides customers with a cash incentive.
    Residential Efficient Products Program that provides in store discounts and mail-in rebates for energy efficient lighting and select appliances
    Community Outreach Program. Kentucky Power distributes energy conservation measures and customer energy education to customers at company-sponsored community events.
    New Manufactured Homes. Provides incentives to customers that purchase an energy efficient mobile home.
    None of the Above (SKIP TO Q22)

21. On a scale of 1 to 5, how likely is it that you will participate in one or more of these Kentucky Power programs?

    1 Not at all Likely
    2
    3
    4
    5 Very Likely

Demographics

Now I'd like to ask a few final questions about your household.

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

    Single-family detached house
    Single-family attached house
    Building with 2 to 4 units
    Building with 5 or more units
    Mobile home or house trailer or
    Other (specify)

23. Do you own or rent your home?

    Own
    Rent

24. Do you have central air conditioning in your home?

    Yes
    No

25. What type of fuel is used to heat your home?

    Electricity
    Natural gas
    Propane
    Fuel Oil
    Other (specify)

Appliance Recycling Program

Hello, my name is [INSERT INTERVIEWER NAME], and I'm calling on behalf of Kentucky Power regarding your household's participation in their Appliance Recycling Program.

(IF NECESSARY: I'm not selling anything; I'd just like to ask your opinion about this program. Your responses will be kept confidential and your individual responses will not be revealed to anyone.)

S1. Would you be willing to participate in a short survey to help Kentucky Power evaluate and improve the Appliance Recycling Program? All your answers will be kept confidential.

- Yes
- No (THANK AND TERMINATE)

(IF ASKED TIMING OF STUDY: This survey should take about 10 minutes)

(IF KENTUCKY POWER CONTACT IS REQUESTED: If you would like to talk with someone from Kentucky Power about this study, feel free to contact: Barrett Nolen at (606) 929-1696 or blnolen@aep.com

S2. Do you recall participating in the Appliance Recycling Program?

(IF NECESSARY: You would have received $55 for recycling a refrigerator or freezer through this program).

- Yes
- No – Is there someone else in the household more familiar with having the appliance recycled? (IF YES GET CORRECT PERSON ON PHONE AND GO BACK TO S1; IF NO THANK AND TERMINATE)

Awareness and Pick Up Process

1. How did you learn about the Appliance Recycling Program? (DO NOT READ; CHECK ALL THAT APPLY)

   Bill insert
   Bill Message
   Postcard
   Television ad
   Newspaper ad
   Online banner ad
   Kentucky Power event
   Social media (e.g. Facebook or Twitter)
   Friends/family/co-workers
   Other (specify: _____)

2. Were you able to schedule a pick up at a time that was convenient for you?

   Yes
   No

3. Starting from the time you scheduled your pick up, how many days passed before your appliance was picked up?

   _____Days

4. Do you think that was a reasonable amount of time?

   Yes
   No

5. If the amount of time between scheduling and having your appliance picked up was longer – more than 2 weeks – how much of a problem would that have been for you? Would you say it would have been . . . (READ LIST; SELECT BEST RESPONSE)

   A big problem and you wouldn't have participated in the program
   An annoyance, but you would still have participated
   It wouldn't have made any difference

6. Before your pick up did someone call or email you to confirm the date and time of the scheduled pick up?

   Yes
   No

7. On the pick-up date, were you called to let you know someone would be arriving soon?

   Yes
   No

8. Did the personnel who picked up your appliance act professionally?

   Yes
   No

9. [IF Q8 = NO] Can you please describe any unprofessional behavior?

Appliances Recycled

10. Did you have a refrigerator or a freezer recycled?

    Refrigerator
    Freezer

11. Where was the unit located?

    Kitchen
    Garage
    Porch/Patio
    Basement
    Other (specify)

12. (IF Q10 = REFRIGERATOR) Was the unit you recycled your primary refrigerator or a secondary refrigerator? (IF NECESSARY: A primary refrigerator is the main unit used for food storage, generally in the kitchen. A secondary refrigerator is in addition to a primary and generally used as a spare in the basement, garage, etc.)

    Primary
    Secondary

13. In the year PRIOR to recycling your appliance though the program, was it plugged in all of the time, most of the time, during certain months, occasionally, or never?

    All of the time
    Most of the time
    During certain months
    Occasionally
    Never

14. Approximately how old was the appliance you recycled in years?

    _____Years
    Don't know

15. What was the condition of the appliance you recycled through the program? Would you say that it worked and was in good physical condition, it worked but needed some minor repairs, it worked but needed major repairs, or it did not work?

    Worked and was in good physical condition
    Worked but needed some minor repairs
    Worked but needed major repairs
    Did not work

16. Did you replace the (Refrigerator/Freezer) you recycled through the program with another (Refrigerator/Freezer)?

    Yes
    No

17. [IF Q16 = YES] Did you purchase a brand new (Refrigerator/Freezer)?

    Yes
    No

18. [IF Q17 = NO] Approximately how old in years is the unit you replaced it with?

    ____Years

Free Ridership

19. Before you decided to recycle the appliance through the program, did you plan to dispose of it or keep it?

    Dispose of it
    Keep it
    Don't know

21. The Appliance Recycling Program provided you $55 and free pickup for recycling your appliance. If the program had not been available, in about how many months or years do you think you would have gotten rid of the unit?

    ____Months
    ____Years
    Same time
    Never/Not until it failed
    Other (specify)

22. [IF Q19 = DISPOSE OF IT] Without the Appliance Recycling Program, what would you have done to get rid of your unit?

    Sold it
    Given it away for free/donated it
    Recycled it through a dedicated recycling center (Specify: Which recycling center? _____)
    Taken it to the garbage dump/thrown it away
    Hired someone to remove it
    Put it on a curb
    Had the retailer from whom we purchased the new appliance take it
    Other (specify)
    Don't know

23. [IF Q19 = KEEP IT] How would you have used the appliance if you had kept it? Would you have continued to use it, stored it unplugged, or something else?

    Continued to use it
    Stored it unplugged
    Something else (specify)

24. What is the main reason that you decided to recycle your appliance through the program?

    The incentive
    The free pick-up service provided by the program
    It was a way to recycle it in an environmentally safe way
    A friend/family member's recommendation
    The recommendation from a retailer
    The Kentucky Power branding / sponsorship / marketing
    It was convenient
    Other (specify)

25. As a result of participating in the program, did you purchase any additional energy efficient equipment?

    Yes
    No

26. [IF Q24 = YES] What energy efficient equipment did you purchase? (Check all that apply)

Lighting
HVAC
Refrigeration
Appliances
Water Heating
Other (specify: _____)

27. [IF Q24 = YES] Did you receive a rebate for purchasing this equipment?

Yes
No

Kentucky Power Programs

28. Are you aware of any of the following Kentucky Power programs? (READ LIST; CHECK IF AWARE)

Residential Efficient Products Program that provides incentives for the purchase and installation of efficient lighting and appliances.
Community Outreach Program. Kentucky Power distributes energy conservation measures and customer energy education to customers at company-sponsored community events.
New Manufactured Homes. Provides incentives to customers that purchase an energy efficient mobile home.
Whole House Efficiency that includes an in-home audit and rebates on weatherization products and heating and cooling equipment.
Targeted Energy Efficiency that provides weatherization and energy efficiency services to qualifying residential customers who need help reducing their energy bills.
Other (specify)

29. How likely is it that you will participate in one or more of these Kentucky Power programs?

Very likely
Somewhat likely
Neutral
Somewhat unlikely
Not at all likely

Demographics

Now I'd like to ask a few final questions about your household.

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

Single-family detached house
Single-family attached house
Building with 2 to 4 units
Building with 5 or more units
Mobile home or house trailer or
Other (specify)

31. Do you own or rent your home?

    Own
    Rent

32. Do you have central air conditioning in your home?

    Yes
    No

33. What type of fuel is used to heat your home?

    Electricity
    Natural gas
    Propane
    Fuel Oil
    Other (specify)

Residential Home Performance Program

Hello, my name is [INSERT INTERVIEWER NAME], and I'm calling on behalf of Kentucky Power regarding the Home Energy Reports you receive.

(IF NECESSARY: I'm not selling anything; I'd just like to ask your opinion about this program. Your responses will be kept confidential and your individual responses will not be revealed to anyone.)

S1. Would you be willing to participate in a short survey to help Kentucky Power evaluate and improve the Home Energy Reports you receive? All your answers will be kept confidential.

- Yes
- No (THANK AND TERMINATE)

(IF ASKED TIMING OF STUDY: This survey should take about 10 minutes)

(IF KENTUCKY POWER CONTACT IS REQUESTED: If you would like to talk with someone from Kentucky Power about this study, feel free to contact: Scott Bishop at (606) 929-1694 or sebishop@aep.com)

Kentucky Power's Home Energy Reports give customers context on their energy use to help them make smart energy decisions. It provides customers with a variety of information including comparisons to similar homes, tips on saving energy, and frequently asked questions. Home Energy Reports are sent to customers' homes or sent via email every other month.

S2. Do you recall receiving the Home Energy Report in the mail or in an email?

- Yes (SKIP TO EASE OF USE SECTIN)
- No – Is there someone else in the household who may be more familiar with the Home Energy Report? (IF YES GET CORRECT PERSON ON PHONE AND GO BACK TO S1; IF NO THANK AND TERMINATE)

Ease of Use/Value of Information

Now I would like to ask you some questions about the Home Energy Reports.

1. Thinking of all the Home Energy Reports you have received, in general, what have you done with them? Did you…?

   Glance at the pictures, graphs and/or headlines
   Skim the content
   Read the content
   Read the reports word for word
   Never open the envelope/email
   Something else (Specify)

2. After reviewing the reports did you . . .? (Check yes or no for each statement)

   Keep them as a reminder or for reference
   Show or forward one or more reports to others within or outside your household
   Discuss one or more reports with others
   Print/Post one more reports in a visible place
   Save one or more reports for reference
   Throw away/recycle/delete one or more reports

3. Please indicate how much you agree or disagree with the following statements with regard to the Home Energy Report, with 1 meaning "Strongly Disagree" and 5 meaning "Strongly Agree."

   1 Strongly Disagree
   2
   3
   4
   5 Strongly Agree

   a. I was able to use the information in the reports quickly
   b. I found the information in the reports unnecessarily complex
   c. I thought the information in the reports was difficult to understand
   d. I felt very confident interpreting/using the information provided in the reports
   e. A person would need to learn a lot in order to use the information in the reports
   f. I think that I would have needed assistance to be able to use the information in the reports

4. After receiving the Home Energy reports, do you feel you have a better understanding of your household's energy usage?

   Yes
   No
   Don't know

5. Did the Home Energy Reports provide you with new ideas on how to save energy?

   Yes
   No
   Don't know

6. [IF Q5 = YES] Could you briefly explain what new ways to save energy you learned about from the Home Energy Reports?

Energy Saving Behaviors

Now I would like to know if you took any actions as a result of receiving the Home Energy Report.

7. ***After receiving the Home Energy Report***, did you ever visit the Kentucky Power website?

   Yes
   No

8. *Since receiving the Home Energy Report*, how frequently do you take the following actions? For each action I list please say whether you never take the action, rarely take the action, sometimes take the action or often take the action.

    1 Never
    2 Rarely
    3 Sometimes
    4 Often

    a. Limit time in the shower
    b. Cover pans while cooking
    c. Turn off lights when not needed
    d. Turn off appliances when not in use
    e. Unplug appliances when not in use
    f. Unplug rechargeables once recharged
    g. Reduce heating in unoccupied rooms
    h. Dry laundry on the clothes line
    i. Wash laundry on colder settings
    j. Wait for full load before doing laundry
    k. Adjust thermostat setting at night or while away
    l. Clean or replace filters on your HVAC system

9. Please indicate whether you have done each of the following *since receiving the Home Energy Reports.* (Record yes or no for each response)

   0 No
   1 Yes

   a. Had a Home Energy Assessment performed
   b. Installed insulation (ceiling, under-floor)
   c. Installed high efficiency windows
   d. Insulated the hot water tank
   e. Replaced incandescent bulbs with CFLs or LEDs
   f. Replaced a water heater with a more energy efficient one
   g. Replaced refrigerator with more energy efficient one
   h. Replaced washing machine with more energy efficient one
   i. Replaced furnace with a more energy efficient one
   j. Sealed drafts around doors and windows
   k. Changed the air filters in HVAC unit
   l. Installed low-flow showerheads
   m. Reduced the temperature on the water heater
   n. Adjusted your programmable thermostat to automatically change temperature throughout the day (e.g., when no one is home, at night)
   o. Purchased a smart thermostat
   p. Installed timers or sensors to control lighting
   q. Recycled extra refrigerator or freezer
   r. Replaced clothes dryer with a more energy efficient one
   s. Installed a whole house fan
   t. Replaced the central AC with more energy efficient one
   u. Replaced your room AC with more energy efficient one
   v. Installed a heat pump
   w. Installed faucet aerators
   x. None of the above
   y. Other (specify)

Satisfaction

Now I would like to ask a few questions about your satisfaction with the Home Energy Reports.

10. When thinking about the information provided by Kentucky Power in the Home Energy Reports, please indicate how much you agree or disagree with the following statements, with 1 meaning "Strongly Disagree and 5 meaning "Strongly Agree."

    1. Strongly disagree
    2.
    3.
    4.
    5. Strongly agree

    a. I did not find the information useful
    b. I think others would like to use this information if it was provided to them
    c. I found the information interesting
    d. I frequently used this information
    e. Overall I was satisfied with the information provided
    f. I think that most people who used the information would be satisfied with it

11. When thinking about the various components of the Home Energy Reports, please indicate how satisfied you are with the following, with 1 meaning "Not at all Satisfied" and 5 meaning "Very Satisfied."

    a. Not at all satisfied
    b.
    c.
    d.
    e. Very satisfied

    a. The Home Energy Reports overall
    b. The frequency of receiving the Home Energy Reports (every other month)
    c. The comparison of your home's energy usage to other similar homes
    d. Tips on saving energy
    e. Your annual usage compared to last year
    f. Frequently asked questions

Kentucky Power Programs

12. Are you aware of any of the following Kentucky Power programs? (READ LIST; CHECK IF AWARE)

    Residential Efficient Products Program that provides incentives for the purchase and installation of efficient lighting and appliances.
    Community Outreach Program. Kentucky Power distributes energy conservation measures and customer energy education to customers at company-sponsored community events.
    New Manufactured Homes. Provides incentives to customers that purchase an energy efficient mobile homes.
    Whole House Efficiency that includes an in-home energy assessment and rebates on weatherization products and heating and cooling equipment.
    Targeted Energy Efficiency that provides weatherization and energy efficiency services to qualifying residential customers who need help reducing their energy bills.
    Other (specify)

13. How likely is it that you will participate in one or more of these Kentucky Power programs?

    Very likely
    Somewhat likely
    Neutral
    Somewhat unlikely
    Not at all likely

Demographics

Now I'd like to ask a few final questions about your household.

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

    Single-family detached house
    Single-family attached house
    Building with 2 to 4 units
    Building with 5 or more units
    Mobile home or house trailer or
    Other (specify)

15. Do you own or rent your home?

    Own
    Rent

16. Do you have central air conditioning in your home?

    Yes
    No

17. What type of fuel is used to heat your home?

    Electricity
    Natural gas
    Propane
    Fuel Oil
    Other (specify)

Commercial Incentive Prescriptive/Custom Program

Hello, my name is [INSERT INTERVIEWER NAME], and I'm calling on behalf of Kentucky Power regarding your company's participation in their Commercial Incentive Prescriptive Custom Program.

(IF NECESSARY: I'm not selling anything; I'd just like to ask your opinion about this program. Your responses will be kept confidential and your individual responses will not be revealed to anyone.)

S1. Are you the person at your company who was most involved in making the decision to get the incentives through the Commercial Incentive program at [SERVICE ADDRESS] in [SERVICE ADDRESS CITY]?

(IF NECESSARY: The Commercial Incentive Prescriptive/Custom Program provides financial incentives to business customers who implement qualified energy-efficient improvements and technologies such as lighting, HVAC and food service and refrigeration.)

- Yes
- No

S2. [IF S1 = No] Who at your company was primarily responsible for making the decision to get rebates through the program?

(RECORD NAME AND DISPOSITION)

- Transfers you to correct person
- Can only give contact information (RECORD NAME AND NUMBER)
- Don't know (THANK AND TERMINATE)

S3. [WHEN CORRECT PERSON IS ON PHONE] Would you be willing to participate in a short survey to help Kentucky Power evaluate and improve the Commercial Incentive Program? All your answers will be kept confidential.

- Yes
- No (THANK AND TERMINATE)

(IF ASKED TIMING OF STUDY: This survey should take about 10 minutes)

(IF KENTUCKY POWER CONTACT IS REQUESTED: If you would like to talk with someone from Kentucky Power about this study, feel free to contact: Scott Bishop at (606) 929-1694 or sebishop@aep.com

Program Information

1. How did you learn about the Commercial Incentive Program? (DO NOT READ; CHECK ALL THAT APPLY)

   Bill insert
   Bill Message
   Postcard
   Television
   Newspaper ad
   Radio ad
   Online banner ad
   Community Event/Meeting (Chamber of Commerce, Rotary, etc.)
   In person meeting/visit from program staff (Kentucky Power or DNV GL)
   Social media (e.g. Facebook or Twitter)
   Friends/family/co-workers
   Other (specify: _____)

2. Kentucky Power would like to know how clear the program information provided to you was. For the following questions, using a scale of 1 to 5, where 1 means "not at all clear" and 5 means "very clear," how clear were each of the following?

   1 Not at all clear
   2
   3
   4
   5 Very clear

   a. Information on how to apply for rebates
   b. Information on pre-approval requirements and process
   c. The energy savings you might expect from the equipment installed
   d. Information about how to follow up if you have questions or concerns

Rebate Process

3. Who filled out or completed your rebate application? (CHECK ALL THAT APPLY)

   Respondent
   DNV GL Representative
   Kentucky Power Staff
   Contractor
   Co-worker
   Other (specify: _____)

4. (IF Q3 = RESPONDENT) How long did it take you to complete the application?

   Less than an hour
   One hour
   Two hours
   Three hours
   Four hours or more

5. (IF Q3 = RESPONDENT) Was this length of time acceptable to you?

   Yes
   No

6. Using a scale of 1 to 5 where 1 means "not at all difficult" and 5 means "very difficult," how difficult was it to complete the rebate application?

   1 Not at all difficult
   2
   3
   4
   5 Very difficult

7. Approximately how many weeks did it take to receive your rebate from Kentucky Power once your rebate application was submitted?

   _____Weeks

8. Do you think that was a reasonable amount of time?

   Yes
   No

9. Was the rebate amount what you expected for your project?

   Yes
   No

10. [IF Q9 = NO] Why did the rebate not meet your expectations?

Free Ridership

11. On a scale of 1 to 5 with 1 meaning, "not at all likely" and 5 meaning "very likely", how likely is it that you would have purchased the energy efficient equipment on your own at the same time, if you did not receive the rebate from Kentucky Power?

    1 Not at all likely
    2
    3
    4
    5 Very likely

12. On a scale of 1 to 5 with 1 meaning "no influence at all" and 5 meaning "a large influence" how much did the rebate influence you to purchase and install the energy efficient equipment?

    1 No influence at all
    2
    3
    4
    5 A large influence

13. As a result of participating in the program, did you purchase any additional energy efficient equipment?

    Yes
    No

14. [IF Q13 = YES] What energy efficient equipment did you purchase? (Check all that apply)

    Lighting
    HVAC
    Refrigeration
    Appliances
    Water Heating
    Other (specify: _____)

15. [IF Q13 = YES] Did you receive a rebate for purchasing this equipment?

    Yes
    No

Program Satisfaction

16. Using a scale of 1 to 5, where 1 means "not at all satisfied" and 5 means "very satisfied," how satisfied are you with each of the following?

    1 Not at all satisfied
    2
    3
    4
    5 Very satisfied

    a. The quality and performance of the equipment installed
    b. The rebate application process
    c. The amount of the rebate
    d. The energy savings from the equipment installed
    e. The Commercial Incentive Program overall

17. [IF Q16e = 1 or 2] Why were you dissatisfied with the program overall?

18. What if anything raised questions or concerns for you about participating in the Commercial Incentive program?

    No concerns
    Time involved/possible delays to the project
    Rebates/incentives too low
    Too much hassle to participate
    Amount of paperwork required
    Difficulty obtaining approvals from upper management
    Other (specify: _____)

Kentucky Power Programs

19. Are you aware of any of the following Kentucky Power programs? (READ LIST; CHECK IF AWARE)

    Commercial New Construction Program – Provides rebates for qualified energy efficient improvements and technologies for new construction or major renovation projects.
    Commercial Retro-commissioning Program – Provides a building systems tune up for qualifying facilities.
    Express Install Program – Provides rebates on qualified energy efficient improvements for small business customers
    None of the above (SKIP TO Q21)

20. On a scale of 1 to 5, how likely is it that you will participate in one or more of these Kentucky Power programs?

    1 Not at all Likely
    2
    3
    4
    5 Very Likely

Demographics

Now I'd like to ask a few final questions about your business.

21. What is the principal business activity at this location?

    Office/professional
    Data center/computer server farm
    Warehouse or distribution center.
    Food sales or service
    Retail
    Education
    Religious worship
    Public assembly
    Health care
    Service
    Lodging
    Public order and safety
    Industrial/Manufacturing
    Agricultural
    Municipal/Governmental
    Other (specify: _____)

22. Do you own or lease your building?

    Own
    Lease

23. What is your best estimate of the size of this facility in square feet?

    Under 5,000 sq. ft.
    5,000 to 9,999 sq. ft.
    10,000 to 24,999 sq. ft.
    25,000 to 49,999 sq. ft.
    50,000 sq. ft. to 150,000 sq. ft.
    Larger than 150,000 sq. ft.

24. What type of fuel is used to heat your facility?

    Electricity
    Natural gas
    Propane
    Fuel Oil
    Other (specify)

25. Do you have an automated building system?

    Yes
    No

New Construction Program

We understand your company participated in Kentucky Power's New Construction Program. Are you the best person to speak to about this participation in the program?

- *If not, ask for contact information for the best person.*
- *If yes, ask if this is a good time or should reschedule – say how long it will take (about 20 – 30 minutes)?*

Thank you for taking the time to talk with me today about Kentucky Power's New Construction Program. The goal of this discussion is to talk more fully about your experience with the program, find out what you think works in the program and any suggestions you have to improve it. All comments will remain confidential and we'll only provide results combined across all participants we interview.

First, I'd like to get a little better understanding of your company's background and your role there.

1. What is your current title? What are your responsibilities?
2. What is the primary type of business conducted at this facility? (Confirm that this is the newly constructed or renovated facility that received the rebate)
3. How long has your company been in business?
4. Who at your company is involved in the equipment purchasing and energy efficiency decisions involved in building new facilities?
5. Was this your first experience with Kentucky Power's programs? If no, what other programs have you participated in?
6. How did you hear about the Program?
7. What motivated your organization to participate in the program?

Next, I'd like to discuss your experience with the New Construction Program.

New Construction Project

8. Can you please describe the overall building project?
9. At what point in the process of planning for the new facility did you become aware of the program? How did Kentucky Power or DNV GL assist you during the process?
10. Did you work with a general contractor, architect or any other building design professionals on the project?

    [IF YES] What role did these professionals play? Did he/she help you decide what equipment to purchase and install? Did he/she make any recommendations regarding efficiency?
    Were any of the building professionals you worked with aware of the Kentucky Power program?
11. Did you complete the pre-approval application yourself, or did a building professional or a program representative assist you? Was the application easy to understand and complete?
12. How long did it take to receive approval on your building project? Was the timing reasonable?
13. Were there any problems/challenges associated with the project or the installation of the equipment? How were those problems/challenges overcome?
14. Was the final application easy to understand and complete?

15. How long did it take you to receive your rebate check after the final application was completed and sent?
16. Are you satisfied with the new building and the equipment? Is it performing as expected? Are your energy bills in line with your expectations?
17. What is your overall satisfaction with the program? What aspects do you specifically value about the program? What do you dislike?
18. What are the benefits to your company for participating in the program?

Free Ridership and Spillover

19. Would you have used the same energy efficient new construction for your building or project expansion without the incentives provided by the Kentucky Power program?
20. How much of an influence did the rebate have on your purchasing decisions?
21. As a result of participating in the Kentucky Power program have you made any additional energy efficient purchases? If yes, what did you purchase?
22. If yes, did you receive a rebate for any of those purchases?

Closing

23. Do you have any suggestions to improve the program?
24. Do you have any other comments you would like to add about your experience with the program?
25. Are you aware of the other Kentucky Power programs for C&I customers? (PROBE FOR AWARENESS OF EACH TYPE OF PROGRAM)

    Commercial Prescriptive/Custom Program – Provides rebates for qualified energy efficient improvements and technologies.
    Commercial Retrocommissioning Program – Provides a building systems tune up for qualifying facilities.
    Express Install Program – Provides rebates on qualified energy efficient improvements for small business customers.

26. How likely are you to participate in any of these programs in the future?

Express Install Program

We understand your company participating in Kentucky Power's Express Install Program. Are you the best person to speak to about this program?

- *If not, ask for contact information for the best person.*
- *If yes, ask if this is a good time or should reschedule – the interview will take approximately 20 minutes.*

(IF NECESSARY: The Express Install Program provides small business owners a convenient way to receive funding for common energy efficiency projects. The program included an energy assessment performed by a solution provider contracted by Kentucky Power, Lime Energy, and recommendations on energy efficiency improvements with incentives that pay up to 70% of the equipment and installation costs.)

Thank you for talking with me today about Kentucky Power's Express Install Program. The goal of this discussion is to talk more fully about your experience with the program, and find out what works in the program and any suggestions you have for improving it. All comments will remain confidential and be provided to Kentucky Power in summary form.

Program Participation

1. How did you first hear about the Express Install program?
2. Were you able to schedule an energy assessment at a time that was convenient for you?
3. Starting from the time you scheduled your energy assessment, how many days passed before the assessment took place? Do you think that was a reasonable amount of time?

Energy Assessment

4. Before your energy assessment did someone call or email you to confirm the date and time of the scheduled visit?
5. On the date of your energy assessment, were you called to let you know someone would be arriving soon?
6. Did the energy service representative act professionally? [IF NO] Can you please describe any unprofessional behavior?
7. At the end of the energy assessment did you see a proposal that listed recommended improvements, expected savings, costs and the amount of the incentive provided by Kentucky Power?
8. [IF YES] How satisfied were you with the recommended improvements included in the proposal? The expected savings? The amount of the incentive provided by Kentucky Power? The proposal overall?

EE Improvements

9. Did you agree to have the improvements installed that were recommended in the energy assessment proposal? [IF No] Why not?
    a. [IF YES] What type of equipment did you have installed?
    b. [IF YES] How satisfied were you with the time it took to get the equipment ordered, delivered and installed? With the contractor who installed the equipment? The quality and performance of the equipment? The energy savings achieved?

Free Ridership

10. How likely is it that you would have paid for an energy assessment if the Kentucky Power program had not been available?

11. [IF YES INSTALLED RECOMMENDATIONS] How likely is it that you would have purchased and installed the recommended energy efficient equipment on your own, if you did not receive the energy assessment recommendations and the incentive from Kentucky Power?

12. [IF YES, INSTALLTED RECOMMENDATIONS] Did you receive financing from Lime Energy to help you purchase the recommended improvements? How likely is it that you would have purchased and installed the recommended improvements if the financing was not available?

13. As a result of participating in the program, did you purchase any additional energy efficient equipment? What energy efficient equipment did you purchase? Did you receive a rebate from another Energy Efficiency program for purchasing this equipment?

Kentucky Power Programs

14. Are you aware of any of the following Kentucky Power programs? (READ LIST IF NECESSARY)

    Commercial Incentive Prescriptive/Custom program – Provides rebates for energy efficient equipment and technologies.
    Commercial New Construction Program – Provides rebates for qualified energy efficient improvements and technologies for new construction or major renovation projects.
    Commercial Retro Commissioning Program – Provides a building systems tune up for qualifying facilities.
    None of the Above

15. How likely is it that you will participate in one or more of these Kentucky Power programs?

Demographics

Finally, I'd like to ask a few final questions about your business.

16. What is the principal business activity at this location?

17. Do you own or lease your building?

18. What is your best estimate of the size of this facility in square feet?

19. What type of fuel is used to heat your facility?

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