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March 1, 2016

**Via Hand Delivery**

Ms. Terri Lemoine Bordelon  
Records and Recording Division  
Louisiana Public Service Commission  
602 North 5<sup>th</sup> Street  
Baton Rouge, Louisiana 70802

**Re: *In Re*: Rulemaking to Study the Possible Development of Financial Incentives for the Promotion of Energy Efficiency by Jurisdictional Electric and Gas Utilities: (LPSC Docket No. R-31106)**

Dear Ms. Bordelon:

Please find an original and three copies on the enclosed CD of the Annual Report of Program Year 1 for the respective Entergy Gulf States Louisiana, L.L.C. ("EGSL") and Entergy Louisiana, LLC ("ELL") Energy Efficiency Quick Start Portfolio Plans with supporting appendices, in the above-referenced docket. ELL and EGSL were combined into a single company effective October 1, 2015, pursuant to the terms contained in LPSC Order No. U-33244-A, dated September 14, 2015. However, the budgets, costs, and results of the Quick Start energy efficiency programs will continue to be tracked and reported separately for the customers of the two legacy companies throughout the conclusion of the Quick Start phase. Accordingly, ELL is providing separate annual reports and appendices for the first program year of Quick Start Energy Efficiency programs implemented in the legacy EGSL and legacy ELL service areas between November 1, 2014, and October 31, 2015.

Included with ELL's and EGSL's Annual Reports in the enclosed CD is Marketing Material information, which is labeled as Appendix A; ELL's and EGSL's respective Evaluation, Measurement, and Verification Reports, which are labeled as Appendix B; and ELL's and EGSL's respective program budgets, costs, savings, and cost-benefits analyses, which are labeled as Appendix C. We request that you retain the original and two copies for your files and return to our courier a date-stamped copy.

Thank you for your assistance with this request. If you have any questions, please feel free to call me.

Sincerely,

A handwritten signature in blue ink, appearing to read "Michael J. Plaisance", written over a horizontal line.

Michael J. Plaisance

MJP/kll  
Enclosures

cc: All parties on Official Service List (w/enclosure by Email and/or U.S. mail)





**Entergy Louisiana, LLC**  
***Legacy Entergy Gulf States, L.L.C.***  
***Service Area***

Quick Start Energy Efficiency  
**Annual Report Program Year 1**  
**November 2014 – October 2015**

Prepared by: **CLEAR**Result

**LPSC Docket No. R-31106**

**March 1, 2016**

Entergy Louisiana, LLC  
Legacy Entergy Gulf States, L.L.C. Service Area  
Energy Efficiency Annual Report - Docket No. R-31106  
Program Year 1  
November 2014 – October 2015

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## **1.0 Executive Summary**

Pursuant to LPSC General Order No. R-31106 (“EE General Order”), Entergy Louisiana, LLC (“ELL”),<sup>1</sup> is providing this report for the first program year of Quick Start Energy Efficiency programs implemented in the legacy Entergy Gulf States Louisiana, L.L.C. (“EGSL”) service area between November 1, 2014, and October 31, 2015 (“PY1”). The report includes the following sections:

- A narrative overview containing program descriptions, activity, kWh savings, participation, and trainings;
- Appendix A—Marketing materials created in connection with the programs;
- Appendix B--Evaluation, Measurement and Verification (EM&V) overview; staffing levels; and information provided to consumers to promote programs;
- Appendix C-- A workbook detailing program budget, costs, savings and cost-benefit analysis. In order to provide information as required by the EE General Order, the Arkansas Public Service Commission (“APSC”) Standardized Annual Report Packet (“SARP”) workbook was utilized.

As shown in Table 1.1, below, EGSL achieved strong results in PY1 with evaluated portfolio kWh savings exceeding target and kW savings reaching 94% of target.

**Table 1.1**

	<b>Goal</b>	<b>Achieved</b>	<b>Percentage</b>
<b>Energy Savings (kWh)</b>	8,671,583	10,189,606	118%
<b>Demand Savings (kW)</b>	2,102	1,970	94%

Table 1.2, below, breaks out the total evaluated energy and demand savings shown above for each program in the EGSL portfolio. The Residential and Commercial Market Transformation programs are educational in nature and while they do not directly result in savings, they increase the knowledge and skills of participating contractors so they can better educate customers regarding the benefits of available programs.

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<sup>1</sup> Entergy Louisiana, LLC (“ELL”) and EGSL were combined into a single company effective October 1, 2015, pursuant to the terms contained in LPSC Order No. U-33244-A, dated September 14, 2015. The budgets, costs, and results of the Quick Start energy efficiency programs will continue to be tracked and reported separately for the customers of the two legacy companies throughout the conclusion of the Quick Start phase.

**Table 1.2**

<b>Program Name</b>	<b>Peak Demand Savings (kW)</b>	<b>Energy Savings (kWh)</b>
Residential Solutions	418	1,787,015
Lighting and Appliances	432	1,983,361
Income Qualified	59	347,126
CoolSaver AC Tune Up and HVAC	302	1,137,316
Small Business	209	1,208,021
Large C&I	551	3,726,767
Residential Market Development	0	0
Commercial Market Development	0	0
<b>Total</b>	<b>1,971</b>	<b>10,189,606</b>

While the portfolio exceeded the energy savings targets for PY1, Table 1.3 shows that these results were achieved while underspending the projected budgets in both the residential and non-residential classes. Overall, program costs for each class were in line with the budgetary requirements in Section VI of General Order No. R-31106.

**Table 1.3**

<b>Program Name</b>	<b>PY1 Budget (\$)</b>	<b>PY1 Actual (\$)</b>	<b>% of Budget</b>	<b>% of 2012 Retail Revenues</b>
Residential	\$1,324,726	\$1,197,407	90%	0.31%
Non-Residential	\$1,169,189	\$1,062,574	91%	0.31%
<b>Total</b>	<b>\$2,493,915</b>	<b>\$2,259,981</b>	<b>91%</b>	

Table 1.4, below, breaks out the total amount in Table 1.3 to show the amounts spent on each program in the EGSL portfolio during PY1. Incentive costs paid to customers and non-incentive costs incurred in administering the programs throughout the service area are broken out separately.

**Table 1.4**

<b>Program Name</b>	<b>Incentive Cost Budget (\$)</b>	<b>Incentive Cost Actual (\$)</b>	<b>% of Incentive Budget Expended</b>	<b>Non-Incentive Cost Budget (\$)</b>	<b>Non-Incentive Cost Actual (\$)</b>	<b>% of Non-Incentive Budget Expended</b>
Residential Solutions	\$244,855	\$224,561	92%	\$255,839	\$212,145	83%
Lighting and Appliances	\$146,805	\$144,112	98%	\$153,492	\$128,214	84%
Income Qualified	\$75,140	\$71,921	96%	\$134,066	\$115,401	86%
AC Tune Up and HVAC	\$101,100	\$115,057	114%	\$105,656	\$88,019	83%
Small Business	\$199,472	\$197,558	99%	\$159,360	\$126,156	79%
Large C&I	\$319,896	\$318,268	99%	\$420,946	\$357,396	85%
Residential Market Development	n/a	n/a	n/a	\$107,773	\$97,976	91%
Commercial Market Development	n/a	n/a	n/a	\$69,516	\$63,196	91%
<b>Total</b>	<b>\$1,087,268</b>	<b>\$1,071,477</b>	<b>99%</b>	<b>\$1,406,647</b>	<b>\$1,188,504</b>	<b>84%</b>

Aside from the operational and budgetary accomplishments noted above, the EGSL programs achieved several other key goals during PY1:

- Addressed the two main implementation barriers facing new programs:
  - Increased Customer Awareness – customers are generally unaware of programs when they are initially implemented. Awareness of the availability of programs was built up throughout the EGSL service area via a variety of delivery channels, which included the development of a program website and marketing materials; and
  - Developed Contractor Networks – Having an engaged group of local contractors is critical to achieving program growth and success. A network of contractors, referred to hereafter as “participating contractors,” was trained and developed throughout the service area to deliver programs to customers.
- All programs met cost-benefit requirements by achieving a ratio greater than 1.0 under the Total Resource Cost (“TRC”) test.

## **2.0 Portfolio Programs**

### **2.1 Residential Solutions**

#### **2.1.1 Program Description**

Residential Solutions is a start-up energy efficiency program designed to promote energy efficiency by offering home energy assessments and direct-install measures to encourage initial market-driven participation. The program focused on customers in the EGSL market areas who were interested in increasing energy efficiency and lowering energy costs while also increasing comfort.

Direct install measures included CFL and LED light bulbs, faucet aerators, low-flow showerheads and smart power strips.

Incentivized measures offered during the entire PYI included insulation, air sealing and duct sealing. Ceiling insulation, when combined with air sealing, greatly improves a home's thermal boundary. Duct sealing greatly improves a customer's heating and cooling efficiency.

#### **2.1.2 Program Highlights:**

- A total of 851 measures were installed in 441 homes during PY1.
- Reaching 139% of goal, a total of 1.8 million kWh savings was achieved.
- Reaching 117% of goal, a total of 418 kW savings was achieved.
- Contractors were trained to Building Performance Institute (BPI) standards. Four trainings were held, ultimately certifying 42 individual contractors as Building Analysts, a national certification.
- 87% of the total Residential Solutions budget was utilized while attaining production goals.
- Organized by program personnel, several large-scale, multifamily complexes were weatherized in the Baton Rouge metro area. Program personnel worked with property management companies to employ participating contractors. In all, approximately 400 units received attic insulation and duct sealing.
- The program started gradually as participating contractors were somewhat slow-moving initially in learning about the new statewide funding available; however, momentum from recruiting efforts enabled the program to easily reach its targets by program year-end, October 31, 2015.

**2.1.3 Program Budget, Savings and Participants**

**Table 2.1**

<b>Residential Solutions</b>												
<b>Program</b>	<b>Cost</b>			<b>Energy Savings (kWh)</b>			<b>Demand Savings (kW)</b>			<b>Participants</b>		
	<b>Budget</b>	<b>Actual</b>	<b>%</b>	<b>Plan</b>	<b>Evaluated</b>	<b>%</b>	<b>Plan</b>	<b>Evaluated</b>	<b>%</b>	<b>Plan</b>	<b>Actual</b>	<b>%</b>
PY1	\$500,694	\$436,706	87%	1,284,377	1,787,015	139%	358	418	117%	317	441	139%

**2.1.4 Program Events & Training**

These items are detailed in Appendix C on the tabs labelled, “Training,” and “External,” and in Section 2.8, below.

**2.1.5 Planned or Proposed Changes to Program & Budget**

The incentive for energy assessments and direct-install measures reached their budget allocation maximum in March 2015 in the EGSL service territory due to a high utilization of these measures by participating contractors. As the energy assessment itself provides no energy savings, continuing to provide incentives for the assessment would have had a negative impact on the budget, ultimately causing the program to fail the cost-benefit test. In order to keep program delivery consistent across both the ELL and EGSL service territories, energy-assessment and direct-install incentives were discontinued in April 2015. These offerings will not be utilized in the Residential Solutions program for the remainder of the Quick Start period.

The budget allocations for energy assessments and direct-install items will be utilized to incentivize the duct sealing, air sealing and insulation measures. There will be two positive benefits from this change. The first is that the cost-benefit value of the Residential Solutions program will increase due to more incentive going toward demand and energy-savings measures with longer lifetimes. Secondly, reallocating these dollars will help make funding is available throughout the entire subsequent program years.

**2.2 Lighting and Appliances**

**2.2.1 Program Description**

The Lighting and Appliances program is a retail channel program that promotes the purchase of energy-efficient lighting, room A/Cs, pool pumps and advanced power strips. Customers receive point-of-purchase discounts for CFL and LED lighting and direct-to-customer utility rebates on advanced power strips, ENERGY STAR® qualified room air conditioners, ENERGY STAR qualified pool pumps. Promotional materials in retail locations, online and other mass marketing channels helped drive consumer awareness and generate consumer demand.



**2.2.2 Program Highlights**

- Reaching 122% of goal, a total of 1.98 million kWh savings was achieved.
- Reaching 108% of goal, a total of 432 kW savings was achieved.
- Twenty-three retail store locations participated in the point-of-purchase lighting discounts, all located within the legacy EGSL service area. When selecting stores, an effort was made to reach as many customers as possible while mitigating leakage (i.e., non-ELL customers receiving a discount from a store in the legacy EGSL service area. GIS mapping and analytics were used to target participating stores. In addition to ensuring locations were within territory, the proximity to state border, population density and equal distribution across territory were also considered.
- The majority of savings (97%) were from the lighting point-of-sale discount.
- The lighting discount promotions ended before program year-end due to high participation rates.
- Sales data from PY1 will be used to refine future store and product selections.

**2.2.3 Program Budget, Savings and Participants**

**Table 2.2**

<b>Lighting and Appliances</b>												
Program	Cost			Energy Savings (kWh)			Demand Savings (kW)			Participants		
	Budget	Actual	%	Plan	Evaluated	%	Plan	Evaluated	%	Plan	Actual	%
PY1	\$300,297	\$272,326	91%	1,621,771	1,983,361	122%	399	432	108%	24,076	29,444	122%

**2.2.4 Events and Training**

The program team visited retail stores across the territory to distribute materials, verify promotional pricing and meet with store staff. Through one-on-one conversations with managers and retail associates, the program raised awareness of the benefits of energy-efficient products and EGSL’s role in supporting the sale of these products.

- All 23 stores participating in the lighting point-of-purchase promotion were visited regularly, and 94 sales associates were trained on the benefits of ENERGY STAR® qualified lighting and room A/Cs, if applicable.
- Seven retail stores received focused training on promoting room A/C rebates.

**2.2.5 Planned or Proposed Changes to Program & Budget**

None.

**2.3 Income Qualified**

**2.3.1 Program Description**

As originally designed for the ELL portfolio, this program had a TRC ratio of less than 1.0. The program was redesigned to exclude certain higher cost measures such that it was able to achieve a TRC ratio greater than 1.0. ELL refiled its program portfolio with the redesigned Income Qualified program on March 27, 2015, after which CLEAResult began implementing the redesigned program.

The Income Qualified Program provides EGSL residential customers whose household incomes are at or below 60% of the estimated state area median income (AMI), based on current Low Income Home Energy Assistance Program (LIHEAP) income eligibility guidelines, with no-cost energy efficiency home upgrades. (NOTE: Programs were initially filed stating that 200% of national poverty level would be utilized to determine income eligibility. In addition to being a more stringent income requirement, 60% of AMI was chosen in order to ensure that any EGSL customer who qualified for LIHEAP assistance would also qualify for the Income Qualified program.)

CLEAResult worked with three top-producing and performing contractors to conduct outreach, home assessments and installation of energy efficiency measures. The same best practices standards used in the market rate residential program were used in the Income Qualified Program. This program helped qualifying customers reduce their energy costs, save money on their home energy bills and increased the comfort and safety of their homes. Customers were eligible to receive up to \$2,500 worth of energy efficiency upgrades in their home for attic insulation, air sealing and duct sealing. The program was available to homeowners and renters in electrically heated and centrally cooled homes.

**2.3.2 Program Highlights:**

- Fifty-nine income-qualified households were served.
- Reaching 128% of goal, a total of 347,126 kWh savings was achieved.
- Reaching 102% of goal, a total of 59 kW savings was achieved.
- The average savings per home was 5,963 kWh, and the average incentive amount per home was \$1,261
- Four top-performing and producing contractors were selected for this program.
- The success of the program was due to the collaborative effort with program staff and top contractors working together to market and identify income-qualified households.

**2.3.3 Program Budget, Savings and Participants**

**Table 2.3**

Income Qualified												
Program	Cost			Energy Savings (kWh)			Demand Savings (kW)			Participants		
	Budget	Actual	%	Plan	Evaluated	%	Plan	Evaluated	%	Plan	Actual	%
PY1	\$209,206	\$187,322	90%	271,561	347,126	128%	57	59	102%	46	59	128%

### **2.3.4 Training and Events**

These items are detailed in Appendix C on the tabs labelled, “Training,” and “External,” and in Section 2.8, below.

### **2.3.5 Planned or Proposed Changes to Program & Budget**

None.

## **2.4 CoolSaver A/C Tune-Up & HVAC Replacement**

### **2.4.1 Program Description**

The CoolSaver A/C Tune-Up and HVAC Replacement program is designed with two options to assist customers who are interested in improving the energy efficiency of their Heating, Ventilation and Air Conditioning (HVAC) units:

- Improving the operating efficiency of an existing unit by cleaning and tuning the equipment using state-of-the-art tools. (Duct Sealing can also be utilized),
- or
- Completely replacing old, inefficient equipment with new, high-efficiency HVAC units.

Customers opting to have a CoolSaver Tune-Up performed by a trained contractor received a robust cleaning to the inside and outside of units, as well as any needed adjustments to the unit’s refrigerant level and air flow.

### **2.4.2 Program Highlights**

- Replacements may be performed at any time during the Program Year. However, CoolSaver Tune-Ups can only be performed when the ambient outdoor temperature reaches approximately 75°, which is usually after March 1 in EGSL’s service area.
- Duct sealing as a measure was added to the CoolSaver A/C Tune-Up Program during PY1. Previously, duct sealing could only be utilized in the Residential Solutions program. This added measure enabled the program to reach higher-than-expected kWh totals. Each HVAC technician can now record beginning duct system leakage and resulting duct leakage after the energy efficiency measures are added. The difference can affect in the incentive amount paid.
- Contractor recruitment proved to be more difficult in the EGSL market, especially in the busy summer months. However, once recruitment efforts were more focused in this area, several new contractors joined.
- Continued training and bundling duct sealing with the CoolSaver Tune-Ups has increased kWh savings per job.

- Program-driven projects were needed to achieve goals. Program personnel organized several multi-family projects in Baton Rouge. In all, approximately 370 multifamily units received the CoolSaver Tune-Up.
- A total of 556 tune-ups were performed during the first year of the program.
- Reaching 132% of goal, a total of 1.1 million kWh savings was achieved.
- Reaching 97% of goal, a total of 302 kW savings was achieved.
- Three contractors are actively working in the HVAC Replacement program.
- Seven high-efficiency HVAC replacements were installed during PY1.

### **2.4.3 Program Budget, Savings and Participants**

**Table 2.4**

<b>AC Tune Up and HVAC</b>												
<b>Program</b>	<b>Cost</b>			<b>Energy Savings (kWh)</b>			<b>Demand Savings (kW)</b>			<b>Participants</b>		
	<b>Budget</b>	<b>Actual</b>	<b>%</b>	<b>Plan</b>	<b>Evaluated</b>	<b>%</b>	<b>Plan</b>	<b>Evaluated</b>	<b>%</b>	<b>Plan</b>	<b>Actual</b>	<b>%</b>
PY1	\$206,756	\$203,076	98%	862,786	1,137,316	132%	312	302	97%	306	403	132%

### **2.4.4 Program Events & Training**

These items are detailed in Appendix C on the tabs labelled, “Training,” and “External,” and in Section 2.8, below.

### **2.4.5 Planned or Proposed Changes to Program & Budget**

On January 1, 2015, the Louisiana State Uniform Construction code was updated, requiring HVAC contractors to seal ductwork in unconditioned spaces of single-family residences in compliance with International Energy Conservation Code (“IECC”) 2009 standards. This change in code led to HVAC contractors acquiring one of several certifications available to comply with this new code requirement. In addition, many of these contractors purchased duct leakage testing equipment. This provided an opportunity for the CoolSaver program to add duct sealing as an additional measure to the central A/C tune-up. The duct sealing measure was added to the CoolSaver program in July 2015 and will continue to be offered through this program for the remainder of the Quick Start period.

## **2.5 Small Business Solutions**

### **2.5.1 Program Description**

The Small Business Solutions program is designed to overcome the first-cost market barrier unique to the small business market that frequently interferes with small business adoption of energy efficiency measures. The program provides small business owners with energy efficiency information and develops awareness of energy and non-energy benefits, helping small business customers invest in energy-efficient technologies and particularly help them overcome high “first costs.”

The most common customers in the Small Business Solutions program are offices, service shops, restaurants, lodging, retail and convenience stores that have peak demand under 100 kW.

Participating contractors in this program utilize a tablet-based software program named *Open* to verify customer eligibility, track project installations and submit incentive paperwork.

**2.5.2 Program Highlights**

- 57 small businesses utilized the program.
- PY1 began with program staff training participating contractors on how to utilize *Open*, a tablet-based software platform. These training visits were conducted via in-person, one-on-one visits with participating contractors.
- All incentive funds for PY1 were reserved by the end of June 2015. After that, customers were placed in a queue for PY2 funds.
- The majority of projects were completed between June and August 2015, with 46% of the savings goal realized during that time
- Case studies of projects were created after project completion to aid in broader market acceptance and understanding of program offerings.
- 101% of program savings came from lighting retrofits which resulted in lower evaluated kWh and kW savings.
- Ninety-five percent of the energy-savings goal was realized in PY1.
- Seven distinct business types utilized the Small Business Solutions program in PY1, with the majority (35.1%) coming from the manufacturing sector.

**2.5.3 Program Budget, Savings and Participants**

**Table 2.5**

Small Business												
Program	Cost			Energy Savings (kWh)			Demand Savings (kW)			Participants		
	Budget	Actual	%	Plan	Evaluated	%	Plan	Evaluated	%	Plan	Actual	%
PY1	\$358,832	\$323,714	90%	1,275,097	1,208,021	95%	243	209	86%	60	57	95%

**2.5.4 Training and Events**

These items are detailed in Appendix C on the tabs labelled, “Training,” and “External,” and in Section 2.8, below.

**2.5.5 Planned or Proposed Changes to Program & Budget**

None.

## **2.6 Large Commercial & Industrial (C&I) Solutions**

### **2.6.1 Program Description**

The program provides incentives for deemed savings measures as defined by the Arkansas TRM 3.0 installed by qualified contractors. There is also a custom component of the program that helps customers in identifying efficiency opportunities and analyzing associated costs and savings, as well as offering incentives to install custom measures. Custom project support offers incentives for efficiency improvements affecting systems that are outside the scope of the prescriptive measure offerings. These projects may include retro-commissioning, process improvements and other system-level custom projects or projects involving unique equipment not part of the prescriptive offerings. Program staff preapprove projects for customer and measure eligibility. Additionally, they provide Measurement and Verification (M&V) services or review as needed to verify measures savings. The program provides technical support to identify custom project opportunities in customer facilities.

All commercial, industrial, and institutional customers with peak demand of 100 kW and above who did not opt out of participation in the Quick Start phase are eligible for this program.

### **2.6.2 Program Highlights**

- Twenty-five large commercial and industrial customers utilized the program in PY1.
- PY1 began with program staff training participating contractors about general program requirements. These training visits were conducted via in-person, one-on-one visits. Thereafter, program staff spent time with contractors as needed to continue developing the group’s understanding of specific program processes and requirements.
- All incentive funds were reserved for projects by the end of April 2015. Participating contractors were notified via writing as soon as incentive dollars reserved were at 90% of the total budget. After that, customers were placed in a queue for PY2 funds.
- The majority of project completion occurred in July with 49% of projects completed in that month.
- Ninety-four percent of program savings came from lighting retrofits.
- One-hundred-and-eleven percent of the energy savings goal was realized in PY1.
- Eight distinct business types utilized the Large Commercial and Industrial Solutions program in PY1, with the majority (29.2%) coming from the manufacturing sector.

### **2.6.3 Program Budget, Savings and Participants**

**Table 2.6**

<b>Large C&amp;I</b>												
<b>Program</b>	<b>Cost</b>			<b>Energy Savings (kWh)</b>			<b>Demand Savings (kW)</b>			<b>Participants</b>		
	<b>Budget</b>	<b>Actual</b>	<b>%</b>	<b>Plan</b>	<b>Evaluated</b>	<b>%</b>	<b>Plan</b>	<b>Evaluated</b>	<b>%</b>	<b>Plan</b>	<b>Actual</b>	<b>%</b>
PY1	\$740,842	\$675,664	91%	3,355,991	3,726,767	111%	733	551	75%	25	28	112%

#### **2.6.4 Training and Events**

These items are detailed in Appendix C on the tabs labelled, “Training,” and “External,” and in Section 2.8, below.

#### **2.6.5 Planned or Proposed Changes to Program & Budget**

None.

### **2.7 Market Transformation Program: Commercial and Industrial Market Development**

#### **2.7.1 Program Description**

The C&I Market Development program’s purpose is to increase participating contractor skills, understanding and exposure to energy efficiency in order to increase participation in EGSL’s programs; establish a solid foundation of skilled participating contractors in Louisiana; and support business growth and job development in the state. In general, the benefits of energy efficiency education provided to participating contractors will be evident in customer participation, customer satisfaction and goal attainment in the small business and C&I programs that the participating contractors support.

The C&I Market Development program does not include incentivized measures. Non-financial incentives participating contractors gain from the C&I Market Development program include:

- Increased customer base and increased sales
- Expanded skills and knowledge about energy efficiency measures
- Improved customer satisfaction with improved customer service skills
- Technical Knowledge
  - Common opportunities and measures, general types of findings in C&I buildings
    - Control system operations and maintenance so trade allies can educate customers appropriately
    - Collaborative trainings that engage distributors to co-provide practical hands-on training (e.g., new applications for lighting)
  - Planning for M&V— Highlighted approaches to incorporating M&V into project planning, including capturing baseline data
  - Analysis of existing data—Techniques for analyzing available data (e.g., monthly energy bills, interval data, Energy Management System (“EMS”) data, etc.)
  - Savings calculations—Reviewed common issues with calculations, prioritizing calculations and avoiding unnecessary work, use of data correlations and regressions to help establish baselines and available standard calculations and tools
- Sales Process
  - Strategies, opportunities and requirements for trade allies to participate
  - Marketing and sales strategies
    - How to properly present assessment findings, numerical analysis and ROI opportunities to the customer

- How to use a consultative approach to gauge the customer’s ability to proceed
    - How to ask process questions that helps the customer visualize and agree to the steps of the implementation process
  - Program services and installation process
    - How to approach a customer upon arrival
    - Energy efficiency measures to be evaluated in a home/business
    - Criteria for evaluation of measures
    - Reporting results to customers
    - Communicating next steps for customers
  - Professionalism/Code of Conduct requirements
  - Active and continual participation
  - Cross-program referral to recommend other ELL programs for which customer may be eligible
  - Quality workmanship
  - Safety guidelines
  - Probation/removal policy
- Delivering Customer Service
  - Customer eligibility
  - Integrity
  - Cross-program referral to recommend other programs for which customer may be eligible
  - Customer complaint resolutions process
- Processing Rebates
  - Qualifying improvements
  - Minimum efficiency requirements
  - How rebate amounts are calculated
  - Application process
  - Required documents
  - Common application errors
  - Complete and in-good-order applications

### **2.7.2 Program Highlights**

As this was the first year of Quick Start programs, the focus of the C&I Market Development program was to develop participating contractors’ proficiency and understanding of utility ratepayer-funded energy efficiency programs, including:

- Development in proficiency with and understanding of program requirements and incentive application processes, covering all of the subtopics listed in the “Technical Knowledge” and “Customer Service” descriptions listed in section 3.7.1



- One-on-one trainings with program staff and participating contractors on how to utilize program provided software tools and project calculators, covering all of the subtopics listed in the “Rebates” and “Program Services” descriptions listed in section 3.7.1
- Trainings on ENERGY STAR® and DesignLights Consortium™ (DLC) qualified lighting products. This includes ongoing questions and answers about emerging qualified products and the education of contractors as to why some products cannot be qualified through small business or C&I programs

**2.7.3 Program Budget, Savings and Participants**

**Table 2.7**

<b>Commercial Market Development</b>												
<b>Program</b>	<b>Cost</b>			<b>Energy Savings (kWh)</b>			<b>Demand Savings (kW)</b>			<b>Participants</b>		
	<b>Budget</b>	<b>Actual</b>	<b>%</b>	<b>Plan</b>	<b>Evaluated</b>	<b>%</b>	<b>Plan</b>	<b>Evaluated</b>	<b>%</b>	<b>Plan</b>	<b>Actual</b>	<b>%</b>
PY 2014	\$69,515	\$63,196	91%	0	0	-	0	0	-	0	0	-

**2.7.4 Program Events & Training**

These items are detailed in Appendix C on the tabs labelled, “Training,” and “External”.

**2.7.5 Planned or Proposed Changes to Program & Budget**

None.

**2.8 Market Transformation Program: Residential Market Development**

**2.8.1 Program Description**

The objective of the Residential Market Development program is to increase participating contractor’s skills, understanding and exposure to energy efficiency to increase participation in EGSL’s programs; establish a solid foundation of skilled participating contractors in Louisiana; and support business growth and job development in the state. The benefits of energy education provided to participating contractors are evident in customer participation, customer satisfaction and goal attainment in the residential portfolio of programs that the participating contractors support.

The Residential Market Development program does not include incentivized measures. However, the cost of acquiring program required accreditations (typically \$2,000 per person for training and testing) is a barrier to entry for many potential participating contractors. The Residential Market Development program provides free training and payment of testing fees for the acquisition of program required accreditation, including BPI certification and Infiltration and Duct Leakage (IDL) certification.

Non-financial incentives participating contractors gain from the Residential Market Development program include:

- Increased customer base and increased sales

- Expanded skills and knowledge about energy efficiency measures
- Improved customer satisfaction with improved customer service skills
- Technical Knowledge
  - Duct sealing
  - HVAC quality installations and advanced tune-ups, including best proactive on utilizing program required tools
- Sales Process
  - Strategies, opportunities and requirements for participating contractors to participate
  - Marketing and sales strategies
    - How to properly present assessment findings, numerical analysis, and payback opportunities to the customer
    - How to use a consultative approach to gauge the customer's ability to proceed
    - How to ask process questions that helps the customer visualize and agree to the steps of the implementation process
- Program services and installation process
  - How to approach a customer upon arrival
  - Energy efficiency measures to be evaluated in a home
  - Criteria for evaluation of measures
  - Reporting results to customers
  - Communicating next steps for customers
- Professionalism/Code of Conduct requirements
- Active and continual participation
- Cross-program referral to recommend other ELL programs for which customer may be eligible
- Quality workmanship
- Safety guidelines
- Probation/removal policy
- Delivering Customer Service
  - Customer eligibility
  - Integrity
  - Cross-program referral to recommend other programs for which customer may be eligible
  - Customer complaint resolutions process
- Processing Rebates
  - Qualifying improvements
  - Minimum efficiency requirements
  - How rebate amounts are calculated
  - Application process
  - Required documents
  - Common application errors

- Complete and in good order applications

**2.8.2 Program Highlights**

As this was the first year of Quick Start programs, the focus of Residential Market Development program was to develop participating contractors’ proficiency with and understanding of utility ratepayer-funded energy efficiency programs. In addition, a series of accreditation and technical trainings were provided to participating contractors. These included:

- BPI Building Analyst training—Provided the level of accreditation needed to be a participating contractor in the Residential Solutions and Income Qualified programs. These classroom trainings were held at Louisiana Housing Corporation’s state-of-the-art Weatherization Training Center.
- BPI Infiltration and Duct Leakage training—Provided the level of accreditation needed for participating HVAC and mechanical contractors to also offer duct sealing as a part of their suite of services. These classroom trainings were also held at Louisiana Housing Corporation’s Weatherization Training Center.
- Webinar training—Covered best practices on the air sealing, duct sealing and insulation of single-family homes.
- CoolSaver Training—Provided instruction on the use of specialized tools for performing A/C tune-ups. Classroom trainings were held at Louisiana Housing Corporation’s Weatherization Training Center, the South Central Louisiana Technical College and at a participating contractor’s warehouse.
- Processing training—Provided in-person, one-on-one instruction on how to process energy efficiency information and rebate forms. Most participating contractors working in all residential portfolio programs split field work and data entry/processing work, making it vital for their office technicians to understand how best to facilitate data flow between contractors and program. Processing training covered all of the subtopics listed in the “Rebates” and “Process” descriptions listed in section 3.7.1.

**2.8.3 Program Budget, Savings and Participants**

**Table 2.8**

Residential Market Development												
Program	Cost			Energy Savings (kWh)			Demand Savings (kW)			Participants		
	Budget	Actual	%	Plan	Evaluated	%	Plan	Evaluated	%	Plan	Actual	%
PY 2014	\$107,773	\$97,976	91%	0	0	-	0	0	-	0	0	-

**2.8.4 Program Events & Training**

These items are detailed in Appendix C on the tabs labelled, “Training,” and “External”.

### **2.8.5 Planned or Proposed Changes to Program & Budget**

None.

### **3.0 Evaluation, Measurement & Verification (“EM&V”)**

#### **3.1 Overview**

ADM Associates, Inc. was selected as the evaluator for the EGSL Quick Start Programs. Appendix B contains a detailed description of the evaluation protocol and an evaluation report for each program in the portfolio. The reports include:

- A program description
- A summary of measures and expected savings
- Savings and calculation methodology
- Verified savings, with realization rates for both demands and savings
- Review of program processes
- Program staff interviews
- Participating contractor interviews
- Customer interviews
- Recommendations

#### **3.2 Program Evaluation**

ADM used standardized practices to review programs and did not require any special EM&V processes in order to qualify results prior to reporting. Details of the evaluation methodology utilized for each program is provided in the opening section of the individual program evaluation report.

And overview of the TRC Cost/Benefit Test results is shown below. More detailed information can be found in Appendices B and C.

**Table 3.1**

<b>Program Name</b>	<b>Annualized Energy Savings (kWh)</b>	<b>Total Cost (\$000's)</b>	<b>Total Benefit (\$000's)</b>	<b>Total Net Benefits (000's)</b>	<b>TRC Ratio</b>
Residential Solutions	1,787,015	\$1,083	\$1,485	\$402	1.37
Lighting and Appliances	1,983,361	\$462	\$647	\$185	1.40
Income Qualified	347,126	\$192	\$257	\$65	1.34
AC Tune Up and HVAC	1,137,316	\$319	\$764	\$445	2.39
Small Business	1,208,021	\$339	\$660	\$322	1.95
Large C&I	3,726,767	\$889	\$2,000	\$1,111	2.25
<b>Total</b>	<b>10,189,606</b>	<b>\$3,283</b>	<b>\$5,813</b>	<b>\$2,530</b>	<b>1.77</b>



**Entergy Louisiana, LLC**  
***Legacy Entergy Louisiana, LLC***  
***Service Area***

Quick Start Energy Efficiency  
**Annual Report Program Year 1**  
**November 2014 – October 2015**

Prepared by: **CLEAR**Result

**LPSC Docket No. R-31106**

**March 1, 2016**

Entergy Louisiana, LLC  
Legacy Entergy Louisiana, LLC Service Area  
Energy Efficiency Annual Report – Docket No. R-31106  
Program Year 1  
November 2014 – October 2015

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## **1.0 Executive Summary**

Pursuant to LPSC General Order No. R-31106 (“EE General Order”), Entergy Louisiana, LLC (“ELL”),<sup>1</sup> is providing this report for the first program year of Quick Start Energy Efficiency programs implemented in the legacy ELL service area between November 1, 2014, and October 31, 2015 (“PY1”). The report includes the following sections:

- A narrative overview containing program descriptions, activity, kWh savings, participation, and trainings;
- Appendix A—Marketing materials created in connection with the programs;
- Appendix B--Evaluation, Measurement and Verification (EM&V) overview;
- Appendix C--A workbook detailing program budgets, costs, savings and cost-benefit analysis. In order to provide information as required by the EE General Order, the Arkansas Public Service Commission (“APSC”) Standardized Annual Report Packet (“SARP”) workbook was utilized.

As shown in Table 1.1, below, ELL achieved strong results in PY1 with evaluated portfolio kWh savings exceeding target and kW savings reaching 91% of target.

**Table 1.1**

	<b>Target</b>	<b>Achieved</b>	<b>Percentage</b>
<b>Energy Savings (kWh)</b>	13,876,012	15,621,154	113%
<b>Demand Savings (kW)</b>	3,275	2,990	91%

Table 1.2, below, breaks out the total evaluated energy and demand savings shown above for each program in the ELL portfolio. The Residential and Commercial Market Transformation programs are educational in nature and while they do not directly result in savings, they increase the knowledge and skills of participating contractors so they can better educate customers regarding the benefits of available programs.

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<sup>1</sup> ELL and Entergy Gulf States Louisiana, L.L.C. (“EGSL”) were combined into a single company effective October 1, 2015, pursuant to the terms contained in LPSC Order No. U-33244-A, dated September 14, 2015. The budgets, costs, and results of the Quick Start energy efficiency programs will continue to be tracked and reported separately for the customers of the two legacy companies throughout the conclusion of the Quick Start phase.

**Table 1.2**

<b>Program Name</b>	<b>Evaluated Peak Demand Savings (kW)</b>	<b>Evaluated Energy Savings (kWh)</b>
Residential Solutions	692	3,398,741
Lighting and Appliances	669	3,023,121
Income Qualified	96	623,201
CoolSaver AC Tune Up and HVAC	488	1,526,575
Small Business	283	1,667,792
Large C&I	762	5,381,724
Residential Market Development	0	0
Commercial Market Development	0	0
<b>Total</b>	<b>2,990</b>	<b>15,621,154</b>

While the portfolio exceeded the energy savings targets for PY1, Table 1.3 shows that these results were achieved while underspending the projected budgets in both the residential and non-residential classes. Overall, program costs for each class were in line with the budgetary requirements in Section VI of General Order No. R-31106.

**Table 1.3**

<b>Program Name</b>	<b>PY1 Budget (\$)</b>	<b>PY1 Actual (\$)</b>	<b>% of Budget</b>	<b>% of 2012 Retail Revenues</b>
Residential	\$2,230,886	\$2,037,096	91%	0.31%
Non-Residential	\$1,682,307	\$1,520,724	90%	0.30%
<b>Total</b>	<b>\$3,913,193</b>	<b>\$3,557,820</b>	<b>91%</b>	

Table 1.4, below, breaks out the total amounts in Table 1.3 to show the amounts spent on each program in the ELL portfolio during PY1. Incentive costs paid to customers and non-incentive costs incurred in administering the programs throughout the service area are broken out separately.



**Table 1.4**

<b>Program Name</b>	<b>Incentive Cost Budget (\$)</b>	<b>Incentive Cost Actual (\$)</b>	<b>% of Incentive Budget Expended</b>	<b>Non-Incentive Cost Budget (\$)</b>	<b>Non-Incentive Cost Actual (\$)</b>	<b>% of Non-Incentive Budget Expended</b>
Residential Solutions	\$412,342	\$425,192	<b>103%</b>	\$430,839	\$357,943	<b>83%</b>
Lighting and Appliances	\$247,290	\$226,738	<b>92%</b>	\$258,492	\$215,853	<b>84%</b>
Income Qualified	\$126,287	\$123,605	<b>98%</b>	\$225,746	\$194,432	<b>86%</b>
AC Tune Up and HVAC	\$170,450	\$180,379	<b>106%</b>	\$177,947	\$147,962	<b>83%</b>
Small Business	\$285,925	\$283,856	<b>99%</b>	\$228,993	\$183,222	<b>80%</b>
Large C&I	\$462,139	\$448,575	<b>97%</b>	\$605,324	\$514,229	<b>85%</b>
Residential Market	n/a	n/a	n/a	\$181,493	\$164,994	<b>91%</b>
Commercial Market	n/a	n/a	n/a	\$99,927	\$90,842	<b>91%</b>
<b>Total</b>	<b>\$1,704,433</b>	<b>\$1,688,344</b>	<b>99%</b>	<b>\$2,208,760</b>	<b>\$1,869,476</b>	<b>85%</b>

Aside from the operational and budgetary accomplishments noted above, the ELL programs achieved several other key goals during PY1:

- Addressed the two main implementation barriers facing new programs:
  - Increased Customer Awareness—customers are generally unaware of programs when they are initially implemented. Awareness of the availability of programs was built up throughout the ELL service area via a variety of delivery channels, which included the development of a program website and marketing materials; and
  - Developed Contractor Networks—Having an engaged group of local contractors is critical to achieving program growth and success. A network of contractors, referred to hereafter as “participating contractors,” was trained and developed throughout the service area to deliver programs to customers.
- All programs met cost-benefit requirements by achieving a ratio greater than 1.0 under the Total Resource Cost (“TRC”) test.

## **2.0 Portfolio Programs**

### **2.1 Residential Solutions**

#### **2.1.1 Program Description**

Residential Solutions is a start-up energy efficiency program designed to promote energy efficiency by offering home energy assessments and direct-install measures to encourage initial market-driven participation. The program focused on customers in the ELL market areas who were interested in increasing energy efficiency and lowering energy costs while also increasing comfort.

Direct-install measures included CFL and LED light bulbs, faucet aerators and low-flow showerheads and smart power strips.

Incentivized measures offered during PY1 included insulation, air sealing and duct sealing. Ceiling insulation, when combined with air sealing, greatly improves a home’s thermal boundary. Duct sealing greatly improves a customer’s heating and cooling efficiency.

#### **2.1.2 Program Highlights:**

- A total of 2,395 measures were installed in 1,514 homes during PY1.
- Reaching 138% of goal, a total of 3.4 million kWh savings was achieved.
- Reaching 97% of goal, a total of 692 kW savings was achieved.
- Contractors were trained to Building Performance Institute (BPI) standards. Four week-long trainings were held, ultimately certifying 42 individual contractors as Building Analysts, a national certification.
- 93% of the total Residential Solutions budget was utilized while attaining production goals.
- Once the Residential Solutions participating contractors were fully trained and commenced operations, 97.4% of the entire Residential Solutions budget was expended by July 31, 2015 (three months prior to program year-end). Additionally, 87% of the funds were expended between March and July 2015, or during less than half of the program year (five months).
- Customer and contractor outreach was performed throughout PY1 with marketing materials and an Internet link on the utility’s website, all under the Entergy Solutions brand.

#### **2.1.3 Program Budget, Savings and Participants**

**Table 2.1**

<b>Residential Solutions</b>												
<b>Program</b>	<b>Cost</b>			<b>Energy Savings (kWh)</b>			<b>Demand Savings (kW)</b>			<b>Participants</b>		
	<b>Budget</b>	<b>Actual</b>	<b>%</b>	<b>Plan</b>	<b>Evaluated</b>	<b>%</b>	<b>Plan</b>	<b>Evaluated</b>	<b>%</b>	<b>Plan</b>	<b>Actual</b>	<b>%</b>
PY1	\$843,181	\$783,135	93%	2,454,704	3,398,741	138%	716	692	97%	1,093	1,514	139%

#### **2.1.4 Program Events & Training**

These items are detailed in Appendix C on the tabs labelled, “Training,” and “External,” and in Section 2.8, below.

#### **2.1.5 Planned or Proposed Changes to Program & Budget**

The incentive for energy assessments and direct-install measures reached their budget allocation maximum in March 2015 due to a high utilization of these measures by participating contractors. As the energy assessment provides no energy savings itself, continuing to provide incentives for the assessment would have had a negative impact on the budget, ultimately causing the program to fail the cost-benefit test. Energy assessment and direct-install incentives were discontinued in April 2015 and will not be utilized in the Residential Solutions program for the remainder of the Quick Start period.

The budget allocations for energy assessments and direct-install items will be utilized to incentivize the duct sealing, air sealing and insulation measures. There will be two positive benefits from this change. The first is that the cost-benefit value of the Residential Solutions program will increase due to more incentives going toward demand and energy-savings measures with longer lifetimes. Reallocating these dollars will help make funding is available throughout the entire subsequent program years.

### **2.2 Lighting and Appliances**

#### **2.2.1 Program Description**

The Lighting and Appliances program is a retail channel program that promotes the purchase of energy-efficient lighting, room A/Cs, pool pumps and advanced power strips. Customers received point-of-purchase discounts for CFL and LED lighting and direct-to-customer utility rebates on advanced power strips, ENERGY STAR® qualified room air conditioners and ENERGY STAR pool pumps. Promotional materials in retail locations, online and other mass marketing channels helped drive consumer awareness and generate consumer demand.

#### **2.2.2 Program Highlights**

- Reaching 112% of goal, a total of 3,023,121 kWh savings was achieved.
- Reaching 104% of goal, a total of 669 kW savings was achieved.
- Thirty-four retail store locations participated in the point-of-purchase lighting discounts, all located within the legacy ELL service area. When selecting stores, an effort was made to reach as many customers as possible while mitigating leakage (i.e., non-ELL customers receiving a discount from a store in the legacy ELL service area. GIS mapping and analytics were used to target participating stores. In addition to ensuring locations were within territory, the proximity to state border, population density and equal distribution across territory were also considered
- The majority of savings (98%) were from the lighting point-of-sale discount.
- The lighting discount promotions ended before program year-end due to high participation rates.

- Sales data from PY1 will be used to refine future store and product selection.

### **2.2.3 Program Budget, Savings and Participants**

**Table 2.2**

<b>Lighting and Appliances</b>												
<b>Program</b>	<b>Cost</b>			<b>Energy Savings (kWh)</b>			<b>Demand Savings (kW)</b>			<b>Participants</b>		
	<b>Budget</b>	<b>Actual</b>	<b>%</b>	<b>Plan</b>	<b>Evaluated</b>	<b>%</b>	<b>Plan</b>	<b>Evaluated</b>	<b>%</b>	<b>Plan</b>	<b>Actual</b>	<b>%</b>
PY1	\$505,782	\$442,591	88%	2,704,330	3,023,121	112%	645	669	104%	40,957	45,785	112%

### **2.2.4 Events and Training**

The program team visited retail stores across the territory to distribute materials, verify promotional pricing and meet with store staff. Through one-on-one conversations with managers and retail associates, the program raised awareness of the benefits of energy-efficient products and ELL’s role in supporting the sale of these products.

- All 34 stores participating in the lighting point-of-purchase promotion were visited regularly, and 127 sales associates were trained on the benefits of ENERGY STAR® qualified lighting and room A/Cs, if applicable.
- Four retail stores received additional training on promoting room A/C rebates.
- Four pool supply stores received training on promoting energy-efficient pool pumps.

### **2.2.5 Planned or Proposed Changes to Program & Budget**

None

## **2.3 Income Qualified**

### **2.3.1 Program Description**

As originally designed for the ELL portfolio, this program had a TRC ratio of less than 1.0. The program was redesigned to exclude certain higher cost measures such that it was able to achieve a TRC ratio greater than 1.0. ELL refiled its program portfolio with the redesigned Income Qualified program on March 27, 2015, after which CLEAResult began implementing the redesigned program.

The Income Qualified Program provides ELL residential customers whose household incomes are at or below 60% of the estimated state area median income (AMI), based on current Low Income Home Energy Assistance Program (LIHEAP) income eligibility guidelines, with no-cost energy efficiency home upgrades. (NOTE: Programs were initially filed stating that 200% of national poverty level would be utilized to determine income eligibility. In addition to being a more stringent income requirement, 60%

of AMI was chosen in order to ensure that any ELL customer who qualified for LIHEAP assistance would also qualify for the Income Qualified program.)

CLEAResult worked with three top-producing and performing contractors to conduct outreach, home assessments and installation of energy efficiency measures. The same best practices standards used in the market rate residential program were used in the Income Qualified Program. This program helped qualifying customers reduce their energy costs, save money on their home energy bills and increased the comfort and safety of their homes. Customers were eligible to receive up to \$2,500 worth of energy efficiency upgrades in their home for attic insulation, air sealing and duct sealing. The program was available to homeowners and renters in electrically heated and centrally cooled homes.

**2.3.2 Program Highlights:**

- 117 income-qualified households were served.
- Reaching 122% of goal, a total of 623,201 kWh savings was achieved.
- Reaching 97% of goal, a total of 96 kW savings was achieved.
- The average savings per home was 5,700 kWh, and the average incentive amount per home was \$1,152.
- Three top-performing and producing participating contractors from the Residential Solutions were selected for this program.
- The success of the program was due to the collaborative effort with program staff and top contractors working together to market and identify income-qualified households.

**2.3.3 Program Budget, Savings and Participants**

**Table 2.3**

Income Qualified												
Program	Cost			Energy Savings (kWh)			Demand Savings (kW)			Participants		
	Budget	Actual	%	Plan	Evaluated	%	Plan	Evaluated	%	Plan	Actual	%
PY1	\$352,033	\$318,037	90%	509,375	623,201	122%	99	96	97%	96	117	122%

**2.3.4 Training and Events**

These items are detailed in Appendix C on the tabs labelled, “Training,” and “External,” and in Section 2.8, below.

**2.3.5 Planned or Proposed Changes to Program & Budget**

None.

## **2.4 CoolSaver A/C Tune-Up & HVAC Replacement**

### **2.4.1 Program Description**

The CoolSaver A/C Tune-Up and HVAC Replacement program is designed with two options to assist customers who are interested in improving the energy efficiency of their Heating, Ventilation and Air Conditioning (HVAC) units:

- Improving the operating efficiency of an existing unit by cleaning and tuning the equipment using state-of-the-art tools (Duct Sealing can also be utilized), or
- Completely replacing old, inefficient equipment with new, high-efficiency HVAC units.

Customers opting to have a CoolSaver Tune-Up performed by a trained contractor received a robust cleaning to the inside and outside of units, as well as any needed adjustments to the unit's refrigerant level and air flow.

### **2.4.2 Program Highlights:**

- Replacements may be performed at any time during the Program Year. However, CoolSaver Tune-Ups can only be performed when the ambient outdoor temperature reaches approximately 75°, which is usually after March 1 in ELL's service area.
- Duct sealing was added as a measure during PY1. Previously, duct sealing could only be utilized in the Residential Solutions program. This added measure enabled the program to reach higher-than-expected kWh totals. Each HVAC technician can now record beginning duct system leakage and resulting duct leakage after the energy efficiency measures are added. The difference can affect the incentive amount paid. A total of 1,012 tune-ups were performed during the first year of the program.
- Reaching 107% of goal, a total of 1.5 million kWh savings was achieved.
- Reaching 89% of goal, a total of 488 kW savings was achieved.
- Program-driven projects were needed to achieve goals. Program personnel organized several multifamily projects in Jefferson Parish. In all, approximately 650 multifamily units received the CoolSaver Tune-Up.
- Continued training and bundling duct sealing with the CoolSaver Tune-Ups has increased kWh savings per job.
- Twelve contractors are actively working in the HVAC Replacement program.
- Sixty-eight high-efficiency HVAC replacements were installed during PY1.

**2.4.3 Program Budget, Savings and Participants**

**Table 2.4**

<b>AC Tune Up and HVAC</b>												
<b>Program</b>	<b>Cost</b>			<b>Energy Savings (kWh)</b>			<b>Demand Savings (kW)</b>			<b>Participants</b>		
	<b>Budget</b>	<b>Actual</b>	<b>%</b>	<b>Plan</b>	<b>Evaluated</b>	<b>%</b>	<b>Plan</b>	<b>Evaluated</b>	<b>%</b>	<b>Plan</b>	<b>Actual</b>	<b>%</b>
PY1	\$348,397	\$328,340	94%	1,427,077	1,526,575	107%	547	488	89%	1,017	1,088	107%

**2.4.4 Program Events & Training**

These items are detailed in Appendix C on the tabs labelled, “Training,” and “External,” and in Section 2.8, below.

**2.4.5 Planned or Proposed Changes to Program & Budget**

On January 1, 2015, the Louisiana State Uniform Construction code was updated, requiring HVAC contractors to seal ductwork in unconditioned spaces of single-family residences in compliance with International Energy Conservation Code (“IECC”) 2009 standards. This change in code led to HVAC contractors acquiring one of several certifications available to comply with this new code requirement. In addition, many of these contractors purchased duct leakage testing equipment. This provided an opportunity for the CoolSaver program to add duct sealing as an additional measure to the central A/C tune up. The duct sealing measure was added to the Coolsaver program in July 2015 and will continue to be offered through this program for the remainder of the Quick Start Period.

**2.5 Small Business Solutions**

**2.5.1 Program Description**

The Small Business Solutions program is designed to overcome the first-cost market barrier unique to the small business market that frequently interferes with small business adoption of energy efficiency measures. The program provides small business owners with energy efficiency information and develops awareness of energy and non-energy benefits, helping small business customers invest in energy-efficient technologies and particularly help them overcome high “first costs.”

The most common customers in the Small Business Solutions program are offices, service shops, restaurants, lodging, retail and convenience stores that have a peak demand under 100 kW.

Participating contractors in this program utilize a tablet-based software program named *Open* to verify customer eligibility, track project installations and submit for incentive payments.

**2.5.2 Program Highlights**

- 62 small businesses utilized the program.
- PY1 began with program staff training participating contractors on how to utilize *Open*, a tablet-based software platform. These training visits were conducted via in-person, one-on-one visits with participating contractors
- All incentive funds for PY1 were reserved by the end of May 2015. After that, customers were placed in a queue for PY2 funds.
- The majority of projects were completed between June and August 2015, with 50% of the savings goal realized during that time.
- Case studies of projects were created after project completion to aid in broader market acceptance and understanding of program offerings.
- 100% of program savings came from lighting retrofits which resulted in lower evaluated kWh and kW savings.
- Ten distinct business types utilized the Small Business Solutions program in PY1, with the majority (40.3%) coming from the retail sector.

**2.5.3 Program Budget, Savings and Participants**

**Table 2.5**

Small Business												
Program	Cost			Energy Savings (kWh)			Demand Savings (kW)			Participants		
	Budget	Actual	%	Plan	Evaluated	%	Plan	Evaluated	%	Plan	Actual	%
PY1	\$514,918	\$467,078	91%	1,793,523	1,667,792	93%	316	283	90%	67	62	93%

**2.5.4 Training and Events**

These items are detailed in Appendix C on the tabs labelled, “Training,” and “External,” and in Section 2.7, below.

**2.5.5 Planned or Proposed Changes to Program & Budget**

None.

**2.6 Large Commercial & Industrial (“C&I”) Solutions**

**2.6.1 Program Description**

The program provides incentives for deemed savings measures as defined by the Arkansas TRM 3.0 installed by qualified contractors. There is also a custom component of the program that helps customers in identifying efficiency opportunities and analyzing associated costs and savings, as well as offering incentives to install custom measures. Custom project support offers incentives for efficiency improvements affecting systems that are outside the scope of the prescriptive measure offerings. These projects may include retro-commissioning, process improvements and other system-level



custom projects or projects involving unique equipment not part of the prescriptive offerings. Program staff preapproves projects for customer and measure eligibility. Additionally, they provide Measurement and Verification (M&V) services or review as needed to verify measures savings. The program provides technical support to identify custom project opportunities in customer facilities.

All commercial, industrial, and institutional customers with peak demand of 100 kW and above who did not opt out of participation in the Quick Start phase are eligible for this program.

**2.6.2 Program Highlights**

- Twenty-six large commercial and industrial customers utilized the program in PY1.
- PY1 began with program staff training participating contractors about general program requirements. These training visits were conducted via in-person, one-on-one visits. Thereafter, program staff spent time with contractors as needed to continue developing the group’s understanding of specific program processes and requirements.
- All incentive funds were reserved for projects by the end of January 2015. Participating contractors were notified via writing as soon as incentive dollars reserved were at 90% of the total budget. After that, customers were placed in a queue for PY2 funds.
- Project completion occurred during two peak periods, with 24% completing in March 2015 and 58% completing between June and August 2015.
- 98% of program savings came from lighting retrofits.
- Twelve distinct business types utilized the Large Commercial and Industrial Solutions program in PY1, with the majority (21.2%) coming from the manufacturing sector.

**2.6.3 Program Budget, Savings and Participants**

**Table 2.6**

Large C&I												
Program	Cost			Energy Savings (kWh)			Demand Savings (kW)			Participants		
	Budget	Actual	%	Plan	Evaluated	%	Plan	Evaluated	%	Plan	Actual	%
PY1	\$1,067,463	\$962,804	90%	4,987,003	5,381,724	108%	952	762	80%	31	33	106%

**2.6.4 Training and Events**

These items are detailed in Appendix C on the tabs labelled, “Training,” and “External,” and in Section 2.7, below.

**2.6.5 Planned or Proposed Changes to Program & Budget**

None.

## **2.7 Market Transformation Program: Commercial and Industrial Market Development**

### **2.7.1 Program Description**

The C&I Market Development program's purpose is to increase participating contractor skills, understanding and exposure to energy efficiency in order to increase participation in ELL's programs; establish a solid foundation of skilled participating contractors in Louisiana; and support business growth and job development in the state. In general, the benefits of energy efficiency education provided to participating contractors will be evident in customer participation, customer satisfaction, and goal attainment in the small business and C&I programs that the participating contractors support.

The C&I Market Development program does not include incentivized measures. Non-financial incentives participating contractors gain from the C&I Market Development program include:

- Increased customer base and increased sales
- Expanded skills and knowledge about energy efficiency measures
- Improved customer satisfaction with improved customer service skills
- Technical Knowledge
  - Common opportunities and measures, general types of findings in C&I buildings
    - Control system operations and maintenance so trade allies can educate customers appropriately
    - Collaborative trainings that engage distributors to co-provide practical hands-on training (e.g., new applications for lighting)
  - Planning for M&V— Highlighted approaches to incorporating M&V into project planning, including capturing baseline data
  - Analysis of existing data—Techniques for analyzing available data (e.g., monthly energy bills, interval data, Energy Management System (“EMS”) data, etc.)
  - Savings calculations—Reviewed common issues with calculations, prioritizing calculations and avoiding unnecessary work, use of data correlations and regressions to help establish baselines and available standard calculations and tools
- Sales Process
  - Strategies, opportunities and requirements for trade allies to participate
  - Marketing and sales strategies
    - How to properly present assessment findings, numerical analysis and ROI opportunities to the customer
    - How to use a consultative approach to gauge the customer's ability to proceed
    - How to ask process questions that helps the customer visualize and agree to the steps of the implementation process
  - Program services and installation process
    - How to approach a customer upon arrival
    - Energy efficiency measures to be evaluated in a home/business
    - Criteria for evaluation of measures
    - Reporting results to customers
    - Communicating next steps for customers

- Professionalism/Code of Conduct requirements
- Active and continual participation
- Cross-program referral to recommend other ELL programs for which customer may be eligible
- Quality workmanship
- Safety guidelines
- Probation/removal policy
- Delivering Customer Service
  - Customer eligibility
  - Integrity
  - Cross-program referral to recommend other programs for which customer may be eligible
  - Customer complaint resolutions process
- Processing Rebates
  - Qualifying improvements
  - Minimum efficiency requirements
  - How rebate amounts are calculated
  - Application process
  - Required documents
  - Common application errors
  - Complete and in-good-order applications

### **2.7.2 Program Highlights**

As this was the first year of Quick Start programs, the focus of the C&I Market Development program was to develop participating contractors' proficiency and understanding of utility ratepayer funded energy efficiency programs, including:

- Development in proficiency with and understanding of program requirements and incentive application processes, covering all of the subtopics listed in the "Technical Knowledge" and "Customer Service" descriptions listed in section 3.7.1
- One-on-one trainings with program staff and participating contractors on how to utilize program provided software tools and project calculators, covering all of the subtopics listed in the "Rebates" and "Program Services" descriptions listed in section 3.7.1
- Trainings on ENERGY STAR® and DesignLights Consortium™ (DLC) qualified lighting products. This includes ongoing questions and answers about emerging qualified products and the education of contractors as to why some products cannot be qualified through small business or C&I programs.

**2.7.3 Program Budget, Savings and Participants**

**Table 2.7**

<b>Commercial Market Development</b>												
<b>Program</b>	<b>Cost</b>			<b>Energy Savings (kWh)</b>			<b>Demand Savings (kW)</b>			<b>Participants</b>		
	<b>Budget</b>	<b>Actual</b>	<b>%</b>	<b>Plan</b>	<b>Evaluated</b>	<b>%</b>	<b>Plan</b>	<b>Evaluated</b>	<b>%</b>	<b>Plan</b>	<b>Actual</b>	<b>%</b>
PY1	\$99,926	\$90,842	91%	0	0	-	0	0	-	0	0	-

**2.7.4 Program Events & Training**

These items are detailed in Appendix C on the tabs labelled, “Training,” and “External.”

**2.7.5 Planned or Proposed Changes to Program & Budget**

None.

**2.8 Market Transformation Program: Residential Market Development**

**2.8.1 Program Description**

The objective of the Residential Market Development program is to increase participating contractors’ skills, understanding and exposure to energy efficiency to increase participation in ELL’s programs; establish a solid foundation of skilled participating contractors in Louisiana; and support business growth and job development in the state. The benefits of energy education provided to participating contractors are evident in customer participation, customer satisfaction and goal attainment in the residential portfolio of programs that the participating contractors support.

The Residential Market Development program does not include incentivized measures. However, the cost of acquiring program required accreditations (typically \$2,000 per person for training and testing) is a barrier to entry for many potential participating contractors. The Residential Market Development program provides free training and payment of testing fees for the acquisition of program required accreditation, including BPI certification and Infiltration and Duct Leakage (IDL) certification.

Non-financial incentives participating contractors gain from the Residential Market Development program include:

- Increased customer base and increased sales
- Expanded skills and knowledge about energy efficiency measures
- Improved customer satisfaction with improved customer service skills
- Technical Knowledge
  - Duct sealing
  - HVAC quality installations and advanced tune-ups, including best proactive on utilizing program required tools
- Sales Process

- Strategies, opportunities and requirements for participating contractors to participate
- Marketing and sales strategies
  - How to properly present assessment findings, numerical analysis, and payback opportunities to the customer
  - How to use a consultative approach to gauge the customer's ability to proceed
  - How to ask process questions that helps the customer visualize and agree to the steps of the implementation process
- Program services and installation process
  - How to approach a customer upon arrival
  - Energy efficiency measures to be evaluated in a home
  - Criteria for evaluation of measures
  - Reporting results to customers
  - Communicating next steps for customers
- Professionalism/Code of Conduct requirements
- Active and continual participation
- Cross-program referral to recommend other ELL programs for which customer may be eligible
- Quality workmanship
- Safety guidelines
- Probation/removal policy
- Delivering Customer Service
  - Customer eligibility
  - Integrity
  - Cross-program referral to recommend other programs for which customer may be eligible
  - Customer complaint resolutions process
- Processing Rebates
  - Qualifying improvements
  - Minimum efficiency requirements
  - How rebate amounts are calculated
  - Application process
  - Required documents
  - Common application errors
  - Complete and in good order applications

**2.8.2 Program Highlights**

As this was the first year of Quick Start programs, the focus of Residential Market Development program was to develop participating contractors’ proficiency with and understanding of utility ratepayer-funded energy efficiency programs. In addition, a series of accreditation and technical trainings were provided to participating contractors. These included:

- BPI Building Analyst Training—Provided the level of accreditation needed to be a participating contractor in the Residential Solutions and Income Qualified program. These classroom trainings were held at Louisiana Housing Corporation’s state-of-the-art Weatherization Training Center.
- BPI Infiltration and Duct Leakage Training—Provided the level of accreditation needed for participating HVAC and mechanical contractors to also offer duct sealing as a part of their suite of services. These classroom trainings were also held at Louisiana Housing Corporation’s Weatherization Training Center.
- Webinar training—Covered best practices on the air sealing, duct sealing and insulation of single-family homes.
- CoolSaver training—Provided instruction on the use of specialized tools for performing A/C tune-ups. Classroom trainings were held at the LHC Weatherization Training Center, the South Central Louisiana Technical College and at a participating contractor’s warehouse.
- Processing training—Provided in-person, one-on-one instruction on how to process energy efficiency information and rebate forms. Most participating contractors working in all residential portfolio programs split field work and data entry/processing work, making it vital for their office technicians to understand how best to facilitate data flow between contractors and program. Processing training covered all of the subtopics listed in the “Rebates” and “Process” descriptions listed in section 3.8.1.

**2.8.3 Program Budget, Savings and Participants**

**Table 2.8**

Residential Market Development												
Program	Cost			Energy Savings (kWh)			Demand Savings (kW)			Participants		
	Budget	Actual	%	Plan	Evaluated	%	Plan	Evaluated	%	Plan	Actual	%
PY1	\$181,493	\$164,994	91%	0	0	-	0	0	-	0	0	-

**2.8.4 Program Events & Training**

These items are detailed in Appendix C on the tabs labelled, “Training,” and “External,”

**2.8.5 Planned or Proposed Changes to Program & Budget**

None.

### **3.0 Evaluation, Measurement & Verification (“EM&V”)**

ADM Associates, Inc. was selected as the evaluator for the ELL Quick Start Programs. Appendix B contains a detailed description of the evaluation protocol and an evaluation report for each program in the portfolio. The reports include:

- A program description
- A summary of measures and expected savings
- Savings and calculation methodology
- Verified savings, with realization rates for both demands and savings
- Review of program processes
- Program staff interviews
- Participating contractor interviews
- Customer interviews
- Recommendations

ADM used standardized practices to review programs and did not require any special EM&V processes in order to qualify results prior to reporting. Details of the evaluation methodology utilized for each program is provided in the opening section of the individual program evaluation report.

An overview of the TRC Cost/Benefit Test results is shown below. More detailed information can be found in Appendices B and C.

**Table 3.1**

<b>Program Name</b>	<b>Annualized, Evaluated Energy Savings (kWh)</b>	<b>Total TRC Costs (\$000's)</b>	<b>Total TRC Benefits (\$000's)</b>	<b>Total Net TRC Benefits (000's)</b>	<b>TRC Ratio</b>
Residential Solutions	3,398,741	\$1,352	\$2,492	\$1,140	1.84
Lighting and Appliances	3,023,121	\$724	\$985	\$260	1.36
Income Qualified	623,201	\$309	\$435	\$126	1.41
AC Tune Up and HVAC	1,526,575	\$429	\$1,025	\$596	2.39
Small Business	1,667,792	\$491	\$950	\$459	1.94
Large C&I	5,381,724	\$1,263	\$2,934	\$1,671	2.32
<b>Total</b>	<b>15,621,154</b>	<b>\$4,568</b>	<b>\$8,820</b>	<b>\$4,252</b>	<b>1.93</b>

# Entergy Louisiana, LLC Quick Start Energy Efficiency Programs Program Year 1

## Appendix A- Information Provided to Consumers to Promote Quick Start Energy Efficiency Programs



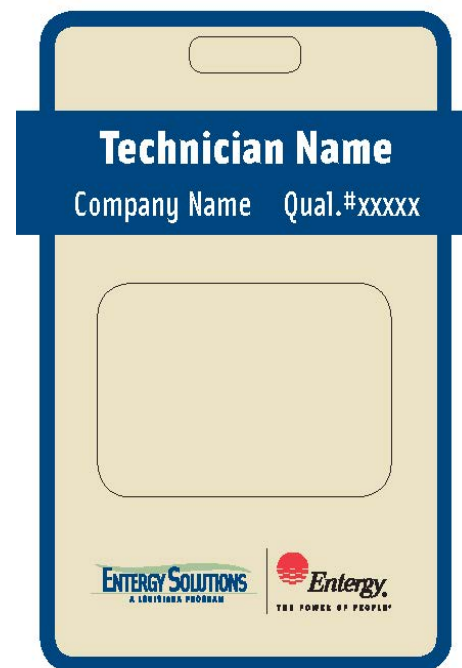
# Customizable Materials - Badges



CoolSaver Front



Residential Solutions Front



Back

# Customizable Materials – Print Ads

You have the power to lower your Entergy bill.

## We Can Help!

We'll evaluate your business and provide details on rebates for money-saving efficiency improvements from Entergy Louisiana and Entergy Gulf States.

**Company Name**  
email@address.com | 123-456-7980  
www.contractor.com



**ENERGY SOLUTIONS**  
A LOUISIANA PROGRAM

The Entergy name and logo are registered service marks of Entergy Corporation and may not be used without the express, written consent of Entergy Corporation.

You have the power to lower your Entergy bill.

## Contact an Expert!

XXXX Contracting can make your home more efficient and reduce your carbon footprint! We'll evaluate your home and provide details on rebates for money-saving efficiency improvements from Entergy Louisiana and Entergy Gulf States.

**Company Name**  
email@address.com | 123-456-7980  
www.contractor.com



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You have the power to lower your Entergy bill.

## Invest in Efficiency.

XXXX Contracting can point you towards energy-efficient choices that benefit the environment and your bottom line! We'll provide the support and incentives you need to increase energy efficiency and significantly reduce energy bills.

**Company Name**  
email@address.com | 123-456-7980  
www.contractor.com



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You have the power to lower your Entergy bill.

## We Can Help!

We'll evaluate your business and provide details on rebates for money-saving efficiency improvements from Entergy Louisiana and Entergy Gulf States.

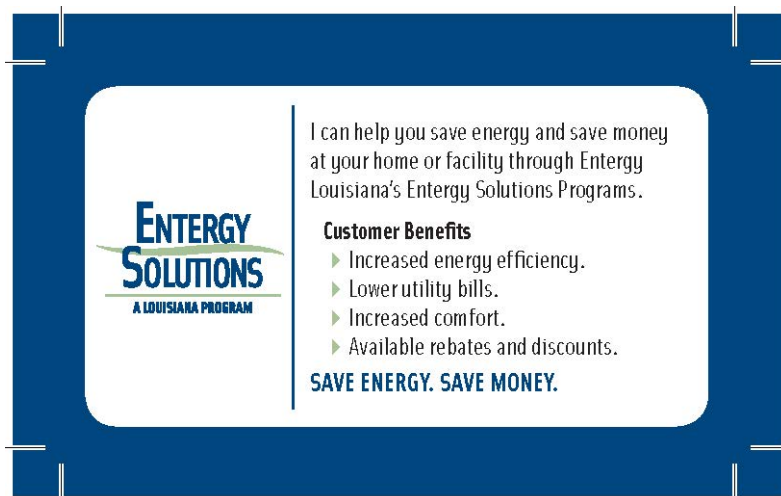
**Company Name**  
email@address.com | 123-456-7980  
www.contractor.com



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# Customizable Materials – Business Cards



# Customizable Materials – Doorhanger



 **CoolSaver™**

**What are the Benefits?**

- ▶ A lower monthly energy bill.
- ▶ Instant savings towards the cost of a CoolSaver A/C Tune-Up.
- ▶ A longer-lasting, more dependable unit.
- ▶ Cooler environment and better humidity control.

contractor business card

Questions? Contact the Energy Efficiency Solutions Center at 855-770-9122 or visit [EntergySolutionsLA.com](http://EntergySolutionsLA.com).



**ENERGY SOLUTIONS**  
A LOUISIANA PROGRAM

**Better Comfort.  
Bigger Savings.**

A CoolSaver<sup>SM</sup> A/C Tune-up gives you the power to save money, increases your home's comfort and extends the life of your unit. Start saving more today!

 **Entergy.**

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Questions? Contact the Energy Efficiency Solutions Center at 855-770-9122 or visit [EntergySolutionsLA.com](http://EntergySolutionsLA.com).

# Truck Sign

# Residential Solutions Program


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**Participating Contractor**

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# Program Overview Tri-Fold



### How Does Your Energy Use Stack Up?

#### Typical Home Energy Use


Other Appliances and Lighting	18%
Space Heating	14%
A/C Conditioning	17%
Water Heating	14%
Refrigerators	25%

Source: U.S. Energy Information Administration, 2012 Residential Energy Consumption Survey (R-ECS), U.S. Energy Information Administration, Energy Efficiency Resource Site, 06/12/15

#### Typical Office Building Energy Use



Space Heating	10%
Cooling	10%
Refrigeration	10%
Water Heating	10%
Lighting	10%
Cooling	10%
Office Equipment	10%
Computers	10%
Other	10%

Source: U.S. Energy Information Administration, Office of Energy Markets and End Use, 04/12/15, Commercial Buildings Energy Consumption Survey




For more information, call our Energy Solutions program toll free at 855-770-9122 and let one of our representatives help you determine which program best suits your energy-saving needs.


You can also visit us online at [EntergySolutionsLA.com](http://EntergySolutionsLA.com) to learn more.

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### You Have the Power to Lower Your Entergy Bill.



### Investing in Efficiency.

The Entergy Solutions program allows customers like you to increase efficiency, lower monthly energy bills and reduce your carbon footprint through valuable rebates, incentives and education. Whether you are at home, at work or at school, there is an Entergy Solutions program available to help you determine what steps to take to improve the efficiency of your home or business. In addition to saving energy, other benefits include:

- ▶ Financial incentives.
- ▶ Access to participating trade ally network.
- ▶ Rebates on ENERGY STAR® qualified products.
- ▶ Energy savings calculation assistance.
- ▶ State-of-the-art air conditioning tune-ups.
- ▶ In-home energy assessments and surveys.
- ▶ No-cost directly installed measures.
- ▶ Rebates on energy-efficient lighting upgrades.

### Where You Live:

Entergy Louisiana, LLC and Entergy Gulf States Louisiana, L.L.C. are committed to contributing to the development and improvement of the communities in which we – and our customers – live. We want you to experience reliable service, reduced energy use and increased home comfort. Here are three programs we created in order to achieve that goal:

- ▶ Residential Lighting and Appliances Program.
- ▶ Residential Solutions Program.
- ▶ CoolSaver® Residential A/C Tune-up Program.

### Where You Work:

Because we want to help our local businesses – small and large – prosper in today's rapidly fire economy, our programs provide the support and incentives you need to increase energy efficiency and significantly reduce energy bills.

- ▶ Small Business Solutions Program.
- ▶ Large Commercial and Industrial Solutions Program.



### Make a Difference!

Making energy-efficient choices is important to the environment as well as your wallet. The Entergy Solutions program provides benefits for you, your community and the environment.

### More Opportunities to Save:

Have you already participated in one or more of these programs? Don't feel like any of these programs meet your specific needs? Visit [EntergySolutionsLA.com](http://EntergySolutionsLA.com) to learn about additional energy efficiency programs, including Lighting and Appliance Programs.

- ▶ Lighting and Appliance programs.
- ▶ Income Qualified program.




[EntergySolutionsLA.com](http://EntergySolutionsLA.com)  
(855) 770-9122



# Residential Tri-Folds

**Reduce the cost of energy efficiency improvements and reduce your energy usage.**

The Residential Solutions Program offers incentives to Energy Louisiana, LLC or Entergy Gulf States Louisiana, L.L.C. customers, which can be used to offset the cost of the participating contractor's fees for installing the improvements in your home.

The following improvements are eligible to receive the incentives:

- ▶ Sealing leaks in your ductwork.
- ▶ Sealing leaks in your home.
- ▶ Adding ceiling or wall insulation.
- ▶ Replacing your air conditioner or heat pump with a high-efficiency ENERGY STAR® unit.

**Learn about typical home energy efficiency savings.**  
Here is an example of incentive discounts you could receive to help offset the cost of having program-eligible measures installed by participating contractors. Because some improvements work best when combined with others, you can receive bonus incentives for installing more than one or two. The more you do, the more you save, the more you get!

Coupon discounts and rebates for energy efficiency improvements from the Residential Solutions Program for a typical 1,900-square-foot home:

Energy assessment discount	\$75
Air sealing	\$234
Ceiling insulation	\$696
Duct sealing	\$150
A/C replacement	\$250
<b>If the owners of this example home installed all of the measures listed above, they could reduce the total cost of the improvements by up to:</b>	<b>\$1404</b>

\* Example values are based on a 1,900-square-foot three-bedroom home with 14 ceiling insulation installed at \$150. To see an energy program related with a SEER unit, government incentives (tax, rebates) and a potential rebates in your budget.


**How do I start?**  
For more information, please call the Energy Efficiency Solutions Center toll free at 855-770-9122 or visit [EntergySolutionsLA.com](http://EntergySolutionsLA.com), and let one of our representatives help you start saving money on your Entergy bill.

**Save energy. Save money. Make a difference. We can help.**  
Making energy-efficient choices is important to the environment as well as your wallet. The Residential Solutions Program provides benefits for you, your community and the environment.


Once you see what difference energy efficiency improvements can make in your home, you may want to participate in other available residential programs, which include:

- ▶ CoolSense® A/C Tune-up Program.
- ▶ ENERGY STAR® Appliance Program.

For more information, call 855-770-9122 or visit [EntergySolutionsLA.com](http://EntergySolutionsLA.com)



**You have the power to lower your Entergy bill.**




A message from Entergy Louisiana, LLC and Entergy Gulf States Louisiana, L.L.C. Energy Efficiency Solutions, Inc. All Rights Reserved. The Energy Solutions program is an energy efficiency program and not affiliated with Entergy Solutions, LLC.

**Get a home energy evaluation from the Residential Solutions Program today.**

If you are looking for ways to save money and energy in your home, we can help. Get up to \$500 of a professional home energy evaluation and start saving energy – and money – today.

- ▶ Lower your Entergy bill.
- ▶ Increase the value of your home.
- ▶ Make your home more safe and energy efficient.
- ▶ Make your home more comfortable while using less energy.



**Learn the benefits of a home energy evaluation.**

Whether your home is fairly new, more than a hundred years old or somewhere in between, it could be wasting energy – and costing you more.

**If you notice any of these things in your home, you could benefit from a home energy evaluation:**

- ▶ High energy bills.
- ▶ Rooms which are too hot or too cold.
- ▶ Drafty windows and doors.

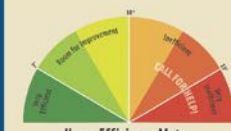
You have the power to lower your Entergy bill, and by participating in an evaluation, you also learn ways to make your home safer and more energy efficient. A more energy-efficient home will help you save money each month by making your home and living habits much more efficient.

**Other benefits include:**

- ▶ Improving indoor air quality.
- ▶ Increasing comfort of your home.
- ▶ Helping improve the environment in your community.

Do you want to lower your Entergy bill, make your home safer, improve the environment and increase the value of your home at the same time? We can help, and here's how:

Take your highest summer energy bill and divide it by the actual conditioned square footage of your home. This number determines your cost per square foot. Then, find where this number is on the home efficiency meter.



**Home Efficiency Meter**

\$ (0-100)    0    100    200    300    \$/Sq. Ft.


**What can you expect during a home energy evaluation?**

Your home is one of the largest investments you make, and a home energy evaluation can help uncover hidden problems. Areas of improvement we look for are related to safety, energy efficiency and even structure issues.

When you call the Energy Efficiency Solutions Center at 855-770-9122 you will learn how to set up your home energy evaluation with a professional, certified home energy consultant participating in the program.

**Step 1**

A tier one survey is a walk-through of your home. Every residential Entergy Louisiana, LLC or Entergy Gulf States Louisiana, L.L.C. customer qualifies for this evaluation and will get \$75 off the initial cost of the survey. You can also be eligible for up to \$75 back if you install two or more qualifying measures.



**Here's how easy it is to gain more control of your Entergy bill. Calculate your energy cost per square foot, using the simple formula above.**

1. Call the Energy Efficiency Solutions Center toll free at 855-770-9122.
2. We will work with you to create a plan based on your budget and your specific home.
3. You can then contact a participating home energy consultant to set up an appointment at your convenience to begin the evaluation.
4. The consultant will show you the options Entergy Solutions: A Louisiana Program provides to save you money on energy efficiency improvements.
5. Finally, FREE of charge, he or she will install compact fluorescent light bulbs, LEDs and possibly other items during your evaluation.

**Call 855-770-9122 today!**

The consultant will identify the best energy-saving improvements for your home and work with you to create a plan based on the results of your evaluation and your budget. As part of the evaluation, FREE of charge, the consultant will install energy-efficient compact fluorescent light bulbs, smart strips and possibly other items during your evaluation.

The Residential Solutions Program can also offset the costs of many home efficiency upgrades. If you do not wish to have an evaluation performed, you may contact a participating contractor directly to see if you qualify for specific upgrade discounts.

You can find the list of participating contractors at [EntergySolutionsLA.com](http://EntergySolutionsLA.com).

# Small Commercial Tri-Folds

### Why is Investing in Energy Efficiency Important?

Commercial and industrial buildings are diverse in look and function—they include everything from corner dry cleaners to hospitals, manufacturers, huge data centers, and skyscrapers.

- Commercial buildings account for 36% of all U.S. electricity consumption and cost more than \$190 billion in energy every year.
- Commercial buildings are also responsible for 18% of U.S. carbon dioxide emissions (a primary greenhouse gas) and consume more than 18% of U.S. primary energy—more than all of Canada's energy consumption.
- The potential to reduce energy consumption in existing and new commercial buildings is enormous. On average, 30% of the energy used in commercial buildings is wasted, according to the U.S. Environmental Protection Agency.

Source: U.S. Department of Energy

Improving energy efficiency can produce substantial energy, environmental, and economic benefits. Get started today!

For more information, please call the Energy Efficiency Solutions Center toll free at 855-770-9122 or visit [EnergySolutionsLA.com](http://EnergySolutionsLA.com), and let one of our representatives help you start saving money on your Energy bill.

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## You Have the Power to Lower Your Energy Bill.

Entergy's Commercial & Industrial Programs allow you to make energy-efficient choices that are beneficial to the environment as well as your bottom line.

## ENERGY SOLUTIONS

A LOUISIANA PROGRAM

### What are the Benefits of the Programs?

Energy savings achieved through the implementation of energy-efficient upgrades to new or existing buildings is one of the most attractive and low-cost options to reduce electric demand, improve comfort, and increase efficiency. Entergy's Commercial & Industrial Programs make achieving these results easier than ever.

Benefits of participation include:

- Financial incentives for completed projects.
- Significantly reduced energy costs and carbon footprint.
- Technical assistance and support to guide you through the program process.
- Increased economic benefits through job creation and market development.
- Communications support to promote successful projects.
- Reduced need for future power plants.

The Commercial & Industrial Programs are offered to all commercial and industrial customers in the Entergy Louisiana LLC, and Entergy Gulf States Louisiana, L.L.C. service area. These programs are designed to help you operate your buildings more efficiently, maintain system efficiency, and decrease your monthly Entergy bill.

Worried about costly projects? Don't be. Entergy Louisiana LLC, and Entergy Gulf States Louisiana, L.L.C. provide financial incentives to help offset the initial cost of energy efficiency upgrades.

### Prescriptive Program:

Similar to the Custom Program, the Commercial & Industrial Prescriptive Program provides consultative energy services and incentives for projects that improve the energy efficiency of your facilities.

Eligible measures include, but are not limited to:

- Interior and exterior lighting retrofits/controls.
- HVAC and chiller replacement.
- Improved building design (new construction).
- High-efficiency motors.
- Commercial refrigeration.
- Commercial kitchen and plumbing upgrades.

Visit us today to find out more about these and other energy-saving programs at [EnergySolutionsLA.com](http://EnergySolutionsLA.com)

### Custom Program:

The more comprehensive Commercial & Industrial Custom Program helps customers like you operate buildings more efficiently. Our program representatives help you understand the technical and financial benefits of investing in energy efficiency upgrades and develop a plan to effectively implement energy efficiency improvements.

Eligible measures include, but are not limited to:

- Air compressor upgrades.
- Variable speed drives.
- Building automation.
- Injection molding improvements.
- Data center upgrades.
- Industrial process improvements.
- PC power management.

**FUN FACT:** Program data demonstrates that energy efficiency projects often yield a return on investment of 24% or higher, making them an attractive opportunity.



# Residential Fact Sheets



**FACT SHEET: Residential Solutions Program.**

**ENERGY SOLUTIONS**  
A LOUISIANA PROGRAM

The Residential Solutions Program helps homeowners achieve significant, long-term electricity savings through the use of local home energy consultants and contractors. Participating contractors will help residential customers analyze your home's energy use, identify energy efficiency improvement projects and install low-cost energy-saving measures. Residential customers will receive incentives for home energy assessments and rebates for eligible energy efficiency measures that are installed in your home.

**What are the Benefits?**

- ▶ Achieve energy savings for a quick return on your investment.
- ▶ Decrease your energy bills each month.
- ▶ Improve indoor air quality.
- ▶ Reduce your carbon footprint.

**Who is Eligible?**  
Residential customers (renters or owners) who:

- ▶ Are current Entergy Louisiana, LLC, or Entergy Gulf States Louisiana, L.L.C. customers.
- ▶ Have central heating and air conditioning.
- ▶ Live in a single-family home or a multifamily unit of four units or fewer.
- ▶ Live in a home that is at least one year old.

**How to Participate:**  
Contact the Entergy Solutions program at 855-770-9122 to speak with a representative who will ask you questions about your home and help you determine which evaluation is best for you. If you do not want an evaluation, you can contact one of our participating contractors directly to find incentives for which you may qualify. For a list of participating contractors in your area, visit [EntergySolutionsLA.com](http://EntergySolutionsLA.com).

**Eligible Measures:**

- ▶ Sealing leaks in your ductwork.
- ▶ Replacing ceiling insulation.
- ▶ Adding ceiling insulation.
- ▶ Installation of energy saving CFL and LED bulbs.
- ▶ Aerator and showerheads for homes with electric water heaters.

For a complete list of contractor-installed measures and incentive amounts, please contact the Entergy Solutions program at 855-770-9122 or visit [EntergySolutionsLA.com](http://EntergySolutionsLA.com).




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Questions? Contact Entergy Solutions: A Louisiana Program at 855-770-9122 or visit [EntergySolutionsLA.com](http://EntergySolutionsLA.com)



**FACT SHEET: Large Commercial & Industrial Program**

**ENERGY SOLUTIONS**  
A LOUISIANA PROGRAM

The Large Commercial & Industrial Program is offered to commercial and industrial customers of Entergy Louisiana, LLC, or Entergy Gulf States, L.L.C. program. The program helps facility supervisors like you operate your buildings more efficiently by understanding the technical and financial benefits of investing in energy efficiency upgrades and developing a plan to make energy efficiency improvements. Program participants will receive technical and energy-related assistance to help you make decisions about cost-effective investments in your facility's energy efficiency.

**The Large Commercial & Industrial Program will help you:**

- ▶ Improve the efficiency and performance of your facility.
- ▶ Achieve significant, long-term energy savings.
- ▶ Earn incentives to help offset the cost of energy efficiency upgrades.

**Who is Eligible?**  
Commercial and industrial customers with a valid Entergy Louisiana, LLC, or Entergy Gulf States, L.L.C. account are eligible for the Large C&I program.

- ▶ Publicly funded entities are encouraged to participate in the CitySmart® program to take advantage of the unique offerings therein.

**What are the Benefits?**

- ▶ Financial incentives.
- ▶ Reduced energy costs.
- ▶ Access to participating trade ally network.
- ▶ Walk-through energy assessments.

**How to Participate:**  
Please follow the steps below to participate:

1. Contact program staff or a participating contractor for program enrollment or technical assistance. A complete list of participating contractors and other program information can be found at [enterygulfstates.com/](http://enterygulfstates.com/) commercial. To contact program staff directly please call us at 855-770-9122. Your program representative and participating contractor will help identify efficiency upgrade projects specific to your needs during a walk-through energy assessment.
2. Submit project application form.
3. Participating contractor will install energy-saving upgrades identified and agreed upon during the walk-through assessment.
4. Program representative will complete post-installation inspection as required.
5. Work with program representative to finalize program documentation and apply for incentives.
6. Receive incentive check.

**Program Incentives**  
New construction and retrofit projects are eligible for tiered incentives, based on the number of measures installed.




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Questions? Contact us at 855-770-9122 or visit [EntergySolutionsLA.com](http://EntergySolutionsLA.com)

# CoolSaver Fact Sheet



## FACT SHEET: Residential CoolSaver<sup>®</sup> A/C Tune-Up Program



The Residential CoolSaver Program is designed to overcome market barriers that prevent customers from receiving high performance air conditioning and heat pump system tune-ups. Energy savings are captured through identifying air conditioning and heat pump system inefficiencies during the tune-up and then correcting these. CoolSaver provides incentives, training on best practices, and discounts on high quality tools for contractors to conduct high performance system tune-ups as well as ensure replacement systems run at optimal efficiency.

### What are the Benefits?

- ▶ Instant discount applied to the cost of an air conditioning tune-up.
- ▶ A CoolSaver tune-up performed with precision digital instruments will increase your system's efficiency.
- ▶ Reduced cooling costs.
- ▶ Extension of equipment life.
- ▶ Better humidity control.

### Who is Eligible?

All Entergy Louisiana LLC and Entergy Gulf States Louisiana L.L.C. residential customers with a valid account number and whose central air conditioning systems are at least one year old. (Systems that have been incentivized through the CoolSaver Program in the past five years are not eligible.)

### How to Participate

Follow the steps below:

1. Contact the Energy Efficiency Solutions Center at 855-770-9122 or [entergysolutions@clearresult.com](mailto:entergysolutions@clearresult.com).
2. Your participating contractor will conduct an evaluation using precision digital tools to identify energy-saving improvement opportunities and determine if you will benefit from a high performance tune-up.
3. Contractor will thoroughly clean condenser coils and, if necessary, clean evaporator coils and blowers as well as adjust refrigerant charge to manufacturer's specification.
4. Once the tune-up is completed, your contractor will apply the instant discount to the final invoice.

### CoolSaver Incentive Rates

Measure Type	Incentive Level	Measure Description
High Performance A/C Tune-Up	Customer may receive a \$150 discount for having the following services performed: <ul style="list-style-type: none"> <li>- Cleaning evaporator coil.</li> <li>- Cleaning outdoor condenser.</li> <li>- Cleaning blower.</li> <li>- Adjusting refrigerant charge to manufacturer specification.</li> </ul>	Pending customer approval, typical improvement measures include: correction of refrigerant charge using program-required tools and procedures, airflow correction, and cleaning of indoor blower, evaporator coils, and condenser coils. Program test-out data is measured and collected by a program-qualified technician.



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Questions? Contact the Energy Efficiency Solutions Center at 855-770-9122 or visit [EntergySolutionsLA.com](http://EntergySolutionsLA.com)

# Large Commercial Fact Sheets



## FACT SHEET: Large Commercial & Industrial Program



The Large Commercial & Industrial Program is offered to commercial and industrial customers of Entergy Louisiana, LLC, or Entergy Gulf States, L.L.C. program. The program helps facility supervisors like you operate your buildings more efficiently by understanding the technical and financial benefits of investing in energy efficiency upgrades and developing a plan to make energy efficiency improvements. Program participants will receive technical and energy-related assistance to help you make decisions about cost-effective investments in your facility's energy efficiency.

### The Large Commercial & Industrial Program will help you:

- ▶ Improve the efficiency and performance of your facility.
- ▶ Achieve significant, long-term energy savings.
- ▶ Earn incentives to help offset the cost of energy efficiency upgrades.

### Who is Eligible?

Commercial and industrial customers with a valid Entergy Louisiana, LLC, or Entergy Gulf States, L.L.C. account are eligible for the Large C&I program.

- ▶ Publicly funded entities are encouraged to participate in the CitySmart<sup>®</sup> program to take advantage of the unique offerings therein.

### What are the Benefits?

- ▶ Financial incentives.
- ▶ Reduced energy costs.
- ▶ Access to participating trade ally network.
- ▶ Walk-through energy assessments.

### How to Participate:

Please follow the steps below to participate:

1. Contact program staff or a participating contractor for program enrollment or technical assistance. A complete list of participating contractors and other program information can be found at [entergyarkansas.com/](http://entergyarkansas.com/) commercial. To contact program staff directly please call us at 855-770-9122. Your program representative and participating contractor will help identify efficiency upgrade projects specific to your needs during a walk-through energy assessment.
2. Submit project application form.
3. Participating contractor will install energy-saving upgrades identified and agreed upon during the walk-through assessment.
4. Program representative will complete post-installation inspection as required.
5. Work with program representative to finalize program documentation and apply for incentives.
6. Receive incentive check.

### Program Incentives

New construction and retrofit projects are eligible for tiered incentives, based on the number of measures installed.



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Questions? Contact us at 855-770-9122 or visit [EntergySolutionsLA.com](http://EntergySolutionsLA.com)

## Large Commercial & Industrial Custom Program Eligible Measures

Measure Type	Measure Description
Improved Building Design (New Construction Only)	Incentives are given to buildings that are built above and beyond the required energy codes. These measures will be incentivized as a part of the individual measure type (lighting, lighting controls, HVAC, etc.) as listed below for the purposes of qualifying for tiered incentives, and are not separate measures from retrofits of similar technology. For instance, if a participant is installing a lighting retrofit at one facility and is building a new facility with a qualifying lighting project, all of the lighting measures are considered one lighting measure for the purposes of calculating tiered incentives.
Lighting Retrofit	Lighting retrofit projects replace inefficient lighting systems with more efficient lighting systems. A variety of high efficiency fixtures, ballasts, and lamps produce equivalent light levels as previous technologies while consuming less energy. For instance, T12 fluorescent lamps and magnetic ballasts can be replaced with more efficient lighting systems such as T8 fluorescent lamps with electronic ballasts. Metal halides may be replaced with systems such as T5 fluorescent lamps with electronic ballasts or compact fluorescents. There are a variety of lamp and ballast combinations that are eligible for this program depending on the current technology installed at a facility.
Lighting Controls	Automatic lighting controls save energy by turning off or dimming lights when they are not necessary. Many different varieties of sensors are available including passive infrared, dual-technology, integral occupancy sensors, photocells, which can be coupled with a variety of control strategies including day lighting controls, occupancy controls, timer controls and time clocks. For certain conditions, light reduction and automatic controls are mandatory for new construction and affected retrofit projects.
Exterior Lighting	Energy saving opportunities exist for all major exterior lighting applications, including parking lots, streets and roadways and other building mounted lighting. Energy saving opportunities apply to both improved lighting performance and enhanced control strategies. For example, retrofitting high-intensity discharge technologies with high-voltage discharge lighting and occupancy-based technology are good candidates for exterior applications.
HVAC Replacement	For existing buildings and new construction, non-ENERGY STAR <sup>®</sup> qualified heat pumps and air conditioning units are eligible to be replaced with ENERGY STAR qualified units. Eligible units for replacement include small split-system and single-package air conditioners and heat pumps.
Chiller Replacement	Chillers are commonly used to provide cooling for a variety of building types and process loads. The most common applications are for larger cooling loads (e.g. 50 to 100 tons and greater). This measure applies to the replacement of air-cooled and water-cooled chillers with more energy efficient chillers.
HVAC Controls	HVAC controls are eligible in programs offered by Entergy Solutions, A Louisiana program when no other controls previously exist or where existing controls can be modified or improved to provide measurable energy savings. Controls can be installed on building HVAC systems or central plant equipment to help control common operating parameters such as temperature, humidity, chilled water temperature, etc. for more effective use of the HVAC system.
VFD Motor Drives	A variable frequency drive, or VFD, controls the rotational speed of an electric motor by controlling the frequency of the electrical power supplied to the motor. VFDs allow for soft starts and can be optimized to better match system loads, reducing stress and improving the motor life. VFDs work well wherever units systems that have motors that can operate at lower speeds. The installation of VFDs that show measurable energy savings are eligible under the program.
Data Center Upgrades	Data center upgrades that qualify for programs offered by Entergy Solutions, A Louisiana program include VFD retrofits, cooling upgrades, hot/cold aisle containment, installation of PC Power Management software and server virtualization. Any combination of these measures will greatly increase the energy efficiency of data centers or server rooms.
Refrigeration	There are a number of refrigeration measures that are eligible for upgrades or replacement in programs offered by Entergy Solutions, A Louisiana program: <ul style="list-style-type: none"> <li>- Evaporator fan upgrades to electronically commutated motors.</li> <li>- Anti-sweat heater controls.</li> </ul>
Kitchen and Plumbing Upgrades	There are a number of kitchen measures that are eligible for upgrades or replacement in programs offered by Entergy Solutions, A Louisiana program: <ul style="list-style-type: none"> <li>- Low flow pre-rinse spray valves.</li> <li>- Low flow faucet aerators.</li> <li>- Low flow shower heads.</li> <li>- Energy-efficient dishwashers.</li> <li>- High-efficiency electric combination oven.</li> <li>- High-efficiency toasters.</li> <li>- ENERGY STAR steam cookers.</li> </ul>
Compressed Air	Compressed air retrofits are ideal when there are significant air leaks, compressors run at less than full capacity, compressors are run in modulation mode, discharge pressure is greater than 110 psig, or when compressed air is used for tasks that do not require high pressure. Installation of new air compressor equipment and controls is eligible under this program provided that the savings can be measured and verified.
Industrial Process Improvements	Process improvements in commercial and industrial facilities can provide electrical energy savings as well as increased production. Installation of new, cost-effective process equipment and modifications to sequencers and controls in existing processes are both eligible measures for review and acceptance under the program.



Questions? Contact Entergy Solutions-A Louisiana program at 855-770-9122 or visit [EntergySolutionsLA.com](http://EntergySolutionsLA.com)

# Prescriptive Projects Fact Sheet



## FACT SHEET: Commercial & Industrial Prescriptive Program



The Commercial & Industrial Prescriptive Program is offered to non-residential customers in the Entergy Solutions: A Louisiana program service area. The program helps customers like you operate buildings more efficiently by helping you understand the technical and financial benefits of investing in energy efficiency and developing a plan to make energy efficiency improvements. Participants receive direct cash incentives for completing qualifying energy efficiency projects.

### The CGI Prescriptive Program will help you:

- ▶ Operate your facility more efficiently.
- ▶ Achieve significant, long-term energy savings.
- ▶ Earn incentives to help offset the cost of energy efficiency upgrades.

### Who is Eligible?

Commercial and industrial customers with a valid Entergy Solutions: A Louisiana program account number.

### What are the Benefits?

- ▶ Financial incentives.
- ▶ Reduced energy costs.
- ▶ Energy savings calculations assistance.

### How to Participate:

Please follow the steps below to participate:

1. Contact a participating contractor. A complete list can be found at [EntergySolutionsLA.com](http://EntergySolutionsLA.com) or by calling Entergy Solutions: A Louisiana program at 855-770-9122.
2. Your program representative and participating contractor will help identify efficiency upgrade projects specific to your needs during a walk-through energy assessment.
3. Submit project application form.
4. Participating contractor will install energy-saving upgrades identified and agreed upon during the walk-through assessment.
5. Program representative will complete post-installation inspection as required.
6. Work with program representative to finalize program documentation and apply for incentives.
7. Receive incentive check.

### Program Incentives

The incentive rates for this program have been set to maximize the inclusion of cost-effective measures where commercial "deemed savings" exist. The incentives for eligible measures are listed below. These rates may be adjusted at any time during the program year.

### CGI Prescriptive Incentive Rate (per kWh)

All Prescriptive Projects (including retrofits, new equipment installations, and lighting)	\$0.09
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*\*Note that no project will be provided incentives that exceed 75% of the sum of the incremental measure costs.*



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Questions? Contact Entergy Solutions: A Louisiana program at 855-770-9122 or visit [EntergySolutionsLA.com](http://EntergySolutionsLA.com)

## CGI Prescriptive Program Eligible Measures

Measure Type	Measure Description
Lighting Retrofit	Lighting retrofit projects replace inefficient lighting systems with more efficient lighting systems. A variety of high efficiency fixtures, ballasts, and lamps produce equivalent light levels as previous technologies while consuming less energy. For instance, T12 fluorescent lamps and magnetic ballasts can be replaced with more efficient lighting systems such as T5 fluorescent lamps with electronic ballasts. Metal halides may be replaced with systems such as T5 fluorescent lamps with electronic ballasts or compact fluorescents. There are a variety of lamp and ballast combinations that are eligible for this program depending on the current technology installed at a facility.
Exterior Lighting	Energy saving opportunities exist for all major exterior lighting applications including parking lots, streets and roadways, and other building mounted lighting. Energy saving opportunities applies to both improved lighting performance and enhanced control strategies. For example, retrofitting less efficient high intensity discharge technologies with light emitting diode lighting and occupancy-based technology are good candidates for exterior applications.
Lighting Controls	Automatic lighting controls save energy by turning off or dimming lights when they are not necessary. Many different varieties of sensors are available including passive infrared, dual-technology, integral occupancy sensors, photocells, which can be coupled with a variety of control strategies including day lighting controls, occupancy controls timer controls and time clocks. For certain conditions, light reduction and automatic controls are mandating for new construction and affected retrofit projects.
HVAC Replacement	For existing buildings and new construction, non-ENERGY STAR® qualified heat pumps and air conditioning units are eligible to be replaced with ENERGY STAR qualified units. Eligible units for replacement include small split system and single package air conditioners and heat pumps.
Chiller Replacement	Chillers are commonly used to provide cooling for a variety of building types and process loads. The most common applications are for large cooling loads (e.g. 50 to 100 tons and greater). This measure applies to the replacement of air-cooled and water-cooled chillers with more energy efficient chillers.
Refrigeration	There are a number of refrigeration measures that are eligible for upgrades or replacement in Entergy Solutions: A Louisiana program: <ul style="list-style-type: none"> <li>- Evaporator fans upgrades to electronically commutated motors.</li> <li>- Anti-sweat heater controls.</li> </ul>
Kitchen and Plumbing Upgrades	There are a number of kitchen measures that are eligible for upgrades or replacement in Entergy Solutions: A Louisiana program: <ul style="list-style-type: none"> <li>- Low flow pre-rinse spray valves.</li> <li>- Low flow faucet aerators.</li> <li>- Low flow shower heads.</li> <li>- Energy efficient dishwasher.</li> <li>- High efficiency electric combination ovens.</li> <li>- High efficiency fridges.</li> <li>- ENERGY STAR steam cookers.</li> </ul>



Questions? Contact Entergy Solutions: A Louisiana program at 855-770-9122 or visit [EntergySolutionsLA.com](http://EntergySolutionsLA.com)

# Retail Point Of Purchase



# Case Studies

- As successful projects were completed, case studies were created to tout the program benefits and aid field teams in promoting the program.

# USS Kidd Case Study



## CASE STUDY USS Kidd

### PROJECT AT A GLANCE:

Annual kWh savings:	285,645
Annual kW reduction:	65.2
Estimated annual savings:	\$28,766
Total incentives paid:	\$25,000
Payback period:	N/A

#### THE OPPORTUNITY.

Located on the banks of the Mississippi River in Baton Rouge, the Fletcher-class destroyer USS Kidd – once known as "the Pirate of the Pacific" – now serves as a nonprofit veterans museum and educational center. The facility hosts tours, student groups, overnight trips, yoga classes and other special events.



#### THE PROJECT.

Thanks to incentives available from the Entergy Solutions Program, the USS Kidd was able to replace bulbs in 882 light fixtures at no cost. This allowed them to upgrade their efficiency, lower their operating costs, and decrease their impact on the environment, all without having to pass on the cost to visitors.

#### THE RESULTS.

The savings realized through these lighting upgrades totaled 285,645 kWh, which is roughly the same as reducing greenhouse gases by 70.5 tons. By tapping into \$25,000 in available lighting incentives, the USS Kidd was able to achieve \$28,766 in annual savings in energy savings.

To learn more about how the Large Commercial & Industrial Program can help your company, visit [EntergySolutionsLA.com](http://EntergySolutionsLA.com).



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Questions? Visit [EntergySolutionsLA.com](http://EntergySolutionsLA.com), email [entergysolutions@clearresult.com](mailto:entergysolutions@clearresult.com) or call (855) 770-9122.

# Hertz Lake Charles Case Study



## CASE STUDY

### Capital One Parking Garage

**THE OPPORTUNITY.**  
Hertz Investment Group purchased the 22-story, 400,000 sq. ft. Capital One Tower, overlooking the banks of Lake Charles, Louisiana, in 2007. The building—which includes a six-story attached parking garage—sits in Lake Charles's prime central business district. The ownership and management of the building adheres to Hertz's ideal of quality without compromise.

**THE PROJECT.**  
Incentives from Entergy Solutions Program enabled Hertz Lake Charles to replace every bulb in its parking garage with LED lighting. After this smooth transition, the company saw an immediate spending reduction, greater energy efficiency, a rise in the aesthetic value of the property and an ongoing reduction in the impact on the environment. Furthermore, it achieved all of this without passing any cost to its customers.

**THE RESULTS.**  
Hertz reduced energy usage by 167,677 kWh with these lighting upgrades, which the company expects to see translated into over \$16,000 in annual cost savings. Incorporating the \$15,091 paid in lighting incentives, Hertz's monthly utility bill dropped from \$1,500 to around \$400.

**PROJECT AT A GLANCE:**

Total kWh savings:	167,677
Total kW reduction:	21.27
Estimated annual savings:	\$16,768
Total incentives paid:	\$15,091
Payback period:	3 days

**"Our average bill was \$1500 and today my bill was \$470."**  
-Noah Miller,  
Facilities Director

To learn more about how the Large Commercial & Industrial Program can help your company, visit [EntergySolutionsLA.com](http://EntergySolutionsLA.com).

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Questions? Visit [EntergySolutionsLA.com](http://EntergySolutionsLA.com), email [entergysolutions@clearresult.com](mailto:entergysolutions@clearresult.com) or call (855) 770-9122.



# Website Screen Shots

[www.energysolutionsla.com](http://www.energysolutionsla.com)

Entergy Louisiana, LLC

Residential Customers | Business Customers

myAccount | Payment Options | Our Community | Business & Economic Development | Energy Education & Safety | About Us | Entergy.com

Louisiana Main Page >

Printable Page

HOME | RESIDENTIAL SOLUTIONS | BUSINESS SOLUTIONS

ENTERGY SOLUTIONS  
A LOUISIANA PROGRAM

*Instant discounts. Long-term savings.*

LEARN MORE ABOUT RESIDENTIAL LIGHTING & APPLIANCES PROGRAM. >>

## Entergy Solutions - A Louisiana Program

Entergy Louisiana offers a number of programs to help you lower your monthly bill. Whether you are a residential or business customer, you may be eligible for savings and incentives to help you save energy and money.

Learn more about how you can save energy and money for your home or business by clicking the icon to the right. Or contact us at 855-770-9122 or [energysolutions@clearesult.com](mailto:energysolutions@clearesult.com) for more information.

### residential



*Great programs to make your home more energy efficient - and save you money every month on your bill.*

### business



*Energy savings to help boost your business' bottom line.*

*Optimize Your Cooling and Savings with a CoolSaver A/C Tune-up.*

Find a Participating Contractor

# Residential Programs Page



## Residential Solutions

If you are a residential customer, Entergy Louisiana offers programs that will help to lower your energy bill by making your home more energy efficient. We have partnered with local contractors, who will help you find new ways to save around your home.

- Residential Solutions Program
- CoolSaver<sup>SM</sup> AC Tune-up Program
- Lighting & Appliance Program

Find a Participating  
Contractor

# Residential Solutions Program

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HOME RESIDENTIAL SOLUTIONS BUSINESS SOLUTIONS

**ENTERGY SOLUTIONS**  
A LOUISIANA PROGRAM



Learn more about simple savings and incentives that you can use today by calling 855-770-9122 or emailing [EntergySolutions@CLEARresult.com](mailto:EntergySolutions@CLEARresult.com).

Find a Participating Contractor

## Residential Solutions Program

*A more comfortable home. A lower energy bill.*

*Our Residential Solutions Program helps you save money with support and incentives.*

Whether you have high energy bills or uncomfortable rooms and drafts, the Residential Solutions Program helps you solve these common problems. The program provides you with cash incentives in the form of instant rebates upfront, while also improving your indoor air quality and reducing your carbon footprint. You will also get a quick return on your investment with energy savings and a lower monthly Entergy bill.

Program Incentives & Savings	+
How does the program work?	-
Who is eligible?	+
What does a typical single-family home project look like?	+
Participating contractors.	+

### Start Saving Money.

Contact the Energy Efficiency Solutions Center by calling 855-770-9122 or emailing [EntergySolutions@CLEARresult.com](mailto:EntergySolutions@CLEARresult.com). A representative can help you decide which evaluation is best for you. You can also contact one of our participating contractors to see for which incentives you may qualify.

# Coolsaver Program

[myAccount Login](#) | [New Account](#) | [Careers](#) | [FAQ](#) | [Site Map](#) | [Contact Us](#)

Entergy Louisiana, LLC

Residential Customers
Business Customers

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HOME

RESIDENTIAL SOLUTIONS

BUSINESS SOLUTIONS

**CoolSaver**

Start saving money today.

Call us at 855-770-9122 or email us at [EntergySolutions@cleareresult.com](mailto:EntergySolutions@cleareresult.com).

Find a Participating Contractor

## CoolSaver<sup>SM</sup> Residential & Commercial AC Tune-Up Program

Optimize your cooling and your savings with a CoolSaver A/C Tune-up! Get a \$150 Instant Rebate!

A CoolSaver A/C Tune-up can improve the cooling output and efficiency of your air conditioning unit by up to 30%. With a CoolSaver A/C Tune-up, you'll enjoy:

- A more dependable, longer-lasting unit
- A lower monthly energy bill
- Cooler indoor environment
- Better humidity control
- Instant savings towards the cost of a CoolSaver A/C Tune-up

A CoolSaver tune-up goes beyond the traditional tune-up.

	Traditional Tune-up	CoolSaver Tune-Up
Clean condenser coil	sometimes	✓
Measure refrigerant	✓	✓
Change air filter (customer provides filter)	✓	✓
Clean evaporator coil		✓

# Lighting and Appliances Program

The screenshot shows the Entergy Louisiana website. At the top right, there are links for 'myAccount Login', 'Newsroom', 'Careers', 'FAQ', 'Sitemap', and 'Contact Us'. Below these are 'Residential Customers' and 'Business Customers' tabs, with a search bar. A navigation bar contains 'myAccount', 'Payment Options', 'Our Community', 'Business & Economic Development', 'Energy Education & Safety', 'About Us', and 'Entergy.com'. The main navigation has 'HOME', 'RESIDENTIAL SOLUTIONS', and 'BUSINESS SOLUTIONS'. The 'ENTERGY SOLUTIONS A LOUISIANA PROGRAM' logo is on the right. The page title is 'Lighting\* & Appliances Program'. A circular graphic with a lamp says 'click here for a list of participating stores'. Text below it says 'Questions? Contact Us. 855-770-9122 or email us at EntergySolutions@clearesult.com.' The main content area has the headline 'Instant discounts. Long-term savings. Now even easier.' and a paragraph about partnerships with retailers. A list of categories with plus signs follows: Advanced Power Strips, Pool Pumps, Window A/Cs, LED Light Bulbs, and CFL Bulbs. A footnote at the bottom states: '\* Instant discounts for efficient lighting will return in 2016. Check back for a list of partnering retailers.'

Entergy Louisiana, LLC

Residential Customers

Business Customers

Search...

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HOME

RESIDENTIAL SOLUTIONS

BUSINESS SOLUTIONS

ENTERGY SOLUTIONS  
A LOUISIANA PROGRAM



Questions? Contact Us.

855-770-9122 or email us at

EntergySolutions@clearesult.com.

## Lighting\* & Appliances Program

*Instant discounts. Long-term savings. Now even easier.*

Saving energy saves you money. So we've partnered with local and online retailers to offer discounts on everything from LED light bulbs to Advanced Power Strips. You'll get instant savings at these [participating stores](#). Start shopping and saving now while supplies last.

*\* Instant discounts for efficient lighting will return in 2016. Check back for a list of partnering retailers.*

- Advanced Power Strips +
- Pool Pumps +
- Window A/Cs +
- LED Light Bulbs +
- CFL Bulbs +

# Excerpt of Participating Contractor List

	Insulation	Duct Sealing	Air Sealing	Home Assessment	Free Energy Saving Kit	CoolSaver AC Tune-Up	CoolSaver AC Replacement	Greater NO	Greater Baton Rouge	Southwest LA	Southeast LA	Central LA	Northwest LA	Northeast LA
A-1 Air Conditioning 225-343-7260	✓					✓	✓							
A/C Ambulance Service 20 Veterans Ste 101 Kenner, LA 70062 504-467-1400 acambulance.com							✓	✓						
AFJ Mechanical 504-473-7203						✓		✓			✓			
Air Conduit, LLC www.airconduit.net Office phone: 337.436.7551							✓			✓				
Alber's Air Conditioning 985-643-6069 www.albersairconditioning.com						✓	✓	✓			✓			
Aron Ingram 318-381-6471 3012 Arkansas Rd. West Monroe LA 71291	✓													✓
Baton Rouge Air Conditioning and Heating 225-926-2665 coolbr.com							✓		✓					
Big Star Conservation 2423 Bainbridge St, Suite 101 Kenner LA 70065 844-504-3276 toll free 504-305-3276 local 504-305-3278 fax bigstarconservation@yahoo.com		✓	✓					✓	✓		✓			
Bryans United Air Conditioning 504-368-3297 www.bryansunited.com Amanda@bryansunited.com	✓	✓	✓			✓	✓	✓			✓			
Butcher Air Conditioning www.ButcherAC.com service@butcherac.com 337-837-2000	✓						✓			✓				
Carroll Insulation & Window Co., Inc. 318-221-9494 www.carrollinsulation.com	✓											✓	✓	✓
Cold Air Now! thomas@coldairnow247.com 504-444-2233	✓	✓	✓	✓		✓	✓	✓						
Comfort Engineered Systems, Inc 1050 S. Jeff Davis Pkwy. #205 New Orleans, LA 70125 504 602 6648 ex 1697		✓				✓		✓			✓			
David Sims and/or Elese Sims-Benoit 1960 B Easy Street Lake Charles, LA 70605 337-474-3392 office	✓													
Dell Tech 504-609-1488						✓	✓	✓			✓			

# Commercial Programs Page

The screenshot shows the top portion of the Entergy Louisiana website. At the top right, there are links for "Download Our App.", "myAccount Login", "Newsroom", "Careers", "FAQ", "Sitemap", and "Contact Us". Below these are navigation tabs for "Residential Customers" and "Business Customers", with a search bar to the right. A dark banner contains links for "myAccount", "Payment Options", "Our Community", "Business & Economic Development", "Energy Education & Safety", "About Us", and "Entergy.com". Below this is a "Louisiana Main Page >" link and a navigation menu with "HOME", "RESIDENTIAL SOLUTIONS", and "BUSINESS SOLUTIONS". The "ENTERGY SOLUTIONS A LOUISIANA PROGRAM" logo is on the right. The main banner features a row of light bulbs, with one compact fluorescent bulb (CFL) glowing brightly in the center. Overlaid on the banner is the text "Instant discounts. Long-term savings." and a call to action: "LEARN MORE ABOUT RESIDENTIAL LIGHTING & APPLIANCES PROGRAM. >>".



## Business Solutions

Whether you run a small business or a large industrial facility, energy is a major expense. Entergy Louisiana provides solutions for businesses of all sizes to lower their energy bills. From customized programs that set a schedule for energy use to incentives for improving your facility's energy efficiency, there are plenty of ways to save energy and increase your bottom line.

- [Small Business Energy Solutions Program](#)
- [Large Commercial & Industrial Program](#)

# Small Business Solutions Page

Entergy Louisiana, LLC

Residential Customers Business Customers Search...

myAccount | Payment Options | Our Community | Business & Economic Development | Energy Education & Safety | About Us | Entergy.com

Louisiana Main Page >

HOME RESIDENTIAL SOLUTIONS BUSINESS SOLUTIONS

ENERGY SOLUTIONS  
A LOUISIANA PROGRAM



## Small Business Energy Solutions Program

*Save energy and money with small business cash incentives.*

Entergy Louisiana offers a range of support to help improve your facilities and put money back into your small business.

Saving energy means saving your business money. That's why our Small Business Energy Solutions Program helps make your business more energy efficient. If you have any of the problems below, Entergy can help.

- High energy bills.
- Inefficient or poor interior/exterior lighting quality.
- Limited control of lighting and HVAC.
- Solar heat gain through your east and west windows.
- Uncomfortable rooms.
- Drafts.

By participating in the Small Business Energy Solutions Program, you will receive financial incentives from Entergy for projects that make your business's facility more energy efficient. And a more energy-efficient facility means more money in your pocket to run your business.

Program Incentives & Savings +

Who is eligible? +

What are some potential upgrades? +



# Large Commercial and Industrial Solutions Page

The screenshot shows the website for Entergy Louisiana, LLC. At the top, there are navigation links for "myAccount Login", "Newsroom", "Careers", "FAQ", "Sitemap", and "Contact Us". Below this is a search bar. The main navigation bar includes "Residential Customers" and "Business Customers". A secondary navigation bar lists "myAccount", "Payment Options", "Our Community", "Business & Economic Development", "Energy Education & Safety", "About Us", and "Entergy.com". A sub-navigation bar for "Louisiana" includes "Billing and Payment Options and Bill Management Tools". The main menu has "HOME", "RESIDENTIAL SOLUTIONS", and "BUSINESS SOLUTIONS". The "ENTERGY SOLUTIONS A LOUISIANA PROGRAM" logo is in the top right. The main content area features a circular image of a large industrial building. The heading is "Large Commercial & Industrial Program". The sub-heading is "Cash incentives that save your business money." The text states: "Entergy Louisiana offers a range of support specifically tailored to make your facilities more energy-efficient and help you save money." Below this, it says: "Saving energy means saving money. That's why our Large Commercial & Industrial Program helps you make your business more energy-efficient. If you have any of the problems below, this program is for you." A bulleted list follows: "High energy bills.", "Poor lighting.", "Limited control of lighting and HVAC.", "Inadequate HVAC/chiller performance.", "Solar heat gain from your facilities' windows.", "Air compressors with significant air leaks.", "Excessive or inefficient energy use in an industrial process." The text continues: "Entergy offers cash incentives when you complete certain projects that make your business more energy-efficient. Additional benefits include an improved cash flow from significant, long-term electricity savings, as well as an improved 'green' image of your business. Entergy will also help you develop an energy savings plan tailored to your buildings, and will even build energy efficiencies and savings into your work process. That way, you can focus less on energy costs and more on profitable gains." At the bottom, there is a green button labeled "Typical Savings & Incentives" with a plus sign.

Entergy Louisiana, LLC

myAccount Login | Newsroom | Careers | FAQ | Sitemap | Contact Us

Residential Customers | Business Customers

Search...

myAccount | Payment Options | Our Community | Business & Economic Development | Energy Education & Safety | About Us | Entergy.com

Louisiana | Billing and Payment Options and Bill Management Tools

HOME | RESIDENTIAL SOLUTIONS | BUSINESS SOLUTIONS

ENTERGY SOLUTIONS  
A LOUISIANA PROGRAM



## Large Commercial & Industrial Program

*Cash incentives that save your business money.*

*Entergy Louisiana offers a range of support specifically tailored to make your facilities more energy-efficient and help you save money.*

Saving energy means saving money. That's why our Large Commercial & Industrial Program helps you make your business more energy-efficient. If you have any of the problems below, this program is for you.

- High energy bills.
- Poor lighting.
- Limited control of lighting and HVAC.
- Inadequate HVAC/chiller performance.
- Solar heat gain from your facilities' windows.
- Air compressors with significant air leaks.
- Excessive or inefficient energy use in an industrial process.

Entergy offers cash incentives when you complete certain projects that make your business more energy-efficient. Additional benefits include an improved cash flow from significant, long-term electricity savings, as well as an improved "green" image of your business. Entergy will also help you develop an energy savings plan tailored to your buildings, and will even build energy efficiencies and savings into your work process. That way, you can focus less on energy costs and more on profitable gains.

Typical Savings & Incentives +

# Evaluation of PY1 Energy Efficiency Program Portfolio for the Legacy Entergy Gulf States Louisiana, L.L.C. Service Area

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Submitted to:

*Entergy Louisiana, LLC*

*February 2016*

Submitted by:



**ADM Associates, Inc.**

3239 Ramos Circle  
Sacramento, CA 95827  
916.363.8383

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# 1. Executive Summary

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This report is a summary of the evaluation effort of the November 1, 2014-October 31, 2015 program year (“Program Year 1” or “PY1”) Quick Start energy efficiency (“EE”) program portfolio for the legacy Entergy Gulf States Louisiana, L.L.C. (“EGSL” or “Entergy”) service area. The portfolio includes programs offered to customers located in both the legacy EGSL and Entergy Louisiana, LLC (“ELL”) service areas. Because the programs for the two service areas were funded and administered separately, the evaluation report for the legacy ELL programs is being provided in a separate document. This evaluation was led by ADM Associates Inc. (“ADM”, or “the Evaluators”). Summary of EGSL Energy Efficiency Programs

In PY1, the EGSL EE portfolio included the following programs:

- Residential Solutions;
- Income Qualified;
- CoolSaver AC Tune-Up & Replacement;
- Lighting & Appliances;
- Small Business; and
- Large Commercial and Industrial Solutions.

## **1.1 Evaluation Objectives**

---

The goals of the PY1 EM&V effort are as follows:

- For prescriptive measures, verify that savings are being calculated according to the appropriate Arkansas TRM V3.0 guidelines, adapted for Louisiana weather.
- For custom measures, this effort comprises the calculation of savings according to accepted protocols (such as International Performance Measurement and Verification Protocol, “IPMVP”). This is to ensure that custom measures are cost-effective and provide reliable savings.
- Conduct process evaluation of all EGSL programs and of the portfolio overall. This is to provide a comprehensive review of program operations, marketing and outreach, quality control procedures, and program successes relative to goals. From this, the Evaluators are to provide program and portfolio-level recommendations for EGSL. Process evaluation activities include interviews of key program actors, surveys of participants and non-participants, literature reviews and best-practices assessments, and documentation of program activities, successes, and shortcomings.



## 1.2 Impact Findings

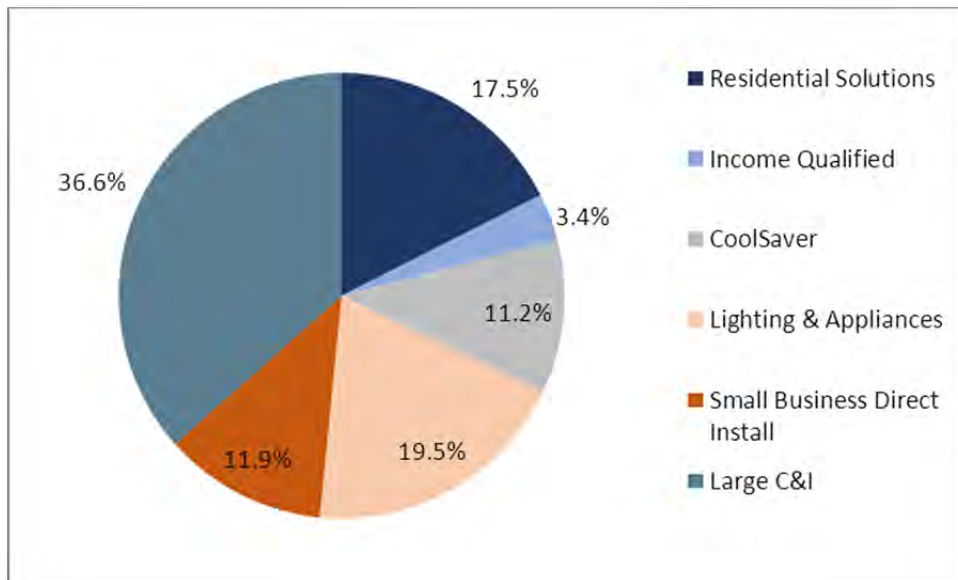
Table 1-1 presents the impacts by program. The values in this table are a comparison of the savings listed by Entergy and their program implementation contractor, CLEAResult, (“Expected Savings”) and those verified by the Evaluators (“Verified Savings”).

*Table 1-1 Impact Summary*

Program	Annual Energy Savings (kWh)		Realization Rate	Peak kW		Realization Rate
	Expected	Verified		Expected	Verified	
Residential Solutions	1,794,105	1,787,015	99.6%	417.9	417.9	100.0%
Income Qualified	337,745	347,126	102.8%	58.6	58.6	100.0%
CoolSaver	1,115,153	1,137,316	102.0%	301.9	301.9	100.0%
Lighting & Appliances	1,962,834	1,983,361	101.0%	424.6	431.5	101.6%
Small Business	1,251,916	1,208,021	96.5%	208.0	209.1	100.5%
Large C&I Solutions	3,756,216	3,726,767	99.2%	590.8	550.6	93.2%
Total	10,217,969	10,189,606	99.7%	2001.8	1969.6	98.4%

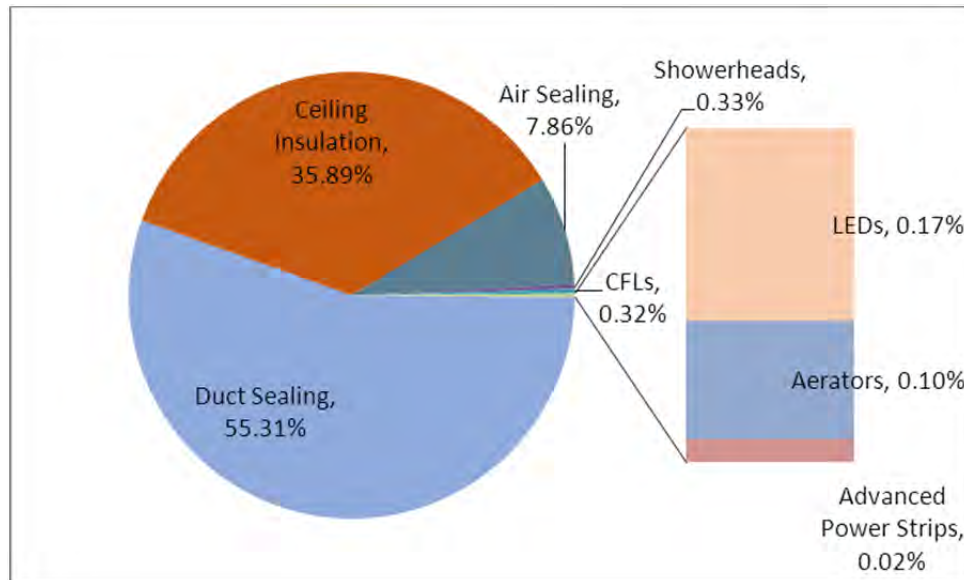
The contribution to portfolio savings by program is summarized in Figure 1-1.

*Figure 1-1 Contribution to Portfolio Savings by Program*



The figures below summarize share of savings by measure by program.

*Figure 1-2 Savings Share by Measure – Residential Solutions*



*Figure 1-3 Savings Share by Measure – Income Qualified*

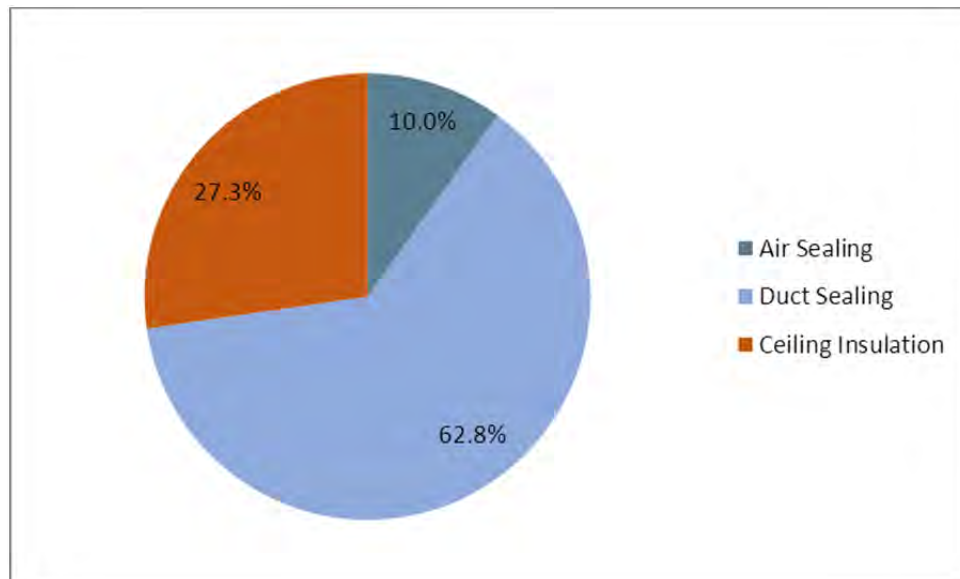


Figure 1-4 Savings Share by Measure – CoolSaver

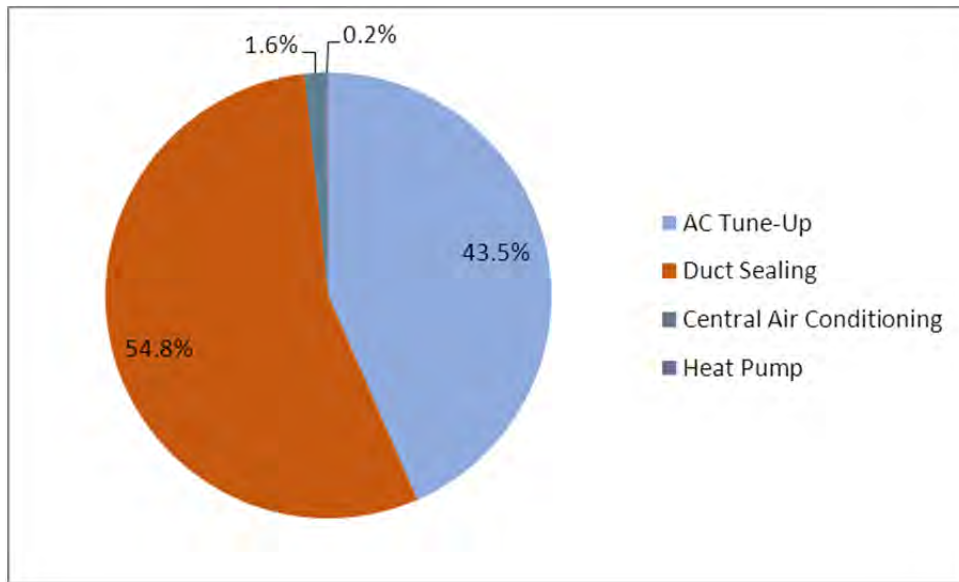
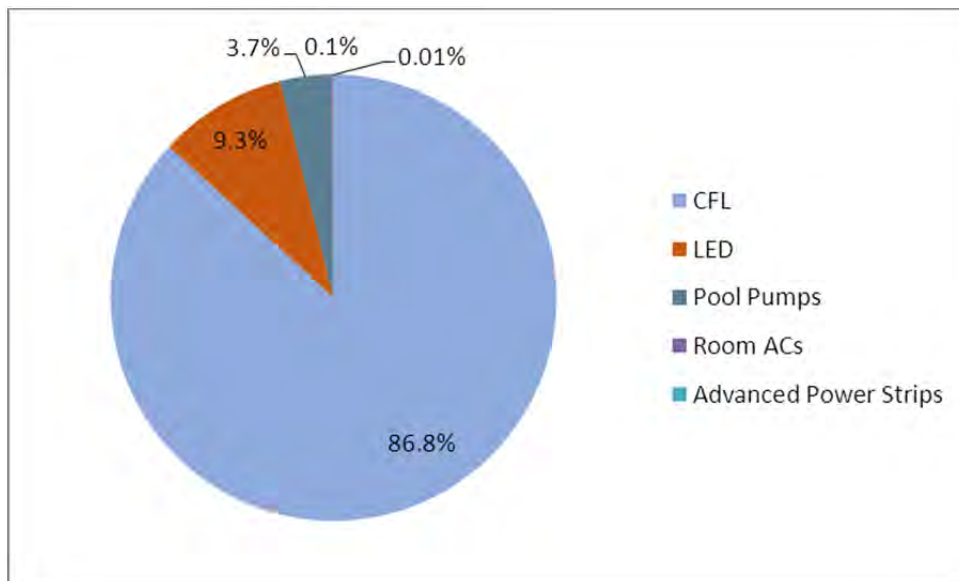


Figure 1-5 Savings Share by Measure – Lighting & Appliances



The Small Business Program was comprised entirely of lighting. 94% of savings from the Large C&I Solutions Program came from lighting projects.

Table 1-2 and Table 1-3 summarize the program goal attainment for kWh and kW, respectively. This table compares the verified savings values from Table 1-1 to the program goals filed by Entergy prior to the program launch.

*Table 1-2 Summary of kWh Goal Attainment*

<b>Program</b>	<b>Verified kWh</b>	<b>kWh Goal</b>	<b>% of Goal Attained</b>
Residential Solutions	1,787,015	1,284,377	139.1%
Income Qualified	347,126	271,561	128.0%
CoolSaver	1,137,316	862,786	131.8%
Lighting & Appliances	1,983,361	1,621,771	122.3%
Small Business	1,208,021	1,275,097	94.7%
Large C&I Solutions	3,726,767	3,335,991	111.7%
<b>Total</b>	<b>10,189,606</b>	<b>8,671,582</b>	<b>118.1%</b>

*Table 1-3 Summary of kW Goal Attainment*

<b>Program</b>	<b>Verified kW</b>	<b>kW Goal</b>	<b>% of Goal Attained</b>
Residential Solutions	417.9	358	116.7%
Income Qualified	58.63	57	102.9%
CoolSaver	301.92	312	96.8%
Lighting & Appliances	431.51	399	108.1%
Small Business	209.05	243	86.0%
Large C&I Solutions	550.6	733	75.1%
<b>Total</b>	<b>1,969.61</b>	<b>2,102.00</b>	<b>93.7%</b>

All programs other than Small Business Program exceeded their PY1 kWh savings goal. The portfolio reached 118.1% of the filed kWh goal and 93.7% of the filed kW goal.

### **1.3 Program Expenditures**

Table 1-4 summarizes total program budgets and expenditures.

*Table 1-4 EGSL PY1 Summary of Program Expenditures*

<b>Program</b>	<b>Planned</b>	<b>Actual</b>	<b>Difference</b>
Residential Solutions	\$500,694.00	\$436,706.21	(\$63,987.79)
Income Qualified	\$209,206.00	\$187,322.30	(\$21,883.70)
CoolSaver	\$206,756.00	\$203,076.29	(\$3,679.71)
Lighting & Appliances	\$300,297.00	\$272,326.15	(\$27,970.85)
Small Business	\$358,832.00	\$323,714.04	(\$35,117.96)
Large C&I Solutions	\$740,842.00	\$675,664.08	(\$65,177.92)
Residential Market Development	\$107,773.00	\$97,975.70	(\$9,797.30)
Commercial Market Development	\$69,515.00	\$63,196.37	(\$6,318.63)
<b>Total</b>	<b>\$2,493,915.00</b>	<b>\$2,259,981.14</b>	<b>(\$233,934.26)</b>

Table 1-4 compares the kWh goal attainment against program budget spend. Overall, the EGSL portfolio reached 118.1% of the PY1 kWh goal while spending 91% of program budget.

*Figure 1-6 Goal Attainment vs. Budget Spend*

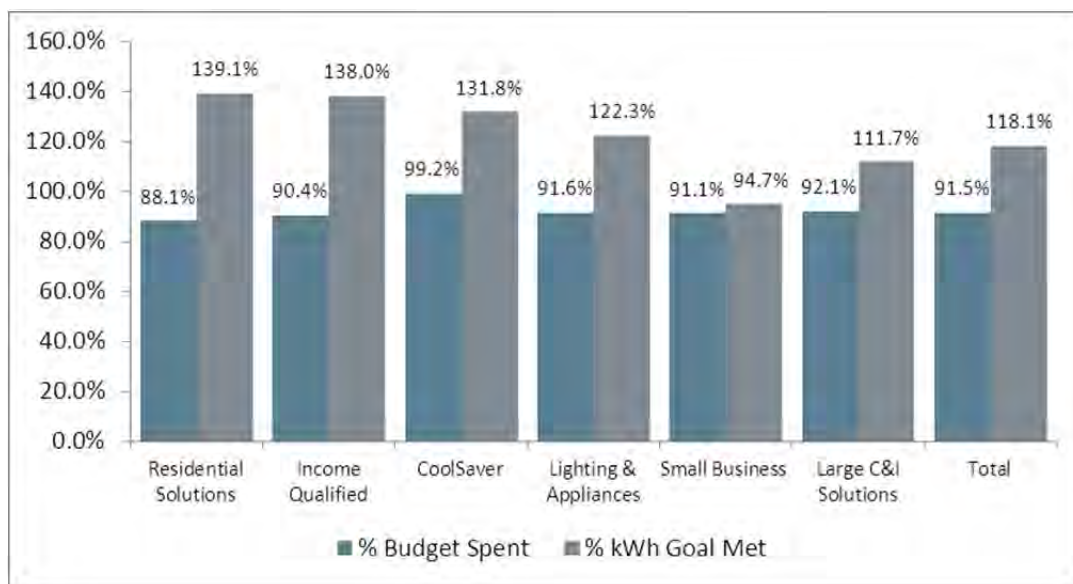


Table 1-5 summarizes program cost-effectiveness. All programs and the portfolio overall passed the total resource cost (TRC) test (with scores greater than 1.0). For further detail pertaining to the cost-benefit analyses, see Appendix A.

*Table 1-5 Cost-effectiveness by Program, PY1*

<i>Program</i>	<i>Verified Peak Demand Reduction (kW)</i>	<i>Verified Annual Energy Savings (kWh)</i>	<i>Total Program Expenditures</i>	<i>TRC (b/c ratio)</i>	<i>UCT (b/c ratio)</i>
Residential Solutions	417.9	1,787,015	\$436,706.21	1.37	3.32
Income Qualified	58.6	347,126	\$187,322.30	1.34	1.37
CoolSaver	301.9	1,137,316	\$203,076.29	2.39	3.76
Lighting & Appliances	431.5	1,983,361	\$272,326.15	1.40	2.37
Small Business	209.1	1,208,021	\$323,714.04	1.95	2.04
Large C&I Solutions	550.6	3,726,767	\$675,664.08	2.25	2.95
Residential Market Development	-	-	\$97,975.70	0	0
Commercial Market Development	-	-	\$63,196.37	0	0
<b>Total</b>	<b>1,969.60</b>	<b>10,189,606</b>	<b>\$2,259,981.14</b>	<b>1.77</b>	<b>2.77</b>

## 1.4 Process Findings

### 1.4.1 Portfolio Findings

#### 1.4.1.1 Program Staffing

The Evaluators found that the programs were well-staffed and that Entergy and CLEAResult collaborated effectively in administering the PY1 programs. CLEAResult uses 16 full time staff to support the programs. This staffing includes engineers, field associates, and two program coordinators. Oversight is provided by two program managers who oversee all of the Entergy programs.

CLEAResult is responsible for the primary program implementation tasks, namely:

- Perform onsite pre- and post-inspections and other quality control and quality assurance activities;
- Customer and trade ally education and outreach;
- Process qualifying incentives;
- Review and approval of proposed projects; and
- Oversight and training of program trade allies.

Entergy is responsible for authorization and issuing payments to CLEAResult for reimbursement of incentives paid and general oversight of the implementation contractor. Entergy also provides quality control related to program communications including review and approval of the program website.

#### **1.4.1.2 Program Communications**

CLEARResult holds brief daily meetings with staff supporting all of the residential and non-residential Entergy programs. During these meetings, staff members discuss daily plans and any current issues faced. Additionally, biweekly staff meetings are held during which the program's status is reviewed. The purpose of this meeting and primary topics changed throughout the program year as the program transitioned from initial launch to ongoing maintenance of the program.

The program manager also meets on a biweekly basis with Entergy program staff. The primary objectives of this meeting are to review program status and to discuss any recommendations CLEARResult may have. During this meeting, a program status report generated by CLEARResult is reviewed.

Entergy and CLEARResult meet biweekly with program managers and the larger implementation team. The purpose of the meeting is to review program status in relation to energy saving goals and the program budget, discuss any issues that the program is facing, any proposed changes in implementation or outreach, and any issues with program trade allies or customers. Additionally, Entergy staff meets with one of the CLEARResult program managers on a weekly basis for similar purposes. Entergy and CLEARResult report that communications and coordination between the utility and the implementer have been effective.

#### **1.4.1.3 Program Marketing and Outreach**

The program implementation contractor markets the programs and provides outreach and educational services to increase awareness of it and energy saving measures. Implementation contractor staff promote the program through direct customer outreach and through the recruitment of trade allies and energy consultants into the program. A trifold brochure for the program was developed and provided to trade allies as well as for use by CLEARResult staff. The trifold provides information on the residential and non-residential programs offered and provides the website address and a contact phone number. The program uses a variety of messaging strategies to appeal to the customer. Key aspects of the messaging include:

- Informational material on energy use in homes and offices by end-use;
- A statement about the financial benefits of saving energy;
- A description of non-energy benefits that can result from energy efficiency improvements such as a reduced carbon footprint and increased comfort;
- Customer-centric language such as "The Entergy Solutions program allows customers like you..."; and
- Prosocial messaging such as "Make a Difference!" and that the program benefits the community.

The trifold is used by program staff and also represents the primary collateral provided to trade allies for use in promoting the programs. Trade allies may also use a template

for promoting their services along with the program incentives using program approved branding.

Entergy also markets the programs to its customers. The overall marketing approach is set out in a plan developed in coordination with program staff and the company's communication department. Staff reported that marketing efforts are coordinated with CLEAResult to ensure that efforts are not duplicated. Various channels are used by Entergy to promote the program, namely, a radio spot, bill inserts, and social media (Facebook posts).

All of the ELL and EGSL energy efficiency programs operate under the Entergy Solutions brand<sup>1</sup>. Customers can access information about the program through the Entergy Solutions website. Through the website, customers may find information about the program incentives and the participation steps. A single page PDF fact sheet may also be accessed from the website. Additionally, a list of program qualified trade allies and their contact information is provided. The list indicates which services the trade allies provide and the areas of Entergy's service area they cover. Additionally, Entergy approves customer facing outreach materials developed by CLEAResult.

Trade allies also play a role in marketing programs to their customers. One staff member indicated that trade allies have stated that it is too expensive to market the program, suggesting they may be somewhat limited in their promotional effort of the program. However, it was also noted that some trade allies have engaged in outreach to customers to promote the program.

## **1.4.2 Residential Solutions Program**

### **1.4.2.1 Program Design and Participation Process**

- The Residential Solutions Program provides similar services and measures to other programs operated in the region. The program provides a walkthrough home energy assessment as well as the option for more in-depth home performance testing. Typical direct install measures such as CFLs, advanced power strips, and low-flow devices are offered. Single and multi-family buildings are eligible.
- A sizable share of mass-market energy assessment participants, 22%, reported that their energy consultant did not discuss the available rebates or discounts for energy saving improvements. Additionally, program staff reported that the audit budget was utilized early in the program year and there were some concerns that audits were not resulting in as many incentive projects as hoped for.
- A sizable share of mass-market participants reported having income levels that would qualify them for the income qualified component.
- The program provided in-depth trade ally training related to building certification, however, less training was provided on program participation processes.

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<sup>1</sup> Programs administered by the Entergy New Orleans operating company are marketed separately as Entergy Energy Smart Programs.



- Trade allies noted a few issues with the CLEAResult OPEN technology platform including an inability to edit entered data and needing to enter data multiple times.

#### **1.4.2.2 Program Marketing and Outreach**

- Program mass-market energy assessment participants most often reporting learning of the program from a program representative (25%), from friends, family, colleagues 18%, from a home energy consultant (18%) or trade ally (12%). Similarly, 30% of non-energy assessment participants learned of the program from a friend, family member, or colleague, 24% learned of it from a trade ally, and 18% learned of it from a program representative.
- 50% of surveyed income qualified participants reported that they learned of the program from family members, friends, or colleagues. Another 17% reported learning of the program from a program representative.

#### **1.4.2.3 Customer and Trade Ally Satisfaction**

- Mass-market energy assessment participants were most likely to report satisfaction with the walkthrough measures and the quality of the trade allies work, followed by the program overall. Though satisfaction was high for all program elements, lower satisfaction levels were reported for the energy savings and the rebate or discount amount for the assessment.
- Mass-market participants who did not receive an energy assessment were most likely to report satisfaction with the work performed by the trade ally, followed by the energy efficiency measure installed, and the program participation process.
- All participants in the income qualified channel reported satisfaction with the program overall and the individual aspects of the program.
- 50% of mass-market energy assessment participants, 57% of the non-assessment participants, and 67% of the income qualified participants reported that participation in the program increased their satisfaction with Entergy.
- Most interviewed trade allies were satisfied with the program overall. Issues raised by trade allies included slower than expected review of project materials and a desire for larger rebates.

### **1.4.3 CoolSaver AC Tune Up and HVAC Program**

#### **1.4.3.1 Program Design and Participation Process**

- Training provided is comprehensive and trade allies are provided with a manual of how to complete the tune-ups.
- Electronic tools and gauges are used to transmit data on the efficiency of the unit, which is effective for providing a “live snapshot” of the unit’s energy-use performance. A refrigerant stability indicator recently introduced was praised by trade allies.
- Indoor fan measurement is not currently implemented with the automated data acquisition system. There are two types of measurement procedures approved for the program, although each is susceptible to errors. Program staff is

considering adding differential pressure measurement and subsequent airflow calculation to the automated data acquisition system to improve calculation accuracy.

- CLEAResult staff provided high quality support to trade allies during the visits. Overall, trade allies are effectively implementing the tune-ups.

#### **1.4.3.2 Program Marketing and Outreach**

- The program launched during a period when trade allies had a large number of emergency calls which limited their promotion of the program and provision of services for a period.
- Trade allies are driving a significant share of AC tune-up program activity. 41% of AC tune-up participants reported learning of the program from a trade ally, which was the most commonly reported means of learning of the program. Participants that replaced HVAC systems or had duct sealing performed were mostly likely to report learning of the program from a friend, family member, or colleague (38%) and 15% reported learning of the program from a trade ally.

#### **1.4.3.3 Participant and Trade Ally Satisfaction**

- 96% of participants who completed AC tune-up participants were satisfied with the program overall. Participants were most likely to report dissatisfaction with the energy savings on their bill, but only 16% were dissatisfied with this aspect of their experience.
- HVAC replacements and duct sealing participants were generally satisfied with the program participants, however, 17% noted dissatisfaction with the measure implemented and 9% were dissatisfied with the savings on their bill.
- 70% of AC tune-up participants and 67% of HVAC replacement or duct sealing participants indicated that participation increased their satisfaction with Entergy.

### **1.4.4 Lighting & Appliances Program**

#### **1.4.4.1 Program Design and Incentives**

- Overall, program incentive levels appear to be sufficient for the included lighting, appliance, and advanced power strip measures. Incentive levels are comparable to program offerings in other states and the program did not have difficulty meeting its overall energy savings goal. However, much of the program savings were generated through lighting measures and less activity occurred for the rebated appliances.
- The program has recruited 33 retailer locations in Entergy Gulf States service area to deliver lighting rebates. The discounts for LEDs and standard CFLs are comparable to discounts provided through other regional programs. Appliance

rebates are also comparable to rebates offered through other programs. Staff is considering reducing the number of stores offering the discounts to extend the program discounts throughout the program year.

- Program staff noted that promotion of rebates for advanced smart strips in stores is challenging because customers do not understand the benefits of the product that costs considerably more than standard products.
- Program staff have yet to establish store contacts and training of retailer staff has been generally informal (program staff discusses program with retail staff available during visits).
- Rebates are provided for ENERGY STAR ® qualified pool pumps but incentive levels are the same for multi-speed and variable speed pumps, despite differences in energy savings potential.

#### **1.4.5 Small Business Program**

##### **1.4.5.1 Program Design and Participation Process**

- The program utilizes a paperless process for completing the energy assessments and submitting customer proposals that reduces paperwork. These submissions can be made through the program software tool or by email. Submissions are sent to CLEAResult's central team in Austin, TX. Neither program staff nor trade allies identified any significant issues with the participation process or software.
- Interviewed trade allies stated that the measures offered through the program met the needs of the small businesses they work with. The primary barrier to participation identified by trade allies was skepticism about the legitimacy of program offerings. Additionally, measure costs are a factor. Trade allies indicated that the reason for customers not pursuing a project is the cost of the project.

##### **1.4.5.2 Program Marketing and Outreach**

- The program is designed to have trade allies perform the majority of direct customer outreach. Interviewed trade allies indicated that they were performing direct outreach to customers.
- Participants most frequently reported learning of the program from a trade ally (39%), friends or colleagues (18%), or a vendor (18%).

##### **1.4.5.3 Customer and Trade Ally Satisfaction**

- Trade allies were generally satisfied with the program including the participation process, the incentives, measures offered, and support from program staff. There was greater dissatisfaction with the wait time to receive the rebates, with one-third of trade allies reporting that they were dissatisfied with this aspect of the program.

- Most participants were satisfied with their experience with the program overall. One respondent indicated dissatisfaction with the program overall and 18% of respondents reported dissatisfaction with the length of time between the audit and the installation of the equipment.

### **1.4.6 Large Commercial & Industrial Solutions Program**

#### **1.4.6.1 Program Design and Participation Process**

- The program provides financial incentives and technical assistance to non-residential customers with greater than 100 kW peak demand.
- Incentives are based on energy savings. The program appropriately offers higher incentives HVAC, refrigeration, and efficient cooking equipment of \$0.15 per kWh that are less often implemented through efficiency programs. Lighting incentives are \$0.09 kWh and incentives for air compressor and custom projects are \$0.06 per kWh saved.
- Most participants (92%) reported that the incentive amount was what they expected and all who knew how long it took to receive the incentive indicated that they had received it in 6 weeks or less.

#### **1.4.6.2 Program Marketing and Outreach**

- Program marketing efforts were minimal during the year. Staff reported that there was a relatively high level of awareness among trade allies and customers that the program would be introduced.
- 50% of participants reported that they learned of the program through an internet search. This suggests that a sizable share of program activity is initiated by customers. Additionally, 25% reported that they first learned of the program from a trade ally.

#### **1.4.6.3 Trade Ally and Participant Satisfaction**

- Trade allies reported that staff is readily available to provide assistance and have generally been satisfied with the support they received. Trade allies also reported that they were satisfied with the program overall.
- None of the program participants were dissatisfied with the program overall and 75% reported that participation in the program increased their satisfaction with the utility.

## **1.5 Report Organization**

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This report is organized with one chapter providing the full impact and process summary for each specified program. The report is organized as follows:

- Chapter 2 provides general methodologies;

- Chapter 3 provides results for the Residential Solutions and Income Qualified Programs;
- Chapter 4 provides results for the CoolSaver AC Tune Up and HVAC Program;
- Chapter 5 provides results for the Lighting & Appliances Program;
- Chapter 6 provides results for the Small Business Program;
- Chapter 7 provides results for the Large Commercial and Industrial Solutions Program;
- Appendix A details cost-benefit analyses; and
- Appendix B provides the site-level custom reports for the Small Business and C&I Solutions Program.

## 2. General Methodology

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This section details general impact evaluation methodologies by program-type as well as data collection methods applied. This section will present full descriptions of:

- Savings estimation;
- Sampling methodologies;
- Process evaluation methodologies; and
- Data collection procedures.

### 2.1 Glossary of Terminology

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As a first step to detailing the evaluation methodologies, the Evaluators provide a glossary of terms to follow<sup>2</sup>:

- *Ex Ante* – Forecasted savings used for program and portfolio planning purposes.
- *Ex Post* – Savings estimates reported by an evaluator after the energy impact evaluation has been completed.
- *Deemed Savings* – An estimate of an energy savings or demand savings for a single unit of an installed energy efficiency measure. This estimate (a) has been developed from data sources and analytical methods that are widely accepted for the measure and purpose and (b) is applicable to the situation being evaluated (e.g., assuming 112 kWh savings for a residential advanced power strip).
- *Realization Rate* – Ratio of Ex Post Savings / Ex Ante Savings (e.g., if the Evaluators verify 105 kWh per showerhead, Realization Rate =  $105/112= 93.8\%$  realization rate).

### 2.2 Overview of Methodology

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The proposed methodology for the evaluation of the PY1 EGSL Portfolio is intended to provide:

- Impact results; and
- Program feedback and recommendations via process evaluation.

In doing so, this evaluation will provide the verified savings results, provide the recommendations for program improvement, and ensure cost-effective use of ratepayer funds. Leveraging experience and lessons learned from impact evaluation can provide greater guidance as to methods by which program and portfolio performance could be improved.

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<sup>2</sup> Arkansas TRM V3.0, Volume 1, Pg. 80-86

## 2.2.1 Sampling

Programs are evaluated on one of three bases:

- Simple Random Sample
- Stratified Random Sample

### 2.2.1.1 Simple Random Sampling

For programs with relatively homogenous measures (largely in the residential portfolio), the Evaluators conducted a simple random sample of participants. The sample size for verification surveys is calculated to meet 90% confidence and 10% precision (90/10). The sample size to meet 90/10 requirements is calculated based on the coefficient of variation of savings for program participants. Coefficient of Variation (CV) is defined as:

$$CV = \frac{Mean_x}{Standard\ Deviation_x}$$

Where x is the average kWh savings per participant. Without data to use as a basis for a higher value, it is typical to apply a CV of .5 in residential program evaluations. The resulting sample size is estimated at:

$$n_0 = \left( \frac{1.645 * CV}{RP} \right)^2$$

Where,

1.645 = Z-Score for 90% confidence interval in a normal distribution

CV = Coefficient of Variation

RP = Required Precision, 10% in this evaluation

### 2.2.1.2 Stratified Sampling

For the EGSL non-residential programs, Simple random sampling is not an effective sampling methodology as the CV values observed in non-residential programs are typically very high because the distributions of savings are generally positively skewed. Often, a relatively small number of projects account for a high percentage of the estimated savings for the programs.

To address this situation, we use a sample design for selecting projects for the M&V sample that takes such skewness into account. With this approach, we select a number of sites with large savings for the sample with certainty and take a random sample of the remaining sites. To further improve the precision, non-certainty sites are selected for the sample through systematic random sampling. That is, a random sample of sites remaining after the certainty sites have been selected is selected by ordering them according to the magnitude of their savings and using systematic random sampling. Sampling systematically from a list that is ordered according to the magnitude of

savings ensures that any sample selected will have some units with high savings, some with moderate savings, and some with low savings. Samples cannot result that have concentrations of sites with atypically high savings or atypically low savings. As a result of this methodology, the required sample for the Large C&I Solutions Program was reduced to 12 with one certainty stratum and three sample strata.

### **2.2.2 Impact Calculations**

The general approach for calculation of verified kWh and kW savings applied deemed savings specified from the Arkansas TRM V3.0. There were exceptions to this, largely pertaining to weather-updating specific high-impact measures. Weather updates were completed for residential duct sealing and air sealing. The details of these updates can be found in Section 3.3.

### **2.2.3 Process Evaluation**

The Evaluator's general approach to process evaluation begins with a review of the tests for timing and appropriateness of process. In this review, the Evaluators determine what aspects of the program warrant a process evaluation. Most Entergy programs over-performed, and as such most of the PY1 process evaluation activity was focused around first year implementation.

The PY1 process overviews began with interviews of program staff. These interviews, inform the establishment of goals for the process evaluation, provide background history of programs, and give an introduction to portfolio-level issues. From this, the Evaluators then develop a list of data collection activities. The data collection procedures for process evaluations typically included:

- *Participant Surveying.* The Evaluators surveyed statistically significant samples of participants in each program to provide feedback for the program and provide an assessment of participant satisfaction. Surveys cover topics including:
  - Source of program awareness;
  - Their decision to participate and complete an energy efficiency project;
  - Experience with the participation process; and
  - Satisfaction with various elements of the program and the program overall.
- *Program Staff Interviews.* The Evaluators conducted in-depth interviews with high-level program actors, including staff from Entergy and CLEAResult. These interviews are semi-structured, in having general topics to be covered, without fully prescribed question and answer frameworks. Topics discussed in program staff interviews include:
  - Program goals and objectives;
  - Marketing and outreach;



- Communication processes;
  - Program management and staffing; and
  - Quality control and verification processes.
- *Trade Ally Interviews.* The Evaluators completed interviews with program trade allies. These interviews are conducted in a manner similar to program staff interviews. Topics discussed in trade ally interviews include:
    - Promotion of the program and barriers to participation;
    - Program marketing;
    - The program participation process;
    - Training and communication with program staff;
    - Business and market impact; and
    - Overall impressions and satisfaction.
  - *Review of Marketing Materials.* The Evaluators reviewed marketing materials for each program, providing feedback as to the appropriateness of the message in reaching its target audience, the breadth of the audience that the effort is attempting to reach, and identifying possible cross-promotional opportunities.

### 3. Residential Solutions & Income Qualified Programs

#### 3.2 Program Description

The Residential Solutions Program (RSP) is designed to promote energy efficiency by offering home energy surveys and/or deeper energy assessments to its residential customers through a participating trade ally. The RSP provides residential customers with access to qualified vendors and installation trade allies within the EGSL service area. The participating trade allies are to help the residential customer analyze their energy use, identify energy efficiency improvements, and install low cost measures in their home. The trade ally inspection includes consultation about the customer’s concerns, a visual inspection of the living space, attic, crawl space/basement, and exterior of the home, as well as installation of direct install measures (e.g., CFL lighting and faucet aerators). Following the assessment, the trade ally recommends home improvements to increase energy efficiency. The RSP provides incentives for installing ceiling insulation, duct sealing, and air infiltration sealing improvements.

Prescriptive incentives were available to residential customers for installing efficiency equipment such as heat pumps, heat pump water heaters and other measures. Program approved trade allies were allowed to install certain energy efficiency measures without an initial survey or assessment, such as ceiling and wall insulation.

The direct install measures include:

*Table 3-1 Summary of Measures of Measure Offerings – Residential Solutions*

<b><i>Delivery Mechanism</i></b>	<b><i>Measure Name</i></b>
Direct Install Measures	Advanced Power Strips
	CFLs
	Faucet Aerators
	Low-flow showerhead
	LED Light bulbs
Incentive Measures	Air Sealing
	Ceiling Insulation
	Duct Sealing

Further, increased incentives are available for customers eligible for the Income Qualified component for the following measures:

- Duct Sealing;
- Air Sealing; and

- Ceiling Insulation.

A total of 1,631<sup>3</sup> households participated in the RSP and the Income Qualified Programs. Below, Table 3-2 and Table 3-3 summarize the total number of homes a measure was installed in/performed at, total measures installed/performed and the expected kWh and peak kW savings, by measure for the mass-market and low income channels, respectively.

*Table 3-2 Summary of Measures and Expected Savings – Residential Solutions*

<b>Measure</b>	<b>Number of Homes</b>	<b>Total Expected kWh Savings</b>	<b>Total Expected peak kW Savings</b>
Assessment Tier 1	5	0	0.00
Assessment Tier 2	54	0	0.00
Inspection	16	0	0.00
Advanced Power Strips	3	366	.05
CFL Light Bulbs	28	5,667	1.72
LED Light Bulbs	25	2,975	.66
Duct Sealing	343	942,959	186.40
Air Sealing	261	141,024	69.03
Ceiling Insulation	40	95,088	34.14
Multifamily Ceiling Insulation		548,855	118.76
Multifamily Duct Sealing		49,396	6.34
Multifamily Aerators		1,835	.19
Multifamily Showerheads		5,941	.62
<b>Total:</b>	<b>775</b>	<b>1,794,105</b>	<b>417.90</b>

*Table 3-3 Summary of Measures and Expected Savings – Income Qualified*

<b>Measure</b>	<b>Number Homes</b>	<b>Total Expected kWh Savings</b>	<b>Total Expected peak kW Savings</b>
Air Sealing	43	33,624	11.00
Duct Sealing	60	211,964	27.69
Ceiling Insulation	31	92,157	19.94
<b>Total:</b>	<b>134</b>	<b>337,745</b>	<b>58.63</b>

In PY1, the programs goals were as follows:

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<sup>3</sup> This total does not equal the sum of the “Number of Homes” column in Table 3-2 due to individual residences receiving multiple measures.

- **Residential Solutions:**

- kWh: 1,284,377
- kW: 358

- **Income Qualified:**

- kWh: 271,561
- kW: 57

Program achievements were as follows:

- **Mass-market:**

- kWh: 1,787,015, 139.1% of goal
- kW: 418, 117% of goal

- **Income Qualified:**

- kWh: 347,126, 127.8% of goal
- kW: 58.63, 102.9% of goal

### **3.3 Impact Savings Calculation Methodology**

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For equipment and retrofits rebated through the PY1 RSP, calculation methodologies were performed as described in the Arkansas TRM V3.0. Table 3-4 identifies the sections in the TRM that were used for verification of measure-level savings under the RSP.

*Table 3-4 TRM Sections by Measure Type*

<b>Measure</b>	<b>Section in TRM</b>
Advanced Power Strips	2.4.4
Air Sealing	2.2.9
Ceiling Insulation	2.2.2
CFLs	2.5.1
Duct Sealing	2.1.11
Faucet Aerators	2.3.4
Low-flow Showerhead	2.3.5
LED Light Bulbs	2.5.1

Air infiltration reduction and duct sealing accounted for 92.0% of program savings. The Evaluators reviewed deemed savings for these high impact measures and completed a weather-normalization procedure to reflect Louisiana IECC 2003 weather zone mapping. The calculation methodologies for these measures as well as the results of the weather update are detailed in the following sections.

### 3.3.1 Air Infiltration Reduction Savings Calculations

The deemed savings values for air infiltration reduction were developed through EnergyGauge, a simulation software program. Multiple equipment configurations were simulated in each of the four Louisiana weather zones in developing savings values denominated in deemed savings per CFM<sub>50</sub> of air leakage rate reduction. Table 3-5 summarizes the deemed savings values for the Louisiana weather zones.

Table 3-5 Deemed Savings Values for Air Infiltration Reduction

Equipment Type	Zone 3 (New Orleans)	Zone 4 (Baton Rouge)	Zone 5 (Alexandria)	Zone 6 (Shreveport)
Electric AC with Gas Heat	.3267	.2740	.2433	0.2689
Elec. Resistance w/ AC	.9334	.9574	1.0849	1.3605
Heat Pump	.6376	.6233	.6734	0.8268

For example, consider a residence with electric AC and gas heat located in Tangipahoa Parish (Zone 4). If the residence had a leakage rate of 7,200 CFM<sub>50</sub> before air infiltration reduction and a leakage rate of 3,500 CFM<sub>50</sub> after, then the residence would have an annual savings of:

$$\text{Air Infiltration Savings} = 0.2740 \frac{\text{kWh Savings}}{\text{CFM}_{50}} \cdot (7,200 \text{ CFM}_{50 \text{ pre}} - 3,500 \text{ CFM}_{50 \text{ post}})$$

$$\text{Air Infiltration Savings} = 1,019 \text{ kWh}$$

### 3.3.2 Duct Sealing Savings Calculations

Duct sealing savings was calculated using the following savings algorithms from the TRM.

#### 3.3.2.1 Cooling Savings (Electric):

$$\text{kWh}_{\text{savings,C}} = \frac{(DL_{\text{pre}} - DL_{\text{post}}) \times EFLH_C \times (h_{\text{out}}\rho_{\text{out}} - h_{\text{in}}\rho_{\text{in}}) \times 60}{1,000 \times SEER}$$

Where:

$DL_{\text{pre}}$  = Pre-improvement duct leakage at 25 Pa (ft<sup>3</sup>/min)

$DL_{\text{post}}$  = Post-improvement duct leakage at 25 Pa (ft<sup>3</sup>/min)

$\Delta DSE$  = Assumed improvement in distribution system efficiency = 5% = 0.05

$EFLH_C$  = Equivalent Full Load Hours. See Table 3-6

$h_{\text{out}}$  = Outdoor design specific enthalpy (Btu/lb) See Table 3-6

$h_{\text{in}}$  = Indoor design specific enthalpy (Btu/lb.) See Table 3-6

Table 3-6 Deemed Savings Values for Duct Sealing Calculations

Parameter	Zone 3 (New Orleans)	Zone 4 (Baton Rouge)	Zone 5 (Alexandria)	Zone 6 (Shreveport)
EFLH <sub>C</sub>	2,040	1,807	2,035	2,426
HDD	1,842	1,322	1,229	925
h <sub>out</sub>	40	40	37	37
h <sub>in</sub>	30	30	30	30
ρ <sub>in</sub>	.076	.076	.076	.076
P <sub>out</sub>	.074	.074	.074	.074
SEER	11.5	11.5	11.5	11.5

$\rho_{out}$  = Density of outdoor air at 95°F = 0.0740 (lb/ft<sup>3</sup>)<sup>4</sup>

$\rho_{in}$  = Density of conditioned air at 75°F = 0.0756 (lb./ft<sup>3</sup>)<sup>4</sup>

60 = Constant to convert from minutes to hours

CAP = Cooling capacity (Btu/hr)

1,000 = Constant to convert from W to kW

SEER = Seasonal Energy Efficiency Ratio of existing system (Btu/W·hr)

Default value for SEER = 11.5<sup>5</sup>

As an example, assume the duct leakage before sealing was measured at 360 CFM and the leakage after sealing was 90 CFM for a home in Metairie (Zone 3). Using the SEER value of 11.5, the annual savings would be:

$$\text{kWh per year} = (360-90) \times 2,426 \times (37 \times 0.076 - 30 \times 0.074) \times 60 / (1000 \times 11.5) = 2,023 \text{ kWh per year.}$$

### 3.3.2.2 Heating Savings (Heat Pump):

$$\text{kWh}_{\text{savings,H}} = \frac{(DL_{\text{pre}} - DL_{\text{post}}) \times 60 \times HDD \times 24 \times 0.018}{1,000 \times \text{HSPF}}$$

Where:

$DL_{\text{pre}}$  = Pre-improvement duct leakage at 25 Pa (ft<sup>3</sup>/min)

$DL_{\text{post}}$  = Post-improvement duct leakage at 25 Pa (ft<sup>3</sup>/min)

$\Delta DSE$  = Assumed improvement in distribution system efficiency = 5% = 0.05

$EFLH_H$  = Equivalent full load heating hours (see Table 3-6)

60 = Constant to convert from minutes to hours

HDD = Heating degree days (see Table 3-6)

24 = Constant to convert from days to hours

0.018 = Volumetric heat capacity of air (Btu/ft<sup>3</sup>·°F)

CAP = Heating capacity (Btu/hr)

1,000 = Constant to convert from W to kW

HSPF = Heating Seasonal Performance Factor of existing system (Btu/W·hr)

Default value for HSPF = 7.30.<sup>6</sup>

<sup>4</sup> ASHRAE Fundamentals 2009, Chapter 1: Psychometrics, Equation 11, Equation 41, Table 2

<sup>5</sup> Average of Department of Energy minimum allowed SEER for new air conditioners from 1992-2006 (10 SEER) and after January 23, 2006 (13 SEER)

<sup>6</sup> Average of Department of Energy minimum allowed HSPF for new heat pumps from 1992-2006 (6.8 HSPF) and after January 23, 2006 (7.7 HSPF)

**3.3.2.3 Heating Savings (Electric Resistance):**

$$kWh_{savings,H} = \frac{(DL_{pre} - DL_{post}) \times 60 \times HDD \times 24 \times 0.018}{3,412}$$

Where:

$DL_{pre}$  = Pre-improvement duct leakage at 25 Pa (ft<sup>3</sup>/min)  
 $DL_{post}$  = Post-improvement duct leakage at 25 Pa (ft<sup>3</sup>/min)  
 $\Delta DSE$  = Assumed improvement in distribution system efficiency = 5% = 0.05  
 60 = Constant to convert from minutes to hours  
 $HDD$  = Heating degree days (see Table 3-6)  
 24 = Constant to convert from days to hours  
 0.018 = Volumetric heat capacity of air (Btu/ft<sup>3</sup>°F)  
 $EFLH_H$  = Equivalent full load heating hours (see Table 3-6)  
 $CAP$  = Heating capacity (Btu/hr)  
 3,412 = Constant to convert from Btu to kWh

**3.3.2.4 Heating Savings (Gas Furnace):**

$$Therms_{savings,H} = \frac{(DL_{pre} - DL_{post}) \times 60 \times HDD \times 24 \times 0.018}{100,000 \times AFUE}$$

Where:

$DL_{pre}$  = Pre-improvement duct leakage at 25 Pa (ft<sup>3</sup>/min)  
 $DL_{post}$  = Post-improvement duct leakage at 25 Pa (ft<sup>3</sup>/min)  
 $\Delta DSE$  = Assumed improvement in distribution system efficiency = 5% = 0.05  
 60 = Constant to convert from minutes to hours  
 $HDD$  = Heating degree days (see Table 3-6)  
 24 = Constant to convert from days to hours  
 0.018 = Volumetric heat capacity of air (Btu/ft<sup>3</sup>°F)  
 $EFLH_H$  = Equivalent full load heating hours (see Table 3-6)  
 $CAP$  = Heating capacity (Btuh or Btu/hr)  
 100,000 = Constant to convert from Btu to therms  
 $AFUE$  = Annual Fuel Utilization Efficiency of existing system  
 Default value for  $AFUE$  = 0.8.

**3.3.2.5 Demand Savings (Cooling):**

$$kWh_{savings,C} = \frac{kWh_{savings,C}}{EFLH_C} \times CF$$

Where:

$kWh_{savings,C}$  = Calculated kWh savings for cooling  
 $EFLH_C$  = Equivalent full load cooling hours (see Table 3-6)  
 $CF$  = Coincidence factor = 0.87

### 3.4 Verified Savings by Measure – Residential Solutions

After reviewing the tracking data and inputs for savings calculations, the Evaluators provided verified savings according to TRM protocols. The following measures were revised after reviewing CLEAResult calculations:

- Air Sealing; and
- Duct Sealing.

The Evaluators verified measure-level savings according to TRM guidelines and obtained results that differed from CLEAResult's calculations for the following measures:

#### 3.4.1 Infiltration/Air Sealing

- 1) The calculator uses values from the Arkansas TRM V3.0 for El Dorado, AR and the New Orleans area.
- 2) Tracking information provided for review does not indicate cooling type and leaves the question open as to whether there is cooling.
- 3) The CFM check requires a drop down menu to effectively use the formulas. The current index(match) function is non-functioning.
- 4) The following values were not included program in tracking data:
  - Wind shielding of home;
  - Number of bedrooms per home;
  - Approximate square footage of home; and
  - Number of stories of home.

These omissions did not affect savings calculations.

*Table 3-7 Expected and Realized Air Sealing Savings*

<i>Heating Type</i>	<i>Expected kWh Savings</i>	<i>Realized kWh Savings</i>	<i>kWh Realization Rate</i>	<i>Expected Peak kW Savings</i>	<i>Realized Peak kW Savings</i>	<i>Peak kW Realization Rate</i>
Gas Furnace	30,188	30,754	101.9%	29.14	29.14	100.0%
Air Source Heat Pump	13,998	19,658	140.4%	8.20	8.20	100.0%
Electric Resistance	96,838	116,619	120.4%	31.69	31.69	100.0%
<b>Total</b>	<b>141,024</b>	<b>167,031</b>	<b>118.4%</b>	<b>69.03</b>	<b>69.03</b>	<b>100.0%</b>



### 3.4.2 Duct Sealing

- 1) EFLH and HDD were set to IECC 2009 weather zone mapping (with Louisiana split into two zones). This was changed to reflect IECC 2003 zone mapping (four zones), as this mapping corresponds with the Arkansas TRM V3.0.
- 2) Cooling capacity is in Tons on the 'Summary' tab but in BTU/hr in the calculation tab. Units may be applied incorrectly.
- 3) No cooling type listed in tracking data. All ex ante calculations assumed central air conditioning cooling equipment with a SEER of 11.5.

*Table 3-8 Expected and Realized Duct Sealing Savings*

<i>Heating Type</i>	<i>Expected kWh Savings</i>	<i>Realized kWh Savings</i>	<i>kWh Realization Rate</i>	<i>Expected Peak kW Savings</i>	<i>Realized Peak kW Savings</i>	<i>Peak kW Realization Rate</i>
Gas Furnace	247,094	211,245	85.5%	90.02	90.02	100.0%
Air Source Heat Pump	104,418	100,986	96.7%	20.46	20.46	100.0%
Electric Resistance	591,446	599,260	101.3%	75.92	75.92	100.0%
Multifamily	49,396	47,766	96.7%	6.34	6.34	100.0%
<b>Total</b>	<b>992,354</b>	<b>959,257</b>	<b>96.6%</b>	<b>189.74</b>	<b>189.74</b>	<b>100.0%</b>

### 3.5 Verified Savings by Measure – Residential Solutions

Table 3-9 presents the savings results of the evaluation of the PY1 RSP, by measure. Total savings summarizes the savings calculations performed as per TRM protocols for the RSP.

*Table 3-9 Verified Savings by Measure Type – Residential Solutions*

<i>Measure</i>	<i>Ex Ante kWh Savings</i>	<i>Ex Post kWh Savings</i>	<i>kWh Realization Rate</i>	<i>Ex Ante Peak kW Savings</i>	<i>Ex Post Peak kW Savings</i>	<i>Peak kW Realization Rate</i>
Advanced Power Strips	366	366	<b>100.0%</b>	0.05	0.05	100.00%
CFL Light Bulbs	5,667	5,667	<b>100.0%</b>	1.72	1.72	100.00%
LED Light Bulbs	2,975	2,975	<b>100.0%</b>	0.66	0.66	100.00%
Duct Sealing	942,959	911,491	<b>96.7%</b>	186.4	186.4	100.00%
Air Sealing	141,024	167,031	<b>118.4%</b>	69.03	69.03	100.00%
Ceiling Insulation	95,088	95,088	<b>100.0%</b>	34.14	34.14	100.00%
Multifamily Ceiling	548,855	548,855	<b>100.0%</b>	118.76	118.76	100.00%
Multifamily Duct Sealing	49,396	47,766	<b>96.7%</b>	6.34	6.34	100.00%
Multifamily Aerators	1,835	1,835	<b>100.0%</b>	0.19	0.19	100.00%
Multifamily Showerheads	5,941	5,941	<b>100.0%</b>	0.62	0.62	100.00%
<b>Total</b>	<b>1,794,105</b>	<b>1,787,015</b>	<b>99.6%</b>	<b>417.9</b>	<b>417.9</b>	<b>100.00%</b>

### 3.6 Verified Savings by Measure – Income Qualified

Savings for the Income Qualified channel were comprised entirely from air sealing and duct sealing. Savings for these measures were calculated in the same manner as detailed for the RSP in Section 3.3.1 and 3.3.2.

*Table 3-10 Verified Savings by Measure Type – Income Qualified*

<b>Measure</b>	<b>Ex Ante kWh Savings</b>	<b>Ex Post kWh Savings</b>	<b>kWh Realization Rate</b>	<b>Ex Ante Peak kW Savings</b>	<b>Ex Post Peak kW Savings</b>	<b>Peak kW Realization Rate</b>
Air Sealing	33,624	40,520	120.5%	11.00	11.00	100.0%
Duct Sealing	211,964	214,449	101.2%	27.69	27.69	100.0%
Ceiling Insulation	92,157	92,157	100.0%	19.84	19.84	100.0%
<b>Total</b>	<b>337,745</b>	<b>347,126</b>	<b>102.8%</b>	<b>58.63</b>	<b>58.63</b>	<b>100.0%</b>

### 3.7 Process Findings

This chapter presents the results of the process evaluation of the RSP. The process evaluation focuses on aspects of program policies and organization, as well as the program delivery framework.

The process chapter begins with an overview of the program. This is followed by a discussion of the methodological approach used in the evaluation. A summary of findings and recommendations for program improvement follow the discussion of the methodology. This discussion is followed by detailed findings of the evaluation activities.

#### 3.7.1 Data Collection Activities

The process of evaluation of the RSP included the following data collection activities:

*Table 3-11 Residential Solutions: Process Evaluation – Summary of Data Collection*

<b>Activity</b>	<b>Sample Size</b>
Energy Staff	2
CLEAResult Staff	4
Participant Survey – Mass-market – Energy Assessment	8
Participant Survey – Mass-market – No Energy Assessment	66
Participant Survey – Income Qualified	0
Trade Ally Interviews	9

### 3.7.2 Program Overview

The RSP provides financial incentives for home energy assessments and energy efficiency measures to reduce energy consumption among residential customers. The program contains two channels directed at different residential markets:

- A mass-market program channel for all residential customers; and
- An income qualified component channel for customers with household income less than 200% of the federal poverty line.

#### 3.7.2.1 Mass-market Channel

Energy customers may receive a \$75 rebate on the cost of a trade ally provided home energy assessment. Participating customers can elect to receive a Tier 1 or Tier 2 Assessments, which are described below:

- **Tier 1 Assessment:** Trade ally completes a walk-through inspection to identify energy saving opportunities. The trade ally provides a written report identifying opportunities to save energy in the household.
- **Tier 2 Assessment:** In addition to the services provided under the Tier 1 assessment, customers also receive diagnostic testing including blower door testing, duct testing, and combustion safety testing.

During the home energy assessments, home energy consultants may install low cost energy efficiency measures as follows:

- Up to six CFLs or LEDs (60W equivalent);
- One advanced power strip; and
- Faucet aerators and low-flow showerheads (electric hot water heating).

Upon completion of the energy assessment, customers have up to six months to receive incentives for energy saving home improvements. Customers that receive a Tier 1 assessment are eligible for insulation incentives.

Customers may receive incentives for completing air sealing, duct sealing, and ceiling insulation. To receive incentives for air sealing or duct sealing, customers must have the pre- and post-testing completed, although they do not necessarily need to receive a full Tier 2 energy assessment.

Incentives for these measures are as follows.

*Table 3-12 Residential Solutions: Incentive Levels for Mass-market Measures*

End- Use	Air Sealing	Duct Sealing	Ceiling Insulation	
			R-0 to R-4	R-5 to R-8
Gas Furnace	\$.05/CFM50	\$.75/CFM25	\$.12	\$.14
Heat Pump	\$.13/CFM50	\$1.50/CFM25	\$.30	\$.16
Electric Resistance	\$.18/CFM50	\$1.50/CFM25	\$.35	\$.20

Residential EGSL customers are eligible for the program. The program is available for single family and multifamily homes. Owners and renters are both eligible.

Measure savings for both programs are estimated using the deemed savings values from the Arkansas TRM V3.0.

### 3.7.2.2 *Income Qualified Channel*

The income qualified program channel provides energy efficiency home upgrades to customers who meet the income requirements of the federal Weatherization Assistance Program (WAP). However, in PY1, staff from CLEAResult used the criteria specified for the Louisiana Low-Income Home Energy Assistance Program (LIHEAP), which is based on 60% of Estimated State Median Income. This is a more stringent income qualification.

The incentives provided for ceiling insulation, air sealing, and duct sealing are displayed in Table 3-13. The program does not provide a discount on home energy assessments.

*Table 3-13 Residential Solutions: Incentive Levels for Income Qualified Measures*

<b>Measure</b>	<b>Incentive Level</b>
Ceiling insulation (R0 – R4)	\$0.60 / sqft
Ceiling insulation (R5 – R8)	\$0.42 / sqft
Air Sealing	\$0.14 / CFM
Duct Sealing	\$4.50 / CFM reduced

## 3.7.3 Detailed Findings

### 3.7.3.1 *Analysis of Participation Data*

Table 3-14 displays expected energy savings by measure type for the mass-market channel. As shown, duct sealing, ceiling insulation, and air sealing measures accounted for 99.2% of program expected savings.

*Table 3-14 Program Activity by Measure, Mass-market*

<b>Measure</b>	<b>Number of Projects</b>	<b>Expected kWh Savings</b>
Duct Sealing	404	992,335
Ceiling Insulation	67	643,943
Air Sealing	325	141,024
Low-flow Showerhead	1	5,941
CFL Light Bulbs	26	5,667
LED Light Bulbs	24	2,975
Low-Flow Aerator	1	1,835
Advanced Power Strip	3	366
<b>Total</b>	<b>851</b>	<b>1,794,106</b>

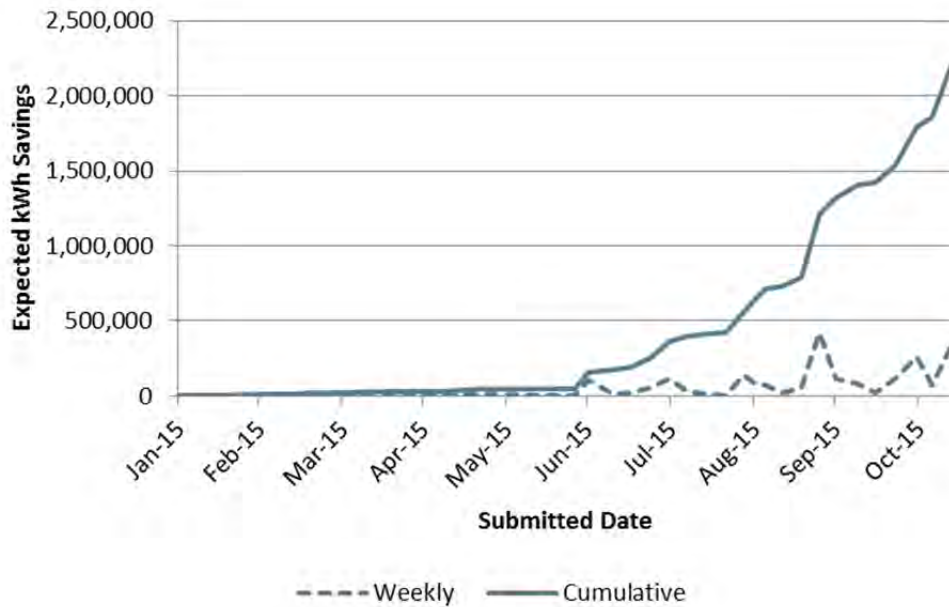
Table 3-15 displays expected energy savings by measure type for the income qualified channel. As shown, duct sealing and air sealing measures accounted for all of the program's savings.

*Table 3-15 Program Activity by Measure, Income Qualified*

<b>Measure</b>	<b>Number of Projects</b>	<b>Expected kWh Savings</b>
Duct Sealing	58	220,308
Ceiling Insulation	32	98,277
Air Sealing	45	35,192
<b>Total</b>	<b>135</b>	<b>353,777</b>

The weekly and cumulative accruals of energy savings for the mass-market channel are displayed in Figure 3-1 **Error! Reference source not found.** As shown, initial program activity was slow but increased significantly during the summer and remained consistent through the end of the program year.

Figure 3-1 Weekly and Cumulative Expected kWh Energy Savings, Mass-market



Similarly, weekly and the cumulative accrual of energy savings for the income qualified channel are displayed in Figure 3-2. As shown, the first projects were submitted in mid-August and most program activity occurred during the final two months of the program year.

Figure 3-2 Weekly and Cumulative Expected kWh Energy Savings, Income Qualified

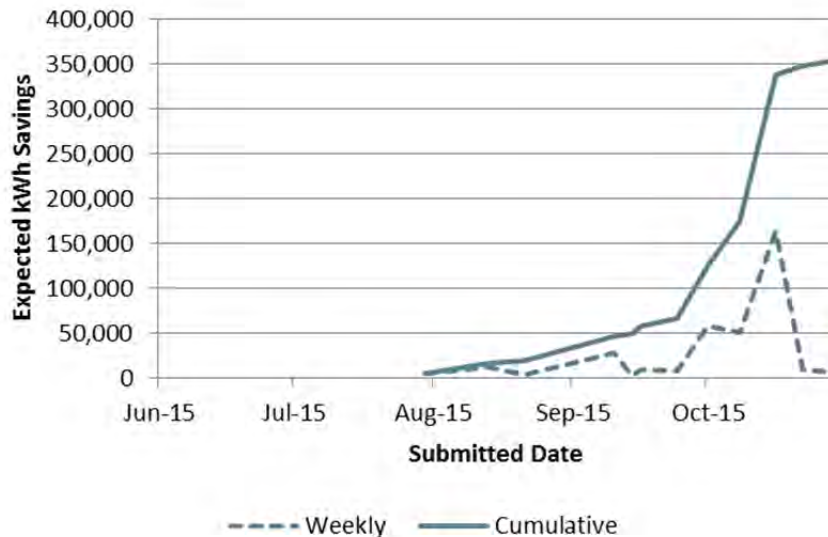


Figure 3-3 displays the share of energy savings associated with trade ally firms that completed projects through the mass-market channel of the program. As shown, five

trade allies accounted for more than 90% of program energy savings. It is not atypical to find a relatively small share of trade allies account for a large share of program savings.

*Figure 3-3 Share of Expected kWh Savings by Trade Ally, Mass-market*

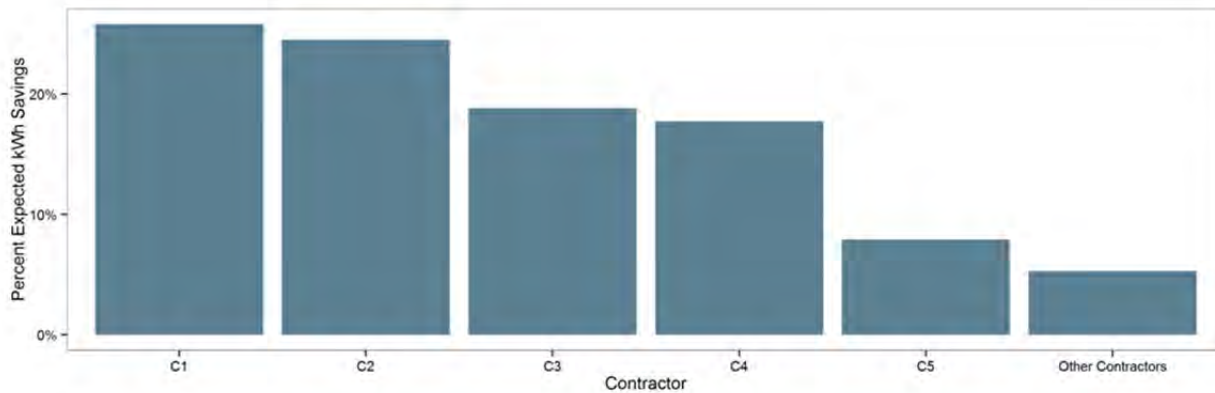
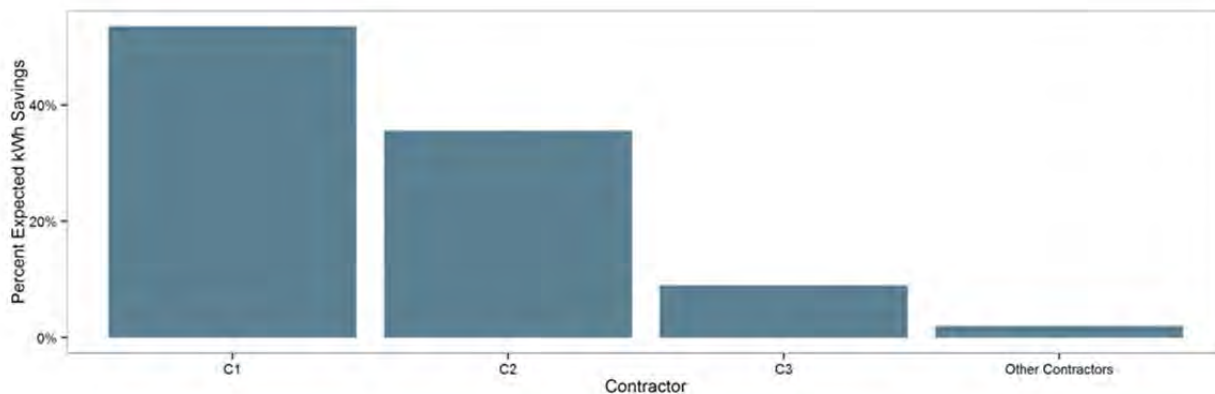


Figure 3-4 displays results of the same analysis for income qualified projects. As shown, two of the trade allies accounted for most of the program savings.

*Figure 3-4 Share of Expected kWh Savings by Trade Ally, Income Qualified*



The Evaluators summarized the number and share of assessment and measure installation projects completed by the four trade ally firms that completed assessments. The purpose of the analysis was to determine if some trade allies were more aggressively completing assessments but not generating energy saving projects. The results, summarized in Table 3-16, demonstrate that were not any cases where trade allies accounted for a significantly higher share of assessment projects than measure projects. However, the first trade ally listed accounted for nearly 80% of the assessment projects and 64% of the measure installation projects; this trade ally was the most active in terms of assessment and measure projects.

*Table 3-16 Share of Assessment Projects and Measure Projects, Mass-market Channel*

<b>Trade Ally</b>	<b>Number of Assessment Projects</b>	<b>Percent of Assessment Projects</b>	<b>Number of Measure Projects</b>	<b>Percent of Measure Projects</b>
Trade Ally 1	48	80%	116	64%
Trade Ally 2	9	15%	60	33%
Trade Ally 3	2	3%	5	3%
Trade Ally 4	1	2%	0	0%

**3.7.3.2 Mass-market Program Comparison**

The Evaluators reviewed multiple residential, regional whole house programs to assess how EGSL’s RSP compared in terms of audit processes, available measures, eligibility, and incentives. This comparison is intended to provide context as to whether the RSP aligns with regional practices in terms of program design, eligibility requirements, and incentive levels. The programs used in this comparison are all in the comprehensive phase of implementation (i.e., no longer in a Quick Start or pilot phase), but this distinction only manifests in program scale (number of participants) rather than program structure (eligibility rules and incentive levels).

Table 3-17 provides a summary of the programs reviewed. Each of these programs provides an onsite whole house audit, although they vary in their comprehensiveness. The Entergy program offers a two-tier system. The first tier includes a walkthrough assessment, while the second tier offers diagnostic home performance testing. Three of four programs have a direct install component which includes CFLs and/or water saving devices.

The eligible measures offered by the RSP are very much in-line with other program offerings from around the county, which emphasizes insulation and sealing. The biggest difference for incentives is the amount offered for the audit where the incentives range from \$75 to \$300. TVA’s eScore program offers the same incentive, but the costs are paid for by the customer rather than the trade ally invoicing the service. SWEPCO Arkansas’ program has the highest audit incentive as well as the highest incentivized measures in their program. Overall, the Entergy program is comparable with other whole house programs regionally.



*Table 3-17 Residential Solutions Mass-market – Regional Benchmarking*

<b>Utility</b>	<b>Audit Component</b>	<b>Direct Install</b>	<b>Program Measures</b>	<b>Incentive Amount</b>	<b>Eligibility Criteria</b>
<b>Entergy Louisiana, Entergy Gulf States Residential Solutions</b>	Tier 1 – Informational Energy Survey Direct install, visual walk-through inspections, Tier 1 report. Tier 2 – Energy Assessment – Direct install, walk-through inspection, blower door test, duct blaster test, combustion safety education, Tier 2 report.	CFLs (max 6), low-flow showerhead, faucet aerator, power strip.	Air sealing, duct sealing, ceiling, and insulation.	Tier 1: \$75 deducted from survey invoice. Tier 2: No additional incentive provided. Air sealing: Up to \$0.13/CFM50 reduction. Duct sealing: Up to \$1.50/CFM 25. Max 35% leakage cap. Ceiling insulation: Up to \$0.35/Square Foot installed area	Residential customer of utility. Single-family home or multifamily unit (4 or more units). Must live in home for at least one year. Electric cooling.
<b>SWEPCO Arkansas Residential Home Performance with ENERGY STAR®</b>	Comprehensive energy assessment – diagnostic and combustion safety testing, and energy assessment report.	Faucet aerator, low-flow showerhead, advanced power strip, and CFLs	Attic insulation, central air conditioner, windows, duct sealing, air sealing, and electric water heating.	Comprehensive energy assessment: \$300 Duct Sealing: \$175-\$325 Duct Insulation: \$0.50/linear ft. of insulated duct Air Infiltration: \$100 Ceiling Insulation: \$0.25/sq.ft. Extra incentive: \$100 bonus if 2 or more measures installed within six months of assessment.	Any residential dwelling served by SWEPCO – condominiums, apartments, townhomes, multifamily dwellings, manufacture, and mobile homes. Units must be occupied.
<b>Oklahoma Gas &amp; Electric Home Energy Efficiency Program (HEEP)</b>	Cooling inspections and A/C tune-up.	N/A	Duct repair and tightening, duct sealing, and attic insulation.	Assessment: \$85 A/C: One pound of A/C system refrigerant and filters. Duct sealing: up to \$300. Attic insulation: Up to 30% of costs of additional insulation (max \$500).	OG&E customers with central air conditioning.

<i>Utility</i>	<i>Audit Component</i>	<i>Direct Install</i>	<i>Program Measures</i>	<i>Incentive Amount</i>	<i>Eligibility Criteria</i>
<b>Tennessee Valley Authority eScore Program</b>	eScore evaluation (\$75) – customized list of upgrades and rebates available.	CFLs (max 12)	Air sealing, attic insulation, duct sealing, HVAC, water heaters, and windows and doors.	Air sealing: 50% of total installation cost (max \$200/home). Attic Insulation: 50% of total installation cost (max \$250/home). Duct sealing: 50% of total installation cost (max \$200). Heat Pump: \$250/unit. Geothermal: \$500. Central AC: \$150/unit. Dual Fuel Heat Pump: \$250/unit. Tune-up: \$15/unit. Window Replacement: \$25/window (max \$500). Exterior Door: \$50/door (max \$300). Storm Windows: \$12.50/window (max \$250).	Single-family homeowners.

**3.7.3.3 Income Qualified Program Comparison**

The Evaluators reviewed multiple regional home improvement programs targeting lower income customer to assess how Entergy Gulf States’ RSP Income Qualified component compared in terms of program measures, eligibility, and advertisements. Table 3-18 provides a summary of the programs. The Entergy RSP Income Qualified component focuses on insulation, air sealing, and duct sealing improvements. Other programs have also focused on these same program measures as well as offering a variety of measures including high efficiency appliances, low-flow water devices, energy efficient windows, and many others.

The Entergy program marketing emphasizes focuses on energy savings/cost savings, comfort, and improved indoor air quality.

Overall, the Entergy program is comparable with other low income weatherization programs regionally with the exception of the eligibility requirement.

*Table 3-18 Residential Solutions: Income Qualified – Regional Benchmarking*

	<b>ELL &amp; EGSL</b>	<b>OG&amp;E</b>	<b>Oncor Texas</b>	<b>AEP Texas - Central</b>	<b>Louisville Gas &amp; Electric</b>
<b>Program Name</b>	Entergy Solutions Income Qualified Residential Program	Weatherization Program	Low-Income Weatherization Program	Hard-to-Reach Standard Offer Program	WeCare Program
<b>Program Measures</b>	Ceiling insulation, air sealing, and duct sealing, low	Attic insulation, sealing air leakage around windows and doors, duct sealing, and CFLs.	Insulation, duct sealing, caulking and weather-stripping, CFLs, and water-saving devices.  Other qualifying measures: High-efficiency central air conditioner or room air conditioner, floor insulation, solar screens, ENERGY STAR® appliances, energy-efficient windows.	Insulation, air infiltration, CFLs. High efficiency water heaters, insulation blankets, pipe insulation. Low-flow showerheads, ENERGY STAR home appliances. A/C duct testing and sealing, HE split-system HVAC, HE packaged-unit HVAC, room A/Cs.	Air and duct sealing and insulation, attic and wall insulation, water heater jacket, water devices, heating and central A/C tune-ups, CFLs, programmable thermostats, and energy-efficient refrigerators, window and A/Cs.
<b>Participation limit</b>	No information	No information	No information	No information	The customer's home must not have received WeCare services or an On-Site Home Energy Analysis in the last three years.
<b>Advertised “reduce energy usage”</b>	Yes	Yes	Yes	Yes	Yes
<b>Advertised “comfort”</b>	Yes	Yes	Yes	No	Yes
<b>Advertised safety/health</b>	Yes	Yes	No	No	Yes
<b>Eligibility Requirements</b>	Resident must be a current/active ELL or EGSL electric customer with an annual household income at or below 200% above the federal poverty guidelines.	OG&E residential customers who own or lease a single-family, duplex or mobile home and have an income of less than \$50,000/year.	Qualified low-income residential consumers have an annual household income at or below 200% above the federal poverty guidelines. Oncor customers who rent their homes can	Household incomes at or below 200% of the federal poverty guidelines or that participates in an approved government program.	Lived in their home for one year with 12 months of continuous service. The customer's income must meet the guidelines of the federal government's Low Income Heating

	<i>ELL &amp; EGSL</i>	<i>OG&amp;E</i>	<i>Oncor Texas</i>	<i>AEP Texas - Central</i>	<i>Louisville Gas &amp; Electric</i>
			participate provided they have permission from their landlords.		Assistance Program (LIHEAP) at 150% poverty.

### **3.7.4 Program Design, Operations and Activities**

The following sections describe the design, operations, and activities and were developed from reviews of program documentation and interviews with program staff for the RSP.

#### **3.7.4.1 Program Objectives**

The primary program objective is to assist residential customers in achieving electric energy savings and peak demand reductions through providing home energy assessments and rebates on energy saving home improvements. The mass-market channel has a savings goal of 1,284,377 kWh and peak demand reduction goal of 358 kW. The income qualified channel has a savings goal of 271,561 kWh and a peak demand reduction goal of 57 kW. The program also has ancillary objectives related to educating customers and trade allies about energy efficient technologies and home characteristics, and generally transforming the market for residential equipment and services.

Overall, both Entergy and CLEAResult staff indicated that the program is well designed to meet its goals and objectives. Program staff did not foresee any difficulty in meeting the first year savings goals and it was noted that program activity in the Entergy Gulf States’ service area was high soon after launch. This is attributable to the close proximity of trade allies that have participated in Entergy New Orleans’ Energy Smart programs in years prior to the launch of Entergy Louisiana programs.

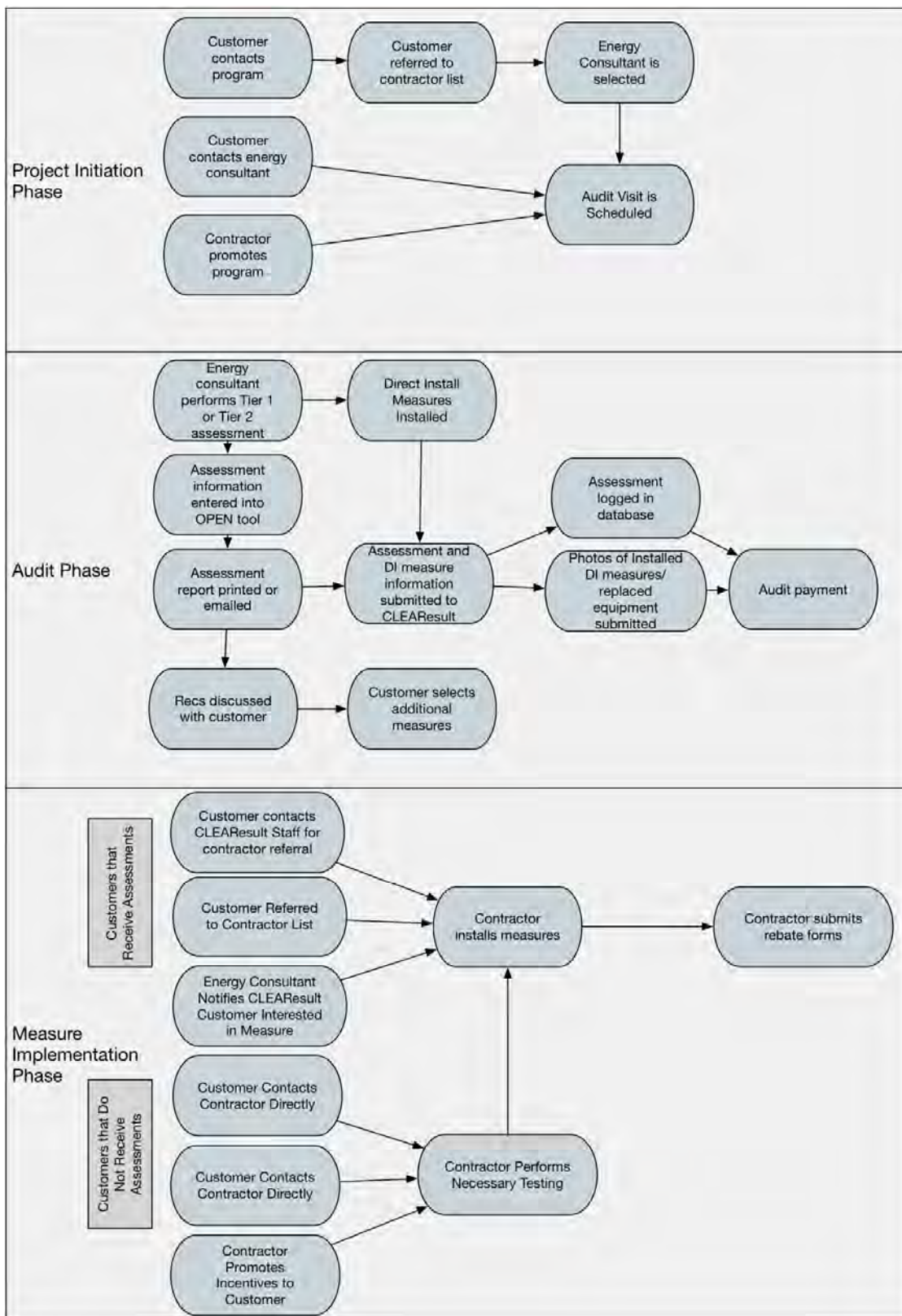
#### **3.7.4.2 Program Participation Process**

There are three forms of program participation, which are mass-market energy assessments, income qualified energy assessments and implementation of measures without receiving an assessment. The participation process for the energy assessments and subsequent measure implementation is similar for income qualified and mass-market participants. Customers can receive an assessment that includes a walk-through of the residence to identify energy saving opportunities, direct installation of energy efficient light bulbs, low-flow faucet aerators and shower heads, and advanced power strips. Customers may also opt for additional performance testing such as blower door

testing and duct tightness testing. Completing the performance testing makes these customers eligible to receive incentives on perimeter air sealing and duct sealing in addition to the incentives for insulation.

Customers that do not elect to have a home energy assessment performed may also receive incentives for insulation, air sealing, and duct sealing. Customers receiving incentives for air sealing and duct sealing must complete the necessary performance testing before and after the implementation of the measures.

Figure 3-5 Residential Solutions Program Participation Process



#### **3.7.4.3 Barriers to Participation**

Program staff has not identified any significant barriers to participation and expect the program to meet the energy saving goals. However, it was noted that the program had a slower start in terms of activity in the Gulf States area. Additionally, Entergy staff noted that in future years, the program may focus more on targeting specific submarkets of residential customers, but are currently focused primarily on meeting overall energy saving objectives.

#### **3.7.4.4 Quality Control and Verification Processes**

Staff reported that they target the first five projects completed by a new trade ally firm for a pre- and post-inspection visit and that 10% of the projects are inspected after that. If a trade ally firm has a change in crew leader staffing, the firm is subject to the first five project verification requirement again.

Project verification visits check for consistency between reported performance testing, site information, and measure information. Additionally, staff reported that they discuss the customer's satisfaction with the trade ally during visits.

Staff report that few issues have been identified with the work performed by trade allies.

#### **3.7.4.5 Trade Ally Recruitment and Management**

As of September 2015, the program had approximately 40 trade ally firms in the network. To participate in the program, the trade ally firm must employ a staff member who has at least one of the following certifications: Building Performance Institute (BPI) Building Analyst, BPI Energy Auditor, or RESNET Home Energy Rater. Trade allies that only provide ceiling and wall insulation only can substitute the BPI Science Principals Certificate of Knowledge. Energy consultants must also be certified as a BPI Building Analyst, BPI Energy Auditor, or RESNET Home Energy Rater (HERS) rater. If the assessor was certified as a RESNET HERS rater before January 1<sup>st</sup>, 2014, RESNET Combustion Safety training is also required.

The key trade ally training provided during the program year was training to enable trade allies to become Building Performance Institute certified, as required by the program.<sup>7</sup> Three classes were held between November 2014 and February 2015, during which approximately 30-45 trade allies were trained in total.

Additional training is planned for the coming year including a webinar to review best practices / quality standards and on blower door testing.

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<sup>7</sup> The program requires that registered trade allies are certified as Building Performance Analyst or Auditor, or as a s RESNET Home Energy Rater.

Program staff’s assessment is that the trade ally network is sufficiently well developed in terms of numbers and types of services provided to meet the programs current needs. Similarly, the recruitment effort was assessed as successful and staff believes they have a group of high skilled trade allies in the network. The program consultant’s previous experience as a home energy rater was a resource for identifying capable firms.

### 3.7.5 Participant Survey Results

The following sections summarize the findings from a survey of participants in the following groups:

- **Mass-market Home Assessment:** participants which received an Inspection, Tier 1 Assessment, or Tier 2 Assessment. This group is comprised with both participants who followed through with a rebate measure and participants that did not install a rebate measure subsequent to the assessment. (n=8)
- **Mass-market Non-Assessment:** participants that installed a rebate measure, but did not receive an assessment. The measures included in this survey group were duct sealing and air sealing (n=66)
- **Income Qualified:** participants from the Income Qualified program channel, who receive a higher incentive level covering the full cost of the retrofit.

#### 3.7.5.1 Demographic Summary

Table 3-19 summarizes housing characteristics collected for the RSP mass-market respondents.

*Table 3-19 Residential Solutions Housing Summary*

<i>Housing Characteristic</i>	<i>Home Assessment (n = 8)</i>	<i>Non-Assessment (n = 66)</i>
% in Single Family	88%	88%
% owning home	100%	83%
Average number home occupants	3.5	2.0

Figure 3-6 summarizes the income brackets for the mass-market survey groups (home assessment and non-assessment). A significant number of respondents in the non-assessment group stated income levels less than \$25,000 per year (18.2%). These respondents would have been eligible for the Income Qualified program component.



Figure 3-6 Income Brackets of Mass-market Survey Respondents

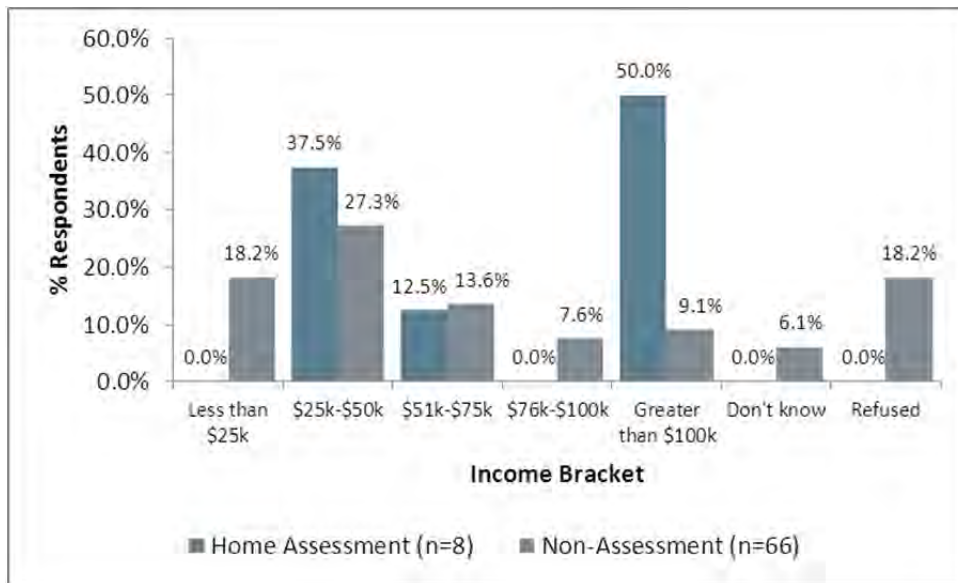
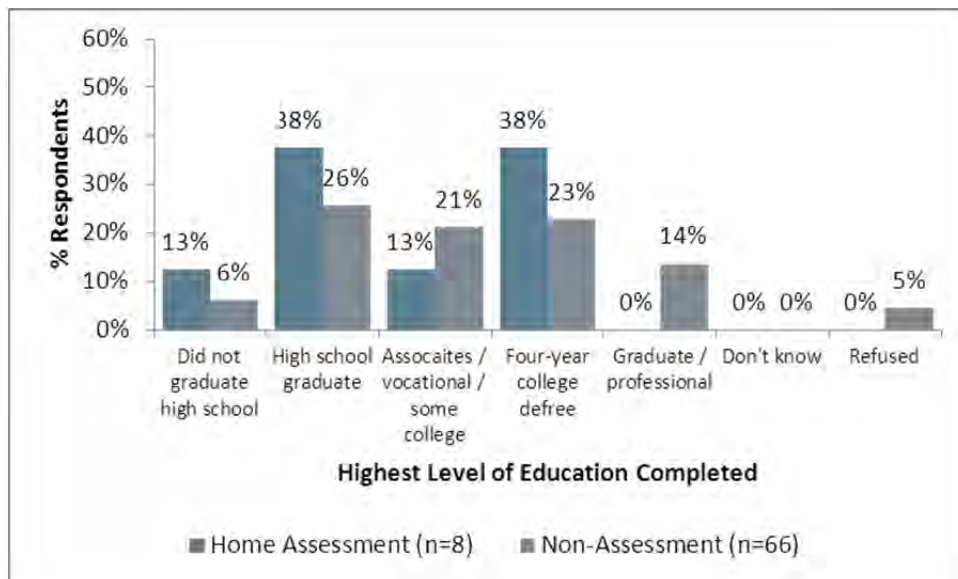


Figure 3-7 summarizes the education levels of program participants in the two mass-market channels.

Figure 3-7 Education Level of Mass-market Survey Respondents



### 3.7.5.2 Sources of Awareness

Participant sources of awareness are summarized in Table 3-20. The most common way participants first learned about the program was through a program representative, followed by a friend, family member, or colleague, and through a program trade ally.

*Table 3-20 How Participants Learned of the Program*

<b>How did you first learn of the [PROGRAM]?</b>	<b>Percent Indicating</b>	
	<b>Home Assessment (n = 8)</b>	<b>Non-Assessment (n = 66)</b>
Friend, family member, or colleague	38%	41%
Trade Ally	25%	26%
A radio or television advertisement	25%	0%
Other	13%	0%
Program Representative	0%	8%
Social media post (e.g., Facebook, Twitter)	0%	5%
Bill insert or utility mailer	0%	2%
Other	13%	0%
Don't know	0%	0%
Refused	0%	0%

**3.7.5.3 Decisions to Participate**

Table 3-21 summarizes the factors identified by survey respondents that affected their decision to participate in the RSP. Across both survey groups, the most commonly identified reason was to save money on energy bills (68% for non-assessment, 100% of energy assessment respondents).

Secondary considerations identified by both survey groups included conserving energy or protecting the environment and improving home comfort

*Table 3-21 Factors Affecting Decision to Participate*

<b>Which of the following factors helped you decide to install the [MEASURE]?</b>	<b>Home Assessment (n = 8)</b>	<b>Non-Assessment (n = 66)</b>
Saving money on energy bills	100%	68%
Conserving energy/Protecting the environment	38%	45%
Improving the comfort of your home	13%	44%
Improving the value of my home	13%	35%
Getting the rebate or discount	25%	23%
Becoming as energy efficient as my friends or neighbors	13%	29%
Identifying structural problems with my home	13%	0%
Other	0%	6%
Don't know	0%	2%
Refused	0%	0%

**3.7.5.4 Decision to Receive an Assessment**

Among home assessment respondents, 100% stated that they were not considering a home energy assessment before they learned of the rebate or discount available through the EGSL program,

As shown in Table 3-22, 51% of respondents reported they probably or definitely would have had the home energy assessment completed without a rebate or discount. However, due to the limited population of Home Assessment participants and the resulting limited survey sample the findings from this are not reliable for future planning.

*Table 3-22 Likelihood of Completing Assessment without Rebate or Discount*

<b><i>If the rebate or discount had not been provided for the home energy assessment, do you think you would have had the assessment completed anyway?</i></b>	<b><i>Home Assessment Respondents (n = 8)</i></b>
Definitely would have	13%
Probably would have	38%
Probably would not have	38%
Definitely would not have	0%
Don't know	13%
Refused	0%

**3.7.5.5 Decision to Install without an Assessment**

35% of respondents from the non-assessment group said they were considering installing the measure before learning of the rebate or discount available through the program, while 65% said they were not planning the project prior to learning of the program.

Participant survey responses suggested that a significant share would have implemented the measure without the rebate or discount provided. 48% of participants reported they probably (30%) or definitely would have (18%) implemented the measure without a rebate or discount. The remaining participants indicated they probably would not have (35%), definitely would not have (9%), or didn't know (8%).

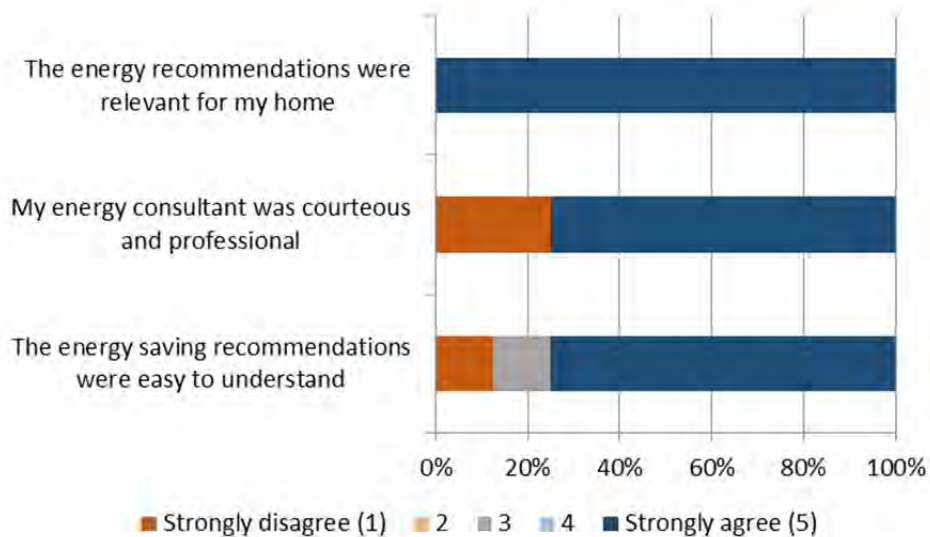
*Table 3-23 Likelihood of Completing Assessment without Rebate or Discount*

<b><i>If the rebate or discount had not been provided for the [MEASURE], do you think you would have installed it anyway?</i></b>	<b><i>Percent of Respondents (n = 66)</i></b>
Definitely would have	18%
Probably would have	30%
Probably would not have	35%
Definitely would not have	9%
Don't know	8%
Refused	0%

**3.7.5.6 Participation Process – Home Assessment**

Overall, participants thought the energy saving recommendations were easy to understand, the energy consultant was courteous and professional, and the energy recommendations were relevant for their home. As shown in Figure 3-8, at least 75% gave favorable assessments of the recommendations provided and the energy consultant.

*Figure 3-8 Participants Rating of the Home Energy Assessments*



Participants reported the energy consultant discussed the availability of rebates or discounts for energy saving recommendations 63% of the time, while 27% said this was not discussed. Due to the low survey sample size, findings pertaining to discussions of higher-level testing were not usable.

**3.7.5.7 Participation Process – Non-Assessment**

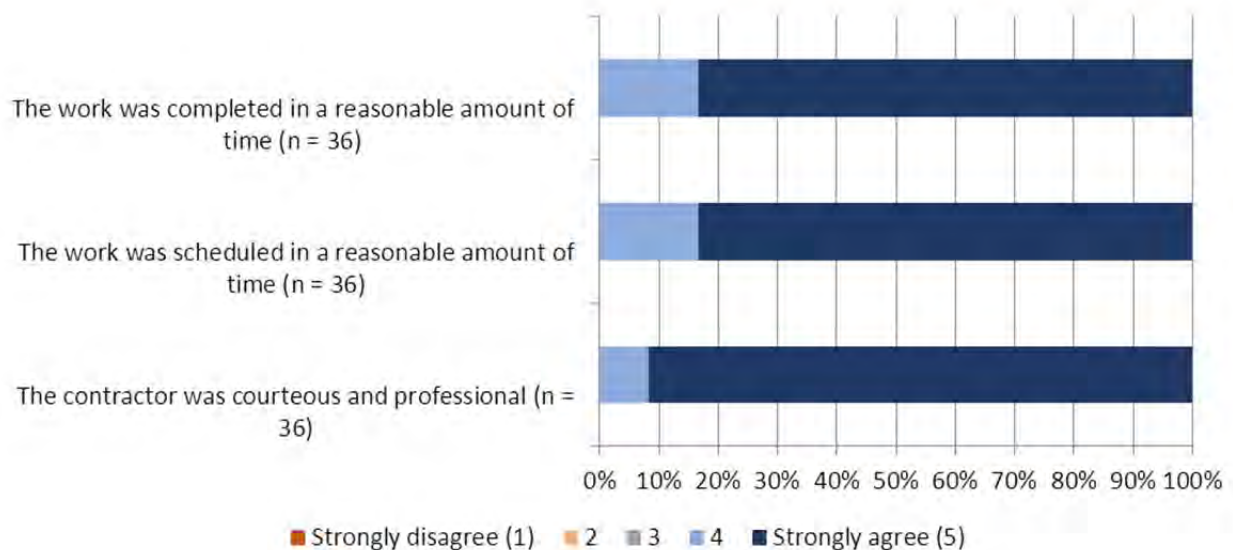
38% of non-assessment respondents indicated that they or someone else in their household completed the rebate application. This finding is surprising since all of the measures implemented by respondents were trade ally installed measures. However, it is possible that survey respondents may be unaware of the full scope of program paperwork.

*Table 3-24 Who Completed the Rebate Application*

<b>Who completed the application for the utility rebate for the [MEASURE]?</b>	<b>Percent of Respondents (n = 66)</b>
I filled it out	32%
Someone else in my household filled it out	6%
The salesperson or installation trade ally filled it out	52%
Don't know	11%
Refused	0%

Figure 3-9 displays participants responses regarding assessments of their experience in working with the trade ally that installed the measures implemented through the program. As shown, respondents indicated high satisfaction for all factors discussed, with no respondent scoring any category lower than 4 out of 5.

*Figure 3-9 Respondents Assessments of Installing Trade Ally*



**3.7.5.8 Participant Satisfaction**

Figure 3-10 and Figure 3-11 summarizes participant satisfaction with multiple aspects of the program. Participants were most satisfied with the quality of the trade ally’s work and the walkthrough measures installed.

Satisfaction scores were generally high across all categories.

Though respondents reported high satisfaction for all program elements discussed in the survey, satisfaction scores were lower for the rebate or discount for the energy assessment and the energy savings on their utility bill.

*Figure 3-10 Participant Satisfaction Scores – Home Assessment Group*

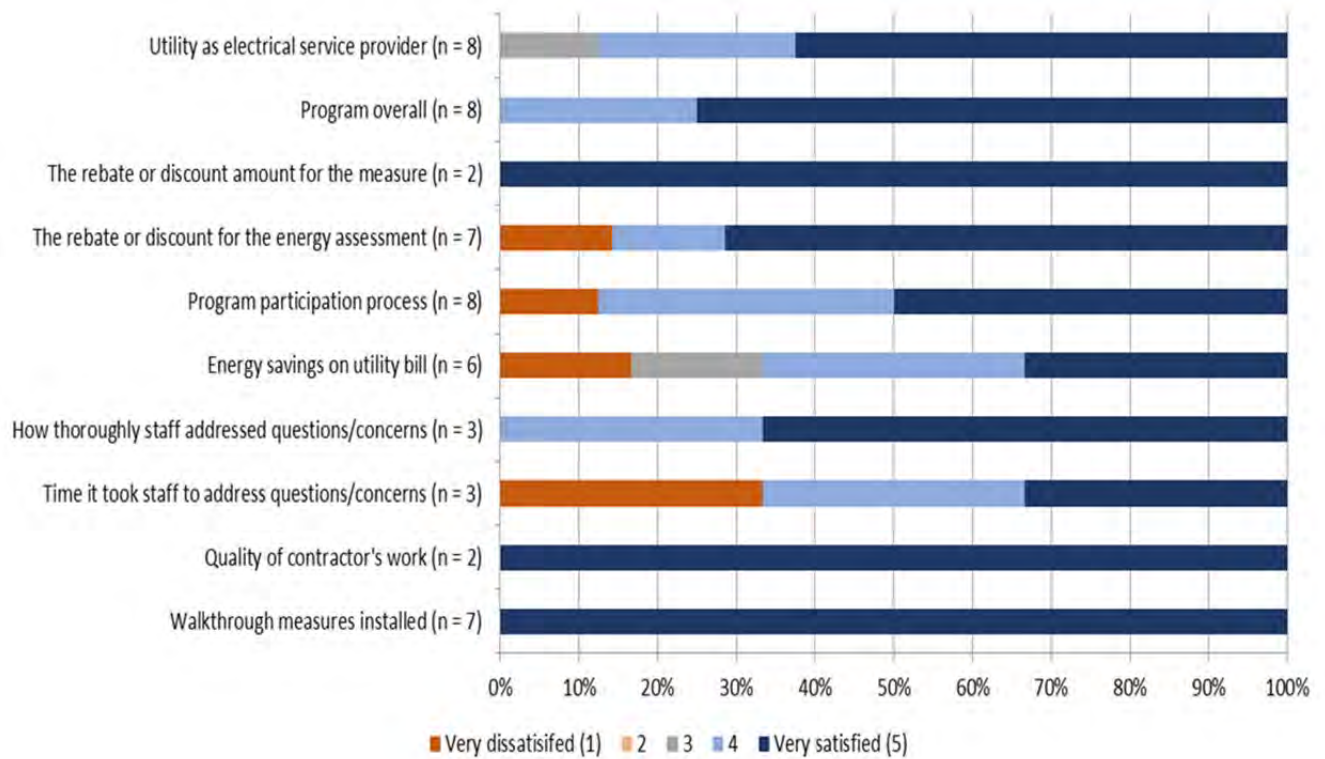


Figure 3-11 Participant Satisfaction Scores – Non-Assessment Group

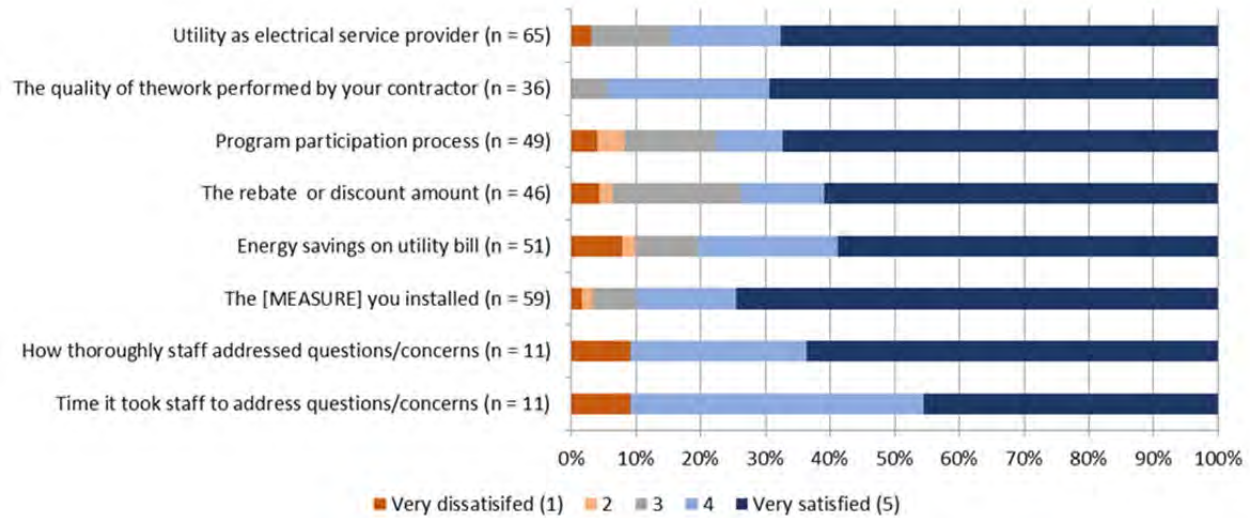


Table 3-25 summarizes reasons for dissatisfaction specified by survey respondents.

Table 3-25 Reasons for Dissatisfaction with the Program

Reason for dissatisfaction	% Dissatisfied Respondents	
	Home Assessment (n = 1)	Non-Assessment (n = 8)
Had not noticed energy savings	0%	38%
No rebate provided or discussed	0%	25%
Lack of follow-up or follow-through	0%	13%
Higher bill	0%	13%
Long wait times	0%	13%
Trade Ally did a poor job	100%	0%
Cost is too much	0%	0%
Don't like rebate going to trade ally	0%	0%
Don't know	0%	0%
Refused	0%	0%

Table 3-26 summarizes respondents' self-reported impact of participation on satisfaction with the utility. Across both survey groups, the RSP largely increased satisfaction with Entergy.

*Table 3-26 Impact of Participation on Satisfaction with Entergy*

<b><i>Effect of participation in Entergy's Program?</i></b>	<b><i>Home Assessment (n = 8)</i></b>	<b><i>Non-Assessment (n = 66)</i></b>
Greatly increased your satisfaction with Entergy	25%	36%
Somewhat increased your satisfaction with Entergy	25%	38%
Did not affect your satisfaction with Entergy	13%	20%
Somewhat decreased your satisfaction with Entergy	13%	2%
Greatly decreased your satisfaction with Entergy	0%	2%
Don't know	25%	3%
Refused	0%	0%

### **3.7.6 Participating Trade Ally Interviews**

The Evaluators completed interviews with nine participating trade allies who had all completed at least one project in the RSP. The interviewed trade allies participate in the Entergy Louisiana, Entergy Gulf States, SWEPCO, or Cleco programs and many of the trade allies interviewed participate in more than one program.

#### **3.7.6.1 Background**

Six of the nine respondents were energy consultants that deliver energy assessments and all were installing trade allies. Four respondents stated that their business specialized in energy efficiency, while others offer more generalized services including insulation, infiltration, and duct efficiency. All of the respondents provide services for residential (single and/or multi-family), and one-half provide for the non-residential sector as well.

#### **3.7.6.2 Trade Ally Feedback - Motivations for Participating**

To gain insight into their decision making processes, respondents were asked what motivated them to participate in the RSP. The evaluators asked about how participating trade allies learned of the program, their motivation for becoming a trade ally, and any concerns they had about participating.

Five respondents first learned of the program through direct utility or program staff outreach. One respondent stated that he or she learned about the program from other trade allies in the area, and another said their firm was seeking out energy efficiency programs to participate in Louisiana. One respondent had been a participant of the RSP and decided to expand their business to provide the program sponsored services to become a participating trade ally.

Trade allies provided information on any initial concerns they had about participating in the program. The most common concerns cited were with program processes like the application process and the wait time to receive the rebates. One respondent had a concern about the incentive levels, but noted that this did not end up being a problem.



Another said that they were worried that customers would be uninterested in participating, but noted that their business is doing very well.

The major factors that influenced the respondents' decision to participate was the opportunity to expand their business (60%; either revenue or market sectors) and to help customers make their homes more energy efficient (30%).

### **3.7.6.3 Trade Ally Feedback - Program Marketing**

Many of the respondents stated that their marketing or promotion of the program is through word-of-mouth and direct referrals. Those respondents have found that this was one of the most effective and cost-effective means to promote the program. One respondent specifically uses the approach of canvassing neighborhoods to generate business. Trade allies also reported using other approaches such as purchasing mailing lists, distributing fliers, magazine ads, social media, and emails. One respondent contacted the utility to get approval to distribute their own marketing materials to promote the program to potential customers, but could not identify which specific Entergy staff person they had spoken to.

Trade allies provided estimates ranging from 0% to 15% for the number of projects that are initiated by customers approaching them first, indicating that most projects are initiated through trade ally outreach efforts. The relatively small share of projects initiated by customers may also indicate a general lack of awareness of the program. A low level of customer awareness of the program is not surprising given that program are new.

When trade allies were asked about the program marketing efforts directed at customers, a few responded that they had seen television advertisements or knew that the utility websites were used to promote the programs. However, many were unable to specify the utility's marketing efforts for the program. Even though they were unsure about the specific materials being used to promote the program, the respondents thought the program outreach and marketing efforts were effective because they had received some phone calls from customers about the program.

All of the respondents received guidelines on the use of the utility and program name for their marketing materials. Respondents were asked if the program or utility staff had provided them with any marketing materials for them to distribute to promote the program. Approximately one-half the trade allies confirmed they had received materials from the program staff. The available materials included brochures, other paperwork, and business cards. One respondent stated:

*"They had a few brochures, but they were limited in supply. I never had very many of them and I probably didn't ask for a larger supply. They did give me some brochures that I used quickly."*

However, even though the program staff had given some of the respondents marketing materials, about one-half of them stated that they have not used the materials while the remainder said to have used them frequently.

Respondents were asked for any suggestions on how to improve on the materials to make them more effective. Some suggestions included the addition of a place to input their own company information on the flyer and clearer messaging about using a specific trade ally for the program. This is already available through the program, but based on the trade allies' answers the Evaluators concluded that some trade allies are unaware of this.

#### **3.7.6.4 Trade Ally Feedback - Barriers to Participation**

To identify any customer barriers to participation, respondents were asked about customers' awareness of the Residential Solutions program, concerns they may have had before participating, and feedback on the financial incentives offered.

About one-half of the respondents said that the several of their customers were initially skeptical about the program offerings. Trade allies indicated that some customers are worried that the program is "too good to be true" and assume there is a "catch" to it. Additionally, some customers are wary about allowing the trade ally into their home to conduct the audit. Another customer concern that was mentioned is whether or not they will see a lower utility bill as a result of their participation.

A customer's primary concern when deciding whether or not to implement a trade ally's recommendations is cost. One respondent stated that in many cases the customer knows about the problems in their home before the assessment is performed, but solving the problem is cost prohibitive. Other potential barriers to participation noted include customers not wanting to let people in their homes to perform the work and concerns about the time required to complete the energy saving improvements.

Almost 70% of the trade allies said that they think the rebate for the audit is not a sufficient enough incentive to encourage customers to have an energy assessment performed. Their suggested incentive range should be between \$100 and \$150.

When asked whether or not the financial incentives are sufficient to encourage customers to install energy efficient equipment, respondents replied:

*"I think it's a nice gesture when we offer the rebate. I'm not sure if it would be a 'game changer.' It's not a 'make or break situation."*

*"If they're going to do it anyway, they like [the recommendations]. If they don't want it, they're less inclined."*

*"If the incentives were larger, more people would be inclined to do it, because everyone wants something for nothing...The rebates are reasonable. I think they*

*need to be higher for me to be able to attract people out here. The main thing is advertising and letting people know about the programs.”*

#### **3.7.6.5 Trade Ally Feedback - Participation Process**

Several questions were asked of trade allies regarding the application procedures, the level of effort to complete the program steps, feedback on the OPEN tool software, and any suggestions for improvement.

All of the interviewed trade allies stated that they choose to fill out the application for the customer and return the paperwork for them to sign. Though 32% of participating customers surveyed indicated having filled out some of their own program paperwork, this contradiction could be due to the surveyed customers using trade allies that were not interviewed or to differing perceptions about the volume of paperwork. Trade allies state that they prefer to fill out paperwork on the customers' behalf, as opposed to having the customer fill it out, because it *“takes a lot of the hassle away from the customer”* and they *“like to make it as simple as they can for them.”* Also, respondents said that it took them “minimal” effort to fill out the applications. None of the respondents had suggestions for improving the application.

Respondents provided feedback on the use of the OPEN tool. About one-half of the respondents did not experience any major issues, and all indicated that it was fairly easy to use. However, some did have issues such as difficulty logging into the system, input data not showing up in real-time, having to input data multiple times, and being unable to edit data inputs. Example comments on use of the tool include the following:

*“I always have trouble logging on. The main issue is getting kicked out. I’ve been having a problem with inputting data multiple times and only one name showing up. Sometimes it gets stuck.”*

*“It would be a very good tool if they could have worked all the kinks out. Going back to edit, it wouldn’t allow you to edit an address. Some things didn’t show up in real-time and it repeated values later.”*

#### **3.7.6.6 Trade Ally Feedback - Training and Staff Support**

Trade allies provided information on the training they received. 78% of the respondents had received training; some received more formal training and others received informal training. Those respondents that did receive training said that it was comprehensive and easy, and the timing and location were convenient. The only suggestion for improving the training would be to hold additional trainings to cover program changes.

All but one respondent was provided written documentation describing program procedures and requirements. Overall, the information provided to the trade allies was assessed as clear, simple, and user-friendly.

**3.7.6.7 Trade Ally Feedback - Market Effects**

Energy efficiency programs may cause market effects such as altering the products and services provided by trade allies. One-third of respondents indicated that they had made changes to the products or services they offer as a result of participating in the program. One-third also said that they did not provide residential energy audits prior to their involvement in the program.

In addition to changes in the services provided, two respondents said that participation in the program has led them to increase their staffing by two to three full time employees. Two other trade allies reported that to meet the needs to deliver the program services, they have hired between 10 and 12 full time employees. One of these respondents also indicated that their firm opened a new office location in Louisiana.

**3.7.6.8 Trade Ally Feedback - Overall Satisfaction**

Respondents were then asked to rate their satisfaction on a scale of 1 to 10, with “1” meaning very dissatisfied and “10” meaning very satisfied, on a range of elements related to their program experience. Table 3-27 tabulates the satisfaction results.

*Table 3-27 Trade Ally Satisfaction Levels of Program Elements*

<i>Element of Program Experience</i>	<i>Very Satisfied (10 -9)</i>	<i>Somewhat Satisfied (8-7)</i>	<i>Neither Satisfied or Dissatisfied (6-5)</i>	<i>Somewhat Dissatisfied (4-3)</i>	<i>Very Dissatisfied (2-1)</i>	<i>Don't Know</i>
The application process	33%	44%	0%	0%	0%	22%
The wait time to receive the rebate	11%	22%	22%	0%	3%	11%
Incentive levels	22%	33%	11%	33%	0%	0%
The range of measures covered by the program	44%	56%	0%	0%	0%	0%
Service from program staff	44%	33%	11%	11%	0%	0%
Overall program	44%	33%	11%	11%	0%	0%

Overall satisfaction with the RSP is high. A majority of the trade allies reported high satisfaction with most of the program elements such as the range of measures covered by the program, the service from program staff, and the application process. Respondents who rated specific program elements lower than 5 were asked to clarify the low rating. Specifically, respondents who had issues with the wait to receive the rebate said:

*“You submit the stuff and you wait a couple of weeks to hear back...We’re waiting between 3-4 weeks. The turnover is slower than expected.”*

*“We email them daily. They had some ‘communication errors’ on their end and lost some rebates. We had to reissue applications...They are still delayed on some, but it’s better.”*

Respondents were also asked to describe the greatest strengths of the RSP. Many of them said the greatest strength was the ability to help people. More specifically, they responded:

*“Helping improve peoples’ lives.”*

*“You’re helping a customer. Helping someone who can’t afford to insulate their home.”*

*“The fact that the program is easy for people to understand and implement the program. There are people available to answer questions. There is little effort on what to do and how to do it because it’s explained so well.”*

Lastly, respondents were asked for recommendation or suggestions on how to improve the program or the role that they play as trade allies in the program. Three respondents mentioned advertising; one specifically said that the opportunity for the creation of marketing materials that would allow them to add their contact information would be very helpful in future promotion of the program. Two respondents mentioned providing more program money for future years. Two other respondents mentioned faster rebate processing. Overall, respondents were generally satisfied with the program.

#### **3.7.6.9 Trade Ally Feedback - Conclusions and Recommendations**

Key findings from the participating trade ally interviews were as follows:

- Of the nine interviewed trade allies, more than one-half of them learned about the program through utility or program staff directly contacting them about the program.
- The major factors that influenced the respondents’ decision to participate as a trade ally was the opportunity to expand their business (either revenue and/or market sectors) and to help customers make their homes more energy efficient.
- Many customers are still unaware about the program, where respondents cited that up to 15% of their customers contacted them about the RSP.
- A customer’s primary concern when deciding whether or not to implement a trade ally’s recommendations is cost.
- Almost all respondents received training, but would like trainings in a more convenient location and whenever there are program changes.
- All the respondents said that the program documents they received from the utility were clear and easy.

- When trade allies used the OPEN Tool, approximately one-half of the respondents did not experience any major issues, and everyone found it fairly easy to use. However, others did not have some issues with operating the software including not being able to edit entered information or having to enter information multiple times.
- Respondents are generally satisfied with the RSP.

The Evaluators recommend the following:

- Marketing materials – Marketing materials are utilized by a number of trade allies. Ensure that trade allies have sufficient supplies or access to electronic versions for printing. Ensure that trade allies have access to materials that promote the program and include space for their contact information.
- Training – Schedule training events at slower times of the year (late fall or early winter). Additionally, provide program updates on any changes. To provide trainings in more convenient locations, the Evaluators recommend that utilities co-sponsor training events to reach all service territories.
- OPEN tool software – Include an “edit” feature for trade allies to fix input data in real-time and offer the tool in bigger font sizes.

### **3.7.7 Conclusions**

The following sections summarize key process evaluation findings and recommendations.

#### **3.7.7.1 Program Design and Participation Process**

- The RSP provides similar services and measures to other programs operated in the region. The program provides a walkthrough home energy assessment as well as the option for more in-depth home performance testing. Typical direct install measures such as CFLs, advanced power strips, and low-flow devices are offered. Single and multi-family buildings are eligible.
- 18.2% of non-assessment participants reported having income levels that would qualify them for the Income Qualified component.
- The program provided in-depth trade ally training related to building certification, however, less training was provided on program participation processes.
- Trade allies noted a few issues with the OPEN tool including an inability to edit entered data and needing to enter data multiple times.
- None of the Income Qualified projects included direct install measures.

#### **3.7.7.2 Program Marketing and Outreach**

- The program utilizes a variety of commonly used approaches to promote residential programs. These approaches include direct outreach by program

staff, outreach performed by participating trade allies, a radio spot, bill inserts, and social media.

- The program developed a trifold brochure to promote the residential and small business programs that incorporates a number of recognized marketing tactics such as a call to action and information on multiple benefits from energy efficiency projects. A fact sheet for the residential solutions program was also developed. Trade allies are provided materials that include program branding and a location for trade ally information for use in promoting the program.
- The program website provides information the program incentives, a description of the participation process, eligibility criteria, and an example of a typical single family home project.
- Program mass-market energy assessment participants most often reporting learning of the program from friends, family, or colleagues (38%) or from a radio or television advertisement (25%). 25% of respondents learned of the program from a trade ally or energy consultant. Similarly, 41% of non-energy assessment participants learned of the program from a friend, family member, or colleague, 20% learned of it from a trade ally, and 8% learned of it from a program representative.

#### **3.7.7.3 Quality Control and Verification Processes**

- CLEARResult staff report sufficient project verification processes. The first five projects completed by a new trade ally receive pre- and post-installation verification inspections. After the first five projects are completed, 10% of the additional projects completed by that trade ally are verified.
- CLEARResult staff reported that few issues with trade allies have been identified.

#### **3.7.7.4 Customer and Trade Ally Satisfaction**

- Mass-market energy assessment participants were most likely to report satisfaction with the walkthrough measures and the quality of the trade allies work, followed by the program overall. Participants were most likely to report dissatisfaction with the energy savings and the rebate or discount amount for the assessment. Several survey responses suggested that energy consultants may not be discussing the discount on the assessment with program participants.
- Mass-market participants that did not receive an energy assessment were most likely to report satisfaction with the work performed by the trade ally, followed by the energy efficiency measure installed, and the program participation process.
- As shown in Table 3-26 , 50% of mass-market energy assessment participants and 74% of the non-assessment participants reported that participation in the program increased their satisfaction with Entergy.

- Most interviewed trade allies were satisfied with the program overall. Issues raised by trade allies included slower than expected review of project materials and a desire for larger rebates.

### 3.7.8 Recommendations

The Evaluator's' recommendations for the residential solutions program are as follows:

- **Monitor the rate of audits completed by energy consultants that result in energy efficiency projects.**
- **Encourage trade allies to install the direct install measures at income qualified participant residences.**
- **Provide training or information to participating trade allies when program changes are made.**
- **Review options for adding data editing capabilities to the OPEN tool.** Allowing for edits may improve the quality of data submitted by trade allies.
- **Include links to the program fact sheet and downloadable brochure on the program website.** Providing access to printable program material is considered good marketing practice.
- **Several trade allies listed on the website do not have the area they serve identified.** This information should be identified to provide better information to prospective program participants.
- **Ensure that trade allies are aware of marketing collateral that includes space for the trade ally to put their firm's information.** This information may help them promote the program and improve customer's perceptions of program legitimacy.
- **Provide electronic copies of program marketing materials to trade allies so that they can be printed as needed.**
- **Consider providing information about the income qualified incentive on website.** Although the program did not have difficulty meeting its goals, the program should consider some limited marketing of the program to ensure that a larger share of income qualified customers are aware that they are eligible for larger incentives than are available through the mass-market program. At a minimum, staff should consider providing information about the program on the residential program website.
- **To ensure clear communication to all relevant parties, include information on quality control and verification procedures in the program manual.** This should include the rate of project verifications and the quality standards used to assess trade ally performance.



## 4. CoolSaver AC Tune Up and HVAC Program

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The CoolSaver AC Tune Up and HVAC Program provides financial incentives to encourage residential customers to improve the efficiency of their HVAC systems. Incentives are provided for a tune-up of the system and for HVAC system replacements.

Incentives provided for tune-ups for single family homes range from \$150 per unit, depending on the size of the system. Incentives of \$75 are provided for multifamily air conditioning units.

Tune-ups are provided by a qualified technician and involve testing the performance of the unit before and after measures are implemented. Typical measures implemented as part of the tune-up procedure include air flow correction; cleaning of the indoor blower, evaporator coils, condenser coils; and correction of refrigerant charge.

Incentives are provided for replacement of air conditioning systems and heat pump systems. Incentives for air conditioner replacements range from \$75 to \$550, depending on the size and SEER of the new unit. Incentives for ducted heat pumps range from \$100 to \$650, depending on size and SEER of the new unit. Ductless heat pumps may receive incentives ranging from \$225 to \$700 depending on the size of the unit

In PY1, the CoolSaver Program had savings goals of 862,786 kWh and 312.0 kW. Total verified savings for the CoolSaver Program are:

- 1,137,316 kWh – 131.8% of goal; and
- 301.92 kW – 96.8% of goal.

### 4.1 M&V Methodology

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Evaluation of the CoolSaver Program included the following:

- Ride-alongs with participating trade allies to observe the tune-up process;
- Surveys with tune-up and rebate participants; and
- Interviews with program trade allies.

### 4.2 Impact Savings Calculation Methodology

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For equipment and retrofits rebated through the PY1 CoolSaver Program, calculation methodologies were performed as described in the Arkansas TRM V3.0. Table 4-1 identifies the sections in the TRM that were used for verification of measure-level savings under the CoolSaver Program.

Table 4-1 CoolSaver TRM Sections by Measure Type

<b>Measure</b>	<b>Section in TRM</b>
AC Tune up	2.1.5
Central AC Replacement	2.1.6
Heat Pump Replacement	2.1.8

In addition to the TRM, the Evaluators also examined the Excel workbook distributed to trade allies to assess savings by measure. The workbook utilizes TRM savings algorithms with trade ally inputs to calculate savings based on the measure and input parameters. The Evaluators verified the factor tables for each measure to ensure the values were appropriate.

#### 4.2.1 Central Air Conditioner/Heat Pump Tune-Up Savings Calculations

The deemed savings values for air infiltration reduction were developed through weather-adjustment of TRM values.

The formula for calculating savings from air conditioning tune-ups is as follows:

$$kW_{Savings} = Capacity \times \frac{1 \text{ kW}}{1000 \text{ W}} \times \left( \frac{1}{EER_{pre}} - \frac{1}{EER_{post}} \right) \times CF$$

$$kWh_{Savings} = Capacity \times \frac{1 \text{ kW}}{1000 \text{ W}} \times \left[ \left( \frac{EFLH_C}{EER_{pre}} + \frac{EFLH_C}{HSPF_{pre}} \right) - \left( \frac{EFLH_C}{EER_{post}} + \frac{EFLH_C}{HSPF_{post}} \right) \right]$$

Where,

- Capacity = Rated tons
- EER<sub>pre</sub> = Adjusted efficiency of equipment prior to the tune-up (11.2 if unknown)
- EER<sub>post</sub> = Nameplate efficiency of existing equipment
- HSPF<sub>pre</sub> = Measured efficiency of heating equipment before tune-up
- HSPF<sub>post</sub> = Measured efficiency of heating equipment before tune-up
- CF = Coincidence Factor, .87
- EFLH<sub>C</sub> = Equivalent full-load cooling hours
- EFLH<sub>H</sub> = Equivalent full-load heating hours

Baseline EER is calculated as follows:

$$EER_{pre} = (1 - EL) \times EER_{post}$$

Where,

- EL = Efficiency Loss

*Table 4-2 Efficiency Loss Percentage by Refrigerant Charge Level*

<b>% Charged</b>	<b>EL – Fixed Orifice</b>	<b>EL – TXV</b>
≤70	.37	.12
75	.29	.09
80	.20	.07
85	.15	.06
90	.10	.05
95	.05	.03
100	.00	.00
≥120	.03	.04

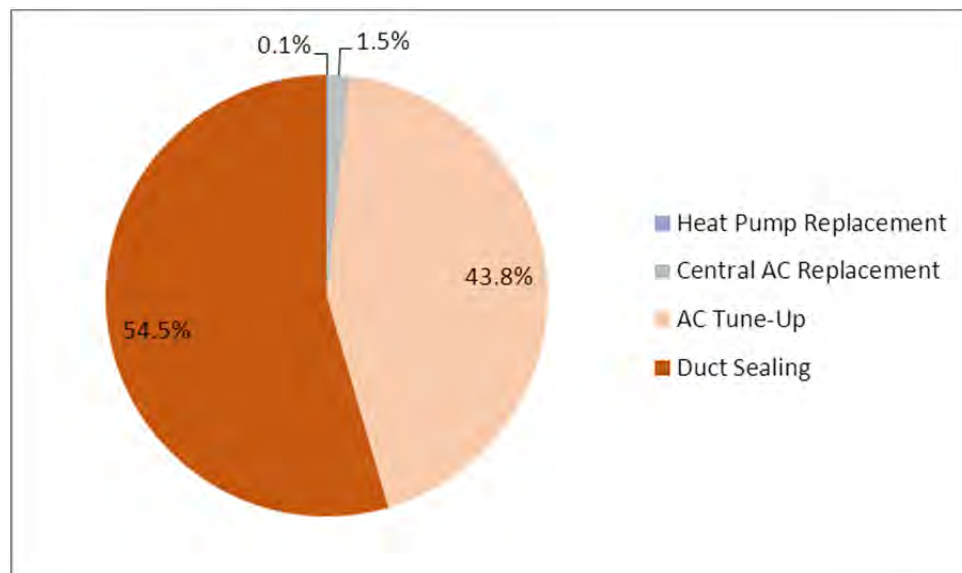
#### 4.2.2 Duct Sealing Calculations

Duct sealing in this program is calculated in the same manner as indicated for the RSP.

#### 4.1 Participation Summary

Savings from the CoolSaver Program by measure are summarized in the figure below.

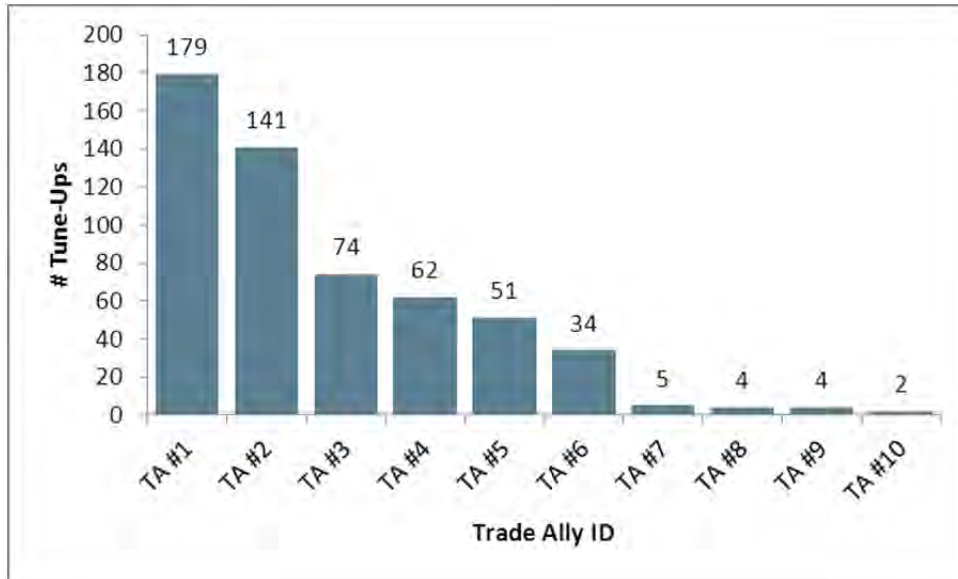
*Figure 4-1 Savings Share by Measure – CoolSaver*



### 4.1.1 Participation Detail: AC-Tune Ups

The AC tune-up portion of the program had 556 participants in PY1. EGSL had 10 participating trade allies. Figure 4-2 summarizes tune-ups completed by trade ally.

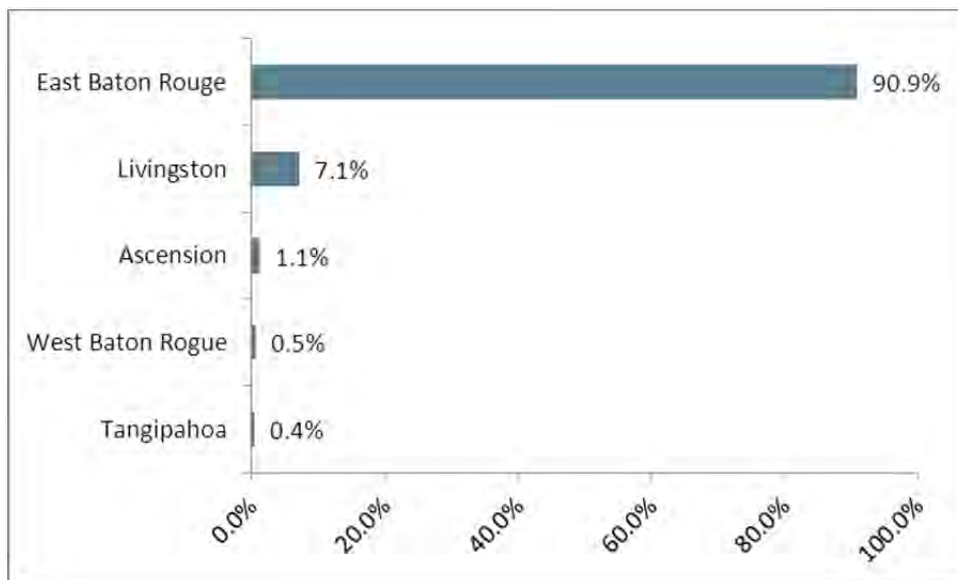
Figure 4-2 Tune-Ups Completed by Trade Ally



One trade ally was responsible for 32.2% of tune-ups completed, and the top four were responsible for 82.0% of tune-ups.

Figure 4-3 summarizes participation by parish for the AC Tune-Up measure.

Figure 4-3 Participation by Parish – CoolSaver Tune-Up



### 4.1.2 Participation Detail: Duct Sealing

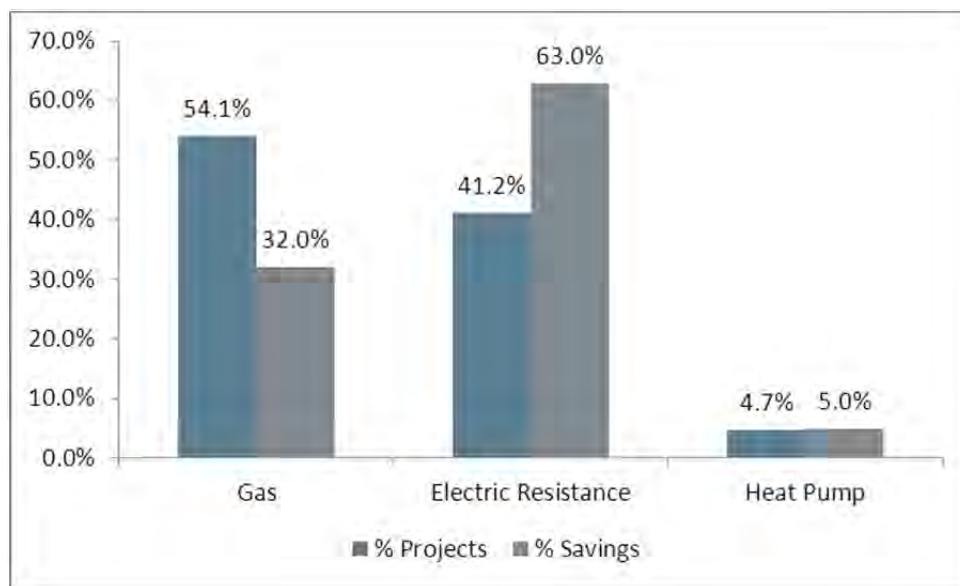
The program tracking listed two types of duct sealing:

- Single-participant; and
- Bulk-retrofit.

There were three line items for bulk multifamily duct sealing retrofits, comprising of a total of 247,137 kWh. Additionally, there were 85 single family homes with duct sealing in the program in PY1, totaling 257,313 expected kWh and 53.32 expected kW.

The contribution to savings and participation by HVAC system type is detailed below.

*Figure 4-4 Participation and kWh Savings by Heating System Type*



### 4.1.3 Central AC/Heat Pump Replacement

The PY1 CoolSaver Program rebated six central air conditioners and one heat pump, accounting for 1.6% of program savings.

## 4.2 Savings Results

The Evaluators found that largely, program savings corresponded with TRM values. The deviations of note were as follows:

- **Differences in weather zone mapping.** Program staff used IECC2009 weather zone mapping, which splits Louisiana into two weather zones (Zone 2 and Zone 3). The Arkansas TRM applies IECC2003 weather zone mapping, and if this mapping is applied to Louisiana, Louisiana is split in four weather zones (Zone 3, 4, 5, and 6). The EGSL service area is largely comprised of IECC2003 Zone 3 (New Orleans) and Zone 4 (Baton Rouge). The effect of this overall is that deemed savings used by CLEAResult overstated savings for customers in IECC2003 Zone 3 but understated savings for customers in Zone 4. This is due

to Zone 4 having a higher space heating load, and this difference is lost when aggregated with Zone 3.

- **Ineligible units identified in air conditioning replacement data.** The Evaluators identified two 13 SEER units in EGSL program tracking (Lennox Models 13ACX-024-230 and 13ACX-030-230). These units are ineligible for the program and provide no savings as they are federal minimum standard units.
- **Errors in unit classification.** The Evaluators identified four central air conditioning rebates that were actually heat pumps.

Verified savings are summarized in Table 4-3 and Table 4-4.

*Table 4-3 kWh Realization Summary*

<i>Measure</i>	<i>Expected kWh Savings</i>	<i>Verified kWh Savings</i>	<i>Realization</i>
AC Tune-Up	484,587	484,587	100.0%
Duct Sealing	611,545	633,708	103.6%
Central Air Conditioning	17,345	17,345	100.0%
Heat Pump	1,676	1,676	100.0%
<b>Total</b>	<b>1,115,153</b>	<b>1,137,316</b>	<b>102.0%</b>

*Table 4-4 kW Realization Summary*

<i>Measure</i>	<i>Expected kW Savings</i>	<i>Verified kW Savings</i>	<i>Realization</i>
AC Tune-Up	209.25	209.25	100.0%
Duct Sealing	87.01	87.01	100.0%
Central Air Conditioning	5.17	5.17	100.0%
Heat Pump	.49	.49	100.0%
<b>Total</b>	<b>301.92</b>	<b>301.92</b>	<b>100.0%</b>

### **4.3 Process Evaluation**

This chapter presents the results of the process evaluation of the CoolSaver Program. The process evaluation focuses on aspects of program policies and organization, as well as the program delivery framework.

The process chapter begins with an overview of the program. This is followed by a discussion of the methodological approach used in the evaluation. A summary of findings and recommendations for program improvement follow the discussion of the methodology. This discussion is followed by detailed findings of the evaluation activities.

### 4.3.1 Data Collection Activities

The process of evaluation of the CoolSaver Program included the following data collection activities:

*Table 4-5 CoolSaver Process Evaluation – Summary of Data Collection*

<b>Activity</b>	<b>Sample Size</b>
Entergy Staff	2
CLEAResult Staff	3
Participant Survey – AC Tune-up	9
Trade Ally Interviews	9
Trade Ally Ride-alongs	5

### 4.3.2 Program Overview

The CoolSaver Program provides financial incentives to encourage residential and customers to improve the efficiency of their HVAC systems. Incentives are provided for a tune-up of the system and for HVAC system replacements.

### 4.3.3 Detailed Findings

#### 4.3.3.1 Review of Participation Data

The Evaluators reviewed tracking data submitted at the end of August and identified the following issues with the AC tune-up data:

- Customer phone numbers were missing for a few sites (< 5%);
- The data does not include an indicator for housing type (i.e., single family, multifamily, mobile home).
- Trade ally firm is identified, but trade ally name and contact information was not provided.

The following issues were identified for the HVAC and duct sealing data provided:

- Customer phone numbers were missing for more than 25% of projects;
- The data does not include an indicator for housing type (i.e., single family, multifamily, mobile home).
- Trade ally firm is identified, but trade ally name and contact information was not provided.

#### 4.3.3.2 Review of Participation Data

Table 4-6 displays the number of projects and the expected kWh savings by measure type. As shown, AC tune-ups accounted for nearly three-quarters of the program

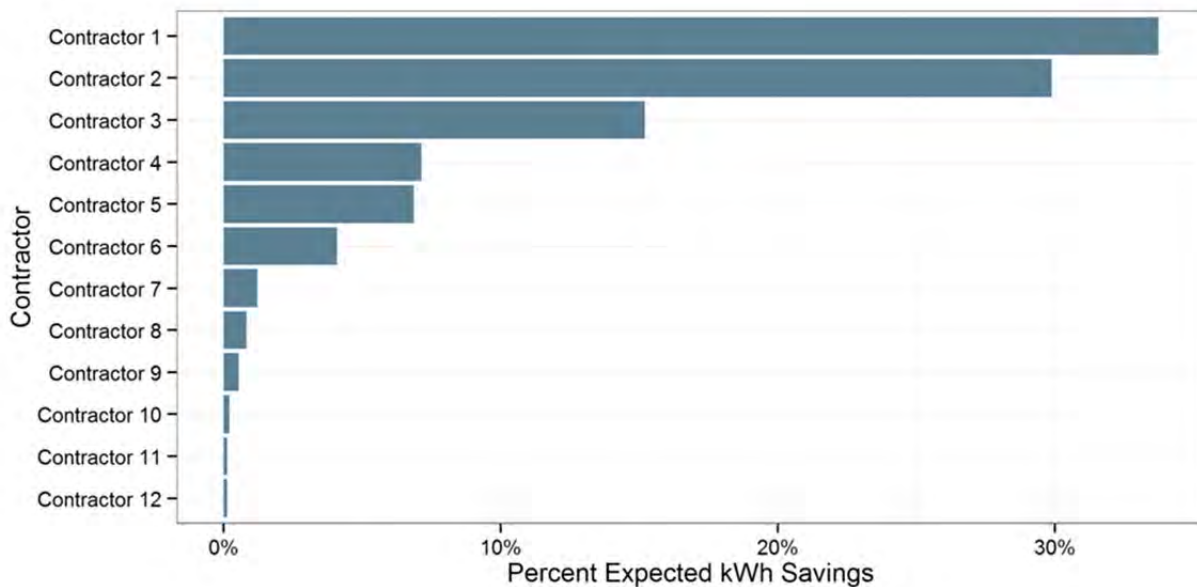
expected kWh savings. Duct sealing also accounted for a large share of energy savings.

*Table 4-6 Number of Projects and Expected kWh Savings by Measure Type*

<b>Measure</b>	<b>Number of Projects</b>	<b>Expected kWh Savings</b>
AC Tune-Up	556	484,587
Duct Sealing	5	611,545
Central Air Conditioning	6	17,345
Heat Pump	1	1,676

Figure 4-5 displays energy savings by trade ally. In total there were 27 trade allies that completed program projects but the six most active accounted for more than 80% of the program energy savings.

*Figure 4-5 Share of Energy Savings by Program Trade Ally*



#### **4.3.3.3 Program Comparison**

The Evaluators reviewed several AC Tune-Up programs from around the country to assess how the Entergy Louisiana and Entergy Gulf States CoolSaver Program compared in terms of work performed, available rebates, eligibility, and incentives. The programs included in this comparison are all in comprehensive phase implementation. However this difference manifests largely in program scale rather than in program design.

Table 4-7 CoolSaver provides a summary of the programs. The Entergy programs differ from other programs reviewed because incentives are provided for air conditioner and heat pump replacements as well tune-ups. The only other program reviewed that also



includes air conditioner and heat pump replacements is the WestPenn Power HVAC & Water-Heating Program. Additionally, NV Energy's EXACTcomfort program offers air conditioner replacements, but does not cover heat pump replacements.

The Entergy Louisiana and Entergy Gulf States programs and the Entergy Arkansas program are the only utilities among the programs reviewed that provide incentives for tune-ups based on the size of the air conditioning unit.

The Southern California Edison program provides a rebate for an initial assessment and then additional rebates for making improvements that improve the energy efficiency of the unit either through servicing the unit, preventative maintenance, or replacement of the motor with a brushless unit.

The NV Energy program is structured similarly. Prescriptive incentives are provided for an initial assessment and for specific services performed that are intended to improve the efficiency of the unit. Incentives are also provided for brushless motors for multi-family units and for the installation of heat strip controls.

Both the WestPenn Power HVAC & Water-Heating Program and CenterPoint Minnesota Air Conditioner Tune-up Programs provide a single incentive amount for tune-up services. The WestPenn program also provides a rebate for the installation of a brushless motor.

Rebates for duct sealing are provided through NV Energy program. The Entergy Louisiana and Gulf States Programs provided duct sealing rebates, although these were not stated in the program materials such as the program manual and the website. These were added to the program halfway through PY1, as program trade allies were interested in providing additional services to customers while completing CoolSaver Tune-Ups. CLEAResult staff requested the Evaluators' input before making this addition, and the Evaluators concluded that this was a viable enhancement to the program.

Table 4-7 CoolSaver – Regional Benchmarking

Utility	Work Performed	Available Rebates	Incentive Amounts	Eligibility Criteria	Market Sector
<p>Entergy Louisiana and Entergy Gulf States CoolSaver Program</p>	<ul style="list-style-type: none"> <li>•Clean condenser coil</li> <li>•Clean evaporator coil</li> <li>•Cleaning blower</li> <li>•Measure refrigerant</li> <li>•Change air filter</li> <li>•Measure &amp; adjust air flow</li> <li>•Measure &amp; adjust refrigerant after performing improvements</li> <li>•Calculate system pre-and post-efficiency</li> </ul>	<p>A/C and electric heat pump systems</p>	<p>\$150 instant rebate CoolSaver A/C Tune-Up incentives size vary by size of system: Tons 3-5: \$150 Tons 6-10: \$200 Tons 11-15: \$250 Tons 16 -25: \$400 Multi-Family: \$100 A/C Replacement Incentives vary by size and efficiency of the system: Tons 1.5: \$75 – 175 Tons 2: \$100 – 225 Tons 2.5: \$125 – 300 Tons 3: \$150 - 350 Tons 3.5: \$175 – 425 Tons 4: \$200 – 475 Tons 5: \$250 – 550 SEER 15: \$75 – 250 SEER 16: \$100 – 350 SEER 17: \$150 – 475 SEER 18+ : \$175 - 550 Heat Pump Replacement Incentives: Tons 1.5: \$100 – 225 Tons 2: \$125 – 300 Tons 2.5: \$150 – 375 Tons 3: \$200 – 450 Tons 3.5: \$225 – 500 Tons 4: \$250 – 575 Tons 5: \$375- 700 SEER 15: \$100 – 325 SEER 16: \$125 – 400 SEER 17: \$175 – 575 SEER 18+: \$200 – 650 SEER 20 (Ductless) : \$225 - 700</p>	<p>CoolSaver Tune-Up: Customers of ELL &amp; EGSL that own A/C and electric heat pump systems. Residential systems up to 5 tons and commercial/industrial systems up to 25 tons. System must be at least one year old and cannot have had a CoolSaver tune-up within the past five years.</p> <p>HVAC Replacement: New equipment must meet efficiency requirements.</p> <p>Program-qualified replacement efficiencies are:</p> <ol style="list-style-type: none"> <li>1. Split central air conditioners or heat pumps must have a minimum Seasonal Energy Efficiency Ratio of (SEER) 14.5, a minimum Energy Efficiency Ratio (EER) of 12, and a minimum Heating Seasonal Performance Factor of 8.2 (heat pumps only).</li> <li>2. Packaged central air conditioners and heat pumps must have: a SEER of at least 14.0, an EER of at least 11.0, and a Heating Seasonal Performance Factor of at least 8 (heat pumps only). Systems up to 65,000 btu/h are eligible for replacement. Heat fuel sources cannot be switched when replacing a heat pump or central air conditioning system.</li> </ol>	<p>Residential</p>

<b>Utility</b>	<b>Work Performed</b>	<b>Available Rebates</b>	<b>Incentive Amounts</b>	<b>Eligibility Criteria</b>	<b>Market Sector</b>
Southern California Edison Quality Maintenance Program	<ul style="list-style-type: none"> <li>•Diagnostic services</li> <li>•Optimization</li> <li>•Measure changes in EER</li> </ul>	A/C, brushless fan motors	<p>System Assessment Rebate: \$50 instant rebate for allowing a program trade ally to perform a baseline assessment.</p> <p>System Optimization Rebate: If the assessment shows that the unit is operating in suboptimal condition and the trade ally makes improvements then the participant is eligible for an additional \$50 rebate.</p> <p>Preventative Maintenance Rebate: Purchasing the 1-year preventative maintenance agreement leads to eligibility for another \$50 rebate for customers whose systems meet the requirements for the System Optimization Rebate.</p> <p>Advanced Airflow Rebate: if the owner makes repairs to improve the airflow of the system to 400 cfm per ton or greater, they may be eligible for a \$350 rebate.</p> <p>Brushless Fan Motors: if the owner installs a brushless fan motor, they may be eligible for a \$220 rebate.</p>	Services must be performed at a single family dwelling with an active SCE Residential account. The Assessment and Optimization service must utilize a Program-approved Diagnostic System with advanced air flow and refrigeration testing. The system must meet Program Test-In and Test-Out diagnostic assessments. Any applicable rebate forms must be complete and submitted by the participating trade ally.	Residential
Entergy Arkansas CoolSaver Program	<ul style="list-style-type: none"> <li>•Clean evaporator coil</li> <li>•Clean outdoor condenser</li> <li>•Clean indoor blower</li> <li>•Adjust refrigerant charge to manufacturer specifications</li> </ul>	A/C and heat pump systems	<p>Tons &gt;= 5: \$175</p> <p>Tons 6-10: \$200</p> <p>Tons 11-15: \$300</p> <p>Tons 16-25: \$450</p> <p>Tons 26-30: \$600</p> <p>Tons 31-50: \$900</p> <p>Tons 51-80: \$1800</p>	Customers with a valid account number and whose central air conditioning systems are at least one year old are eligible. Any AC systems that have received a CoolSaver Tune-up in the past five years are not eligible. Systems above 25 tons must be pre-approved on a case-by-case basis by the Program Implementer.	Non-residential and residential

<b>Utility</b>	<b>Work Performed</b>	<b>Available Rebates</b>	<b>Incentive Amounts</b>	<b>Eligibility Criteria</b>	<b>Market Sector</b>
	<ul style="list-style-type: none"> <li>•Airflow correction</li> </ul>				
NV Energy EXACTcomfort	<p>AC Improvement Measures:</p> <ul style="list-style-type: none"> <li>•Diagnostic evaluation</li> <li>•Refrigerant adjustment</li> <li>•Coil cleaning (indoor and outdoor)</li> <li>•Heat strip control install</li> <li>•Heat strip control reset</li> <li>•BPM motor with constant fan</li> <li>•Return air modification</li> </ul> <p>AC Early Replacement Measures:</p> <ul style="list-style-type: none"> <li>•AC replacement with new AC</li> <li>•Heat pump replacement with new heat pump</li> <li>•AC replacement with heat</li> </ul>	A/C (heat pumps and ducts)	<p>The program is divided into three sections: AC Improvement Measures, AC Early Replacement Measures, and Duct Testing &amp; Sealing Measures. Rebate size varies with housing type (Single-Family Home, Manufactured Housing, or Multi-Family Housing)</p> <p>AC Improvement Measures:</p> <ul style="list-style-type: none"> <li>Diagnostic Evaluation: \$25</li> <li>Refrigerant Adjustment: \$50 – 75 (Multi-Family Homes receive lower rebate)</li> <li>Outdoor Coil Cleaning: \$25</li> <li>Indoor Coil Cleaning: \$50</li> <li>Heat Strip Control Install: \$50 – 75 (Multi-Family Homes receive lower rebate)</li> <li>Heat Strip Control Reset: \$20</li> <li>BPM Motor with Constant Fan: \$175 – 350 (Multi-Family Homes receive lower rebate)</li> <li>Return Air Modification: \$250 (Multi-Family Homes not eligible)</li> </ul> <p>AC Early Replacement Measures: (Multi-Family Homes receive lower rebate)</p> <ul style="list-style-type: none"> <li>Replace an existing operational AC system with a new AC system with a SEER rating of <math>\geq 14</math>: \$325 – 400</li> <li>Replace an existing operational heat pump system with a new heat pump system with a SEER rating of <math>\geq 14</math>: \$400 – 475</li> <li>Replace an existing operational AC system that has electric strip heat, with new heat pump system with a SEER rating of <math>\geq 14</math>: \$450 - 475</li> </ul> <p>Duct Testing &amp; Sealing Measures:</p>	<p>AC Improvement Measures: existing AC must be operational and customer cannot have participated in the same measure in a previous NV Energy program in the past 8 years.</p> <p>AC Early Replacement Measures: Existing AC system must be operational with an EER of <math>\leq 8</math>, and be a minimum of 10 years old. Customer cannot have participated in an early replacement measure in a previous NV Energy program in the last 20 years.</p> <p>Duct Testing &amp; Sealing Measures: Existing system must be operational and home must be <math>\geq 20</math> years old. Customer cannot have participated in a duct testing and sealing measure in a previous NV Energy program in the last 20 years</p> <p>Overall: Customers in the Southern Service Area. Renters can participate given the permission of the homeowner, homes with multiple AC systems are eligible, multiple homes owned by the same customer can participate.</p>	Residential

<b>Utility</b>	<b>Work Performed</b>	<b>Available Rebates</b>	<b>Incentive Amounts</b>	<b>Eligibility Criteria</b>	<b>Market Sector</b>
	<p>pump  Duct Testing &amp; Sealing Measures:  •Leakage reduction</p>		<p>Tier 1 – Leakage Reduction =&lt; 200 CFM from leaks outside conditioned space: \$100 – 125 (Multifamily Homes receive lower rebate)  Tier 2 – Leakage Reduction is 201 CFM to 399 CFM from leaks outside conditioned space: \$175 – 300 (Multifamily homes receive lowest rebate, Manufactured Housing receives \$250)  Tier 3 – Leakage Reduction &gt;= 400 CFM from leaks outside conditioned space: \$275 – 425 (Multi-Family Housing receives lowest rebate, Manufactured Housing receives \$350).</p>		

#### **4.3.3.4 Program Design, Operations and Activities**

The following sections describe program operations and activities and were developed from reviews of program documentation and interviews with program staff.

#### **4.3.3.5 Program Objectives**

The primary program objective is to assist residential customers in achieving electric energy savings and peak demand reductions through improving the efficiency of their HVAC systems. The energy saving goal for the program year is 862,786 kWh and the peak demand reduction goal is 312 kW.

Ancillary program objectives include developing a group of trade allies capable of providing air conditioner tune-ups and replacement services, and to provide educational materials to customers.

CLEARresult staff identified some challenges the program faced in meeting its energy savings and peak demand reduction targets that occurred during the year. One issue was that the program launched later than the other efficiency programs offered due to temperature requirements for accurate diagnostic testing.<sup>8</sup> Additionally, during the summer, trade allies were primarily focused on handling emergency service calls rather than providing tune-ups or HVAC replacement services. The program did see increased activity towards the end of the program year, with significant participation in the multifamily sector.

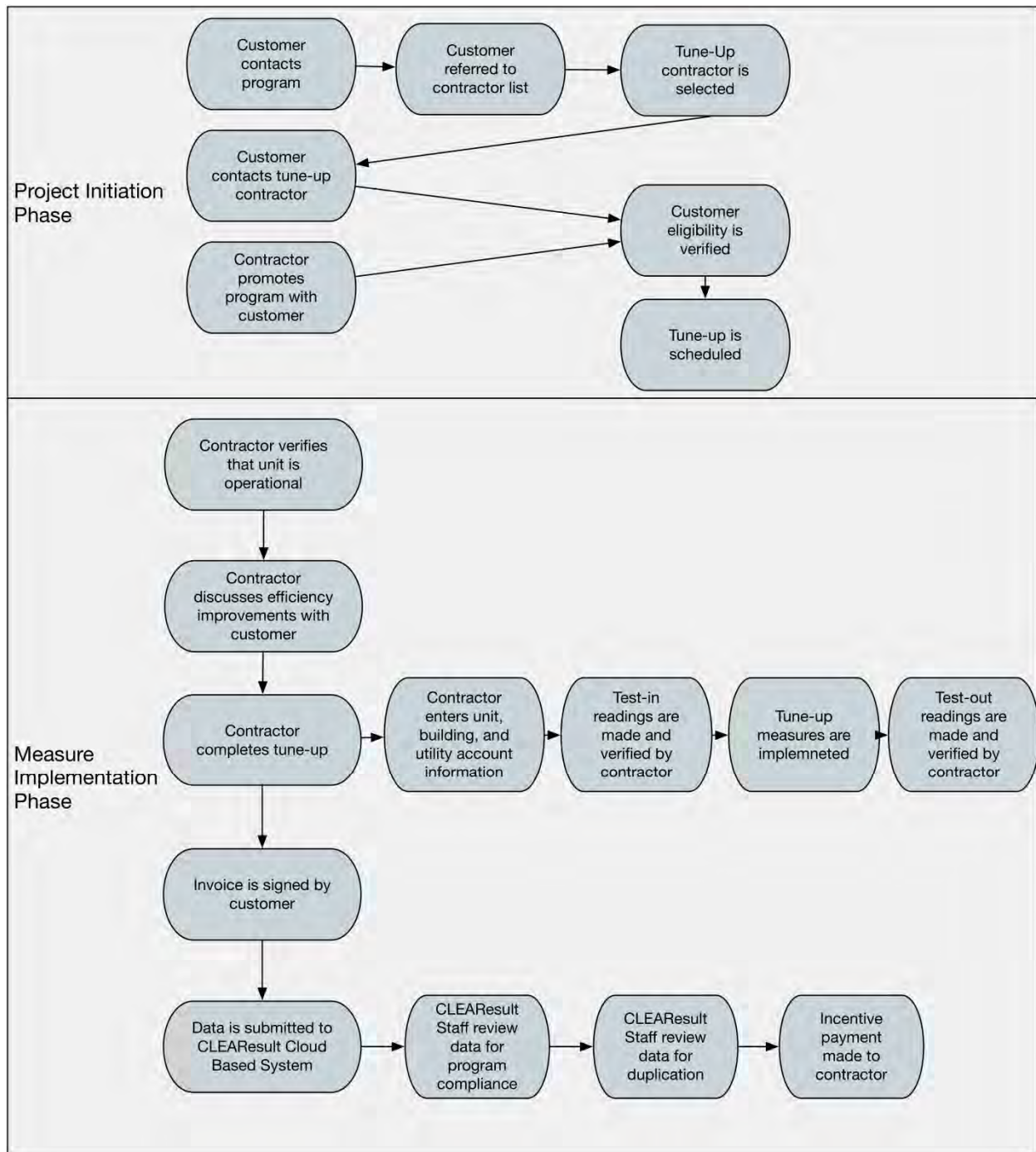
#### **4.3.3.6 Program Participation Process**

Figure 4-6 provides an overview of the tune-up participation process. Customer participation may be initiated either through the customer contacting program staff, the tune-up trade ally, or through trade ally outreach. Once a customer is verified as eligible for the program, an appointment is scheduled to complete the tune-up. During the tune-up, the trade ally completes an inspection of the unit and discusses the tune-up measures with the customer. Once the tune-up is completed, the information is submitted electronically to CLEARresult. CLEARresult staff review the submissions and provide payment to the trade ally.

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<sup>8</sup> The program launched on November 1, 2014. AC efficiency cannot be accurately tested when ambient conditions are below 70-75 deg. F.

Figure 4-6 Program Participation Process



**4.3.3.7 Barriers to Participation**

Staff did not identify any significant barriers to participation and expect that program activity will increase as contractor awareness grows. However, trade allies' attention to emergency calls likely limited program activity during a portion of the year.

**4.3.3.8 Quality Control and Verification Processes**

Staff reported that they shadow the first five tune-up projects completed by a trade ally, but may attend more if they believe additional training is needed. After the first five visits, 10% of tune-ups performed by a trade ally are quality checked.

The program manual does not specify what share of projects will receive verification visits.

Staff report that few issues have been identified with the work performed by trade allies.

**4.3.3.9 Trade Ally Recruitment and Management**

As of October 2015, the program had 16 participating trade allies providing tune-up services and 24 providing system replacements. CLEAResult staff indicated that they view the current number of registered trade allies as satisfactory, and this is supported by the program having exceeded the savings goal in PY1.

CLEAResult staff noted that participating trade allies have previously performed similar work but typically need to acquire the iManifold™ tools. Additionally, not all of the steps and procedures for completing a tune-up were part of the trade allies' standard practice.

The primary training for the CoolSaver program covered the program procedures and use of the Imperial iManifold™ tool for making baseline efficiency measurements and efficiency measurements after the tune-up measures are complete. The training included information qualifying customers and HVAC equipment, tools needed to complete the work, steps for completing the tune-up process, and troubleshooting unusual readings. Trainees were provided with a manual covering program procedures as well. Staff's assessment is that the iManifold™ system is fairly easy to work with and that trade allies do not have difficulty with it.

**4.3.4 AC Tune-Up Participant Survey Results**

Overall, nine participants responded to the survey, eight of which fell into the residential category and the rest into the multifamily or non-residential category.

**4.3.4.1 Demographic Summary**

Table 4-8 summarizes housing characteristics collected for the CoolSaver respondents.

*Table 4-8 CoolSaver Housing Summary*

<b>Housing Characteristic</b>	<b>% Respondents (n=9)</b>
% in Single Family	88%
% owning home	88%
Average number home occupants	3.3



**4.3.4.2 Source of Awareness**

Table 4-9 summarizes sources of awareness for both program channels. For both channels, trade allies and friends/family/colleagues were the two most-commonly indicated sources of program awareness.

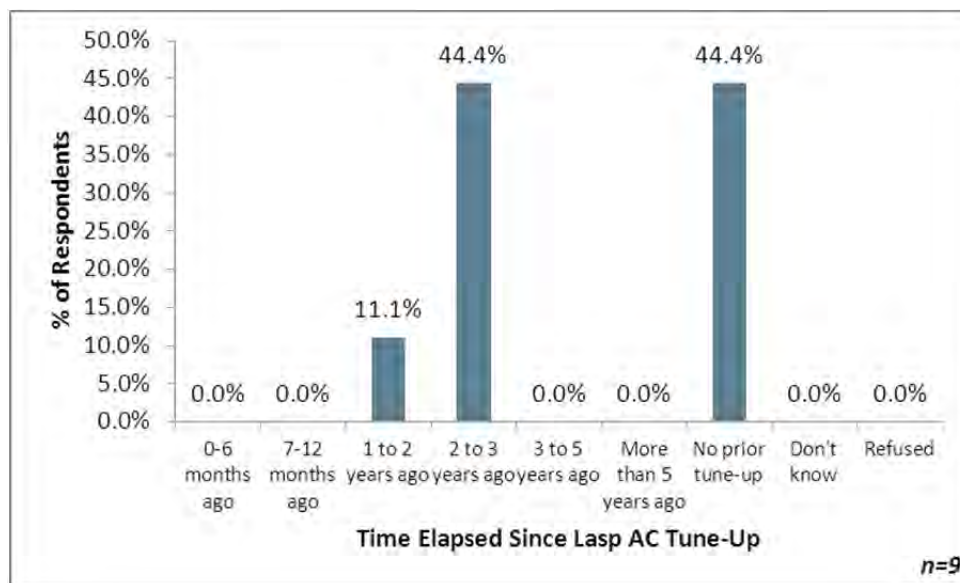
*Table 4-9 How Participants Learned of the Program*

<b>How did you first learn about the rebate or discount?</b>	<b>% Respondents (n=9)</b>
Trade Ally	67%
Friend, family member, or colleague	11%
Retailer	11%
Program Representative	11%

**4.3.4.3 AC Tune-Up Air Conditioner Characteristics**

The average age of the serviced air conditioner was 11.7 years. 44% of respondents had not had the air conditioner tuned-up before, while 56% had a prior tune-up.

*Figure 4-7 CoolSaver – Time Elapsed since Last Tune-Up*



**4.3.4.4 Decision to Participate**

Table 4-10 summarizes reasons for participation indicated by survey respondents. .

*Table 4-10 Factors Affecting Decision to Implement the Measure*

<b>Which of the following factors helped you decide to install the [MEASURE]?</b>	<b>% Respondents (n=9)</b>
Saving money on energy bills	56%
Conserving energy/Protecting the environment	43%
Becoming as energy efficient as my friends or neighbors	33%
Improving the comfort of your home	22%
Getting the rebate or discount	11%
Other	0%
Don't know	0%
Refused	0%

Respondents were asked to indicate whether they considered completing a similar project prior to learning about Entergy's program, and if they believe they would have followed through with a similar project without the program. Their responses are summarized in Table 4-11 and Table 4-12.

*Table 4-11 Likelihood of Installing Similar Measure without Program Rebate*

<b>Were you considering (installing [MEASURE] / completing a tune-up), prior to learning about the program?</b>	<b>% Respondents (n=9)</b>
Yes	44%
No	56%
Don't know	0%
Refused	0%

*Table 4-12 Likelihood of Installing Similar Measure without Program Rebate*

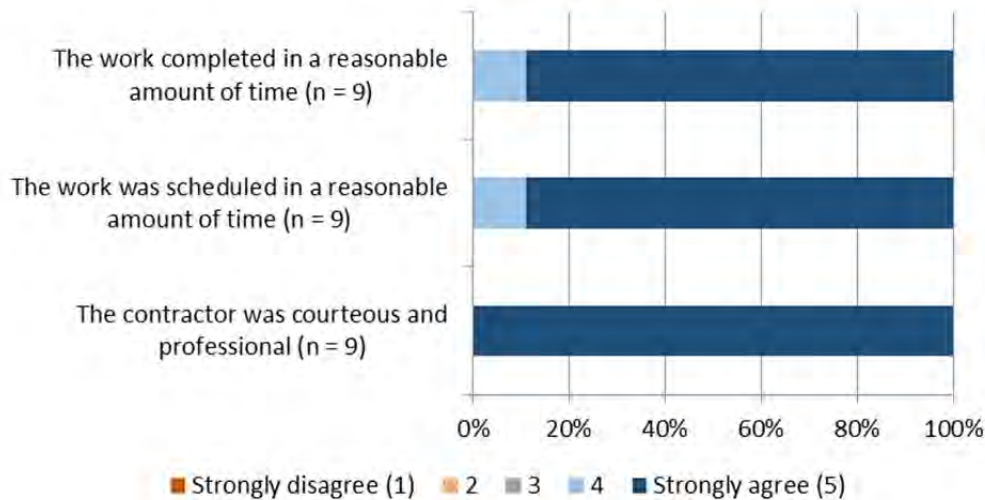
<b>If the rebate or discount had not been provided for the [MEASURE], do you think you would have installed it anyway? Would you say that you...</b>	<b>% Respondents (n=9)</b>
Definitely would have	0%
Probably would have	56%
Probably would not have	22%
Definitely would not have	22%
Don't know	0%
Refused	0%

**4.3.4.5 Participation Process – AC Tune-Up**

Respondents found the contact information for their trade ally from another trade ally they had worked with before (56%), a friend, neighbor, or colleague (22%), from a program representative (11%), or they didn't know (11%).

89% of respondents strongly agreed that the trade ally was courteous and professional, and that they scheduled and completed the work in a reasonable amount of time.

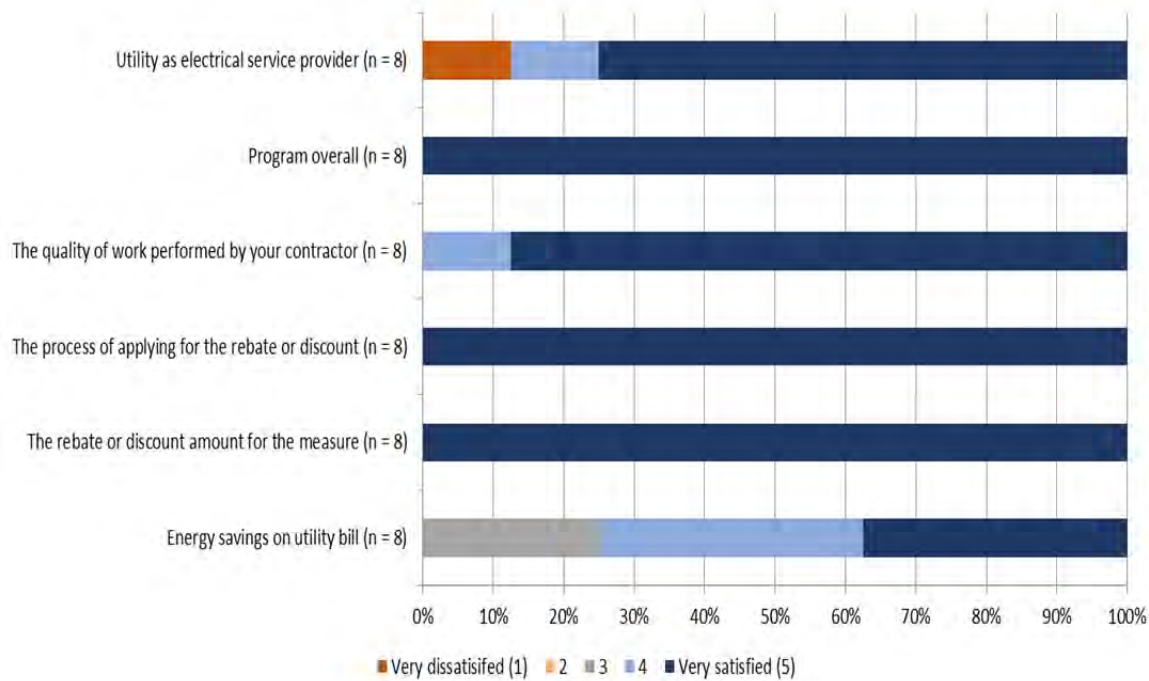
*Figure 4-8 Participants Rating of the Trade Ally*



**4.3.4.6 Participant Satisfaction**

Figure 4-9 display participant satisfaction ratings. Participants were most satisfied with the time it took staff to address questions or concerns, how thoroughly staff addressed questions or concerns, and the rebate or discount amount for the measure. Though satisfaction scores were high across all program elements discussed in the survey, respondents indicated slightly lower satisfaction scores for the energy savings on their utility bill, and the process of applying for the rebate or discount.

*Figure 4-9 Participant Satisfaction Scores*



*Figure 4-10 Participant Satisfaction Scores – AC Replacement / Duct Sealing*

Table 4-13 summarizes respondents’ answers when asked to assess the impact the program had on their satisfaction with Entergy overall.

*Table 4-13 Impact of Participation on Satisfaction with Utility*

<b>Effect of participation in Entergy’s Program?</b>	<b>Percent of Respondents (n = 9)</b>
Greatly increased your satisfaction with the Utility	33%
Somewhat increased your satisfaction with the Utility	56%
Did not affect your satisfaction with the Utility	0%
Somewhat decreased your satisfaction with the Utility	0%
Greatly decreased your satisfaction with the Utility	0%
Don't know	11%
Refused	0%

### 4.3.5 Findings from AC Tune-Up Trade Ally Interviews

Sixteen trade allies that provide program air conditioning tune-up or HVAC replacement services were contacted for an interview. Two of the trade allies refused the interview

and eight did not respond to multiple e-mail and telephone interview requests. In total, interviews were completed with six trade allies.

Interview respondents represented diverse businesses in terms of the clients served and the services provided. One-half of respondents indicated that they provide both tune-up and HVAC replacement services. The remaining respondents specialized in either tune-ups or replacements.

Respondents reported varying levels of activity in the utility sponsored tune-up programs. One-half of the respondents reported completing more than 100 tune-ups while the remainder of respondents reported completing 40 or fewer tune-ups.

All respondents reported that they were recruited into the program by a program representative.

#### **4.3.5.1 Trade Ally Feedback - Trade Ally and Program Marketing**

Five out of six respondents said that they had taken steps to promote the program. The most common means of promoting the program were through direct mail and by speaking about the program with customers while providing an estimate or developing a proposal. Respondents also reported promoting the program through radio spots and listing program information on their website. The trade allies that promote the program reported that they promote it among both current and new customers.

The one respondent who did not report promoting the program said that the majority of program promotion occurs through word-of-mouth communications among customers.

Overall, the responses given by trade allies suggest that consistent with the program design intent, most trade allies are actively engaged in promoting the program.

Several respondents felt that the marketing materials provided by the program could benefit from improvement. One-half of the respondents reporting not receiving any marketing materials and among those that did, the materials were reportedly used infrequently.

When asked how they would improve the marketing material, respondents suggested updating the materials and making them more detailed and specific.

Most respondents reported being aware of the program's marketing efforts directed at customers, but most felt that these marketing efforts were not effective.

#### **4.3.5.2 Trade Ally Feedback - Barriers to Participation**

One-half of the respondents reported that customers do not generally raise concerns about participating in the program. Among those trade allies that did note some concerns raised by customers, the types of concerns raised included:

- The cost of participation;

- The effectiveness of the tune-ups for reducing energy use;
- The time commitment for completing a project; and
- What steps would be taken to complete the project.

Trade allies also noted that some customers have concerns about the legitimacy of the program, including concerns about how their personal data may be used. Regarding this latter point, it is important to note that the program does not collect any sensitive personal information that the utility does not already possess. Moreover, the concern about the use of personal data may reflect a general sense of distrust, as well as customer lack of familiarity with the efficiency program and uncertainty about what will be required of them through the participation process.

Most respondents stated that the financial incentives were sufficient to encourage customers to participate in the program, but several respondents indicated that the incentives received by AC tune-up trade allies did not reflect the technical scope and rigor of the tune-up. One trade ally expressed frustration with the fact that trade allies receive lower rebates when they cannot physically access the entire AC system, and another trade ally suggested that trade allies should receive rebates for the equipment they are required to purchase to participate in the program.

#### ***4.3.5.3 Trade Ally Feedback - Participation Process***

Trade allies' characterizations of the program process were consistent and conformed to the intended procedures. Respondents described key steps in the participation process such as qualifying the customer and recording information about the customer and the air conditioning unit. Respondents also described the use of the iManifold™ software to record information on the performance of the unit.

Additionally, one respondent described an augmentation to the standard procedures that involved sending out a pre-appointment letter describing in detail the components of the tune-up.

Two of the interviewed trade allies provided recommendations for enhancing the program process. One recommendation was to provide a way of identifying whether or not the customer had recently had a tune-up performed (and as such, would be disqualified from subsequent participation). Another indicated that the software was somewhat cumbersome to use. However, another respondent provided a different view of the software and stated that the availability of the software and its ability to automate some portion of the data collection process was what convinced him or her to participate.

#### ***4.3.5.4 Trade Ally Feedback - Training and Staff Support***

Respondents were satisfied with the training that they received. One respondent suggested moving the location of the training to a neutral location, as opposed to a

competitor’s office. Another, respondent reported that they were not able to attend to the training due to the small size of their firm.

Five of the six trade allies reported that they had contacted staff with questions about the program or a project. All provided favorable assessments of the assistance provided by program staff.

**4.3.5.5 Trade Ally Feedback - Market Effects**

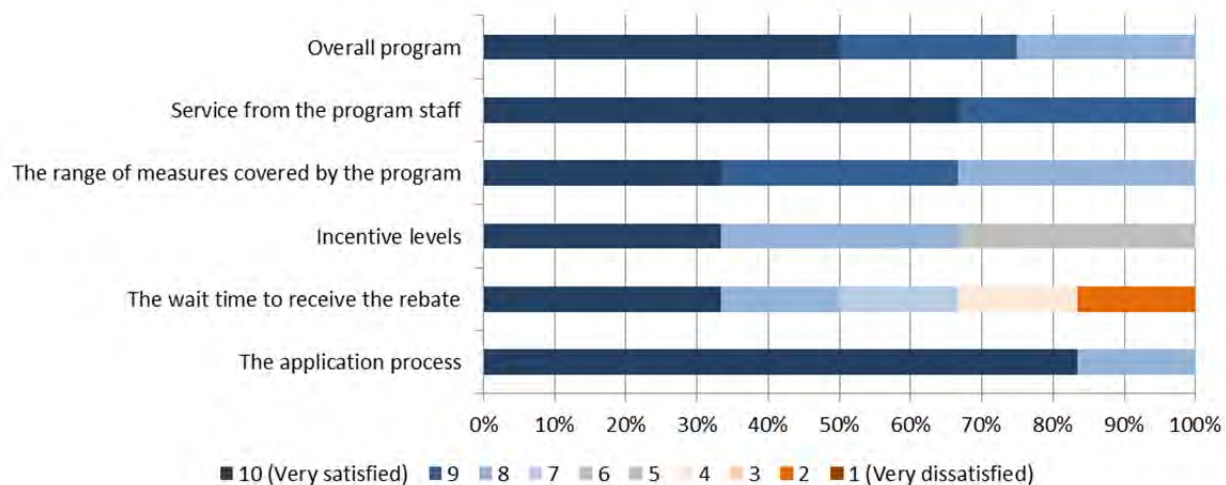
Three of the six interview respondents reported that they had either not previously provided the same air conditioning services as they provide under the program, or had not provided as extensive of services. These responses suggest that the program is increasing the capacity of trade allies in the state to provide energy saving tune ups or efficient air conditioner replacement services.

Additionally, three respondents reported that the programs had produced employment effects. Each of these respondents indicated that they had hired two full time staff members as a result of the program.

**4.3.5.6 Trade Ally Feedback - Overall Satisfaction**

Figure 4-11 summarizes the trade allies satisfaction with the program overall and various aspects of the program experience. As shown, trade allies were satisfied with most aspects of the program and the program overall. The area of greatest dissatisfaction was with the wait time to receive the rebate.

*Figure 4-11 Trade Ally Satisfaction*



Other potential areas of improvement noted were improving the usability of the program software and streamlining the program instructions provided to trade allies. One trade ally whose work encompassed tune-up programs affiliated with several different energy utilities noted that subtle differences in the program contracts can cause confusion.

Another trade ally said that the program manual provided to trade allies was too long, and another suggested presenting the material in the form of a step-by-step manual that clearly outlines program policies and procedures as they apply to different stages of the program process.

The most consistently identified strengths of the program were its ability to benefit the consumer financially while allowing them to save energy and improving their health

#### **4.3.6 Findings from AC Tune-Up Trade Ally Observation**

Staff from the Evaluators observed five trade allies performing air conditioner tune-ups. The purpose of the observations was to:

- Validate test-in baseline and test-out values;
- Identify any training issues;
- Observe trade ally interactions with customers; and
- Observe assistance provided by program staff.

Trade allies were observed completing jobs at multifamily and single-family sites. It was noted that trade allies completing multifamily jobs used a “batch” approach to efficiently complete the work. Overall, single-family units received a more thorough tune-up and cleaning, likely because the multi-family technicians were seeking to complete the largest quantity of units in the least amount of time.

The program uses electronic sensors and refrigerant gauges which transmit readings to a tablet running the correct software application. This approach is an effective way to capture the live data and take a system “snapshot” with all the data points from the same moment. The recent addition of a refrigerant system “stability” indicator in the software also helps the technicians wait for the system to stabilize after work has been performed before taking their measurement snapshot. Multiple technicians expressed positive comments regarding feature.

The indoor fan airflow measurement is not currently implemented with the automated data acquisition system. As a result, there is greater variation in the type of measurement and its accuracy compared to other measurements made.

There are two types of measurement approved for the program, which are differential pressure measurement and vane anemometer. Both types of measurement are susceptible to errors.

- 1) The differential pressure measurement is intended to measure the differential static pressure across the indoor supply fan only. Some technicians were taking static pressure measurements wherever it was most convenient, many times including the cooling coil and also the furnace.



- 2) Vane anemometer measurement was either taken from the return air grill or as a summation of all supply registers. Many times only one anemometer reading was taken at the center of the airflow stream. This leads to inaccurate estimates of airflow.

Program staff mentioned there was a possibility of adding the differential pressure measurement and subsequent airflow calculation to the automated data acquisition system. This addition, coupled with an additional emphasis in training for the proper measurement locations, would improve calculation accuracy.

It was generally observed that the software and testing equipment performed well and were easy to operate. There were reports of some temperature probes failing and some isolated issues of software updates/compatibility, but nothing out of the ordinary. Program staff does an excellent job of helping the trade allies with any issues that occur.

The effort put forth for system cleaning ranged from simple brushing of cooling coil (if in fact it needed cleaning) to some unit disassembly and brush/chemical cleaning. The range of cleaning for outdoor condensing units ranged from a simple garden hose spray to full cabinet dis-assembly with chemical and pressure nozzle cleaning.

Excellent customer service and customer interactions were observed and no issues were identified regarding trade ally interactions with customers.

Overall, the tune-up services are performed well and program staff ably supports trade allies' completion of the work.

Based on the observations made, the Evaluators offer the following recommendations:

- Bolster training with further cleaning guidelines to improve consistency and/or ask trade allies to record how system components were cleaned.
- Provide additional training on measurement practices to improve the accuracy of calculations.
- Provide refresher training to trade allies prior to the start of the cooling season.

### **4.3.7 Conclusions**

#### **4.3.7.1 Program Design and Participation Process**

- Training provided is comprehensive and trade allies are provided with a manual of how to complete the tune-ups.
- Electronic tools and gauges are used to transmit data on the efficiency of the unit, which is effective for providing a "live snapshot" of the unit's energy-use performance. A refrigerant stability indicator recently introduced was praised by trade allies.

- CLEAResult staff provided high quality support to trade allies during the visits. Overall, trade allies are effectively implementing the tune-ups.
- CoolSaver AC tune-up participants that had interactions with program staff were all very satisfied with those interactions. All survey respondents agreed that the trade ally was courteous and professional and that the work was scheduled and completed in a reasonable amount of time.
- CoolSaver participants that replaced their HVAC systems or had duct sealing performed were largely satisfied with the program participation process. All respondents that had interactions with program staff were satisfied with those interactions. The majority of respondents reported that they were satisfied with the participation process and none indicated dissatisfaction. All were satisfied with the quality of work performed by the trade ally.

#### **4.3.7.2 Program Marketing and Outreach**

- The program launched during a period when trade allies had a large number of emergency calls which limited their promotion of the program and provision of services for a period.
- Trade allies are driving a significant share of AC tune-up program activity. 41% of AC tune-up participants reported learning of the program from a trade ally, which was the most commonly reported means of learning of the program. Participants that replaced HVAC systems or had duct sealing performed were mostly likely to report learning of the program from a friend, family member, or colleague (38%) and 15% reported learning of the program from a trade ally.
- Trade allies reported either not being aware of program marketing materials or not utilizing them. Interview respondents indicated a preference for program marketing materials that were more specific to the CoolSaver Program.

#### **4.3.7.3 Quality Control and Verification**

- The program employees appropriate project verification practices. The first five projects completed by a trade ally are quality checked, followed by 10% of the projects complete after the first five.
- Staff reported that few issues have been identified with trade ally performance.
- Data quality issues were identified during a mid-year review of the program tracking data including missing telephone numbers for customer contacts and fields such as housing/building type and trade ally contact name and information.

#### **4.3.7.4 Participant and Trade Ally Satisfaction**

- 96% of participants that completed AC tune-up participants were satisfied with the program overall. Participants were most likely to report dissatisfaction with

the energy savings on their bill, 16% were dissatisfied with this aspect of their experience.

- 89% of survey respondents indicated that participation increased their satisfaction with Entergy.
- Interviewed trade allies reported satisfaction with the program. The only component of the program that trade allies reported dissatisfaction with was the wait time to receive the rebate.

#### 4.3.8 Recommendations

The Evaluators' recommendations for the CoolSaver Program are as follows:

- **Consider developing materials that promote the benefits and measures included in the CoolSaver Program.** Trade allies indicated a preference for program marketing materials that were specific to AC tune-up measures.
- **Automate indoor fan measurement.** Indoor fan measurement is not currently implemented with the automated data acquisition system. There are two types of measurement procedures approved for the program, although each is susceptible to errors. Program staff is considering adding differential pressure measurement and subsequent airflow calculation to the automated data acquisition system to improve calculation accuracy, and the Evaluators recommend that program staff follow through with this.
- **Provide a description of the incentives for duct sealing on the program website and manual.** This measure was added to the program in the middle of PY1 and as such it is not currently described in program materials.
- **Include additional data fields such as housing/building type and trade ally contact information.**
- **Incorporate data verification and/or quality checks to ensure that data fields are populated with valid data.**
- **Add further calculation data to program tracking.** Examples include EFLH used for duct sealing.

## 5. Lighting and Appliances Program

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The Lighting and Appliances Program (LAP) provides mail-in rebates (downstream rebates) for window ACs, Pool Pumps, and Advanced Power Strips. Point of purchase discounts are provided for compact fluorescent lamps (CFLs) and light emitting diodes (LEDs) through participating retailers.

In PY1, the LAP savings goals of 1,621,771 kWh and 399.00 kW. Total verified savings for the LAP are:

- 1,983,361 kWh – 122.3% of goal; and
- 432 kW – 108% of goal.

### 5.1 M&V Methodology

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Evaluation of the LAP included the following:

- Updating pool pump calculations to reflect ENERGY STAR parameters by drive type and horsepower;
- Review of program tracking and recreation of deemed savings calculations;
- Geographic Information Systems (GIS) analysis of lighting sales to track out-of-service-area leakage;
- Interviews with program staff; and
- Review of program Memoranda of Understanding (MOU).

### 5.2 Impact Findings

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#### 5.2.1 ENERGY STAR Pool Pump

##### 5.2.1.1 Energy Savings Calculations

In PY1, the LAP Energy savings for this measure were derived using the ENERGY STAR® Pool Pump Savings Calculator.

$$kWhSavings = kWh_{conv} - kWh_{ES}$$

Table 5-1 Parameters for kWh Savings Calculation of ENERGY STAR® Pool Pump

$kWh_{conv}$	Conventional single-speed pool pump energy
$kWh_{ES}$	ENERGY STAR® variable speed pool pump energy

Algorithms to calculate the above parameters are defined as:

$$kWh_{conv} = PFR_{conv} \times 60 \times hours_{conv} \times daysEF_{conv} \times 1000$$

$$hours_{conv} = V_{pool} \times PTPFR_{conv} \times 60$$

$$kWh_{ES} = kWh_{HS} + kWh_{LS}$$

$$kWh_{HS} = PFR_{HS} \times 60 \times hours_{HS} \times daysEF_{HS} \times 1000$$

$$kWh_{LS} = PFR_{LS} \times 60 \times hours_{LS} \times daysEF_{LS} \times 1000$$

$$PFR_{LS} = V_{pool} \times turnover \times 60$$

Table 5-2 Parameters for kWh usage of conventional and ENERGY STAR® Pool Pump

<i>kWh<sub>HS</sub></i>	ENERGY STAR® variable speed pool pump energy at high speed
<i>kWh<sub>LS</sub></i>	ENERGY STAR® variable speed pool pump energy at low speed
<i>hours<sub>conv</sub></i>	Conventional single-speed pump daily operating hours
<i>hours<sub>HS,VS</sub></i>	ENERGY STAR® variable speed pump high speed daily operating hours = 2 hours
<i>hours<sub>LS,VS</sub></i>	ENERGY STAR® variable speed pump low speed daily operating hours = 10 hours
<i>hours<sub>HS,MS</sub></i>	ENERGY STAR® multi-speed pump high speed daily operating hours = 2 hours
<i>hours<sub>LS,VS</sub></i>	ENERGY STAR® multi-speed pump low speed daily operating hours
<i>days</i>	Operating days per year = 212.8 days
<i>PFR<sub>conv</sub></i>	Conventional single-speed pump flow rate (gal/min)
<i>PFR<sub>HS,VS</sub></i>	ENERGY STAR® variable speed pump high speed flow rate = 50 gal/min
<i>PFR<sub>LS,VS</sub></i>	ENERGY STAR® variable speed pump low speed flow rate (gal/min) = 30.6
<i>PFR<sub>HS,MS</sub></i>	ENERGY STAR® multi-speed pump high speed flow rate (gal/min)
<i>PFR<sub>LS,MS</sub></i>	ENERGY STAR® multi-speed pump low speed flow rate (gal/min)
<i>EF<sub>conv</sub></i>	Conventional single-speed pump energy factor (gal/W·hr)
<i>EF<sub>HS,VS</sub></i>	ENERGY STAR® variable speed pump high speed energy factor = 3.75 gal/W·hr
<i>EF<sub>LS,VS</sub></i>	ENERGY STAR® variable speed pump low speed energy factor = 7.26 gal/W·hr
<i>EF<sub>HS,MS</sub></i>	= ENERGY STAR® multi-speed pump high speed energy factor (gal/W·hr)
<i>EF<sub>LS,MS</sub></i>	ENERGY STAR® multi-speed pump low speed energy factor (gal/W·hr)
<i>V<sub>pool</sub></i>	Pool volume = 22,000 gal
<i>PT</i>	Pool turnovers per day = 1.5
<i>t<sub>turnover,VS</sub></i>	Variable speed pump time to complete 1 turnover = 12 hours
<i>t<sub>turnover,MS</sub></i>	Multi-speed pump time to complete 1 turnover

Table 5-3 Conventional Pool Pumps Assumptions

<b>Pump HP</b>	<b><i>hours<sub>conv</sub></i></b>	<b><i>PFR<sub>conv</sub></i> (gal/min)</b>	<b><i>EF<sub>conv</sub></i> (gal/W·h)</b>
0.5	11.0	50.0	2.71
0.75	10.4	53.0	2.57
1	9.2	60.1	2.40
1.5	8.6	64.4	2.09
2	8.5	65.4	1.95
2.5	8.1	68.4	1.88

*Table 5-4 ENERGY STAR® Multi-Speed Pool Pumps Assumptions*

<b>Pump HP</b>	<b><math>t_{turnover,Ms}</math></b>	<b>hours<sub>MS,L</sub></b>	<b>PFR<sub>HS,MS</sub> (gal/min)</b>	<b>EF<sub>HS,MS</sub> (gal/W·h)</b>	<b>PFR<sub>LS,MS</sub> (gal/min)</b>	<b>EF<sub>LS,MS</sub> (gal/W·h)</b>
1	11.8	9.8	56.0	2.40	31.0	5.41
1.5	11.5	9.5	61.0	2.27	31.9	5.43
2	11.0	9.0	66.4	1.95	33.3	5.22
2.5	10.8	8.8	66.0	2.02	34.0	4.80
3	9.9	7.9	74.0	1.62	37.0	4.76

Demand savings calculations are as follows:

$$kW_{Savings} = \left[ \frac{kWh_{conv}}{hours_{conv}} - \left( \frac{kWh_{HS} + kWh_{LS}}{hours_{HS} + hours_{LS}} \right) \right] \times \frac{CF}{days}$$

CF = Coincidence Factor = .31

Deemed kWh and kW savings are summarized in Table 5-5 and Table 5-6.

*Table 5-5 ENERGY STAR® Variable Speed Pool Pumps – Deemed Savings Values*

<b>Pump HP</b>	<b>kW Savings</b>	<b>kWh Savings</b>
0.5	0.24	1,713
0.75	0.28	1,860
1	0.36	2,063
1.5	0.47	2,465
2	0.52	2,718
2.5	0.57	2,838
3	0.72	3,364

*Table 5-6 ENERGY STAR® Multi-Speed Pool Pumps – Deemed Savings Values*

<b>Pump HP</b>	<b>kW Savings</b>	<b>kWh Savings</b>
1	0.30	1,629
1.5	0.40	1,945
2	0.41	1,994
2.5	0.46	2,086
3	0.54	2,292

### 5.2.2 Energy Savings Calculations

In PY1, the LAP marked down 167,244 CFL and 15,831 LED bulbs. The models rebated in this channel in PY1 were all general service lamps.

Rebates were administered through 32 participating big box retail locations. Energy savings for markdown lighting is calculated as follows:

$$kWh\ Savings = Hours \times (W_{Base} - W_{Post}) \times IEF \times ISR/1000$$

Where,

- Hours = Annual hours of use, 803.6
- $W_{\text{base}}$  = Baseline watts
- $W_{\text{post}}$  = Installed watts
- IEF = Energy Interactive Factor, .79 for unknown heating system type
- ISR = In Service Rate, .86 for CFLs, .95 for LEDs
- 1000 = W/kW conversion

### 5.2.3 Leakage Calculations

The Evaluators leveraged Geographic Information Systems (GIS) to refine attempts at estimating “leakage” of Independent Operated Utility (IOU) discounted CFL and LED bulbs distributed in or near a service area to non-utility customers. At the project’s core there are four major data processes that take place:

1. Intersect Utility service areas of Louisiana with 2010 population census data;
2. Derive customer base for participating stores by dividing store sales area based on the time it takes to drive to the nearest store;
3. Allocate a portion of discount from each store to the population within each drive time zone; and
4. Calculate the percent of CFL and LED bulbs that leaked out of state, percent that transferred to a different IOU, and percent that stayed in state but not in any participating IOU service area.

The data used in this analysis is detailed in the following subsections.

#### 5.2.3.1 Independent Operated Utilities

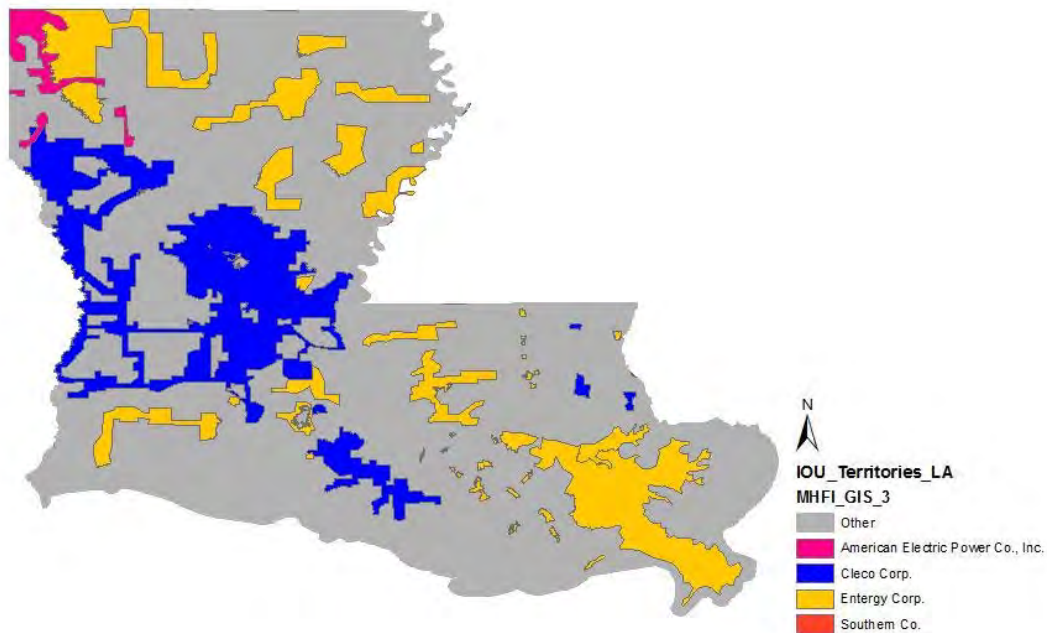
Evaluators purchased a shapefile (a format commonly used in GIS that geographically displays the underlying tabular data) showing the service areas of each IOU in Louisiana from Platts/McGraw-Hill.<sup>9</sup> The “Electric IOU Service Territories” data set was the best available for Louisiana with no publicly available equivalent for comparison in a GIS environment. Verification of the data included confirming that no two IOUs overlapped the same area and visual comparison to the flat maps of IOUs distributed by the state of Louisiana<sup>10</sup>. Figure 5-1 shows each of the service areas, with no discrepancies in the data.

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<sup>9</sup> Source: [http://www.platts.com/IM.Platts.Content/ProductsServices/Products/gismetadata/iou\\_terr.pdf](http://www.platts.com/IM.Platts.Content/ProductsServices/Products/gismetadata/iou_terr.pdf).

<sup>10</sup> Source: [http://www.lpsc.louisiana.gov/images/service\\_investor\\_111412.jpg](http://www.lpsc.louisiana.gov/images/service_investor_111412.jpg)

Figure 5-1 Louisiana Utility Service Areas

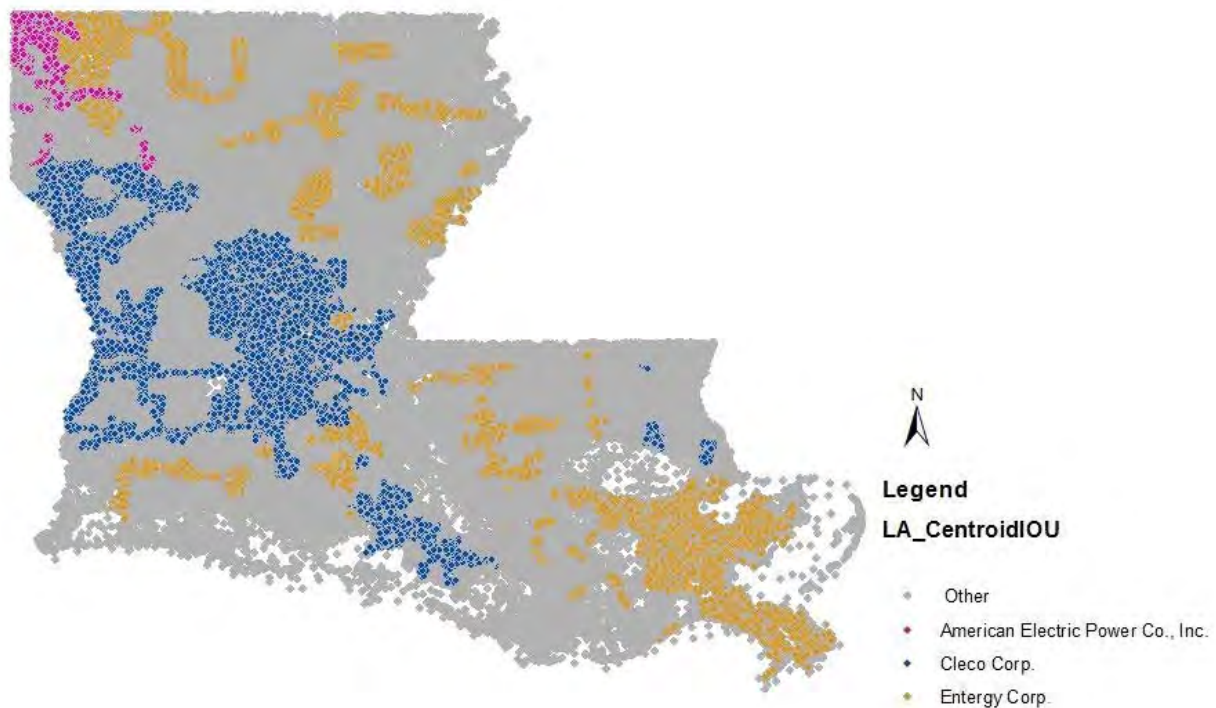


### 5.2.3.2 Population

Population data comes from the 2010 Decennial Census as conducted by the US Census Bureau reported at the census block level. Block level is the highest resolution spatial data offered by the census, with 2010 being the most recent year of the Decennial Census which offers the highest accuracy. To ensure that no census block was double counted in the analysis, each was converted to a centroid or point where the geographic center of the block fell. In Figure 5-2 below Census centroids are displayed using the IOU service area in which they fell, with a total of 204,447 Census blocks.



Figure 5-2 Census Block Centroids by Utility Service Area



#### 5.2.4 Store Locations and Incentive Program

Entergy worked with 31 participating stores to distribute 183,075 lamps throughout Louisiana. Participating retailers fell into two categories: Home Improvement and Mass Merchants/Big Box stores. For this analysis Evaluators assumed that customers would purchase high efficiency bulbs from a single retailer within a market category and drive to the closest store within that category. Holding with this assumption, store territories do not overlap within category, but territories for different categories of store (e.g., grocers and home improvement) can overlap. Table 5-7 summarizes market categories, retail chains and number of participating stores.

Table 5-7 Participating Stores by Category

Store Category	Store Name	Number of Stores
Home Improvement	DIY1	7
	DIY2	7
Mass Merchant	MM1	17
Total		31

There are many stores throughout the state that are similar, though did not participate in the program. To accurately estimate the extent of participating store’s territories, data on non-participating stores in the same market category was included. Data on non-participating stores in each category was purchased from InfoUSA<sup>11</sup> including the store name, SIC and address for all of Louisiana and bordering areas in Texas, Mississippi and Arkansas. The Evaluators conducted QA to ensure that all stores included were the same categories as participants and to remove duplicates. Next participating and non-participating stores were integrated, with Table 5-2 summarizing store type, name and location. Column LA indicates stores that are in Louisiana only and column All includes stores in Louisiana and bordering areas.

*Table 5-8 Number of Stores by Louisiana and Bordering Areas*

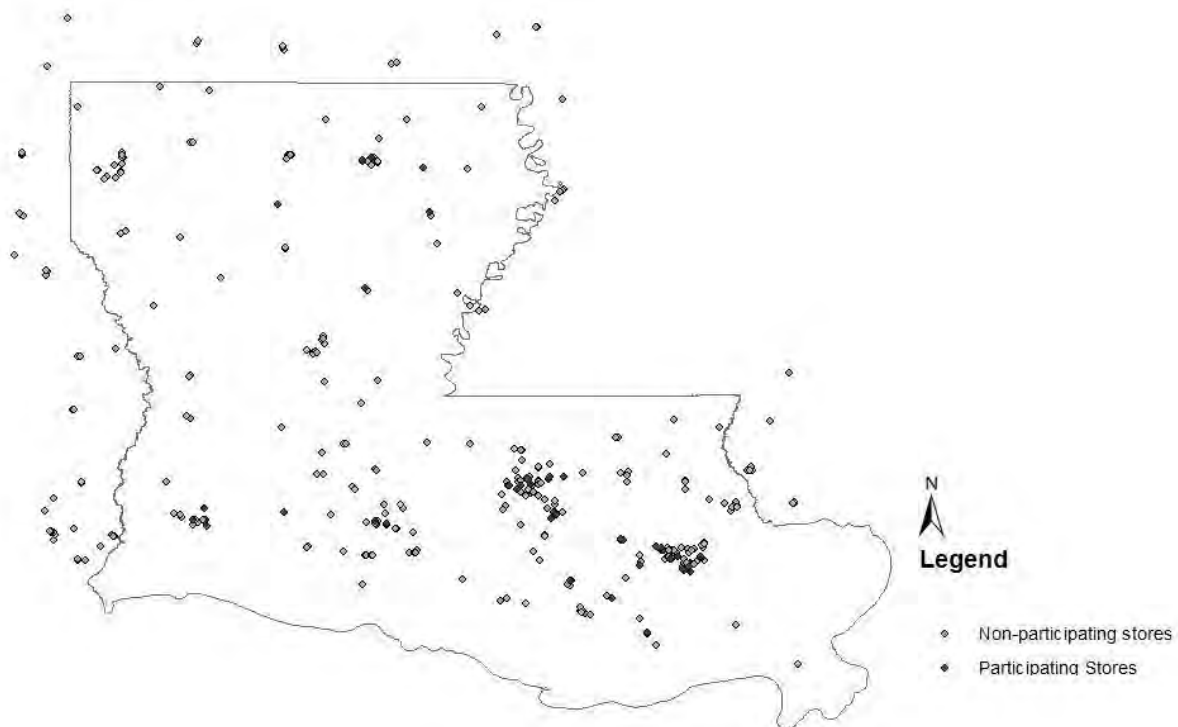
<b>Store Name</b>	<b>LA</b>	<b>All</b>
Mass Merchant 1	177	140
DIY1	27	33
DIY2	31	37
Grand Total	235	210

Next geocoding was performed to convert the provided street addresses to latitude and longitude coordinates. QA was performed by using two separate tools to perform the geocoding: a publicly available Google geocoding API and Esri StreetMap North America road data. All stores used are displayed in Figure 5-3 by participation status.

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<sup>11</sup> Source: <http://www.infousa.com>.

Figure 5-3 Geocoded Store Locations



#### 5.2.4.1 Roads

Imputing drive time requires the use of a proprietary road network dataset<sup>1213</sup> owned by ESRI containing the shapes of roads, speed limit, historical drive time, one way road flags and turn restriction which affect drive time. This gives a much more precise definition of a service area than straight line radial distance which does not account for the accessibility of a store or traffic that may make one store more favorable than a closer alternative. StreetMap North America road dataset included all of the necessary attributes to accurately calculate drive time.

#### 5.2.4.2 Consumer Drive Time Data

Cadmus recently conducted a similar study in Arkansas. To estimate store territories researchers at Cadmus conducted a phone survey in which they asked participants to estimate their willingness to drive given the store category they generally purchase high efficiency bulbs from. The results of that phone survey are applicable to Louisiana as the store coverage per square mile throughout the state varied minimally in each

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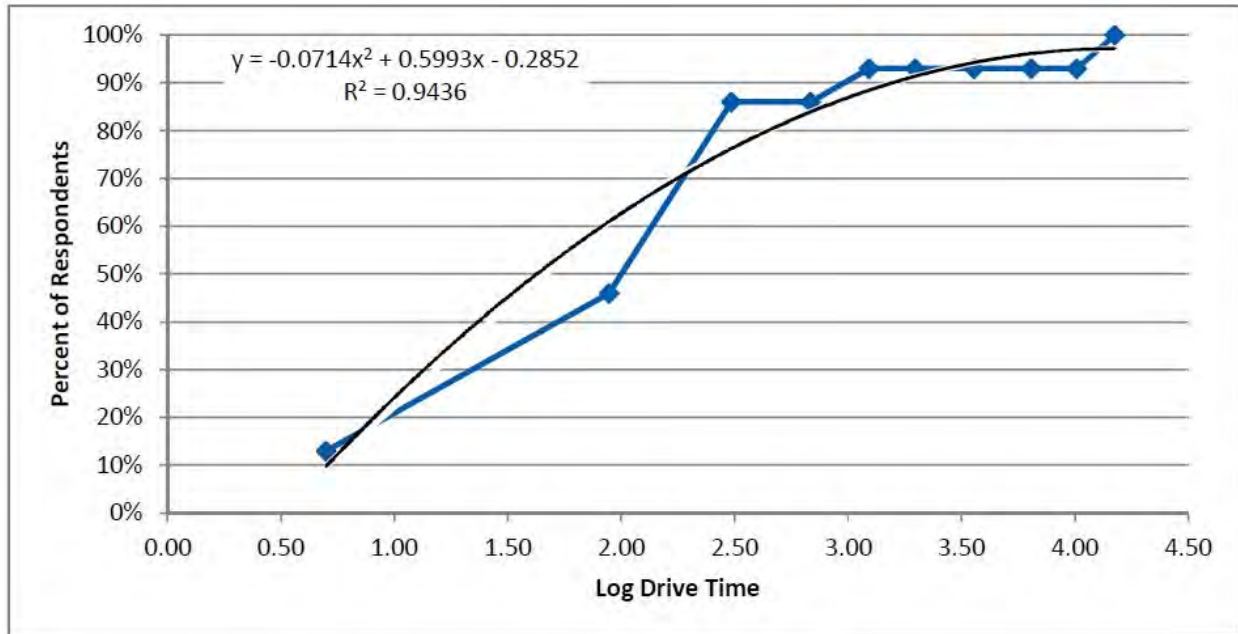
<sup>12</sup> Source: <http://www.esri.com/data/streetmap>

<sup>13</sup> Source: <http://resources.arcgis.com/en/help/main/10.1/index.html#//001z00000039000000>

category between Louisiana and Arkansas. Figure 5-4 displays their results, smoothed distribution<sup>14</sup>

Best-fit, second order polynomial equation and R-squared are included in the figure.

*Figure 5-4 Distribution of Drive Times to Stores*



#### **5.2.4.3 Leakage Analysis**

To estimate the percentage of incentivized bulbs leaked, the following steps were taken.

##### **1. Spatially Join Utility Service Areas to Census Population Data**

The block level US Census centroids were joined to the utility service area that they fell in using the INTERSECT option through ArcMap. In doing so the utilities' name was attached to all population points that they serve.

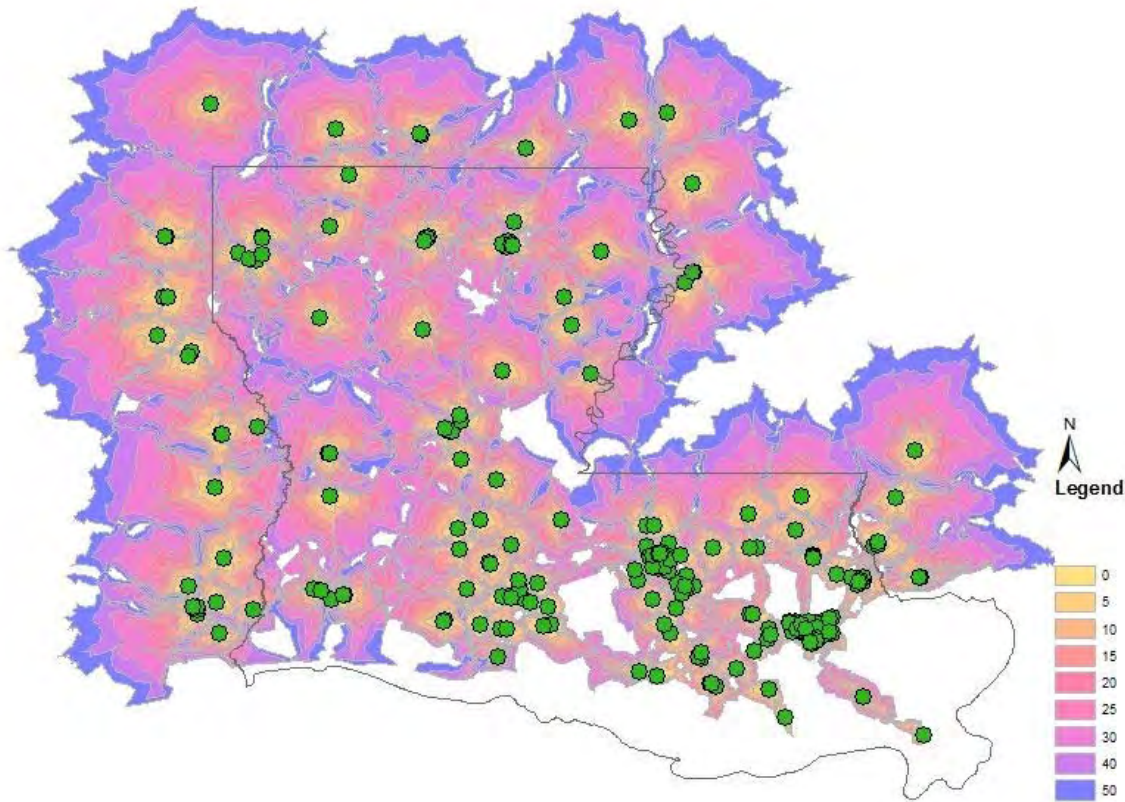
##### **2. Delineation of Store Service Territories**

The Evaluators used the road data to create concentric drive time zones from the geocoded store locations. Each category was calculated separately, allowing territories to overlap between but not within store categories. Travel times were broken into 5, 10, 15, 20, 25, 30, 40, 50, and 60 minutes. Store territories were generated using the generalized (hierarchical) methodology within the Network Analyst extension to ArcGIS. Adjacent store territories do not overlap; they meet along an edge where the travel time

<sup>14</sup> Source: Entergy Arkansas, Inc. Arkansas Energy Efficiency Program Portfolio Annual Report 2013 Program Year

is approximately equal to the two stores. An example set of drive time polygons (showing store territories for the home improvement category) is shown in Figure 5-5 with the legend indicating the beginning of the drive time break.

*Figure 5-5 Store Territories with Drive time for Home Improvement Stores*



### **3. Spatially Join Drive Time Breaks to Population**

After the drive times were created, they were spatially joined to population points. Points falling within one of the drive time breaks were assigned the appropriate value (5, 10, etc.) to the closest store by category in addition to the utility service area assigned in step one.

### **4. Summarize Population and Calculate Leakage Risk**

For each store population points were summarized by store, utility service area (in/out of service area, in/out of state), and drive time break. A fraction of the population served from each store was allocated based on the results from the drive time survey and percentage of population in and out of the service area. Each store is summarized below by percentage leaked out of service area, state, and percentage transferred to a different utility.

*Table 5-9 Summary of Leakage by Retail Location*

<b>Home Improvement Stores</b>			
Store ID	Leaked IOU to Non	Leaked Out Of State	Transferred
HomeImprove1	0.00%	0.00%	0.00%
HomeImprove2	6.15%	0.00%	0.00%
HomeImprove3	8.75%	0.00%	0.00%
HomeImprove4	0.00%	0.00%	0.00%
HomeImprove5	0.00%	0.00%	0.00%
HomeImprove6	0.00%	0.00%	0.00%
HomeImprove7	0.00%	0.00%	0.00%
HomeImprove8	0.00%	0.00%	0.00%
HomeImprove9	0.00%	0.00%	0.00%
HomeImprove10	11.82%	0.00%	0.00%
HomeImprove11	5.15%	0.00%	0.00%
HomeImprove12	2.49%	0.00%	0.00%
HomeImprove13	0.00%	0.00%	0.00%
HomeImprove14	2.30%	0.00%	0.00%
BigBox1	7.35%	0.00%	0.00%
BigBox2	6.69%	0.00%	0.00%
BigBox3	8.98%	0.00%	0.00%
BigBox4	9.03%	0.00%	0.00%
BigBox5	8.53%	0.00%	0.00%
BigBox6	2.20%	0.00%	0.00%
BigBox7	2.73%	0.00%	0.00%
BigBox8	9.20%	0.00%	0.00%
BigBox9	9.25%	0.00%	0.00%
BigBox10	2.19%	0.00%	0.00%
BigBox11	2.64%	0.00%	0.00%
BigBox12	8.48%	0.00%	0.00%
BigBox13	12.07%	0.00%	0.00%
BigBox14	8.29%	0.00%	0.00%
BigBox15	10.65%	0.00%	0.00%
BigBox16	3.98%	0.00%	0.00%
BigBox17	8.39%	0.00%	0.00%

No stores displayed out-of-state leakage. This is due to each participating store being at least 40 miles from the state boarder. Additionally, there is no transfer from one utility to another. Comparing Figure 5-3 and Figure 5-5 demonstrates that there are large swaths of land in between most of the utility service areas and no participating store is

particularly close to this boarder. Another contributing factor is the non-overlap between each store sales area within a category.

#### 5.2.4.4 Application of Results

The leakage values listed in Table 5-9 were applied to all CFL and LED bulbs rebated through that location. These bulbs provide a benefit to Louisiana ratepayers, but do not result in lost sales on the part of the sponsoring utility. As such, the Evaluators elected to specify the leakage total for the purpose of reducing the Lost Contribution to Fixed Cost (LCFC) estimate for this program, but not to subtract it from program goal attainment. This is similar to how upstream lighting program savings was addressed in Arkansas.

When applying these values to EGSL markdown lighting, the program leakage to non-IOU service area is 5.1%.

#### 5.2.5 Verified Savings

Table 5-10 and Table 5-11 summarize the savings from the LAP. This savings reflects program goal attainment, and includes lighting leaked to non-IOU service area.

*Table 5-10 kWh Realization Summary*

<b>Measure</b>	<b>Expected kWh Savings</b>	<b>Verified kWh Savings</b>	<b>Realization</b>
CFL	1,721,971	1,721,971	100.0%
LED	184,825	184,825	100.0%
Pool Pumps	53,275	73,802	138.5%
Room ACs	2,539	2,539	100.0%
Advanced Power Strips	224	224	100.0%
<b>Total</b>	<b>1,962,834</b>	<b>1,983,361</b>	<b>101.0%</b>

*Table 5-11 kW Realization Summary*

<b>Measure</b>	<b>Expected kW Savings</b>	<b>Verified kW Savings</b>	<b>Realization</b>
CFL	373.5	373.5	100.0%
LED	40.09	40.09	100.0%
Pool Pumps	8.18	15.1	184.6%
Room ACs	2.8	2.8	100.0%
Advanced Power Strips	0.02	0.02	100.0%
<b>Total</b>	<b>424.59</b>	<b>431.51</b>	<b>101.6%</b>

Total leakage is as follows:

- 239,276 kWh; and
- 51.90 kW.

### 5.3 Process Evaluation

This chapter presents the results of the process evaluation of the Lighting and Appliances Program. The process evaluation focuses on aspects of program policies and organization, as well as the program delivery framework.

This chapter begins with an overview of the program. This is followed by a discussion of the methodological approach used in the evaluation. A summary of findings and recommendations for program improvement follow the discussion of the methodology. This discussion is followed by detailed findings of the evaluation activities.

#### 5.3.1 Program Overview

The Lighting and Appliances Program provides mail-in rebates (downstream rebates) for window ACs, Pool Pumps, and Advanced Power Strips. Point of purchase discounts are provided for compact fluorescent lamp (CFL) and light emitting diode (LED) bulbs through participating retailers. The energy saving goal for the program during its first year of operation was 1,621,771 kWh. The peak demand reduction goal was 399 kW.

##### 5.3.1.1 Lighting Component

Entergy provides point-of-sale discounts on standard A19 CFL and LED bulbs three retail chains. CFL bulbs receive a discount of \$1 per bulb and LED bulbs receive a discount of \$3 per bulb. Table 5-12 summarizes the number of retail locations offering discounted bulbs in the EGSL service area. All locations offered both CFL and LED bulbs.

*Table 5-12 Number of Participating Retailers*

<b>Retailer</b>	<b>Number of Participating Locations</b>
Home Improvement #1	7
Big Box #1	17
Home Improvement #2	7
Total	31

##### 5.3.1.2 Appliance Component

Mail-in rebates are offered for ENERGY STAR® Window ACs, ENERGY STAR® Pool Pumps installed in an in-ground pool, and Advanced Power Strips. The rebates available for these products are summarized in Table 5-13.



*Table 5-13 Appliance Rebates*

<b><i>Appliance</i></b>	<b><i>Rebate Amount</i></b>
Window AC units	\$25
Pool Pumps	\$200
Advanced Power Strips	\$10

### **5.3.2 Detailed Findings**

#### ***5.3.2.1 Program Design, Operations and Activities***

The following sections describe program design, operations, and activities and were developed from reviews of program documentation and interviews with program staff for the LAP.

#### ***5.3.2.2 Program Objectives***

The primary program objective is to assist residential customers in achieving electric energy savings and peak demand reductions through the installation of efficient lighting and select appliances. The energy saving goal for the program year was 1,621,771 kWh. The peak demand reduction goal was 399 kW.

Ancillary program objectives include improving access to the qualified products and providing consumers information about the quality of efficient lighting and appliances.

The program met its energy saving goal, largely through lighting sales, in the late July and early August period. Because the program fully met its goal early on, staff is considering offering the discounts at fewer stores in the coming program year to be able to offer the discounts throughout the program year.

#### ***5.3.2.3 Program Participation Process***

A key component of the program participation process is the establishment of Memoranda of Understanding (MOU) with the participating manufacturers and retailers. CLEAResult staff worked with lighting product manufacturer retailer representatives to establish an agreement between CLEAResult, the lighting product manufacture, and the retailer. The terms of the agreement are set forth in the MOU signed by the parties. Under the terms of the MOU, retailers agree to the following:

- Provide discounts on the qualified products;
- Display point of purchase materials and advertising with the utility's logo;
- Submit point-of-sale data to corroborate information provided in invoices; and
- Limit purchases to 12 bulbs per customer.

Manufacturers agree to the following:

- Notify the program of any proposed changes to the approved product mix; and
- Submit invoices for the discounted products purchased.

Once the program is in place, customers participate by receiving an instant discount on the incentivized products.

The following are the key steps in the participation process for customers to receive the rebates on the appliances:

- Customer purchases a qualifying product;
- Customer completes the rebate form and submits it and a sales receipt by mail, email, or fax;
- CLEAResult staff review the rebate submission for completeness;
- CLEAResult staff request complete information from customer if needed; and
- CLEAResult staff approves the rebate and mails payment to the customer.

#### ***5.3.2.4 Roles and Responsibilities***

CLEAResult is responsible for the primary program implementation tasks, namely:

- Recruiting and establishing agreements with retailers to offer the discounted lighting products;
- Ensuring that participating retailers comply with the terms of the MOU;
- Providing training to retailer staff;
- Reviewing sales reports and invoicing submitted for lighting discounts;
- Reviewing rebate materials submitted by customers; and
- Process and distribute incentive payments to retailers and customers.

CLEAResult staffs the program with a program consultant and a field representative who splits time between the Entergy Louisiana, Entergy Gulf States, and Cleco programs. The Entergy program is overseen by a program manager.

#### ***5.3.2.5 Program Marketing and Outreach***

The lighting discounts are primarily promoted through point of service materials. CLEAResult staff supplies participating retailers with materials for display in participating stores. These materials include shelf stickers that display the program name and utility next to every item, as well as, larger signs. Program staff reported that no in-store promotion days were held during the program year. However, the program's field representative speaks with customers and retailer staff about the discounts during monthly store visits.

Similarly, the rebates for Window AC units and pool pumps are promoted through materials displayed at retailers and include copies of the application forms. Staff reported that in-store promotion of advanced power strips is challenging because they compete against sales of standard power strips. The standard power strips cost less and the benefits of the advanced power strips are often not clear to customers. Additionally, not all retailers carry the advanced power strips. The advanced power strips are primarily promoted through the program website where customers can download the rebate form.

To promote the availability of the rebates for ENERGY STAR® qualified pool pumps, program staff met with pool pump trade allies to inform them of the availability of discounts on the pool pumps at two events. Staff also provided a large pool supply chain with rebate applications and a display board.

The program website is another tool for promoting the lighting discounts and appliance rebates. Energy customers can access information about the energy saving measures, rebate forms for the appliances, and a list of participating retailers for the lighting discounts.

#### **5.3.2.6 Quality Control and Verification Processes**

CLEAResult performs two types of quality control activities, which are monitoring participating retailer compliance with the MOU and verification and review of lighting sales and submitted rebates.

Activities related to monitoring compliance with the terms of the MOUs include:

- Verifying that the products provided at a discount are ENERGY STAR® qualified;
- Completing monthly visits to retail locations to verify that signage is displayed, product pricing is displayed, and that the pricing is accurate; and
- Educating retail staff to ensure that they are aware of the program discounts and the purchase limit. To date, this education has been relatively informal and involves the field representative discussing the discounts and program requirements with available staff during the in-store visits.

A review of lighting sales data is performed to ensure that invoiced sales data match point of purchase sales data and to identify anomalies such as large sales for items that suggest the purchase limit was not adhered to.

Quality control procedures for rebated appliances consist of reviewing the submitted rebate form for completeness of data, verifying that a sales receipt was submitted, and verifying that the rebate was requested for qualifying equipment.

Staff reported that few quality issues have occurred during the program year. One issue arose when a retail staff member removed the product pricing because the staff member assumed it was incorrect. A second issue occurred when there was a large

purchase for a lighting item that was detected during review of sales data. The program was not charged for this sale.

**5.3.2.7 Review of Program Incentives**

The Evaluators reviewed discounts offered on lighting products for utilities operating in the southern region to benchmark Entergy’s discounts of \$1 per standard CFL bulb and \$3 per LED bulb. As shown in Table 5-14, Entergy’s discounts are similar to those offered by other utilities.

*Table 5-14 Lighting Discounts Offered by Regional Utilities*

<b>State</b>	<b>Utility</b>	<b>Lamp Type</b>	<b>Discount Amount</b>
MO	Ameren	LED Light Bulbs	Up to \$10
MO	Kansas City Power & Light	LED Light Bulbs	\$4.00
AR	AEP Southwestern Electric Power Company	LED Light Bulbs	\$3.00
AR	Entergy Arkansas	LED Light Bulbs	\$4.00 - \$8.00
MO	Ameren	Standard CFLs	\$0.50 - \$2.00
MO	Kansas City Power & Light	Standard CFLs	\$1.35
AR	AEP Southwestern Electric Power Company	Standard CFLs	\$1.00
AR	Entergy Arkansas	Standard CFLs	\$0.50 - \$1.00

Source: ENERGY STAR® Summary of Lighting Programs: September 2014 Update.  
[https://www.energystar.gov/ia/partners/downloads/FINAL\\_2014\\_ENERGY\\_STAR\\_Summary\\_of\\_Lighting\\_Programs.pdf?0544-2a1e](https://www.energystar.gov/ia/partners/downloads/FINAL_2014_ENERGY_STAR_Summary_of_Lighting_Programs.pdf?0544-2a1e)

Table 5-15 displays rebates and discounts provided through regional utility programs. As shown, the Entergy rebates for pool pumps are near the midpoint of the discounts provided in other jurisdictions. Rebates for advanced power strips and window AC units tend to be towards the lower end of rebates reviewed.

*Table 5-15 Appliance and Discounts Offered by Regional Utilities*

<b>State</b>	<b>Utility / Administrator</b>	<b>Measure</b>	<b>Rebate / Discount Amount</b>
FL	Gulf Power	Pool Pump	\$100
MO	Ameren	Pool Pump	\$350
TX	CPS Energy	Pool Pump	\$200
AR	SWEPSCO	ENERGY STAR® Window AC	Up to \$35
FL	Gulf Power	ENERGY STAR® Window AC	\$75
MO	Ameren	ENERGY STAR® Window AC	\$20
MO	Kansas City Power & Light	ENERGY STAR® Window AC	\$25
AR	Entergy	Advanced Power Strips	\$15
MO	Kansas City Power & Light	Advanced Power Strips	\$10
MO	Ameren	Advanced Power Strips	7 outlet strip for \$4.95 (approx. \$20 discount)
Source: Data retrieved from <a href="http://www.dsireusa.org/">http://www.dsireusa.org/</a> and utility program websites.			

Currently, the program offers rebates on advanced power strips. However, this may not be an effective means for promoting this measure. As noted by program staff, customers may not fully understand the energy saving benefits and may be put off by the comparatively higher price. Offering a point of sale discounts so that the cost of the advanced power strips is similar to standard power strips or selling them through a utility website at a discounted price, may be more effective means of providing the incentive.

A \$200 incentive for ENERGY STAR® qualified pull pumps, which includes multi-speed and variable-speed pumps. Given the differences in potential energy savings between these two pumps, staff should consider offering different incentive amounts for these types of pumps.<sup>15</sup>

### **5.3.3 Conclusions**

#### **5.3.3.1 Program Design and Incentives**

The program design and incentive findings for the LAP are as follows:

- Overall, program incentive levels appear to be sufficient for the included lighting, appliance, and advanced power strip measures. Incentive levels are comparable to program offerings in other states and the program did not have difficulty meeting its overall energy savings goal. However, much of the program savings was generated through lighting measures and less activity occurred for the rebated appliances.
- The program has recruited 33 retailer locations in EGSL's service area to deliver lighting rebates. The discounts for LED and standard CFL bulbs are comparable

<sup>15</sup> Consortium for Energy Efficiency (2012). CEE<sup>SM</sup> High Efficiency Residential Swimming Pool Initiative.

to discounts provided through other regional programs. Appliance rebates are also comparable to rebates offered through other programs. Staff is considering reducing the number of stores offering the discounts to extend the program discounts throughout the program year.

- Program staff noted that promotion of rebates for advanced smart strips in stores is challenging because customers do not understand the benefits of the product that costs considerably more than standard products.
- Program staff have yet to establish store contacts and training of retailer staff has been generally informal (program staff discuss program with retail staff available during visits).
- Rebates were provided for ENERGY STAR® qualified pool pumps but incentive levels are the same for multi-speed and variable speed pumps, despite differences in energy savings potential. CLEAResult staff have indicated that this was changed for PY2.

#### **5.3.3.2 Program Marketing and Outreach**

The program marketing and outreach measures for the LAP are as follows:

- Lighting discounts are promoted through point-of purchase materials.
- Rebates for window AC units and pool pumps are promoted through retailer displays.

#### **5.3.3.3 Quality Control and Verification Processes**

The quality control and verification processes for the LAP are as follows:

- Verification visits are performed with participating lighting retailer to ensure that the terms of the MOU are complied with. Consistent with common practice, these visits occur on a monthly basis and are unannounced. Additionally, lighting sales data are reviewed for anomalous purchase activity such as large purchases exceeding the program limit. Invoice amounts for the lighting discounts are corroborated with point-of-sale data submitted by the retailer.
- Rebated appliance verification procedures are consistent with similar programs. The process consist of reviewing the submitted rebate form for completeness of data, verifying that a sales receipt was submitted, and verifying that the rebate was requested for qualifying equipment.

#### **5.3.4 Recommendations**

The Evaluators' recommendations for the LAP are as follows:

- **Consider enhanced training or guidelines for pool pump installation trade allies.** Although there has been limited activity for pool pumps, enhanced training provided to trade allies on the proper programming of the units will increase the

savings potential and may improve customer satisfaction with the units. Alternatively, provide guidelines to installers on proper installation and programming.

- **Consider in-store promotions for lighting.** Although additional marketing is not needed to increase discounted lighting sales, staff should consider offering in-store promotions to further facilitate achievement of the program's educational objectives.
- **Consider alternative incentive design for advanced power strips.** To achieve greater program savings for advanced power strips, consider providing a point of sale discount so that the power strips are priced comparatively to standard power strips.
- **Consider retailer distribution and leakage rates if the number of lighting retailers is reduced.** When considering limiting the number of retailers participating in the program, factor in the regional distribution of stores to maintain comparable access to the discounts for all customers as well as potential leakage rates associated with retail locations.
- **Enhance retailer staff training.** Provide more systematic training to lighting retailer staff to ensure that they are informed about the discounts provided, can explain the benefits of efficient lighting to customers, and are aware of and enforce program requirements such as the limit on the number of bulbs that can be purchased.

## 6. Small Business Program

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### 6.1 Program Description

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The EGSL Small Business Program (SBP) offers enhanced incentives to small business owners to help overcome the first-cost barrier unique to the small business market which interferes with the adoption of energy efficiency measures.

The SBP is designed to provide small business owners with energy efficiency information and develop awareness of energy and non-energy benefits of energy efficiency. It is intended to increase the awareness of the latest energy efficient technologies available to EGSL small business customers. Through the SBP, a network of trade allies will be developed that have an interest in working with these customers.

In PY1, the SBP had savings goals of 1,275,097 kWh and 243 kW. Total verified savings for the SBP are:

- 1,208,021 kWh – 94.7% of goal; and
- 209 kW – 86.2% of goal.

### 6.2 M&V Methodology

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Evaluation of the SBP requires the following:

- Stratified Random Sampling, selecting large saving sites with certainty (as detailed in Section 2.4.2);
- Review of deemed savings parameters for prescriptive projects;
- On-site verification; and
- Interviewing of program participants and trade allies.

The main features of the approach used for the impact evaluation are as follows:

- Data for the study have been collected through review of program materials, on-site inspections, and end-use metering. Based on data provided by CLEAResult, sample designs were developed for on-site data collection for the impact evaluation. Sample sizes were determined that provide savings estimates for the program with  $\pm 10\%$  precision at the 90% confidence level.
- On-site visits were used to collect data for savings impacts calculations. The on-site visits were used to verify installations and to determine any changes to the operating parameters since the measures were first installed. Facility staff were interviewed to determine the operating hours of the installed system and to locate any additional benefits or shortcomings with the installed system.



### 6.3 Impact Findings

Energy savings was estimated using proven techniques, including engineering calculations using industry standards to determine energy savings. Table 6-1 summarizes the total participation in the PY1 SBP.

*Table 6-1 PY1 Small Business Program Participation Summary*

<b># Projects</b>	<b>Expected kWh</b>	<b>Expected kW</b>
57	1,251,916	208.01

Data provided by CLEAResult showed that during PY1, there were 57 projects which were initially expected to provide savings of 1,251,916 kWh. The resulting overall sample is presented in Table 6-2.

**Table 6-2 Small Business Program Sample Summary**

<b># Sites in Population</b>	<b>Site Visit Sample Size</b>	<b># Surveys</b>
57	11	18

#### 6.3.1 Small Business Program Savings Estimates

Sampling for evaluation of EGSL's SBP was developed using the Stratified Random Sampling procedure detailed in Section 2.4.2. This procedure provides 90% confidence and  $\pm 10\%$  precision with a significantly reduced sample than random sampling would require, by selecting the highest saving facilities with certainty, thereby minimizing the variance that non-sampled sites can contribute to the overall results.

##### 6.3.1.1 Small Business Program Sample Design

The participant population for the SBP was divided into four strata. Table 6-3 summarizes the strata boundaries and sample frames for the SBP.

*Table 6-3 Small Business Program Sample Design*

	<b>Stratum 1</b>	<b>Stratum 2</b>	<b>Stratum3</b>	<b>Stratum 4</b>	<b>Totals</b>
Strata boundaries (kWh)	<10,000	10,000-25,000	25,000 – 50,000	>50,000	
Number of sites	20	16	16	5	57
Total kWh savings	142,168	253,699	537,991	318,058	1,251,916
Average kWh	7,108	15,856	33,624	63,612	21,963
Standard deviation of kWh savings	2,192	3,473	6,094	8,651	17,417
Coefficient of variation	.31	.22	.18	.14	.79
Final sample	3	3	3	2	11

**6.3.1.2 Small Business Program Site-level Realization**

Sites chosen within each stratum are visited to verify installation of rebated measures and to collect data needed for calculation of ex post verified savings. The realization rates for sites within each stratum are then applied to the non-sampled sites within their respective stratum. Table 6-4 presents realization at the stratum level, with Table 6-5 presenting results at the site level.

*Table 6-4 Summary of kWh Savings for SBP by Sample Stratum*

<b>Stratum</b>	<b>Expected kWh Savings</b>	<b>Realized kWh Savings</b>	<b>Realization Rate</b>
4	120,947	120,947	100.0%
3	125,531	122,527	97.6%
2	51,956	48,938	94.2%
1	21,277	18,840	88.5%

Table 6-5 shows the expected and realized energy savings for the program by project.

*Table 6-5 Expected and Realized Savings by Project*

<b>Project ID(s)</b>	<b>City</b>	<b>Facility Type</b>	<b>Expected kWh Savings</b>	<b>Realized kWh Savings</b>	<b>Realization Rate</b>
PRJ-320793	Baker	Manufacturing	68,409	68,409	100.00%
PRJ-345351	Lake Charles	Grocery	52,538	52,538	100.00%
PRJ-344502	Walker	Grocery	44,368	43,146	97.25%
PRJ-344467	Gonzales	Grocery	42,335	42,319	99.96%
PRJ-354390	Lake Charles	Grocery	38,828	37,062	95.45%
PRJ-338718	Geismar	Office	19,446	17,264	88.78%
PRJ-352691	Lake Charles	Grocery	18,800	17,964	95.55%
PRJ-341098	Lake Charles	Retail	13,710	13,710	100.00%
PRJ-377042	Baton Rouge	Retail	8,915	7,041	78.98%
PRJ-350201	Baton Rouge	Office	7,342	7,342	100.00%
PRJ-360753	Baton Rouge	Retail	5,020	4,457	88.78%

**6.3.1.3 SBP Program-level Realization**

Using the realization rates presented in Table 6-4, the Evaluators extrapolated results from sampled sites to non-sampled sites in developing program-level savings estimates. Table 6-6 presents results by stratum.

*Table 6-6 SBP Program-level Realization by Stratum*

<b>Stratum</b>	<b># Sites</b>	<b>Expected kWh Savings</b>	<b>Realized kWh Savings</b>	<b>kWh Realization Rate</b>	<b>Expected kW Savings</b>	<b>Realized kW Savings</b>	<b>kW Realization Rate</b>
4	5	318,058	318,058	100.0%	43.86	45.45	103.6%
3	16	537,991	525,117	97.6%	73.75	74.40	100.9%
2	16	253,699	238,962	94.2%	58.49	57.40	98.1%
1	20	142,168	125,855	88.5%	31.91	31.80	99.7%
Total	57	1,251,916	1,208,021	96.5%	208.01	209.05	100.5%

**6.3.1.4 Small Business Program – Causes of Savings Deviations**

Overall program-level kWh realization was high (96.5%). However, some projects demonstrated savings less than 100%. The Evaluators have summarized these projects Table 6-7 for illustrative purposes.

*Table 6-7 Small Business Program – Causes of Low Realization*

<b>Project ID</b>	<b>Expected kWh</b>	<b>Realized kWh</b>	<b>Realization Rate</b>	<b>Causes of Low Realization</b>
PRJ-344502	44,368	43,146	97.2%	This project is a lighting retrofit at a grocery facility. The Evaluators found fixture counts differing slightly than listed in project documentation.
PRJ-354390	38,828	37,062	95.5%	This project is a lighting retrofit at a grocery facility. The Evaluators confirmed that the facility uses electric resistance heating; ex ante estimates listed heating type as “undetermined”. This decreased savings.  Ex ante calculations used a cooling interactive factor of 1.000 for lighting installed inside coolers. The Evaluators corrected this to 1.25. This increased savings.
PRJ-338718	19,446	17,264	88.8%	This project was a lighting retrofit at an office facility. The Evaluators confirmed that the facility uses electric resistance heating; ex ante estimates listed heating type as “undetermined”. This decreased savings.
PRJ-352691	18,800	17,964	95.6%	This project is a lighting retrofit at a grocery facility. Some fixtures that were listed as 18W LEDs were found to be 35W LEDs, increasing post-retrofit wattage.
PRJ-377042	8,915	7,041	79.0%	This project was a lighting retrofit at a retail facility. Six fixtures failed verification due to being stored on site as back-up lighting. The facility used electric resistance heating and was listed as “undetermined” in ex ante calculations. The facility was listed as Food

				Sales: Non 24-Hour Supermarket/Retail. The Evaluators corrected this to Retail: Strip Shopping & Non-Enclosed Mall.
PRJ-360753	5,020	4,457	88.8%	This project was a lighting retrofit at a retail facility. The Evaluators confirmed that the facility uses electric resistance heating; ex ante estimates listed heating type as “undetermined”. This decreased savings.

Key issues identified in site-level analyses include:

- **Use of the “Undetermined” space heating type.** Many trade allies defaulted to using the “Undetermined” space heating value, which has an Energy Interactive Factor of .98. The Evaluators found that electric radiant heating was used in a large share of small business projects, and energy savings was reduced when the Energy Interactive Factor was corrected to .87. In response to this finding, program staff removed the “Undetermined” option from the OPEN Tool, and trade allies are now required to specify the heating system.
- **Facility type assignment for nonconforming business types.** Other significant corrections occurred when the program staff was required to make a judgment call in assigning a facility type from the list of TRM facilities. The Evaluators made numerous corrections on projects of this type.
- **Improper baseline for screw-in lighting.** When installing screw-in LED and CFLs bulbs, ex ante calculations used listed wattage (40W, 60W, 75W, and 100W) as the baseline. The baseline values need to account for the Energy Independence and Security Act (EISA) baseline values (29W, 43W, 53W, 72W), as the remaining useful life of incandescent lighting is too short to use as the baseline for the life cycle savings of a lighting retrofit.

## 6.4 Process Findings

This chapter presents the results of the process evaluation of the Small Business Program. The process evaluation focuses on aspects of program policies and organization, as well as the program delivery framework.

### 6.4.1 Data Collection Activities

The process of evaluation of the SBP included the following data collection activities:

*Table 6-8 SBP Process Evaluation – Summary of Data Collection*

<b>Activity</b>	<b>Sample Size</b>
Entergy Staff	5
CLEAResult Staff	2
Participant Survey	18
Trade Ally Interviews	9

#### **6.4.2 Program Overview**

The SBP provides energy education to trade allies and customers, and financial incentives to customers, to encourage small businesses to implement energy efficiency projects that reduce their facilities electricity consumption. The program utilizes a network of participating trade allies to assist customers in identifying energy saving opportunities and to promote the incentives available.

Financial incentives are based on expected savings for the measure implemented. Incentives are \$0.16 per kWh saved and may cover up to 100% of the project cost. Incentives are paid directly to the trade ally implementing the project to reduce or eliminate the initial cost of the equipment to the customer. Incentives are capped at \$25,000.

Energy savings are calculated based on procedures outlined in the Arkansas Technical Resource Manual.

The primary measures offered through the program are the efficient lighting and refrigeration equipment listed below:

- Linear fluorescent lamp and ballast replacement;
- High-intensity discharge (HID) fixture replacement;
- Compact fluorescent lamps (CFLs);
- Interior and exterior light emitting diodes (LEDs);
- Solid and glass door reach in units;
- Electronically commutated motors (ECM) for evaporator fans;
- Door heater controls; and
- Vending misers.

Small business customers may also elect to install additional measures offered through the Large Commercial and Industrial Solutions Program and receive incentives of \$0.16 per kWh saved for that equipment.

To mitigate barriers to small business participation such as lack of program awareness and energy saving opportunities, the program relies upon a network of participating trade allies to perform direct customer outreach. The program provides trade allies with training and software used to perform on-site assessments and estimate energy savings associated with measures.

Any non-residential Entergy Louisiana customer with maximum peak demand of less than 100 kW is eligible for the program.

### 6.4.3 Detailed Findings

#### 6.4.3.1 Analysis of Participation Data

The SBP had 57 projects in PY1. Figure 6-1 summarizes percent of savings occurring by parish.

Figure 6-1 Percent of Program Savings by Parish

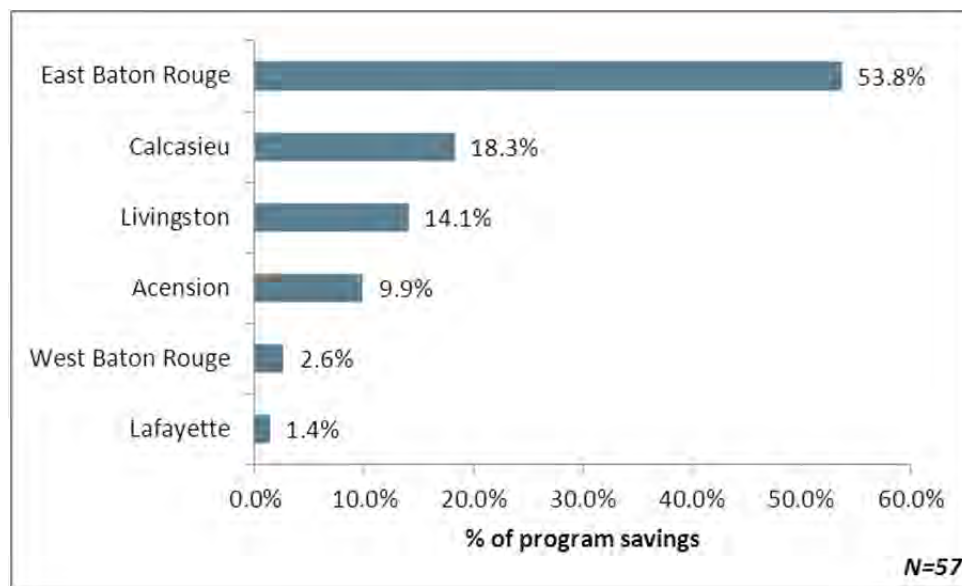
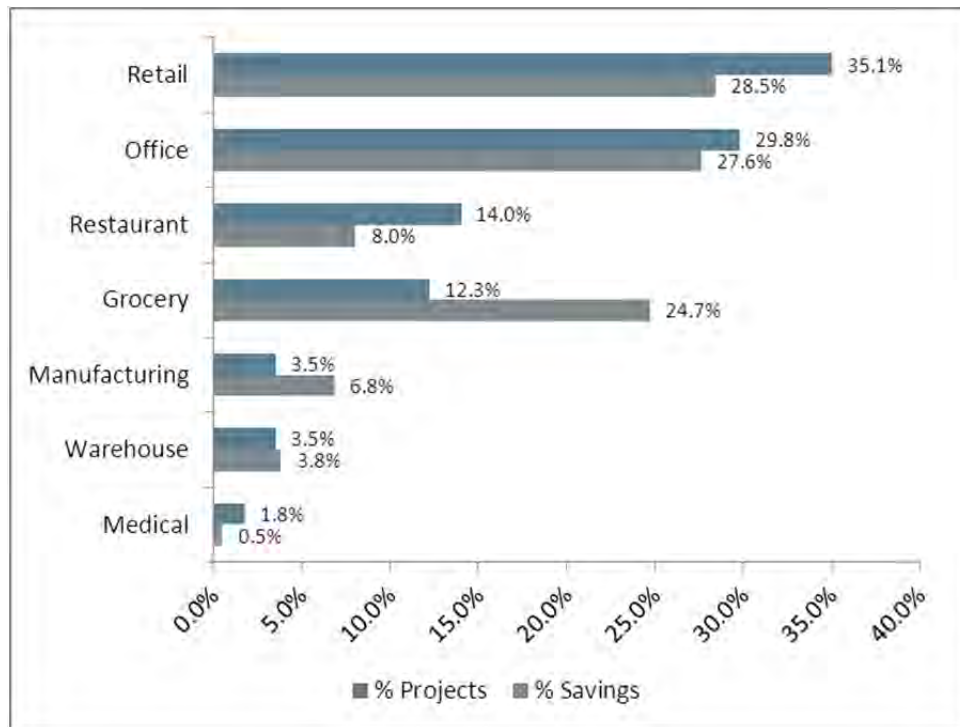


Figure 6-2 below summarizes participation and savings by facility type.

*Figure 6-2 Participation & Savings by Facility Type*



PY1 savings was 100% comprised of lighting retrofits. The SBP offers other measures, and most notably refrigeration improvements. Restaurant and Grocery facilities accounted for 26.3% of participants and 32.7% of savings.

#### **6.4.3.2 Program Comparison**

Table 6-9 provides a summary of other regional programs. The eligible measures offered by the Small Business Program are consistent with other program offerings from around the county. The majority of programs emphasize lighting and refrigeration, HVAC tune-ups, and controls. However, several small business programs offer free direct install measures such as faucet aerators, pre-rinse sprayers, low-flow showerheads, and CFLs. The programs included in this comparison are all in comprehensive-phase implementation. However this difference manifests largely in program scale rather than in program design.

Entergy Gulf States targets incentives of \$0.16 per kWh saved. This incentive amount is slightly less than amounts offered by comparable utilities. Additionally, some utilities base their incentive off of demand reductions, such as Oncor Open, instead of energy savings. The Entergy programs define the small business sector as customers who have less than 100 kW in peak demand, which is comparable to the demand criteria used by other programs.

*Table 6-9 Small Business Program – Regional Benchmarking*

<b>Utility</b>	<b>Available Measures</b>	<b>Direct Install</b>	<b>Incentive Amount</b>	<b>Eligibility Criteria</b>
Entergy Louisiana and Entergy Gulf States Small Business Energy Solutions Program	Refrigeration: Solid and glass door reach in units, electronically commutated motors (ECM) for evaporator fans, door heater controls, and vending misers. Linear fluorescent lamp and ballast replacement; High-intensity discharge (HID) fixture replacement; Lighting: Compact fluorescent lamps (CFLs), and interior and exterior light emitting diodes (LEDs).	N/A	\$0.16 per kWh reduced up to 100% of the project cost	< 100 kW
Public Service Company of New Mexico Quicksaver Program	Refrigeration: High efficiency electronically commutated motors and evaporator fan motor controllers, plastic strip curtains for walk in refrigerators and curtains, night covers for refrigerated open display cases, energy efficient anti-sweat heater controls, vending machine controls. Lighting: T12 to T8 lighting retrofits, cold cathode fluorescent lamps, LED exit sign upgrades, Switching from high intensity discharge fixtures to high output T5 fluorescent fixtures in high bay and exterior applications, Installing lighting occupancy sensors.	N/A	Range is between \$0.019/kWh- \$0.175/kWh	< 150 kW
Oncor Open	Refrigeration: Anti-sweat heater controls for refrigerator doors Lighting: T12 to T8 lighting retrofits, LED lighting upgrades, occupancy sensor installations, LED exit sign retrofits.	Lighting and low-flow faucet aerators	Customers with = 100kW demand up to \$800/kW saved Customers with = 10kW demand up to \$1,000/kW saved	< 100 kW



<b>Utility</b>	<b>Available Measures</b>	<b>Direct Install</b>	<b>Incentive Amount</b>	<b>Eligibility Criteria</b>
Entergy Arkansas Small Business Energy Solutions Program	Lighting: Interior/exterior lighting retrofits, interior lighting controls, refrigerated case lighting. Refrigeration: ECMs, anti-sweat heater controls, ECM controls, gaskets and strip curtains. Misc.: window film, ceiling insulation (converted residences only), duct sealing (converted residences only).	Low-flow faucet aerators, pre-rinse spray valves, vending misers, showerheads, and CFLs.	Lighting: \$0.18/kWh Refrigeration: \$0.30/kWh HVAC: \$0.18/kWh Lighting Controls: \$0.18/kWh Window film: \$0.35/kWh Duct Sealing: \$0.35/kWh Ceiling Insulation: \$0.35/kWh	< 100 kW

#### 6.4.4 Program Design, Operations, and Activities

The following sections describe program design, operations, and activities and were developed from reviews of program documentation and interviews with program staff for the SBP.

##### 6.4.4.1 Program Objectives

The primary program objective is to assist small businesses in achieving electric energy savings and peak demand reductions through direct outreach, facility walkthrough energy assessments, and relatively large financial incentives on energy saving for typical small business end-uses. The savings goal for the first year of program operations was 1,275,097 kWh. The peak demand reduction goal was 243 kW. To meet the energy saving and peak demand reduction goals, the program has ancillary objectives to mitigate barriers to energy efficiency in small businesses. The program intends to provide customers with increased awareness of energy and non-energy benefits of energy efficiency measures, help small businesses overcome the initial cost of efficiency measures, and develop a network of trade allies that can assist small businesses with energy efficiency improvements.

Overall, both utility and implementation contractor staff indicated that the program is well designed to meet its goals and objectives. One staff member noted that the program is working with a lot of independent, family-owned businesses and that there is a learning curve for this market segment.

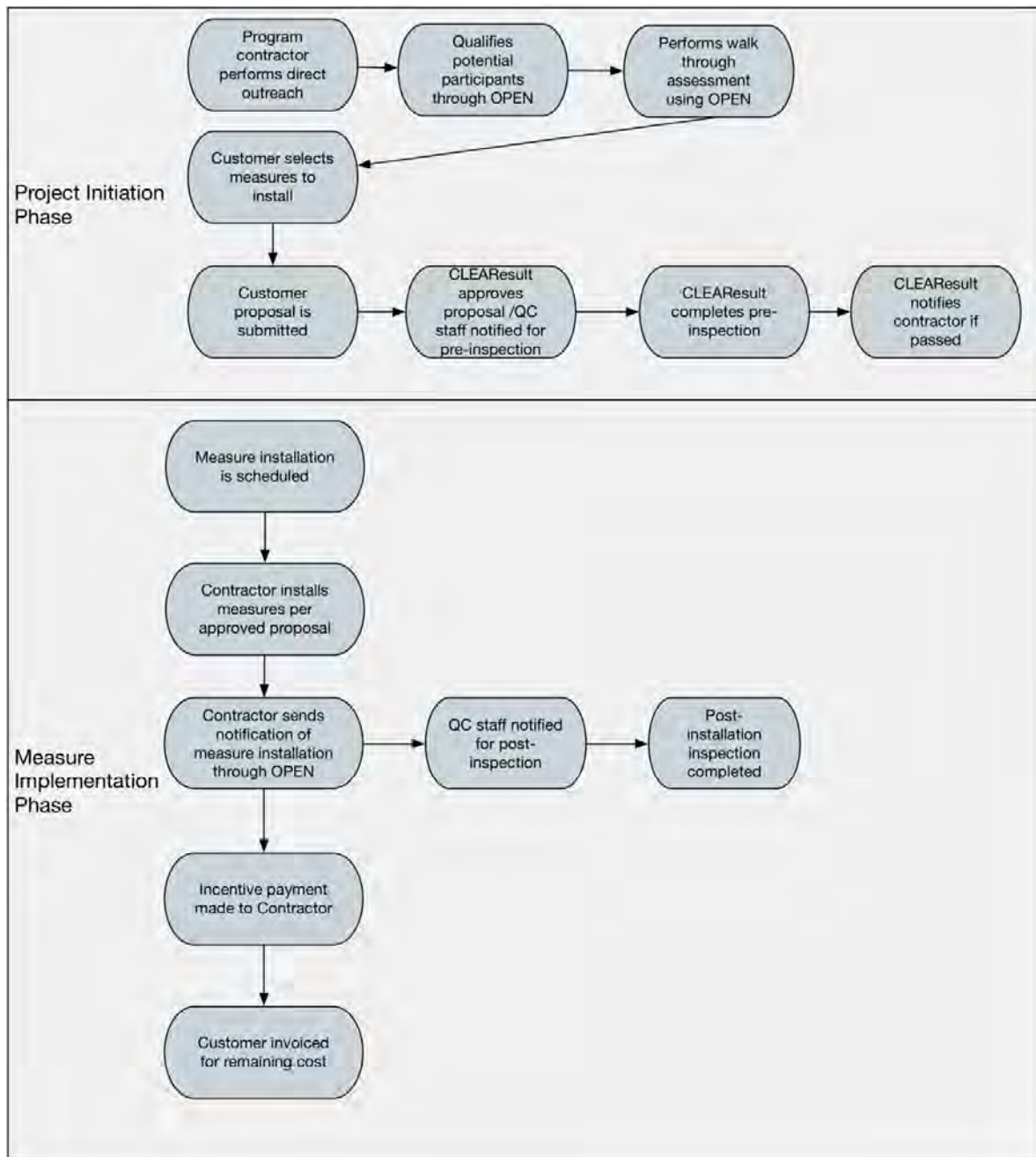
##### 6.4.4.2 Program Participation Process

Figure 6-3 provides an overview of the participation process. The key steps in the participation process are:

- Outreach to customer by the trade ally;

- Trade ally completion of walkthrough assessment using the OPEN software tool;
- Customer measure selection and submission of the project proposal;
- CLEAResult's review and approval of the proposal and associated pre-inspection;
- Measure implementation;
- Post-installation inspection; and
- Payment of incentives to the trade allies.

Figure 6-3 Small Business Solutions Program Participation Process



**6.4.4.3 Program Marketing and Outreach**

The SBP primarily relies upon trade allies to market the program to small businesses. Trade allies offer potential customers a free, no-commitment walkthrough of their facility to identify energy saving opportunities and discuss the discounts on equipment and services available through the program. Staff reported that a trifold brochure and a fact sheet are made available to trade allies to help them promote the program. Additionally,

the program provides pre-approved materials that include a spot for the trade ally's name to be printed. There have also been local television spots promoting the Entergy programs in some markets.

Consistent with the program design, CLEARresult staff reported little direct outreach to customers. One staff member stated that he will discuss the program if he sees a small business that could potentially benefit.

#### **6.4.4.4 Barriers to Participation**

The barriers to participation facing small business customers include:

- Lack of awareness of program offerings;
- Lack of knowledge about energy efficient technologies and the cost savings potential; and
- Insufficient financial and staff resources to implement energy saving measures.

The SBP includes design elements to overcome these barriers, namely direct outreach by trade allies to promote the program offerings and higher incentives than those made available to larger customers to reduce measure costs. Additionally, by providing the incentives to the trade ally, who in turn reduces the cost of the equipment services, the program allows small business customers to receive the incentives without covering the full measure installation cost until the incentive can be processed.

Program staff did not identify other barriers to participation aside from those the program design attempts to address. CLEARresult staff did not identify other barriers to participation aside from those the program design attempts to address. However, staff noted that working with "mom and pop" type businesses can be challenging and that they typically do not have the in-house expertise on energy efficient equipment typically seen in larger businesses.

#### **6.4.4.5 Quality Control and Verification Processes**

Several activities are integrated into the program processes to verify that projects are implemented in accordance with program requirements. The key activities are:

- Qualification of customer eligibility through use of the OPEN tool;
- Review of customer proposal;
- Pre-inspection of select sites;
- Review of final customer proposal and project documentation;
- Post-inspection of select sites; and
- Review of customer feedback.

Problems identified through the quality control procedures are grouped into critical and non-critical issues. Critical issues that arise may result in the immediate suspension or removal of the trade ally from the program. Non-critical issues that do not adversely

affect energy savings, peak-demand reductions, or incentive amounts result in the documentation of the issue and corrective action such as further training.

The first five projects completed by a trade ally receive pre- and post-inspection. Staff reported that 20% to 25% of the projects are inspected after that, although the manual states that 10% of projects are inspected after the first five. This discrepancy does not present a critical program operations concern because the interviewed staff do not select the sites for inspection (selection is done through a regional CLEAResult office).

The program consultants are notified through the OPEN software that a site requires a pre- or post-inspection. During pre- and post-inspection, staff counts and photographs every fixture and/or other equipment included in the project. Additionally, staff reviews equipment specification sheets and invoicing submitted by the trade ally through email.

Staff reported that few issues have been identified with completed projects. The issues noted were minor and included misreporting of lamp wattage or where the lamp count was slightly incorrect.

#### **6.4.4.6 Trade Ally Recruitment and Management**

CLEAResult's outreach efforts have been largely directed and trade ally recruitment. Staff reported recruiting trade allies through direct outreach and referrals from program staff operating other programs in the region. The EGSL program benefitted from its proximity to the program operating in Entergy New Orleans. Trade allies were able to easily begin providing services to EGSL customers.

Although staff reported that the recruitment of trade allies went well, generally, staff is looking to recruit additional trade allies into the program.

Trade allies who are new to the program receive training to familiarize them with the program procedures and requirements. Staff report that the training takes approximately one to one-and-a-half hours, during which the program and use of the OPEN software used to complete the energy assessments is explained. Staff also reported that they offer one-on-one training to trade allies. Additionally, trade allies are invited to pre- and post-inspection visits, which can provide a learning opportunity.

#### **6.4.5 Participant Survey Results**

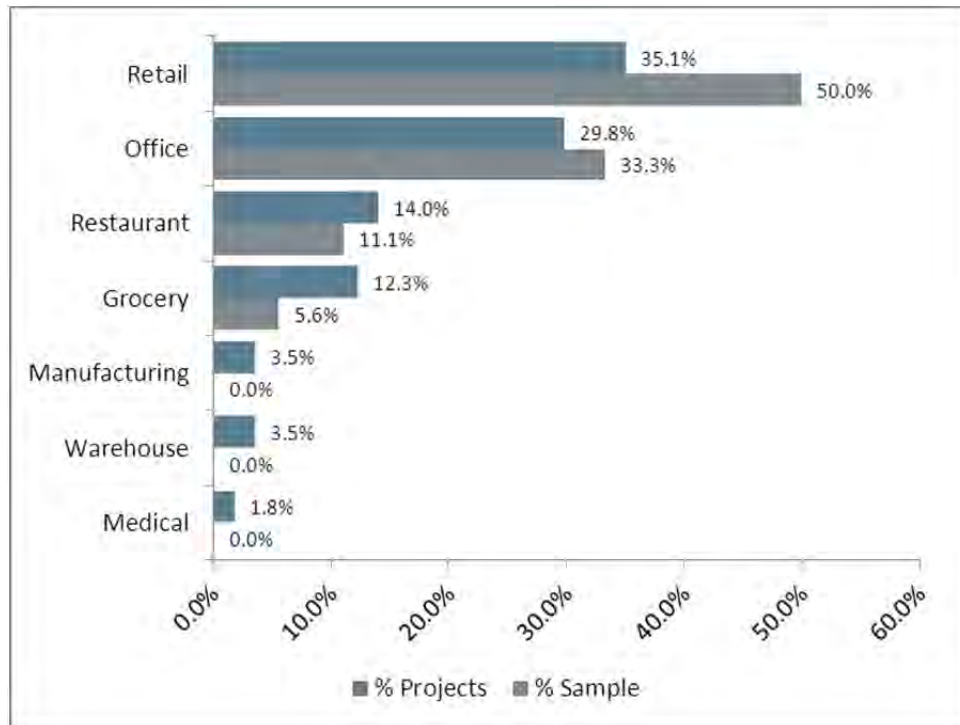
Participants of the SBP were surveyed to provide insight into the participants' experience with the program. A total of 18 program participants responded to the survey.

61.0% of those responding to the survey were the owner or proprietor, while 28% were in management, 6% were the Chief Financial Officer, and 6% were something other. Of facilities surveyed, 89% were of a company's sole location, while 11% were of a company with several other locations.

61.0% rented the facility of interest, while 33% owned and occupied the facility, and 6% owned and leased it to someone else. The business types surveyed ranged from retail (33%), to salon store (11%), grocery or convenience store (6%), medical/healthcare (6%), government building (6%), office (6%), or some other small business (33%). All respondents reported that they were billed directly for their electricity use.

**Error! Reference source not found.** Figure 6-4 summarizes the business types surveyed and compares this share to the population of EGSL SBP participants.

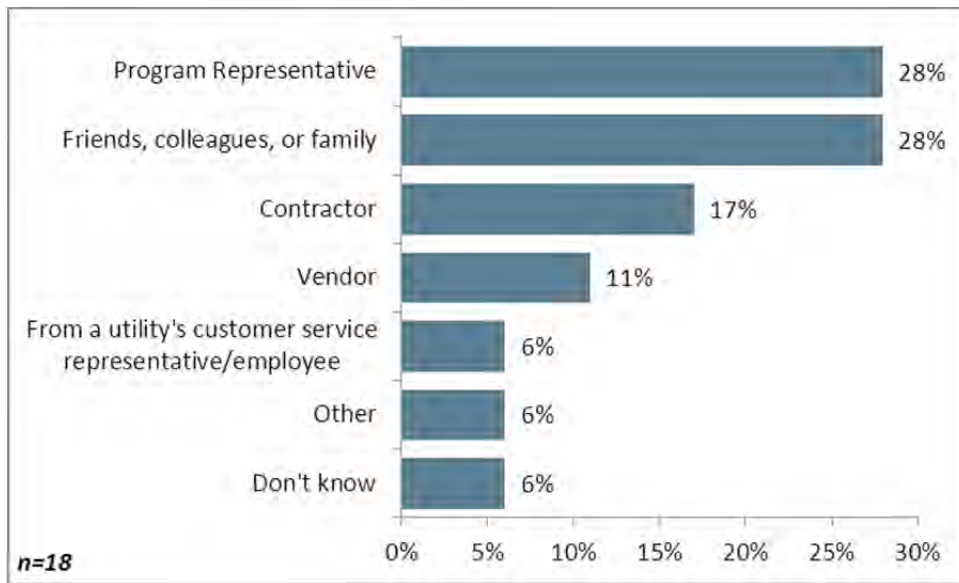
*Figure 6-4 Comparison of Survey Sample and Population Firmographics*



**6.4.5.1 Preferred Outreach and Sources of Awareness**

Participants learned about the program incentives from a program representative (28%), via friends, colleagues, or family (28%), a trade ally (17%), a vendor (11%), or from a utility’s customer service representative (6%).

*Figure 6-5 EGSL SBP – Participant Sources of Program Awareness*



In addition, respondents most often favored phone (33%) or email (33%) as ways to reach them about energy saving opportunities, followed by, bill inserts (17%), direct mail (17%), or television (11%).

**6.4.5.2 Decisions to Participate**

72% of respondents thought participating in the program was an easy decision, while 32% had some concerns.

All of those concerned thought that the program seemed “too good to be true.” Their concerns were resolved when they learned more about the program from program staff. These findings suggest that concerns about the credibility of the program offerings may present a barrier to some businesses participating. Actions taken by program staff to promote the program and increase awareness should mitigate concerns of the program’s legitimacy. Encouraging trade allies to utilize program marketing collateral may also help them improve perceptions of the legitimacy of the program during discussions with potential participants.

Reasons for participating in the program are shown in Table 6-10. The most common reasons provided were: saving on energy bills (89%), conserving energy and protecting the environment (67%), and ease of participation (50%).

*Table 6-10 Reasons for Participating in the SBP*

<b><i>Which of the following factors helped you decide to participate in the program?</i></b>	<b><i>Percent of Respondents (n = 18)</i></b>
Saving money on energy bills	89%
Participation was very easy	50%
Conserving energy/Protecting the environment	67%
Acquiring the latest equipment	22%
Replacing broken equipment	33%
Something else	11%

Table 6-11 displays the likelihood that participants would have installed the energy efficient equipment had their trade ally not completed the energy assessment of their facility. A significant majority (83%) indicated that they probably or definitely would not have installed the equipment without the assessment.

*Table 6-11 Likelihood of Installation without Assessment*

<b><i>If the onsite assessment had not been performed by your trade ally, how likely is it that you would have installed energy efficient end-use type?</i></b>	<b><i>Percent of Respondents (n = 18)</i></b>
Definitely would have installed	6%
Probably would have installed	11%
Probably would not have installed	61%
Definitely would not have installed	22%
Don't know	0%
Refused	0%

Participants were also asked if they would have installed the energy efficient equipment without the financial incentives provided through the program. 83% said they probably or definitely would not have, while 6% said they probably would have, and 11% said they definitely would have. These responses indicate that the financial incentives provided in the program were important in the participant's decision to install equipment.



*Table 6-12 Likelihood of Installation without Financial Incentives*

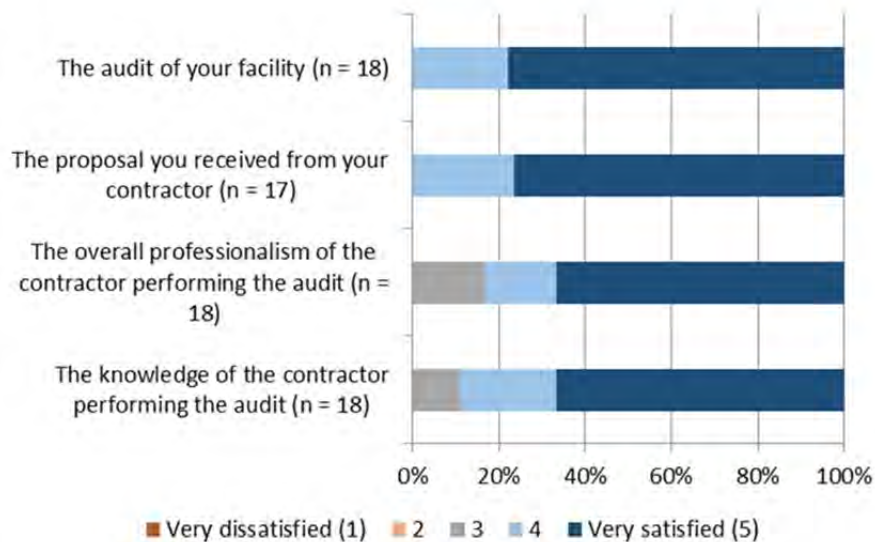
<b><i>If the financial incentive from the program had not been available, how likely is it that you would have installed energy efficient equipment?</i></b>	<b><i>Percent of Respondents (n = 18)</i></b>
Definitely would have installed	11%
Probably would have installed	6%
Probably would not have installed	39%
Definitely would not have installed	44%
Don't know	0%
Refused	0%

The findings on the likelihood of installing the equipment without the recommendation and without the financial incentive suggest that the program is providing the needed educational and financial assistance to help facilitate energy efficiency in small businesses.

**6.4.5.3 Assessment of Audit**

Overall, participants were quite satisfied with the audit process. 67% were very satisfied with the audit of the facility, the project proposal, and the professionalism and knowledge of the trade ally.

*Figure 6-6 Participants Rating of the Auditing Process*

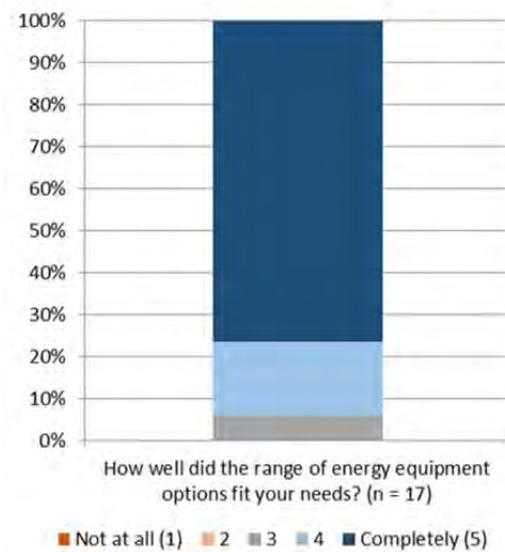


Over 95% of respondents stated that they would recommend the program to someone else and most thought the trade ally did a good job.

#### 6.4.5.4 Equipment Selection

Most participants surveyed installed all of the energy saving equipment recommended by the trade ally (83%), while 11% did not install all the recommendations, and 6% did not know. In addition, most of those surveyed thought the energy equipment options fit their needs completely (76%) or nearly completely (18%).

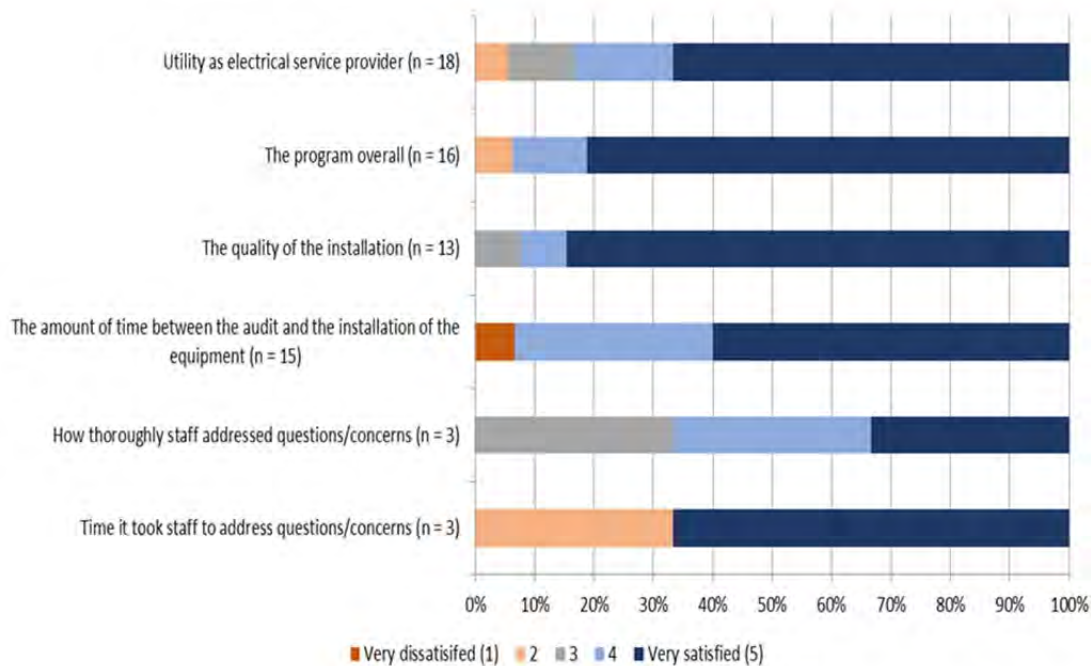
Figure 6-7 Fit of Equipment Options Provided



#### 6.4.5.5 Participant Satisfaction

As shown in Figure 6-8, participants were most satisfied with the quality of the equipment installed and the utility as electrical service provider. A small number of participants (6.7%) were dissatisfied with the amount of time between the audit and the installation of the equipment. Three respondents reported that they had interactions with program staff during the course of their participation. One of these three respondents indicated dissatisfaction with the time it took to have their questions for addressed.

*Figure 6-8 Participant Satisfaction*



The three respondents who reported dissatisfaction with the program elaborated on the reason why they were dissatisfied. The reasons given, each mentioned by one respondent were as follows:

- No change in energy savings;
- Difficulty communicating with CLEAResult staff; and
- There was a delay between when the assessment was performed and when the measures were installed.

Table 6-13 displays survey respondents reported impact of participation on their satisfaction with Energy Gulf States. 72% of respondents stated that participating in the program increased their satisfaction with Entergy.

*Table 6-13 Effect of Participation on Satisfaction with Utility*

<b><i>Effect of participation in the Utility's Program</i></b>	<b><i>Percent of Respondents (n = 18)</i></b>
Greatly increased your satisfaction with the Utility	33%
Somewhat increased your satisfaction with the Utility	39%
Did not affect your satisfaction with the Utility	22%
Somewhat decreased your satisfaction with the Utility	0%
Greatly decreased your satisfaction with the Utility	0%
Don't know	6%
Refused	0%

#### **6.4.6 Participating Trade Ally Interviews**

A total of nine trade allies were interviewed. Seven worked for businesses that specialized in energy efficient equipment, and five of these worked for a business that specialized specifically in LED lighting. The remaining two trade allies worked for an electrical contracting business and a business that specialized in all types of lighting.

All but two respondents stated that their business did not specialize in any specific type of customer. One respondent stated that government entities make up most of their customer base and another stated that they specialize in providing lighting to gas stations and beauty supply businesses.

##### ***6.4.6.1 Trade Ally Feedback - Motivations for Participating***

The most common ways that trade allies reported becoming aware of the Small Business Program was through researching rebates available in the area (44%) and being contacted by CLEAResult directly about the program (33%). In addition, one trade ally stated that a customer contacted them about the program and one trade ally was not sure how their business found out about the program.

When asked what factors influenced their decision to participate in the program, all trade allies stated one or both of the following influences: gaining a broader customer base or because of the financial benefits of the program to the customer.

Most trade allies (55%) did not have any initial concerns about participating in the program. Of the four trade allies that had concerns, three stated that they were concerned about the funding and how they would be getting paid. The final trade ally was concerned that the program would not support the installation of custom LEDs because they lack the required documentation. The trade ally stated that program staff was accommodating and they had no issues getting approval for custom LEDs.

##### ***6.4.6.2 Trade Ally Feedback - Program Marketing***

When asked whether their company or the customer first brings up the program, most trade allies (66%) stated that they generally approach customers about the program.

22% stated that the customer first approaches them about the program, or that it is split evenly. One trade ally did not know.

Three trade allies reported actively promoting the program beyond one-on-one interactions with potential customers. One trade ally reported that their marketing used direct mail pieces as well as calling individual businesses to make them aware of the program. Although few respondents market the program, 45% of respondents reported that they had received guidelines on how to use Entergy's name of the Small Business Program name on any marketing materials, and three-quarters of these respondents stated that the guidelines were clear.

Two trade allies reported that they had received marketing materials to promote the program. Both these trade allies reported using the materials "every time" or "all the time". One trade ally stated that Entergy was supposed to supply them with materials, but had not. Another trade ally stated that they generally rely on the website to give information to the customer about the program.

When asked if there was anything the program could do to help them promote the program more effectively, three trade allies stated that the program should provide more marketing materials including pamphlets, ads, fliers, and other literature. Two trade allies stated that it would be helpful for them if there was a list of trade allies that are certified by the program on the program website. However, Entergy maintains a qualified trade ally list on the website, and the Evaluators verified that these contracts are in-fact included on this list.

#### **6.4.6.3 Trade Ally Feedback - Customer Awareness and Barriers to Participation**

When asked how aware customers are of the measures that the trade allies recommend, 55% of respondents stated that customers are generally unaware of the measures, 22% stated that they are generally aware of the measures, and 22% stated that the level of awareness is mixed across customers. Trade allies stated that customers are generally unaware of advances in LED bulbs and new LED technologies applicable to their business.

Two-thirds of the surveyed trade allies stated that the main concern potential customers raised about program was skepticism about the offer – that it seemed "too good to be true." The other concern that was raised was that potential customers must decide quickly whether or not to commit to the project because of funding constraints.

The main reason trade allies reported that customers do not follow through with a project is because the incentive does not cover enough of the costs for them to participate.

All the trade allies stated that they thought the measures offered through the program met the needs of small businesses. When asked if there were any measures that are

not currently included that should be, one respondent stated that including energy management controls for HVAC systems would be attractive to customers, and two trade allies stated that they experienced some inconsistency in the process of getting measures approved. Specifically, one trade ally had trouble with one program staff person approving 2' LED bulbs, but had not had a problem with approval from other program staff person. The other trade ally stated that they thought the case-by-case approval process for custom LED bulbs could be improved, but did not offer specific suggestions.

#### **6.4.6.4 Trade Ally Feedback - Participation Process**

Trade allies provided responses to a series of questions about the participation process. The key documentation that trade allies collected during the walkthrough was a copy of the business's energy bill and photographs of the existing equipment.

The walkthrough assessments are completed using a software tool developed CLEAResult called OPEN. When asked to assess the OPEN software, one-third of trade allies stated that they had not had any issues with it. Another third of respondents reported minor issues with the software, such as the software tends to freeze or processes information slowly. The difference in experiences with OPEN may be a function of the specific device trade allies are using with the software. One trade ally stated that the software was not user friendly enough.

When asked how the OPEN software tool might be improved, four trade allies requested that it include all the measures that are in the Small Business Program calculator, but maintain its user friendliness. Other suggestions, each stated by one trade ally, included the following:

- Enable to the customer to sign the proposal and complete the submission process through the tool;
- Create an offline Excel form instead of an online tool; and
- Complete additional quality control checks on the tool before the start of the next program year.

Trade allies were asked what method(s) they used most often for submitting a customer proposal. Most trade allies reported that they had submitted project proposals by e-mail (66%), followed by the OPEN tool (33%), and in person (22%). The time it takes for proposals to be approved reported by trade allies ranged from a few days to two weeks. One trade ally elaborated that the approval time depended on a variety of factors.

Three respondents stated that they had had one or more proposals rejected. One respondent stated that the issue was resolved and the customer reapplied at a later date. However, two respondents stated that the rejection was made because the projects did not qualify for the Small Business Program (they did not meet the facility 100 kW peak demand requirement).

Overall, trade allies appear to understand what documentation is required by the program, few had issues with using the OPEN software tool, and project proposals are generally approved in a reasonable period of time.

#### **6.4.6.5 Trade Ally Feedback - Training and Staff Support**

Most respondents (77%) reported that the training that they received about the program was good or sufficient.

One trade ally found the training on the software tools to not be sufficient, but also stated a lack of comfort using software in general. A second trade ally stated that although the training was great, five or six new requirements were added to the program and no training had been provided. Another trade ally did not find the training useful to begin with, and the program changed quickly making them feel that most of what they learned was irrelevant.

Three trade allies suggested having an updated training if tools, methods, or program requirements change substantially.

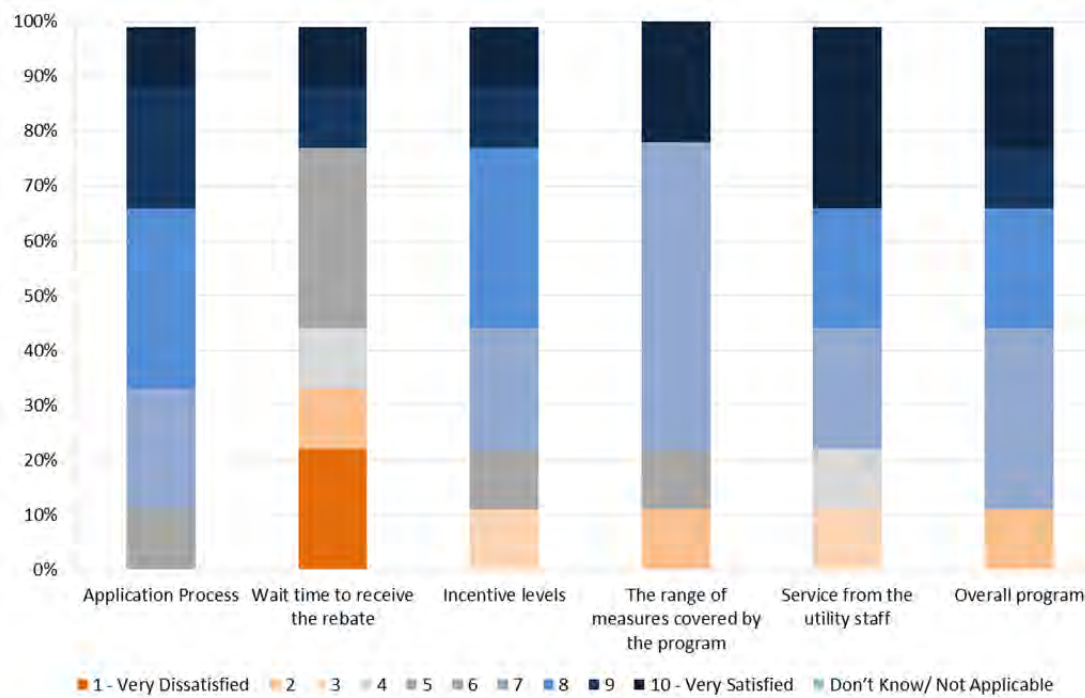
Although most trade allies stated that they received written documents describing program procedures and requirements, only one-third reported that they met their needs for understanding how the program worked. One-third did not remember the materials that were provided, and another third did not think the materials were sufficient. One trade ally suggested updating the materials as program requirements changed, and another trade ally suggested providing more material and literature about the program.

With the exception of one respondent, trade allies reported that they had a good relationship with program staff. Respondents stated that program staff was easy to get a hold of and that they addressed their questions.

#### **6.4.6.6 Trade Ally Feedback - Overall Satisfaction**

Trade allies were asked a series of questions rated on a 1-10 scale, where one meant very dissatisfied, and ten meant very satisfied. They were asked to rate various aspects of the program. Their responses are summarized in Figure 6-9.

Figure 6-9 Trade Ally Program Satisfaction



Although most trade allies were satisfied with the overall program (88%), the wait time to receive the rebate was scored lower than other program elements. Most trade allies (77%) were dissatisfied with the wait time to receive the rebate, scoring it at 5 or below.

Several trade allies stated that the time between installation and receiving the rebate can be inconsistent. One trade ally reported an average wait time of one month, with several projects taking up to six months to receive the rebate. The long wait time was the result of several factors, including changes to the program resulting in additional requirements and a subsequent delay.

Although trade allies were generally satisfied with their interactions with staff, two trade allies brought up an issue with the accountability of program staff. These trade allies stated that they had nobody to complain to when they were having issues with program staff responding to them in a timely manner.

### 6.4.7 Conclusions

#### 6.4.7.1 Program Design and Participation Process

The program design and participation process findings for the SBP are as follows:



- The small business program is consistent with the design of similar programs offered in other jurisdictions. It incorporates three key design characteristics to reduce common barriers to small business.
  - The program provides relatively high incentives for small businesses that typically have less capital for energy efficiency investments.
  - The program uses high-contact, direct outreach performed by approved trade allies to improve program awareness among harder to reach small businesses.
  - Incentive payments are paid to trade allies to reduce the initial cost to participants.
- Small businesses are defined as businesses that with less than 100 kW average peak demand. This is a typical threshold for small business programs.
- The program utilizes a paperless process for completing the energy assessments and submitting customer proposals that reduces paperwork. These submissions can be made through the program software tool or by email. Submissions are sent to CLEAResult's central team in Austin, TX.
- Trade allies received training from CLEAResult on the program processes and use of the program software. Most of the interviewed trade allies provided favorable assessments of the training. However, one respondent stated that they were not fully comfortable using the program software. Additionally, multiple trade allies stated that program requirements changed after training and were not communicated to them.
- Trade ally descriptions of the participation process were consistent with the program design. Interviewees appeared to understand the program process and documentation requirements, and few issues were noted with the program software tool. Trade allies also indicated that proposals were approved in a reasonable period of time.
- Interviewed trade allies stated that the measures offered through the program met the needs of the small businesses they work with. The primary barrier to participation identified by trade allies was skepticism about the legitimacy of program offerings. Additionally, measure costs are a factor. Trade allies indicated that the reason for customers not pursuing a project is the cost of the project.
- Most surveyed program participants were satisfied with the energy assessment and the proposal provided by the trade ally. All participants were satisfied with the quality of the installation. 17% were dissatisfied with the amount of time between completion of the audit and the installation of the equipment.

#### **6.4.7.2 Program Marketing and Outreach**

The program marketing and outreach components for the SBP are as follows:

- The program is designed to have trade allies perform the majority of direct customer outreach. Interviewed trade allies indicated that they were performing direct outreach to customers.
- Program staff recruited trade allies through direct outreach and referrals from staff operating similar programs in the region. Although staff indicated that the number of trade allies participating is generally sufficient, staff also stated that the program was seeking to recruit additional trade allies.
- The program provides a trifold brochure and a fact sheet to help trade allies promote the program. Additionally, materials that include the Entergy Solutions logo are provided that include a space for trade allies to provide their business information. However, only two trade allies reported receiving program marketing materials for use with potential customers.
- Participants most frequently reported learning of the program from a program staff representative from CLEAResult (28%), friends or colleagues (28%), or a trade ally (17%).

#### **6.4.7.3 Quality Control and Verification Processes**

The quality control and verification processes findings for the SBP are as follows:

- The program has sufficient verification procedures in place. The first five projects completed by a new trade ally receive pre- and post-verification. Interviewed staff indicated that 20% to 25% of subsequent projects are verified. However, the program manual indicates that 10% of subsequent projects are verified. This discrepancy is not critical to program operations because interviewed staff are notified which sites to inspect and are not performing the site selection.
- Projects are identified for pre- and post-inspection by central CLEAResult staff located in Austin, TX. CLEAResult employs two regional program consultants who perform pre- and post-inspections.
- Inspection procedures include review of documentation, verification of building type (which determines operating hours), photographs of baseline conditions and efficient equipment, and verification that lamps installed are DesignLights Consortium (DLC) or ENERGY STAR® qualified.
- Trade allies determine that a site meets program qualifications using the program software tool. However, two trade allies reported having projects not approved by program staff because the customer did not meet the peak demand requirement.

#### **6.4.7.4 Customer and Trade Ally Satisfaction**

The customer and trade ally satisfaction findings for the SBP are as follows:

- Trade allies were generally satisfied with the program including the participation process, the incentives, measures offered, and support from program staff. There was greater dissatisfaction with the wait time to receive the rebates, with one-

third of trade allies reporting that they were dissatisfied with this aspect of the program.

- Most participants were satisfied with their experience with the program overall. One respondent indicated dissatisfaction with the program overall and one respondent reported dissatisfaction with the length of time between the audit and the installation of the equipment.

#### 6.4.8 Recommendations

The Evaluators' recommendations for the SBP are as follows:

- **Correct the OPEN Tool calculator to account for EISA baseline wattages.** When installing screw-in LEDs and CFLs, ex ante calculations used listed wattage (40W, 60W, 75W, and 100W) as the baseline. The baseline values need to account for the Energy Independence and Security Act (EISA) baseline values (29W, 43W, 53W, 72W), as the remaining useful life of incandescent lighting is too short to use as the baseline for the life cycle savings of a lighting retrofit.
- **Recruit a refrigeration trade ally and refer them to grocery and restaurant facilities that completed lighting retrofits.** This group of participants would likely be receptive to opportunities for improving the efficiency of their refrigeration system. The EGSL trade allies are exclusively lighting trade allies, and as such these facilities still have potential opportunity for high-return refrigeration projects.
- **Use “Public Order and Safety” hours for fire department retrofits.** Fire stations comprise a mix of volunteer and non-volunteer stations, with sharply differing hours of use. Rather than attempting to assign another facility type to each of these two subgroups, Public Order and Safety should be used for all as a reasonable average value.
- **Use “Warehouse: Non-Refrigerated” hours for auto repair facilities.** Program staff had used “Manufacturing” for auto repair facilities, which is a significant overstatement of hours of operation. Unfortunately, very the Arkansas TRM does not include deemed savings specific to this facility type. One example where it is included, however, is in Illinois. The Illinois TRM includes a non-residential “Garage” facility type with hours of use of 3,540<sup>16</sup>. The “Warehouse: Non-Refrigerated” facility type from the Arkansas TRM lists 3,501 hours. This closely aligns in both hours of use from the “Garage” citation as well as thematically aligning with the operations of the facility. For larger chain operations that also comprise retail auto parts sales, use of “Retail: Other” or “Retail: Strip Mall” may be appropriate as well.

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<sup>16</sup> *Illinois Statewide Technical Reference Manual for Energy Efficiency Version 3.0*, pg. 285. 2014

- **Provide regular updates to trade allies on program requirements.** Staff should consider an email communications to keep trade allies informed of program updates.
- **Communicate to trade allies the availability of program marketing collateral and provide it as requested.** This material is important for promoting the program and may help reduce customer skepticism about the legitimacy of the program.
- **Consider adding examples of projects in additional business types.** The program website currently provides examples of what typical small office and church projects look like. Staff should consider adding examples for grocery or retail sites, as these facility types comprise a significant share of program activity. Additionally, by including grocery sites, staff can also provide examples of typical refrigeration project savings in addition to lighting project savings.
- **Staff should consider augmenting the website with downloadable forms such as the trifold and fact sheet.** Providing printable materials is considered good program website design practice.
- **Promote non-energy benefits on the program website.** The website currently focuses on energy savings and energy cost reduction. Although reduced costs are likely to be the primary focus for many businesses, there is an opportunity to promote non-energy benefits as well.
- **Update the quality assurance protocols in the program manual to reflect current practice.** Program materials and program staff provided differing information on the number of the share of projects that receive verification visits. This should be clarified and the program manual should be updated accordingly.
- **Improve communication about the time required to receive the rebate to manage trade ally expectations.**
- **Consider providing regular status updates to trade allies on availability of program funds.** Given the relatively small budget for the program, this will assist trade allies in planning their marketing efforts.
- **Generally increase communications with participating trade allies.** During interviews, trade allies raised multiple concerns that related to communication issues with program staff. Regular email newsletters or email blasts that contain information on program updates, status, and contact information for program staff may improve this aspect of trade allies experience with the program.

## 7. Commercial & Industrial Solutions Program

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### 7.1 Program Description

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The Large Commercial & Industrial Solutions Program (LCIP) is a non-residential DSM program that provides rebates for a range of prescriptive and custom measures, including:

- Lighting;
- HVAC;
- Motors;
- Refrigeration; and
- Process improvements.

In PY1, the LCIP had savings goals of 3,335,991 kWh and 733 kW. Total verified savings for the LCIP are:

- 3,726,767 kWh – 111.7% of goal; and
- 551 kW – 75.1% of goal.

### 7.2 M&V Methodology

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The M&V methodology for the LCIP is the same as-described for the Small Business Program in Section 6.2.

### 7.3 Impact Findings

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Energy savings was estimated using proven techniques, including engineering calculations using industry standards to determine energy savings. Table 7-1 summarizes the total participation in the PY1 LCIP.

*Table 7-1 PY1 LCIP Participation Summary*

<b># Applicants</b>	<b># Projects</b>	<b>Expected kWh</b>	<b>Expected kW</b>
28	30	3,756,216	580.8

Data provided by CLEAResult showed that during PY1, there were 30 projects by 28 applicants, which were initially expected to provide energy savings of 3,756,216 kWh. The resulting overall sample is presented in Table 7-2.

*Table 7-2 LCIP Sample Summary*

<b># Sites in Population</b>	<b>Site Visit Sample Size</b>	<b># Interviews</b>
30	10	15

Table 7-3 summarizes expected savings estimates by measure category for the LCIP.

*Table 7-3 LCIP Savings by Measure Category*

<b>Measure Category</b>	<b>kWh Savings</b>	<b>kW Savings</b>
Lighting	3,520,627	547.8
HVAC	133,388	23.7
Refrigeration	102,201	19.3
Total	3,756,216	590.8

### 7.3.1 LCIP Savings Estimates

Sampling for evaluation of EGSL’s LCIP was developed using the Stratified Random Sampling procedure detailed in Section 2.4.2. This procedure provides 90% confidence and ±10% precision with a significantly reduced sample than random sampling would require, by selecting the highest saving facilities with certainty, thereby minimizing the variance that non-sampled sites can contribute to the overall results.

#### 7.3.1.1 Large C&I Sample Design

The participant population for the LCIP was divided into four strata. Table 7-4 summarizes the strata boundaries and sample frames for the LCIP.

*Table 7-4 LCIP Sample Design*

	<b>Stratum 1</b>	<b>Stratum 2</b>	<b>Stratum3</b>	<b>Stratum 4</b>	<b>Totals</b>
Strata boundaries (kWh)	<50,000	50,000 – 150,000	150,000 – 325,000	>325,000	
Number of sites	12	8	7	3	30
Total kWh savings	278,639	689,073	1,620,188	1,168,316	3,756,216
Average kWh	23,220	86,134	231,455	389,439	125,207
Standard deviation of kWh savings	10,918	26,839	52,906	85,223	126,379
Coefficient of variation	.47	.31	.23	.22	1.01
Final sample	2	2	3	3	10

#### 7.3.1.2 LCIP Site-level Realization

Sites chosen within each stratum are visited to verify installation of rebated measures and to collect data needed for calculation of ex post verified savings. The realization rates for sites within each stratum are then applied to the non-sampled sites within their

respective stratum. Table 7-5 presents realization at the stratum level, with Table 7-6 presenting results at the site level.

*Table 7-5 Summary of kWh Savings for LCIP by Sample Stratum*

<b>Stratum</b>	<b>Expected kWh Savings</b>	<b>Realized kWh Savings</b>	<b>Realization Rate</b>
4	1,168,316	1,234,349	105.7%
3	852,107	769,280	90.3%
2	172,567	188,095	109.0%
1	74,397	74,397	100.0%

*Table 7-6 Expected and Realized Savings by Project*

<b>Project ID(s)</b>	<b>City</b>	<b>Facility Type</b>	<b>Expected kWh Savings</b>	<b>Realized kWh Savings</b>	<b>Realization Rate</b>
PRJ-379724	Sulphur	Manufacturing	487,154	553,738	113.7%
PRJ-283996	Lake Charles	Medical	350,665	350,114	99.8%
PRJ-345649	Baton Rouge	Medical	330,497	330,497	100.0%
PRJ-324003	Geismar	Manufacturing	304,420	353,456	116.1%
PRJ-350044	Baton Rouge	Assembly/Entertainment	285,645	232,214	81.3%
PRJ-350047	Baton Rouge	Assembly/Entertainment	262,042	183,610	70.1%
PRJ-333574	Gonzales	Assembly/Entertainment	107,014	122,542	114.5%
PRJ-333496	Denham Springs	Assembly/Entertainment	65,553	65,553	100.0%
PRJ-298255	Geismar	Grocery	39,980	39,980	100.0%
PRJ-369138	Lake Charles	Grocery	34,957	34,957	100.0%

### 7.3.1.3 LCIP Program-level Realization

Using the realization rates presented in *Table 7-5*, the Evaluators extrapolated results from sampled sites to non-sampled sites in developing program-level savings estimates. *Table 7-7* presents results by stratum.

*Table 7-7 LCIP Program-level Realization by Stratum*

<b>Stratum</b>	<b># Sites</b>	<b>Expected kWh Savings</b>	<b>Realized kWh Savings</b>	<b>kWh Realization Rate</b>	<b>Expected kW Savings</b>	<b>Realized kW Savings</b>	<b>kW Realization Rate</b>
4	3	1,168,316	1,234,349	105.7%	148.4	156.7	105.6%
3	7	1,620,188	1,462,702	90.3%	255.6	222.2	86.9%
2	8	689,073	751,077	109.0%	141.2	136.1	96.4%
1	12	278,639	278,639	100.0%	45.6	45.6	100.0%
Total	30	3,756,216	3,726,767	99.2%	590.8	550.6	93.2%

**7.3.1.4 Large C&I – Causes of Low Realization**

Overall program-level kWh realization was high (99.2%). However, two demonstrated savings less than 100%. The Evaluators have summarized these projects Table 7-8 for illustrative purposes

*Table 7-8 LCIP – Causes of Low Realization*

<b>Project ID(s)</b>	<b>Expected kWh Savings</b>	<b>Realized kWh Savings</b>	<b>Realization Rate</b>	<b>Causes of Low Realization</b>
PRJ-367945	586,974	312,121	53.2%	The project is a manufacturing facility which received a lighting retrofit. There was a custom input in the warehouse section of this facility which had 24/7 hours of operation. Based on interviews with facility staff, the Evaluators confirmed that this section of the facility operates 12 hours a day.
PRJ-333019	141,304	131,714	93.2%	This project is a hotel with a lighting retrofit. The trade ally used an erroneous calculator which applied 3,050 hours per year for common areas and 5,750 hours per year for guest rooms. This was corrected to 6,030 for common areas and 3,055 for guest rooms.

**7.4 Process Findings**

This chapter presents the results of the process evaluation of the LCIP. The process evaluation focuses on aspects of program policies and organization, as well as the program delivery framework.

**7.4.1 Data Collection Activities**

The process of evaluation of the LCIP Program included the following data collection activities:

*Table 7-9 LCIP Process Evaluation – Summary of Data Collection*

<b>Activity</b>	<b>Sample Size</b>
Entergy Staff	2
CLEAResult Staff	6
Participant Survey	15
Trade Ally Interviews	3

**7.4.2 Program Overview**

The LCIP provides financial incentives and technical services to encourage non-residential customers with greater than 100 kW peak demand to implement energy saving measures. The LCIP is designed to help this customer segment overcome



barriers to energy improvement, such as higher first-cost of efficiency equipment and a lack of technical knowledge or resources.

In addition to encouraging the adoption of energy efficiency measures, the program also intends to transform the energy efficiency market in Entergy’s service area through training, education, and program implementation.

The program offers incentives for efficiency measures as well as technical assistance to help customer identify and develop energy efficiency projects.

Industrial customers with combined aggregate demand of 5,000 kW or more with 200 kW of peak load in EGSL’s service area are eligible to opt-out from Quick Start Energy Efficiency programs<sup>17</sup>.

Financial incentives are based on expected savings for the measure implemented and vary by end–use. The targeted incentive amounts for different end-uses are summarized in Table 7-10.

*Table 7-10 Incentive Amount by End-Use for the LCIP*

<b>End-Use</b>	<b>Incentive Amount</b>
Lighting	\$0.09 / kWh Saved
HVAC, Refrigeration, ENERGY STAR Appliances and Cooking Equipment	\$0.15 / kWh saved
Air compressors and other custom projects	\$0.06 / kWh saved

The incentive amounts may be based on one of three calculation methodologies described below.

- **Deemed or Stipulated Savings:** This approach is the most typical and utilized for projects for which savings can be reasonably estimated using previously collected data on operating hours and energy consumption of pre-existing equipment. This approach does not require the participant to perform any measurement and verification (M&V) activities.
- **Simplified Measurement and Verification:** This approach is for projects which require short-term metering and utilizes this data in simple engineering calculations to estimate energy savings. Participants are required to submit an M&V plan before beginning the project.
- **Full Measurement and Verification:** Projects requiring full M&V estimate savings utilizing procedures based on the International Performance Measurement and Verification Protocol and may utilize metering, statistical analysis of billing data, or energy modeling. Participants are required to submit an M&V plan before beginning the project.

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<sup>17</sup> Louisiana Public Service Commission General Order (R-31106) Section VIII

### 7.4.3 Detailed Findings

#### 7.4.3.1 Tracking Data

Program data submitted at the end of the year was missing several data fields:

- Project energy savings and peak demand reductions;
- Name and contact information of trade allies that completed projects;
- Measure type;
- Building type;
- A unique project identifier; and
- Addresses appeared to be participant contact addresses rather than site addresses.

#### 7.4.3.2 Analysis of Participation Data

The LCIP had 30 projects in PY1. Figure 7-1 summarizes percent of savings occurring by parish.

Figure 7-1 Percent of Program Savings by Parish

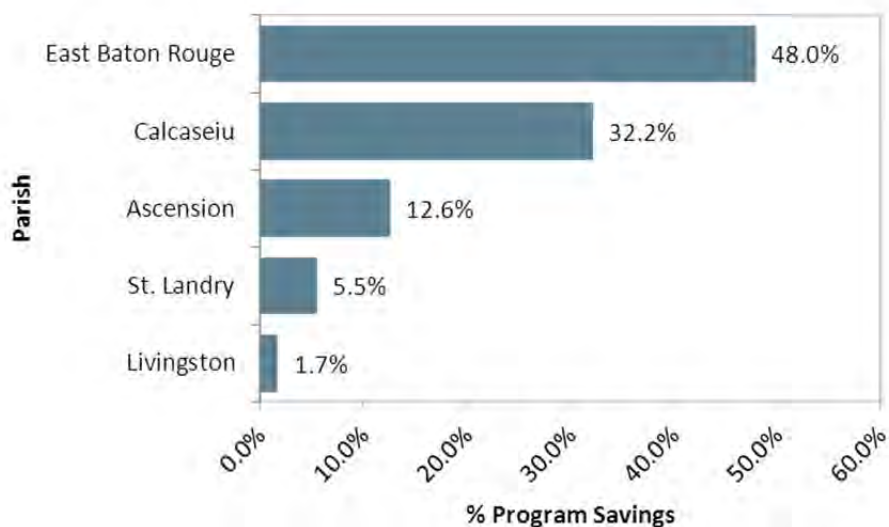
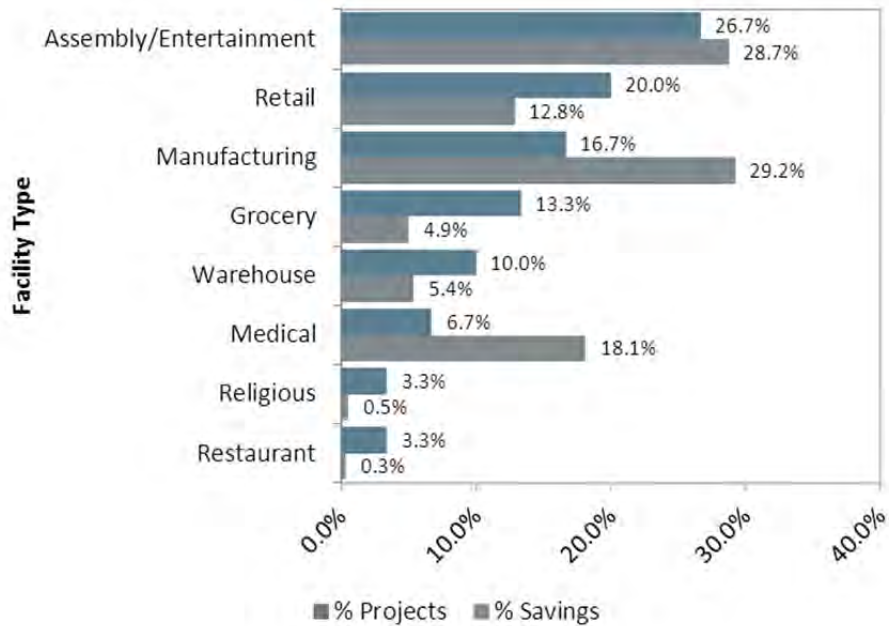


Figure 7-2 summarizes participation and savings by facility type.

Figure 7-2 Participation & Savings by Facility Type



Of the 20% of participants classified as Retail, 50% were automobile dealerships and 16.7% were automobile rental facilities. EGSL's PY1 participation differed significantly from other Louisiana utilities in having more than one quarter of projects and savings attributable to assembly and entertainment facilities. This is a broad category, in which the Evaluators included:

- Museums;
- Libraries;
- Casinos; and
- Movie theaters.

#### 7.4.3.3 Program Design, Operations, and Activities

The following sections describe program design, operations, and activities and were developed from reviews of program documentation and interviews with program staff.

#### 7.4.3.4 Program Objectives

The primary program objective is to assist non-residential customers in achieving electric energy savings and peak demand reductions through provision of technical support and financial incentives. The savings goal for the first year of program operations was 3,335,991 kWh. The peak demand reduction goal was 733.00 kW. To meet the energy saving and peak demand reduction goals, the program has ancillary objectives to mitigate barriers to energy efficiency such as lack of knowledge of energy efficient technologies and lack of awareness of energy saving opportunities in facilities.

Additionally, through the incentives and services provided, the program intends to transform the market for energy efficiency in the targeted sector.

The program met its energy saving goal during its first year of operations.

#### **7.4.3.5 Program Participation Process**

The first step is to submit a signed Letter of Intent (LOI). The LOI is a non-binding agreement that allows the program to verify the customer's eligibility.

Customers that have submitted a LOI may request that CLEAResult staff complete a facility walk-through to identify energy saving opportunities at the customer's location. Generally, the program consultants complete the facility assessments, but engineering staff may be involved if the project is potentially more complex. The facility assessment may be targeted towards a specific project (e.g. a lighting retrofit) or a full facility assessment. Staff noted that they look for other energy saving opportunities during the assessments in cases where the customer has a specific project in mind. One staff member noted that if the customer is interested in a project, a more in-depth analysis will be performed. Staff indicated that most customers are interested in completing the assessment and that these have been an important means of generating incentive projects. The energy assessments results in the generation of an analysis that provides information on the expected savings, incentive amounts, and other financial metrics.

Once a project is identified through an assessment performed by CLEAResult, by the customer, or by a trade ally employed by the customer, the participant submits a program application. Program staff reviews the application and complete a pre-installation inspection. Upon approval of the pre-application, the customer then has 90 days to complete lighting projects or 120 for other end-uses. Staff reported that these periods can be extended on a case-by-case basis and noted that the period was extended in one instance where a customer ordered a specialty LED fixture.

Once the project is completed, the customer submits the notice of completion along with supporting documentation such as specification sheets, facility drawings, and invoicing or purchase orders. CLEAResult then reviews the documentation and completes a post-installation inspection. Once approved, an incentive payment is made to the customer or another party designated by the customer.

#### **7.4.3.6 Roles and Responsibilities**

CLEAResult is responsible for the primary program implementation tasks, namely:

- Perform onsite pre- and post-installation inspections and other quality control and quality assurance activities;
- Verifying customer eligibility;
- Trade ally education and outreach;
- Customer education and identification of projects;

- Review and approval of proposed projects;
- Payment of incentives; and
- Oversight and training of program trade allies.

CLEARresult staffs the program with two program consultants, an energy engineer, and a program coordinator. These staff members also provide support to the Small Business Program.

Entergy is responsible for authorization and issuing payments to CLEARresult for reimbursement of incentives paid. Entergy is also responsible for general oversight of the implementation contractor. Entergy also provides quality control related to program communications including review of customer facing materials.

#### ***7.4.3.7 Program Marketing and Outreach***

Staff noted that there has been a relatively small marketing effort for the program operating in the EGSL service area because customers and local trade allies were both aware that the program was going to be offered. However, some direct outreach has been performed.

Program information has also been presented to Entergy account managers so that they can promote the program with their key accounts. Both program consultants noted that Entergy staff has referred customers interested in projects to them.

The program also relies upon trade allies to promote the program with their customer base. A large number of trade allies were recruited by implementation contractor staff who had worked with them while implementing a similar program in another service area.

Some marketing collateral has been developed to help staff and trade allies promote the program, namely a two-sided, trifold brochure. The brochure uses a variety of messaging strategies to appeal to the customer. Key aspects of the messaging include:

- Informational material on energy use in commercial and industrial buildings;
- A statement about the financial benefits of saving energy;
- A description of non-energy benefits that can result from energy efficiency improvements such as a reduced carbon footprint and economic benefits through job creation;
- Information on services and assistance provided through the program;
- Customer-centric language such as “The Entergy Solutions program allows customers like you...”; and
- Messaging on the business investment opportunity that energy efficiency improvements offer.

**7.4.3.8 Quality Control and Verification Processes**

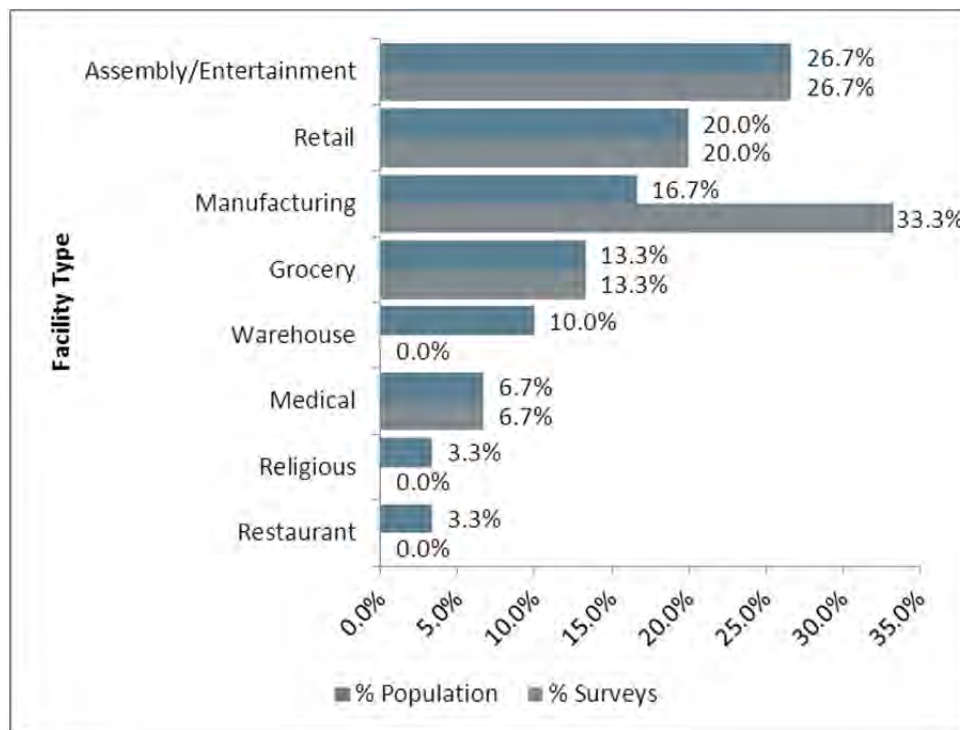
Quality control procedures are similar to those described for the Small Business Program in Section 6.4.4.5.

**7.4.4 Participant Survey Results**

Participants of the LCIP were surveyed to provide insight into the participants experience with the program. A total of 15 program participants responded to the survey. 60% of respondents held a management or director position, 20% were the owner or proprietor, and 13% the president or CEO.

Figure 7-3 summarizes the business types surveyed and compares this share to the population of EGSL LCIP participants.

*Figure 7-3 Comparison of Survey Sample and Population Firmographics*



Of facilities surveyed, 13% were of a company’s headquarters, 53% were of a company with several other locations, and 33% were of a company’s sole location. 84% owned and occupied the facility of interest, while 13% rented, and 7% owned and rented to someone else. The business types surveyed included industrial/manufacturing (27%), library or museum (20%), dealership (13%), grocery or convenience store (13%), and healthcare/medical (7%). All respondents reported being billed directly for their electricity use.

**7.4.4.1 Preferred Outreach and Sources of Awareness**

The majority of participants learned about the program incentives through an internet search (80%) or a trade ally (13%).

*Table 7-11 How Participants Learned of the Program*

<b><i>How did you learn about the utility's program incentives for efficient equipment or upgrades?</i></b>	<b><i>Percent of Respondents (n = 15)</i></b>
Through and internet search (e.g., Google)	80%
Trade Ally	13%
Don't know	7%
Refused	0%

The most commonly preferred methods to learn about energy saving opportunities were bill inserts (20%), direct mail (20%), vendor (20%), and visits from trade allies or program staff (13%).

*Table 7-12 Best Forms of Outreach*

<b><i>What are the best ways to reach companies like yours with information about incentives for energy savings opportunities?</i></b>	<b><i>Percent of Respondents (n = 15)</i></b>
Saving money on energy bills	100%
Financial incentive	93%
Participation was very easy	93%
Saving energy	80%
Protecting the environment	73%
Recommendation from a trade ally	53%
Replacing broken equipment	47%
Recommendation from program staff	40%

**7.4.4.2 Decisions to Participate**

Survey respondents were motivated to participate in the program by several factors as shown in Table 7-13. All or nearly all respondents stated they were motivated by saving money on energy bills (100%), financial incentives (93%), and the ease of participating in the program (93%).

*Table 7-13 Reasons for Participating in the LCIP*

<b>Which of the following factors helped you decide to participate in the program?</b>	<b>Percent of Respondents (n = 12)</b>
Participation was very easy	100%
Saving money on energy bills	92%
Financial incentive	92%
Saving energy	83%
Protecting the environment	83%
Replacing broken equipment	75%
Recommendation from a trade ally	58%
Recommendation from program staff	50%
Recommendation from vendor	25%

Four survey respondents indicated that the efficiency improvement was recommended by a program staff member. 75% of respondents stated that they probably would have installed the measure without the recommendation from the program representative. However, one respondent indicated that the recommendation did not influence their decision.

*Table 7-14 Likelihood of Installation without the Recommendation*

<b>If the program representative had not recommended the measure, how likely is it that you would have installed it anyway?</b>	<b>Percent of Respondents (n = 4)</b>
Definitely would have installed	0%
Probably would have installed	75%
Probably would not have installed	25%
Definitely would not have installed	0%

Additionally, 40% of respondents stated that they probably or definitely would not have installed the measure without the financial incentive.

*Table 7-15 Likelihood of Installation without Financial Incentive*

<b>If the financial incentive or discount from the program had not been available, how likely is it that you would have installed the measure?</b>	<b>Percent of Respondents (n = 15)</b>
Definitely would have installed	13%
Probably would have installed	47%
Probably would not have installed	33%
Definitely would not have installed	7%

33% of respondents had some initial concerns about participating in the program. Those with concerns were unclear about how the program worked (20%), the amount of “red-tape involved” (20%), the amount of funding available (20%), and the program legitimacy (40%). Respondents decided to participate, despite their concerns, when they were reassured the program was provided by the utility company, when their



questions were answered by program representatives, or when they heard success stories from other participants.

**7.4.4.3 Project Implementation**

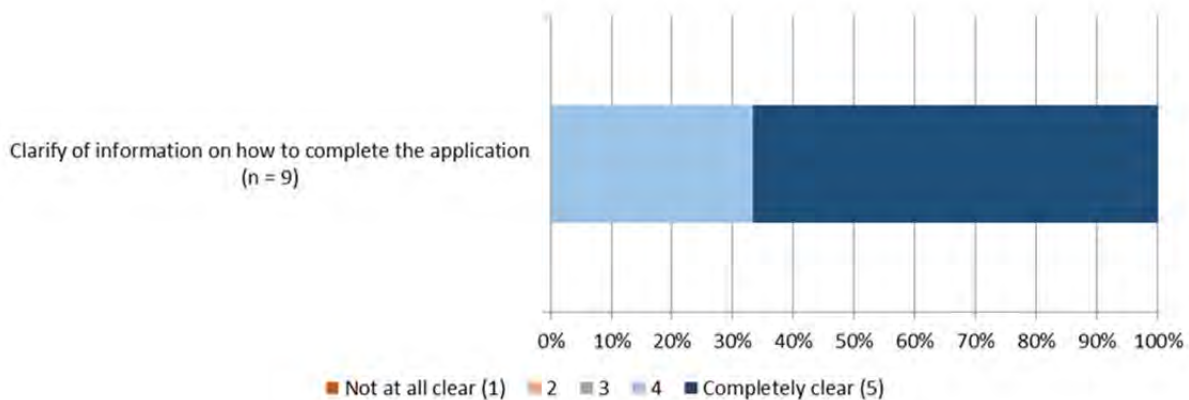
The most common persons who worked on completing the program application included the survey respondent (80%), an equipment vendor (60%), another member of the company (40%), or a trade ally (40%).

*Table 7-16 People who Worked on Completing Program Application*

<b>Which of the following people worked on completing your application for program incentives (including gathering required documentation)?</b>	<b>Percent of Respondents (n = 15)</b>
Yourself	80%
An equipment vendor	60%
Another member of your company	40%
A trade ally	40%
Program staff	20%
A designer or architect	7%

All respondents that worked on completing the application thought the program application was clear, with the majority (67%) thinking the information was very clear.

*Figure 7-4 Clarity of Information on How to Complete the Application*

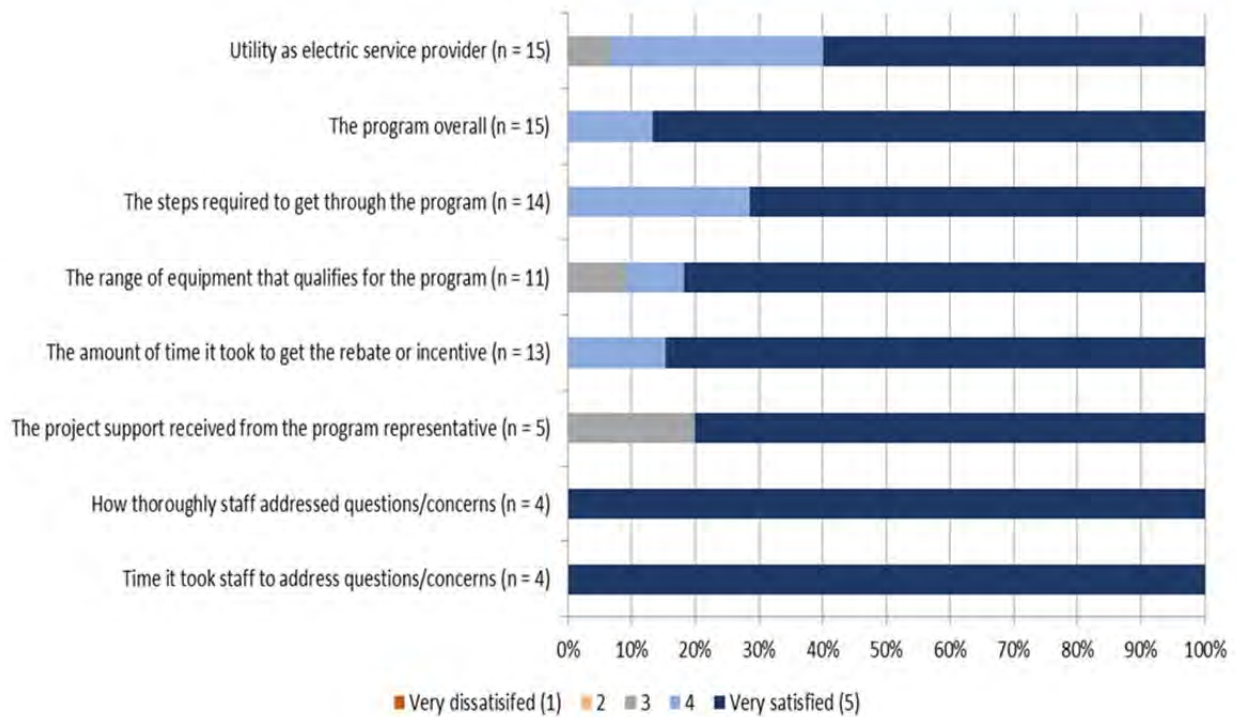


Additionally, the majority of respondents (92%) had a clear sense of whom to go to for assistance with the application process.

#### 7.4.4.4 Participant Satisfaction

Figure 7-5 displays participant satisfaction ratings. Participants were satisfied with the overall program and individual program elements. None of the respondents indicated any dissatisfaction.

Figure 7-5 Participant Satisfaction Scores



93% of the respondents said program participation increased their satisfaction with the utility, while 7% reported no change in satisfaction.

Table 7-17 Effect of Program Participation on Satisfaction with Utility

Effect of participation in the Utility's Program	Percent of Respondents (n = 15)
Greatly increased your satisfaction with the Utility	47%
Somewhat increased your satisfaction with the Utility	47%
Did not affect your satisfaction with the Utility	6%
Somewhat decreased your satisfaction with the Utility	0%
Greatly decreased your satisfaction with the Utility	0%

#### 7.4.5 Participating Trade Ally Interview Results

Five attempts were made to contact eleven trade allies that completed projects through the Entergy Louisiana and Entergy Gulf States Large C&I Solutions Programs. In total, three trade allies responded to the interview request. Two of the three trade allies interviewed worked for businesses that specialized in LED lighting, and one trade ally worked for a company that provided general contracting services. All trade allies stated

that their business did not specialize in providing services to any specific business type, although one trade ally stated that a sizable portion of their clients are grocery stores.

#### **7.4.5.1 Trade Ally Feedback - Motivations for Participating**

Two trade allies reported becoming aware of the LCIP was through efforts to have Entergy offer the program to customers in the ELL and EGSL service territories. These trade allies also stated that working with similar programs across the country influenced their decision to participate in the program, and to push Entergy to adopt the program. One trade ally stated that they found out about the program from CLEARResult staff.

#### **7.4.5.2 Trade Ally Feedback - Customer Awareness and Program Marketing**

All trade allies indicated that few customers were aware of the program before they discussed it with them and that they are more likely to bring up the program opportunity than for the customer to approach them about participating in the program.

All of the interviewed trade allies reported that they promote the program with their existing customer base and potential new customers. Most of the promotion done is through one-on-one discussions with customers about specific opportunities for their facility. No trade allies reported actively promoting the program beyond one-on-one interactions with potential customers, and one trade ally reported receiving marketing materials for use in promoting the program. This trade ally reported using the materials “every day”, and had no recommendations for improving the materials.

Although trade allies did not report marketing the program, two respondents reported that they had received guidelines on how to use Entergy’s name and the program name on their marketing materials, and both stated that the guidelines were clear.

When asked if there was anything the program could do to help them promote the program more effectively, one trade ally stated that Entergy “could be more aggressive in advertising (the program)” because many customers think the program is too good to be true.

#### **7.4.5.3 Trade Ally Feedback - Customer Awareness and Barriers to Participation**

Two trade allies stated that the main concern potential customers raised about program were that they had not heard of the program before and skepticism about the offer. The third trade ally stated that their customers were concerned about how long it would take to receive the rebate, but had no other concerns once the timeframe was explained to them.

The main reason trade allies reported that customers do not follow through with a project is because the incentive does not cover enough of the costs for them to participate. One trade ally also stated that they had several customers turn down the program because it seemed too good to be true.

All of the interviewed trade allies stated that they thought the measures offered through the program met their large business customer's needs, although one trade ally stated that they would like to see program measures expanded with additional mechanical system measures in particular. However, it should be noted that the program requirements do not generally limit measures that generate energy savings and any project may be considered on a case-by-case basis.

When asked about the financial incentives, two trade allies stated that they financial incentives were sufficient, and one trade ally stated that they would like them to be higher.

#### ***7.4.5.4 Trade Ally Feedback - Participation Process***

Trade allies provided responses to a series of questions about the participation process. The key documentation and information that trade allies collect and provide are equipment counts for baseline and proposed equipment, photographs of the equipment, specification sheets, calculators used to estimate energy savings. Overall, their responses suggest that trade allies are aware of the program requirements.

All three trade allies stated that they fill out the application forms for their customers.

When asked if they had any recommendations on how to improve the application process, one trade ally stated that having written guidelines would be helpful.

#### ***7.4.5.5 Trade Ally Feedback - Training and Staff Support***

All three trade allies reported attending program provided trainings. The trade allies stated that the trainings were comprehensive, and did not have any suggestions for improvement.

Two of the three trade allies reported receiving written documents that explained the program procedures and requirements. Both trade allies that received the materials stated that they met their needs for understanding the program, and had no suggestions for improving them.

The trade ally that had not received written documentation on the program explained that the lack of written documentation has caused issues for their business because changes to the program have occurred without any written explanations from Entergy, and without clear guidelines on the program. One of the trade allies that had received written documentation also stated that mid-year changes in the program were difficult for their company.

All three of the trade allies stated that they had contacted program staff with questions or concerns and all stated that staff has been readily available and helpful.

#### **7.4.5.6 Trade Ally Feedback - Program Influence on Business**

All three trade allies reported increasing staffing as a result of the efficiency programs. One trade ally reported a significant increase in staffing and that they opened a second office.

Two of three trade allies stated that they had made changes to the products or services they offer as a result of participating in Entergy's programs. One trade ally noted that all of their lighting products are now ENERGY STAR® or DesignLights Consortium qualified. One trade ally stated that their business had increased significantly as a direct result of the program.

#### **7.4.5.7 Trade Ally Feedback - Overall Satisfaction**

Interview respondents were asked to rate their satisfaction with various aspects of the program using a 0 to 10 scale, where zero meant very dissatisfied, and ten meant very satisfied.

Trade allies were generally satisfied with the overall program and all gave it a rating of seven or higher. Trade allies had mixed satisfaction levels with the different elements of the program.

The satisfaction levels for the wait time to receive the rebate were mixed, with two trade allies indicating that they were satisfied with this aspect. One trade ally was dissatisfied with the wait time and stated that it took four months to receive payment for the first project completed.

Two trade allies indicated satisfaction with the incentive levels. One trade ally provided a lower score and stated, "I would love to see [the program] expanded [with] additional cash benefits".

All trade allies were generally satisfied with the range of measures offered through the program and service from utility staff.

Two of the interview respondents were satisfied with the application process, while one trade ally was neither particularly satisfied nor dissatisfied. This trade ally stated that the "amount of documentation exceeds other programs they work in." They also stated that the paperwork was heavy when beginning a project, when other programs only require the documentation at the end of the project process.

### **7.4.6 Conclusions**

#### **7.4.6.1 Program Design and Participation Process**

The program design and participation process components for the LCIP are as follows:

- The program provides financial incentives and technical assistance to commercial and industrial customers with greater than 100 kW peak demand that have not elected to opt-out.
- Incentives are based on energy savings. The program appropriately offers higher incentives HVAC, refrigeration, and efficient cooking equipment of \$0.15 per kWh that are less often implemented through efficiency programs. Lighting incentives are \$0.09 kWh and incentives for air compressor and custom projects are \$0.06 per kWh saved.
- Two of the three interviewed trade allies reported that they did not have any suggestions for improving the application process. One trade ally stated that they had not received written guidelines for the program and that this had created difficulty for them.
- None of the trade allies identified program design characteristics that would prevent certain customer types from participating. The primary barriers to participation identified were lack of awareness and skepticism about the offer. One trade ally noted that some customers have concerns about the length of time to receive the rebate but that this concern can be reduced through discussions with the customer.
- Only one of the survey respondents reported that the application process was unclear and the majority (73%) indicated that it was clear who they should contact for additional assistance.
- No survey respondents reported any program dissatisfaction.

#### **7.4.6.2 Program Marketing and Outreach**

The program marketing and outreach findings for the LCIP are as follows:

- Program marketing efforts were minimal during the year. Staff reported that there was a relatively high level of awareness among contactors and customers that the program would be introduced. The steps taken to promote the program included:
  - Educating Entergy account managers so that they could promote the program with customers;
  - Providing information on the program website;
  - Limited direct outreach to customers;
  - Outreach to trade allies;
  - Trade ally customer outreach; and
  - Development of a trifold brochure.
- 80% of participants reported that they learned of the program through an internet search. This suggests that a sizable share of program activity is initiated by customers. Additionally, 13% reported that they first learned of the program from a trade ally.

- Two of the interviewed trade allies reported that they were involved in the process of introducing the program to the Entergy Louisiana and Gulf States territories and aware of it at the time of launch. The trade ally was recruited by CLEAResult staff.
- All three trade allies reported that they are actively promoting the program with current and new customers. This promotion involves one-on-one discussions with customers. One trade ally reported receiving marketing materials to promote the program. Two of the three trade allies reported receiving guidelines on the use of Entergy's and the program's name in their marketing materials.

#### **7.4.6.3 Quality Control and Verification Processes**

The quality control and verification finding for the LCIP are as follows:

- The program has robust quality control and verification procedures in places. These include pre-installation and post-installation site visits for all projects, and engineering review of all projects.

#### **7.4.6.4 Trade Ally and Participant Satisfaction**

The trade ally and participant satisfaction findings for the LCIP are as follows:

- Trade allies reported that staff is readily available to provide assistance and have generally been satisfied with the support they received. Trade allies also reported that they were satisfied with the program overall.
- None of the program participants were dissatisfied with the program overall and 75% reported that participation in the program increased their satisfaction with the utility.

### **7.4.7 Recommendations**

The Evaluators' recommendations for the LCIP are as follows:

- **Provide links to the program manual and other program documentation on the program website.** Increased availability of these materials may improve customer and trade ally understanding of the program process and requirements.
- **Consider adding a simple single page flow-chart with the program participation steps and outlining customer and trade ally requirements for each step.** Although no survey respondents reported any difficulty with the participation process, such a document will provide clear information to future participants about the required steps.
- **Increase awareness of the program marketing materials available to trade allies. Consider linking the materials to the program website.** Future enhancements to the program marketing materials could include **brief case studies of customers that saved energy through the program.**

These may be effective with businesses that are skeptical of the program offerings.



## 8. Appendix A: Cost-effectiveness Testing

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This appendix provides an overview of each program's participation, verified reduction in peak load, verified kWh savings, annual admin costs, total program costs, as well as a summary of the cost-effectiveness analysis.

### Cost-effectiveness Summary

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This appendix covers all verified electricity and peak demand savings, and associated program costs incurred in the implementation of EGSL's PY1 energy efficiency and demand response portfolio from November 1, 2014 through October 31, 2015.

The cost-effectiveness of EGSL's PY1 programs was calculated based on reported total spending, verified energy savings, and verified demand reduction for each of the energy efficiency and demand response programs. All spending estimates were provided by EGSL. The methods used to calculate cost-effectiveness are informed by the California Standard Practice Manual.<sup>18</sup>

The demand reduction (kW) and energy savings (kWh) presented throughout this appendix represent savings at the generator by adjusting for line losses. Verified savings estimates at the meter were adjusted to account for line losses using a line loss adjustment factor of 1.06.

To calculate the cost-effectiveness of each program, measure lives were assigned on a measure-by-measure basis. When available, measure life values came from the Arkansas Technical Reference Manual 3.0 (TRM)<sup>19</sup>. Additionally, assumptions regarding incremental/full measure costs were necessary. Often, these costs were taken directly from the program filing documents.

Avoided energy, capacity, and transmission/distribution costs used to calculate cost-effectiveness were provided by EGSL. Residential and non-residential rates used to estimate certain cost-effectiveness tests were also provided by EGSL.

The table below lists each program included in this analysis, along with the final verified savings estimates, total expenditures, Utility Cost Test (UCT)<sup>20</sup> results, and Total Resource Cost Test (TRC) results.

In addition to UCT and TRC results, results from the Participant Cost Test (PCT) are included in the body of this appendix.

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<sup>18</sup>California Standard Practice Manual: Economic Analysis of Demand Side Management Programs, October 2001. Available at: [http://www.cpuc.ca.gov/NR/rdonlyres/004ABF9D-027C-4BE1-9AE1-CE56ADF8DADC/0/CPUC\\_STANDARD\\_PRACTICE\\_MANUAL.pdf](http://www.cpuc.ca.gov/NR/rdonlyres/004ABF9D-027C-4BE1-9AE1-CE56ADF8DADC/0/CPUC_STANDARD_PRACTICE_MANUAL.pdf)

<sup>19</sup><http://www.apscservices.info/EEInfo/TRM.pdf>

<sup>20</sup> The UCT is also referred to as the Program Administrator Cost Test (PACT).

Based on verified program impacts and spending during PY1, EGSL’s overall portfolio is cost-effective based on both the UCT and TRC.

*Cost-Effectiveness by Program, PY1*

<b>Program</b>	<b>Verified Peak Demand Reduction (kW)</b>	<b>Verified Annual Energy Savings (kWh)</b>	<b>Total Program Expenditures</b>	<b>TRC (b/c ratio)</b>	<b>UCT (b/c ratio)</b>
Residential Solutions	417.9	1,787,015	\$436,706.21	1.37	3.32
Income Qualified	58.6	347,126	\$187,322.30	1.34	1.37
CoolSaver	301.9	1,137,316	\$203,076.29	2.39	3.76
Lighting & Appliances	431.5	1,983,361	\$272,326.15	1.40	2.37
Small Business	209.1	1,208,021	\$323,714.04	1.95	2.04
Large C&I Solutions	550.6	3,726,767	\$675,664.08	2.25	2.95
Residential Market Development	-	-	\$97,975.70	0	0
Commercial Market Development	-	-	\$63,196.37	0	0
<b>Total</b>	<b>1,969.60</b>	<b>10,189,606</b>	<b>\$2,259,981.14</b>	<b>1.77</b>	<b>2.77</b>

**Energy Efficiency Program Results**

EGSL’s energy efficiency portfolio in PY1 consisted of six programs with a verified peak demand reduction of 1,969.6 kW and verified annual energy savings of 10,189,606 kWh. Total spending in PY1 equaled \$2,259,981. The tables below provide a summary of program participation, verified impacts, and program costs by program.

*Energy Efficiency Programs – Verified Impacts*

<b>Program</b>	<b>Number of Participants in PY1</b>	<b>Verified Peak Demand Reduction (kW)</b>	<b>Verified Annual Energy Savings (kWh)</b>
Residential Solutions	441	417.9	1,787,015
Income Qualified	59	58.6	347,126
CoolSaver	403	301.9	1,137,316
Lighting & Appliances	29,444	431.5	1,983,361
Small Business	57	209.1	1,208,021
Large C&I Solutions	28	550.6	3,726,767
<b>Total</b>	<b>30,432</b>	<b>1,969.6</b>	<b>10,189,606</b>

*Energy Efficiency Programs – Reported Costs*

<b>Program</b>	<b>Annual Non-EM&amp;V Admin Costs (\$) <sup>21</sup></b>	<b>Annual EM&amp;V Admin Costs (\$)</b>	<b>Annual Cash Inducement Costs (\$) <sup>22</sup></b>	<b>Annual Non-Cash Inducement Costs (\$) <sup>23</sup></b>
Residential Solutions	\$1,821.67	\$16,328.95	\$224,561.00	\$193,994.59
Income Qualified	\$353.86	\$6,574.04	\$71,921.00	\$108,473.40
CoolSaver	\$1,159.37	\$6,743.66	\$115,057.00	\$80,116.26
Lighting & Appliances	\$2,021.82	\$9,797.37	\$144,112.00	\$116,394.96
Small Business	\$1,231.45	\$10,286.10	\$197,558.00	\$114,638.49
Large C&I Solutions	\$3,799.04	\$25,284.27	\$318,268.00	\$328,312.77
Residential Market Development	\$0	\$0	\$0	\$97,975.70
Commercial Market Development	\$0	\$0	\$0	\$63,196.37
<b>Total</b>	<b>\$10,387.21</b>	<b>\$75,014.39</b>	<b>\$1,071,477.00</b>	<b>\$1,103,102.54</b>

In the tables that follow, total costs and benefits, and cost-effectiveness test results are provided for each energy efficiency program in the PY1 portfolio.

*Residential Solutions Benefit/Cost Tests*

<b>Metric</b>	<b>Utility Cost Test</b>	<b>Total Resource Cost Test</b>	<b>Participant Cost Test</b>
<b>Benefit/Cost Ratio</b>	3.32	1.37	1.49
Total Benefits	\$1,484,593.02	\$1,484,593.02	\$1,298,337.48
Total Costs	\$436,706.21	\$1,082,769.26	\$870,624.05

*Income Qualified Benefit/Cost Tests*

<b>Metric</b>	<b>Utility Cost Test</b>	<b>Total Resource Cost Test</b>	<b>Participant Cost Test</b>
<b>Benefit/Cost Ratio</b>	1.37	1.34	3.66
Total Benefits	\$257,176.29	\$257,176.29	\$279,320.40
Total Costs	\$187,322.30	\$191,785.55	\$76,384.25

<sup>21</sup> Non-EM&V Admin Costs include EGSL staff costs and overhead costs.

<sup>22</sup> Cash inducement costs refer to customer rebate costs.

<sup>23</sup> Non-cash inducement costs include third party implementation costs and advertising costs.

*CoolSaver Benefit/Cost Tests*

<b>Metric</b>	<b>Utility Cost Test</b>	<b>Total Resource Cost Test</b>	<b>Participant Cost Test</b>
<b>Benefit/Cost Ratio</b>	3.76	2.39	3.16
Total Benefits	\$763,787.07	\$763,787.07	\$728,886.27
Total Costs	\$203,076.29	\$319,015.29	\$230,996.00

*Lighting & Appliances Benefit/Cost Tests*

<b>Metric</b>	<b>Utility Cost Test</b>	<b>Total Resource Cost Test</b>	<b>Participant Cost Test</b>
<b>Benefit/Cost Ratio</b>	2.37	1.40	2.51
Total Benefits	\$646,722.74	\$646,722.74	\$838,687.20
Total Costs	\$272,326.15	\$461,698.15	\$333,484.00

*Small Business Solutions Benefit/Cost Tests*

<b>Metric</b>	<b>Utility Cost Test</b>	<b>Total Resource Cost Test</b>	<b>Participant Cost Test</b>
<b>Benefit/Cost Ratio</b>	2.04	1.95	3.78
Total Benefits	\$660,135.25	\$660,135.25	\$803,858.81
Total Costs	\$323,714.04	\$338,584.04	\$212,428.00

*Large Commercial & Industrial Solutions Benefit/Cost Test*

<b>Metric</b>	<b>Utility Cost Test</b>	<b>Total Resource Cost Test</b>	<b>Participant Cost Test</b>
<b>Benefit/Cost Ratio</b>	2.96	2.25	4.12
Total Benefits	\$2,000,361.92	\$2,000,361.92	\$2,188,717.16
Total Costs	\$675,664.08	\$888,904.08	\$531,508.00

The table below summarizes portfolio-level cost-effectiveness. This incorporates program-level data as well as cross-cutting costs.

*Overall Portfolio Benefit/Cost Test*

<b>Metric</b>	<b>Utility Cost Test</b>	<b>Total Resource Cost Test</b>	<b>Participant Cost Test</b>
<b>Benefit/Cost Ratio</b>	2.77	1.77	2.72
Total Benefits	\$5,812,776.29	\$5,812,776.29	\$6,137,807.32
Total Costs	\$2,098,809.07	\$3,282,756.37	\$2,255,424.30

## 9. Appendix B: Site Reports

### 9.1 Small Business

**Project Number** PRJ-320793  
**Program** Small Business Solutions

### Project Background

The participant is a manufacturing facility that received incentives from EGSL for implementing energy efficient lighting. On-site, the evaluators verified the participant had installed:

- (17) 146W LED fixtures, replacing 400W metal halide fixtures; and
- (21) 146W LED fixtures, replacing 400W high pressure sodium fixtures.

### M&V Methodology

The evaluators confirmed installation of all fixtures listed in the project application. Savings for the lighting measures were calculated using Louisiana stipulated deemed values by space type for hours of use, along with a stipulated peak Coincident Factor (CF), Interactive effects factor for energy ( $IEF_E$ ) and Interactive effects factor for demand ( $IEF_D$ ) determined using local weather data and stipulated peak parameters. The deemed values used in calculating savings are presented in the table below.

*Deemed Savings Parameters*

<b>Building Type</b>	<b>Heating Type</b>	<b>Annual Hours</b>	<b><math>IEF_E</math></b>	<b><math>IEF_D</math></b>	<b>CF</b>
Manufacturing	None	5,740	1.000	1.000	0.73

### Savings Calculations

Using deemed values from the table above, the evaluators calculated lighting savings as follows:

$$\text{Annual kWh Savings} = (kW_{base} * AOH_{base} - kW_{post} * AOH_{post}) * IEF_E$$

*Parameters for kWh Savings Calculation of Lighting Retrofit Measures*

$kW_{base}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{post}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
$AOH_{base}$	Annual Operating Hours of Baseline Fixtures
$AOH_{post}$	Annual Operating Hours of Installed Fixtures
$IEF_E$	Heating/Cooling Energy Interactive Effects Factor

Following this, the evaluators calculated peak kW savings. This is based upon Louisiana defined peak hours during summer weekdays. Peak kW savings are calculated as:

$$\text{Peak kW Savings} = (kW_{\text{base}} - kW_{\text{post}}) * CF * IEF_D$$

*Parameters for Peak Demand (kW) Savings Calculation of Lighting Retrofit Measures*

kW <sub>base</sub>	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
kW <sub>post</sub>	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
CF	Peak Demand Coincident Factor, % Time During the Peak Period in Which Lighting is Operating
IEF <sub>D</sub>	Heating/Cooling Demand Interactive Effects Factor

*Lighting Retrofit kWh Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		AOH		Expected kWh Savings	Realized kWh Savings	IEF <sub>E</sub>	Realization Rate
	Base	Post	Base	Post	Base	Post				
400W MH to 146W LED - Non-Int. Ballast	17	17	453	146	5,740	5,740	29,957	29,957	1.000	100.0%
400W HPS to 146W LED - Non-Int. Ballast	21	21	465	146	5,740	5,740	38,452	38,452	1.000	100.0%
<b>Total</b>							<b>68,409</b>	<b>68,409</b>		<b>100.0%</b>

*Lighting Retrofit kW Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		CF		Expected kW Savings	Realized kW Savings	IEF <sub>D</sub>	Realization Rate
	Base	Post	Base	Post	Base	Post				
400W MH to 146W LED - Non-Int. Ballast	17	17	453	146	0.73	0.73	3.81	3.81	1.000	100.0%
400W HPS to 146W LED - Non-Int. Ballast	21	21	465	146	0.73	0.73	4.89	4.89	1.000	100.0%
<b>Total</b>							<b>8.70</b>	<b>8.70</b>		<b>100.0%</b>

## Results

The kWh realization rate for PRJ-320793 is 100% and the kW realization rate is 100%.

*Verified Gross Savings & Realization Rates*

Measure	Verified			
	kWh Savings	kW Savings	kWh Realization Rate	kW Realization Rate
400W MH to 146W LED - Non-Int. Ballast	29,957	3.81	100.0%	100.0%
400W HPS to 146W LED - Non-Int. Ballast	38,452	4.89	100.0%	100.0%
<b>Total</b>	<b>68,409</b>	<b>8.70</b>	<b>100.0%</b>	<b>100.0%</b>



**Project Number** PRJ-338718  
**Program** Small Business Solutions

## Project Background

The participant is an office building that received incentives from EGSL for implementing energy efficient lighting. On-site, the evaluators verified the participant had installed:

- (169) 18W LED fixtures, replacing (58) 4' 4-lamp T12 fixtures.

## M&V Methodology

The evaluators confirmed installation of all fixtures listed in the project application. Savings for the lighting measures were calculated using Louisiana stipulated deemed values by space type for hours of use, along with a stipulated peak Coincident Factor (CF), Interactive effects factor for energy ( $IEF_E$ ) and Interactive effects factor for demand ( $IEF_D$ ) determined using local weather data and stipulated peak parameters. The deemed values used in calculating savings are presented in the table below.

*Deemed Savings Parameters*

<b>Building Type</b>	<b>Heating Type</b>	<b>Annual Hours</b>	<b><math>IEF_E</math></b>	<b><math>IEF_D</math></b>	<b>CF</b>
Office	Electric Resistance	3,373	0.870	0.20	0.77

## Savings Calculations

Using deemed values from the table above, the evaluators calculated lighting savings as follows:

$$\text{Annual kWh Savings} = (kW_{base} * AOH_{base} - kW_{post} * AOH_{post}) * IEF_E$$

*Parameters for kWh Savings Calculation of Lighting Retrofit Measures*

$kW_{base}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{post}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
$AOH_{base}$	Annual Operating Hours of Baseline Fixtures
$AOH_{post}$	Annual Operating Hours of Installed Fixtures
$IEF_E$	Heating/Cooling Energy Interactive Effects Factor



Following this, the evaluators calculated peak kW savings. This is based upon Louisiana defined peak hours during summer weekdays. Peak kW savings are calculated as:

$$\text{Peak kW Savings} = (kW_{\text{base}} - kW_{\text{post}}) * CF * IEF_D$$

*Parameters for Peak Demand (kW) Savings Calculation of Lighting Retrofit Measures*

$kW_{\text{base}}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{\text{post}}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
CF	Peak Demand Coincident Factor, % Time During the Peak Period in Which Lighting is Operating
$IEF_D$	Heating/Cooling Demand Interactive Effects Factor

*Lighting Retrofit kWh Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		AOH	Expected kWh Savings	Realized kWh Savings	$IEF_E$	Realization Rate
	Base	Post	Base	Post					
4' 4L T12ES to 18W LED - Non-Int. Ballast	58	169	144	18	3,737	19,447	17,264	0.870	88.8%
<b>Total</b>						<b>19,447</b>	<b>17,264</b>		<b>88.8%</b>

*Lighting Retrofit kW Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		CF	Expected kW Savings	Realized kW Savings	$IEF_D$	Realization Rate
	Base	Post	Base	Post					
4' 4L T12ES to 18W LED - Non-Int. Ballast	58	169	144	18	0.77	4.92	4.92	1.200	100.0%
<b>Total</b>						<b>4.92</b>	<b>4.92</b>		<b>100.0%</b>

## Results

The kWh realization rate for PRJ-337818 is 88.8% and the kW realization rate is 100%.

The decrease in kWh savings is due to the heating type changed from “Undetermined” to “Electric Resistance”.

*Verified Gross Savings & Realization Rates*

Measure	Verified			
	kWh Savings	kW Savings	kWh Realization Rate	kW Realization Rate
4' 4L T12ES to 18W LED - Non-Int. Ballast	17,264	4.92	88.8%	100.0%
<b>Total</b>	<b>17,264</b>	<b>4.92</b>	<b>88.8%</b>	<b>100.0%</b>

**Project Number** PRJ-344467  
**Program** Small Business Solutions

## Project Background

The participant is a retail facility that received incentives from EGSL for implementing energy efficient lighting. On-site, the evaluators verified the participant had installed:

- (32) 150W LED fixtures, replacing 320W metal halide fixtures;
- (20) 60W LED fixtures, replacing 4' 3-lamp T8 fixtures;
- (4) 60W LED fixtures, replacing (3) 4' 3-lamp T8 fixtures;
- (4) 56W LED fixtures, replacing 175W metal halide fixtures;
- (4) 56W LED fixtures, replacing 8' 1-lamp T12 fixtures;
- (5) 60W LED fixtures, replacing 4' 3-lamp T8 fixtures;
- (11) 24W LED fixtures, replacing 8' 1-lamp T8 fixtures; and
- (8) 12W LED fixtures, replacing 8' 1-lamp T8 fixtures.

## M&V Methodology

The evaluators confirmed installation of all fixtures listed in the project application. Savings for the lighting measures were calculated using Louisiana stipulated deemed values by space type for hours of use, along with a stipulated peak Coincident Factor (CF), Interactive effects factor for energy ( $IEF_E$ ) and Interactive effects factor for demand ( $IEF_D$ ) determined using local weather data and stipulated peak parameters. The deemed values used in calculating savings are presented in the table below.

*Deemed Savings Parameters*

<b>Building Type</b>	<b>Heating Type</b>	<b>Annual Hours</b>	<b><math>IEF_E</math></b>	<b><math>IEF_D</math></b>	<b>CF</b>
Food Sales: 24-hour Supermarket/Retail	Heat Pump	6,900	1.020	1.200	0.95
Outdoor	None	3,996	1.000	1.000	0.00

## Savings Calculations

Using deemed values from the table above, the evaluators calculated lighting savings as follows:

$$\text{Annual kWh Savings} = (kW_{base} * AOH_{base} - kW_{post} * AOH_{post}) * IEF_E$$

*Parameters for kWh Savings Calculation of Lighting Retrofit Measures*

$kW_{base}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{post}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
$AOH_{base}$	Annual Operating Hours of Baseline Fixtures
$AOH_{post}$	Annual Operating Hours of Installed Fixtures
$IEF_E$	Heating/Cooling Energy Interactive Effects Factor

Following this, the evaluators calculated peak kW savings. This is based upon Louisiana defined peak hours during summer weekdays. Peak kW savings are calculated as:

$$Peak\ kW\ Savings = (kW_{base} - kW_{post}) * CF * IEF_D$$

*Parameters for Peak Demand (kW) Savings Calculation of Lighting Retrofit Measures*

$kW_{base}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{post}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
CF	Peak Demand Coincident Factor, % Time During the Peak Period in Which Lighting is Operating
$IEF_D$	Heating/Cooling Demand Interactive Effects Factor

*Lighting Retrofit kWh Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		AOH	Expected kWh Savings	Realized kWh Savings	$IEF_E$	Realization Rate
	Base	Post	Base	Post					
320W MH to 150W LED - Non-Int. Ballast	32	32	362	150	3,996	31,241	27,109	1.000	86.8%
4' 3L T8 to 60W LED - Non-Int. Ballast	20	20	85	60	6,900	2,303	3,519	1.020	152.8%
4' 3L T8 to 60W LED - Non-Int. Ballast	3	4	85	60	6,900	461	106	1.020	23.0%
175W MH to 56W LED - Non-Int. Ballast	4	4	208	56	3,996	2,800	2,430	1.000	86.8%
8' 1L T12HO to 56W LED - Non-Int. Ballast	4	4	121	56	3,996	1,197	1,039	1.000	86.8%
4' 2L T8 to 60W LED - Non-Int. Ballast	5	5	58	60	6,900	-46	-86	1.250	186.7%
8' 1L T8 to 24W LED - Non-Int. Ballast	11	11	69	24	6,900	2,280	4,269	1.250	187.3%
8' 1L T8 to 12W LED - Non-Int. Ballast	8	8	69	12	6,900	2,100	3,933	1.250	187.3%
<b>Total</b>						<b>42,335</b>	<b>42,319</b>		<b>100.0%</b>

*Lighting Retrofit kW Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		CF	Expected kW Savings	Realized kW Savings	IEFD	Realization Rate
	Base	Post	Base	Post					
320W MH to 150W LED - Non-Int. Ballast	32	32	362	150	0.00	0.00	0.00	1.000	N/A
4' 3L T8 to 60W LED - Non-Int. Ballast	20	20	85	60	0.95	0.57	0.57	1.200	100.0%
4' 3L T8 to 60W LED - Non-Int. Ballast	3	4	85	60	0.95	0.02	0.02	1.200	100.0%
175W MH to 56W LED - Non-Int. Ballast	4	4	208	56	0.00	0.00	0.00	1.000	N/A
8' 1L T12HO to 56W LED - Non-Int. Ballast	4	4	121	56	0.00	0.00	0.00	1.000	N/A
4' 2L T8 to 60W LED - Non-Int. Ballast	5	5	58	60	0.95	-0.01	-0.01	1.250	100.0%
8' 1L T8 to 24W LED - Non-Int. Ballast	11	11	69	24	0.95	0.59	0.59	1.250	100.0%
8' 1L T8 to 12W LED - Non-Int. Ballast	8	8	69	12	0.95	0.54	0.54	1.250	100.0%
<b>Total</b>						<b>1.71</b>	<b>1.71</b>		<b>100.0%</b>

**Results**

The kWh realization rate for PRJ-344467 is 100% and the kW realization rate is 100%

*Verified Gross Savings & Realization Rates*

Measure	Verified			
	kWh Savings	kW Savings	kWh Realization Rate	kW Realization Rate
320W MH to 150W LED - Non-Int. Ballast	27,109	0.00	86.8%	N/A
4' 3L T8 to 60W LED - Non-Int. Ballast	3,519	0.57	152.8%	100.0%
4' 3L T8 to 60W LED - Non-Int. Ballast	106	0.02	23.0%	100.0%
175W MH to 56W LED - Non-Int. Ballast	2,430	0.00	86.8%	N/A
8' 1L T12HO to 56W LED - Non-Int. Ballast	1,039	0.00	86.8%	N/A
4' 2L T8 to 60W LED - Non-Int. Ballast	-86	-0.01	186.7%	100.0%
8' 1L T8 to 24W LED - Non-Int. Ballast	4,269	0.59	187.3%	100.0%
8' 1L T8 to 12W LED - Non-Int. Ballast	3,933	0.54	187.3%	100.0%
<b>Total</b>	<b>42,319</b>	<b>1.71</b>	<b>100.0%</b>	<b>100.0%</b>

**Project Number** PRJ-344502  
**Program** Small Business Solutions

## Project Background

The participant is a retail facility that received incentives from EGSL for implementing energy efficient lighting. On-site, the evaluators verified the participant had installed:

- (20) 60W LED fixtures, replacing 4' 3-lamp T8 fixtures;
- (4) 56W LED fixtures, replacing 175W metal halide fixtures;
- (32) 150W LED fixtures, replacing 320W metal halide fixtures;
- (2) 60W LED fixtures, replacing 8' 2-lamp T12 fixtures;
- (9) 24W LED fixtures, replacing 8' 1-lamp T8 fixtures; and
- (10) 12W LED fixtures, replacing 8' 1-lamp T8 fixtures

## M&V Methodology

The evaluators found some lighting fixture counts deviated from those listed in the project application. Verified fixture counts were used in ex post savings calculations. Savings for the lighting measures were calculated using Louisiana stipulated deemed values by space type for hours of use, along with a stipulated peak Coincident Factor (CF), Interactive effects factor for energy ( $IEF_E$ ) and Interactive effects factor for demand ( $IEF_D$ ) determined using local weather data and stipulated peak parameters. The deemed values used in calculating savings are presented in the table below.

*Deemed Savings Parameters*

<b>Building Type</b>	<b>Heating Type</b>	<b>Annual Hours</b>	<b><math>IEF_E</math></b>	<b><math>IEF_D</math></b>	<b>CF</b>
Food Sales: 24-hour Supermarket/Retail	Heat Pump	6,900	1.020	1.200	0.95
Outdoor	None	3,996	1.000	1.000	0.00

## Savings Calculations

Using deemed values from the table above, the evaluators calculated lighting savings as follows:

$$\text{Annual kWh Savings} = (kW_{base} * AOH_{base} - kW_{post} * AOH_{post}) * IEF_E$$

*Parameters for kWh Savings Calculation of Lighting Retrofit Measures*

$kW_{base}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{post}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
$AOH_{base}$	Annual Operating Hours of Baseline Fixtures
$AOH_{post}$	Annual Operating Hours of Installed Fixtures
$IEF_E$	Heating/Cooling Energy Interactive Effects Factor

Following this, the evaluators calculated peak kW savings. This is based upon Louisiana defined peak hours during summer weekdays. Peak kW savings are calculated as:

$$Peak\ kW\ Savings = (kW_{base} - kW_{post}) * CF * IEF_D$$

*Parameters for Peak Demand (kW) Savings Calculation of Lighting Retrofit Measures*

$kW_{base}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{post}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
CF	Peak Demand Coincident Factor, % Time During the Peak Period in Which Lighting is Operating
$IEF_D$	Heating/Cooling Demand Interactive Effects Factor

*Lighting Retrofit kWh Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		AOH	Expected kWh Savings	Realized kWh Savings	$IEF_E$	Realization Rate
	Base	Post	Base	Post					
4' 3L T8 to 60W LED - Non-Int. Ballast	20	20	85	60	6,900	3,695	3,519	1.020	95.2%
175W MH to 56W LED - Non-Int. Ballast	4	4	208	56	3,996	2,430	2,430	1.000	100.0%
320W MH to 150W LED - Non-Int. Ballast	32	32	362	150	3,996	27,109	27,109	1.000	100.0%
8' 2L T12HO to 60W LED - Non-Int. Ballast	2	2	173	60	6,900	1,949	1,949	1.250	100.0%
8' 1L T8 to 24W LED - Non-Int. Ballast	9	9	69	24	6,900	4,269	3,493	1.250	81.8%
8' 1L T8 to 12W LED - Non-Int. Ballast	10	10	69	12	6,900	4,916	4,916	1.250	100.0%
<b>Total</b>						<b>44,368</b>	<b>43,416</b>		<b>97.9%</b>

*Lighting Retrofit kW Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		CF	Expected kW Savings	Realized kW Savings	IEF <sub>D</sub>	Realization Rate
	Base	Post	Base	Post					
4' 3L T8 to 60W LED - Non-Int. Ballast	20	20	85	60	0.95	0.60	0.57	1.200	95.0%
175W MH to 56W LED - Non-Int. Ballast	4	4	208	56	0.00	0.00	0.00	1.000	N/A
320W MH to 150W LED - Non-Int. Ballast	32	32	362	150	0.00	0.00	0.00	1.000	N/A
8' 2L T12HO to 60W LED - Non-Int. Ballast	2	2	173	60	0.95	0.27	0.27	1.250	100.0%
8' 1L T8 to 24W LED - Non-Int. Ballast	9	9	69	24	0.95	0.59	0.48	1.250	81.4%
8' 1L T8 to 12W LED - Non-Int. Ballast	10	10	69	12	0.95	0.68	0.68	1.250	100.0%
<b>Total</b>						<b>2.14</b>	<b>2.00</b>		<b>93.5%</b>

## Results

The kWh realization rate for PRJ-344502 is 97.9% and the kW realization rate is 93.5%.

The decrease in kWh and kW savings is due to (3) unverified fixtures:

- (1) 60W LED
- (2) 24W LED

### Verified Gross Savings & Realization Rates

Measure	Verified			
	kWh Savings	kW Savings	kWh Realization Rate	kW Realization Rate
4' 3L T8 to 60W LED - Non-Int. Ballast	3,519	0.57	95.2%	95.0%
175W MH to 56W LED - Non-Int. Ballast	2,430	0.00	100.0%	N/A
320W MH to 150W LED - Non-Int. Ballast	27,109	0.00	100.0%	N/A
8' 2L T12HO to 60W LED - Non-Int. Ballast	1,949	0.27	100.0%	100.0%
8' 1L T8 to 24W LED - Non-Int. Ballast	3,493	0.48	81.8%	81.4%
8' 1L T8 to 12W LED - Non-Int. Ballast	4,916	0.68	100.0%	100.0%
<b>Total</b>	<b>43,416</b>	<b>2.00</b>	<b>97.9%</b>	<b>93.5%</b>

**Project Number** PRJ-345351  
**Program** Small Business Solutions

## Project Background

The participant is a retail facility that received incentives from EGSL for implementing energy efficient lighting. On-site, the evaluators verified the participant had installed:

- (20) 18W LED fixtures, replacing (10) 8' 2-lamp T12 fixtures;
- (5) 18W LED fixtures, replacing 4' 2-lamp T8 fixtures;
- (182) 18W LED fixtures, replacing (91) 8' 2-lamp T12 fixtures;
- (6) 18W LED fixtures, replacing (3) 8' 2-lamp T12 fixtures;
- (3) 18W LED fixtures, replacing 4' 2-lamp T8 fixtures;
- (2) 18W LED fixtures, replacing (1) 6' 2-lamp T8 fixtures; and
- (4) 18W LED fixtures, replacing (2) 8' 2-lamp T12 fixtures.

## M&V Methodology

The evaluators confirmed installation of all fixtures listed in the project application. Savings for the lighting measures were calculated using Louisiana stipulated deemed values by space type for hours of use, along with a stipulated peak Coincident Factor (CF), Interactive effects factor for energy ( $IEF_E$ ) and Interactive effects factor for demand ( $IEF_D$ ) determined using local weather data and stipulated peak parameters. The deemed values used in calculating savings are presented in the table below.

*Deemed Savings Parameters*

<b>Building Type</b>	<b>Heating Type</b>	<b>Annual Hours</b>	<b><math>IEF_E</math></b>	<b><math>IEF_D</math></b>	<b>CF</b>
Retail: Strip Shopping & Non-enclosed Mall	Electric Resistance	3,965	0.870	1.200	0.90
Outdoor	None	3,996	1.000	1.000	0.00

## Savings Calculations

Using deemed values from the table above, the evaluators calculated lighting savings as follows:

$$\text{Annual kWh Savings} = (kW_{base} * AOH_{base} - kW_{post} * AOH_{post}) * IEF_E$$

*Parameters for kWh Savings Calculation of Lighting Retrofit Measures*



$kW_{base}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{post}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
$AOH_{base}$	Annual Operating Hours of Baseline Fixtures
$AOH_{post}$	Annual Operating Hours of Installed Fixtures
$IEF_E$	Heating/Cooling Energy Interactive Effects Factor

Following this, the evaluators calculated peak kW savings. This is based upon Louisiana defined peak hours during summer weekdays. Peak kW savings are calculated as:

$$Peak\ kW\ Savings = (kW_{base} - kW_{post}) * CF * IEF_D$$

*Parameters for Peak Demand (kW) Savings Calculation of Lighting Retrofit Measures*

$kW_{base}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{post}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
CF	Peak Demand Coincident Factor, % Time During the Peak Period in Which Lighting is Operating
$IEF_D$	Heating/Cooling Demand Interactive Effects Factor

*Lighting Retrofit kWh Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		AOH	Expected kWh Savings	Realized kWh Savings	$IEF_E$	Realization Rate
	Base	Post	Base	Post					
8' 2L T12 to 18W LED - Int. Ballast	10	20	173	18	3,965	3,965	4,872	4,726	0.870
4' 2L T8 to 18W LED - Int. Ballast	5	5	58	18	3,965	3,965	314	690	0.870
8' 2L T12 to 18W LED - Int. Ballast	91	182	173	18	3,965	3,965	44,332	43,006	0.870
8' 2L T12HO to 18W LED - Int. Ballast	3	6	207	18	3,996	3,996	1,782	2,050	1.000
4' 2L T8 to 18W LED - Int. Ballast	3	3	58	18	3,965	3,965	189	414	0.870
6' 2L T12 to 18W LED - Int. Ballast	1	2	142	18	3,996	3,996	390	424	1.000
8' 2L T12ES to 18W LED - Int. Ballast	2	4	123	18	3,996	3,996	660	695	1.000
<b>Total</b>						<b>52,538</b>	<b>52,005</b>		<b>99.0%</b>

*Lighting Retrofit kW Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		CF	Expected kW Savings	Realized kW Savings	IEF <sub>D</sub>	Realization Rate
	Base	Post	Base	Post					
8' 2L T12 to 18W LED - Int. Ballast	10	20	173	18	0.90	0.90	1.47	1.48	1.200
4' 2L T8 to 18W LED - Int. Ballast	5	5	58	18	0.90	0.90	0.09	0.22	1.200
8' 2L T12 to 18W LED - Int. Ballast	91	182	173	18	0.90	0.90	13.40	13.46	1.200
8' 2L T12HO to 18W LED - Int. Ballast	3	6	207	18	0.00	0.00	0.54	0.00	1.000
4' 2L T8 to 18W LED - Int. Ballast	3	3	58	18	0.90	0.90	0.06	0.13	1.200
6' 2L T12 to 18W LED - Int. Ballast	1	2	142	18	0.00	0.00	0.12	0.00	1.000
8' 2L T12ES to 18W LED - Int. Ballast	2	4	123	18	0.00	0.00	0.20	0.00	1.000
<b>Total</b>						<b>15.88</b>	<b>15.29</b>		<b>96.3%</b>

**Results**

The kWh realization rate for PRJ-345351 is 99.0% and the kW realization rate is 96.3%.

The low kWh and kW realization rate is due to changing the space type to “Retail: Strip Shopping & Non-enclosed Mall”.

*Verified Gross Savings & Realization Rates*

Measure	Verified			
	kWh Savings	kW Savings	kWh Realization Rate	kW Realization Rate
8' 2L T12 to 18W LED - Int. Ballast	4,726	1.48	97.0%	100.5%
4' 2L T8 to 18W LED - Int. Ballast	690	0.22	219.5%	231.6%
8' 2L T12 to 18W LED - Int. Ballast	43,006	13.46	97.0%	100.5%
8' 2L T12HO to 18W LED - Int. Ballast	2,050	0.00	115.0%	0.0%
4' 2L T8 to 18W LED - Int. Ballast	414	0.13	219.5%	228.1%
6' 2L T12 to 18W LED - Int. Ballast	424	0.00	108.8%	0.0%
8' 2L T12ES to 18W LED - Int. Ballast	695	0.00	105.3%	0.0%
<b>Total</b>	<b>52,005</b>	<b>15.29</b>	<b>99.0%</b>	<b>96.3%</b>

**Project Number** PRJ-350201

**Project Number** PRJ-350201  
**Program** Small Business Solutions

## Project Background

The participant is a medical facility that received incentives from EGSL for implementing energy efficient lighting. On-site, the evaluators verified the participant had installed:

- (41) 18W LED-Non-Int Ballast lamps, replacing (22) 4' 4-lamp T12 fixtures;
- (7) 10W LED- Int Ballast lamps, replacing (7) 60W Incandescent lamps;
- (2) 18W LED-Int Ballast lamps, replacing (2) 42W CFL lamps.

## M&V Methodology

The evaluators found that all lighting fixtures that were verified matched those listed in the project application. Verified fixture counts were used in ex post savings calculations. Savings for the lighting measures were calculated using Louisiana stipulated deemed values by space type for hours of use, along with a stipulated peak Coincident Factor (CF), Interactive effects factor for energy ( $IEF_E$ ) and Interactive effects factor for demand ( $IEF_D$ ) determined using local weather data and stipulated peak parameters. The deemed values used in calculating savings are presented in the table below.

*Deemed Savings Parameters*

<b>Building Type</b>	<b>Heating Type</b>	<b>Annual Hours</b>	<b><math>IEF_E</math></b>	<b><math>IEF_D</math></b>	<b>CF</b>
Health Care: Out-patient	Electric Resistance	3,386	0.87	1.20	0.77

## Savings Calculations

Using deemed values from the table above, the evaluators calculated lighting savings as follows:

$$\text{Annual kWh Savings} = (kW_{base} * AOH_{base} - kW_{post} * AOH_{post}) * IEF_E$$

*Parameters for kWh Savings Calculation of Lighting Retrofit Measures*

$kW_{base}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{post}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
$AOH_{base}$	Annual Operating Hours of Baseline Fixtures
$AOH_{post}$	Annual Operating Hours of Installed Fixtures
$IEF_E$	Heating/Cooling Energy Interactive Effects Factor

Following this, the evaluators calculated peak kW savings. This is based upon Louisiana defined peak hours during summer weekdays. Peak kW savings are calculated as:

$$\text{Peak kW Savings} = (kW_{\text{base}} - kW_{\text{post}}) * CF * IEF_D$$

*Parameters for Peak Demand (kW) Savings Calculation of Lighting Retrofit Measures*

$kW_{\text{base}}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{\text{post}}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
CF	Peak Demand Coincident Factor, % Time During the Peak Period in Which Lighting is Operating
$IEF_D$	Heating/Cooling Demand Interactive Effects Factor

*Lighting Retrofit kWh Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		AOH	Expected kWh Savings	Realized kWh Savings	$IEF_E$	Realization Rate
	Base	Post	Base	Post					
60W Inc. to 10W LED - Int. Ballast	3	3	43	10	3,386	292	292	0.870	100.0%
4' 4L T12ES to 18W LED - Non-Int. Ballast	2	4	144	18	3,386	636	636	0.870	100.0%
4' 4L T12ES to 18W LED - Non-Int. Ballast	2	4	144	18	3,386	636	636	0.870	100.0%
4' 2L T12ES to 18W LED - Non-Int. Ballast	1	1	72	18	3,386	159	159	0.870	100.0%
4' 4L T12ES to 18W LED - Non-Int. Ballast	2	4	144	18	3,386	636	636	0.870	100.0%
4' 2L T12ES to 18W LED - Non-Int. Ballast	1	1	72	18	3,386	159	159	0.870	100.0%
4' 2L T12ES to 18W LED - Non-Int. Ballast	1	1	72	18	3,386	159	159	0.870	100.0%
4' 4L T12ES to 18W LED - Non-Int. Ballast	4	8	144	18	3,386	1,273	1,273	0.870	100.0%
4' 4L T12ES to 18W LED - Non-Int. Ballast	2	4	144	18	3,386	636	636	0.870	100.0%
4' 4L T12ES to 18W LED - Non-Int. Ballast	2	4	144	18	3,386	636	636	0.870	100.0%
60W Inc. to 10W LED - Int. Ballast	1	1	43	10	3,386	97	97	0.870	100.0%
4' 4L T12ES to 18W LED - Non-Int. Ballast	4	8	144	18	3,386	1,273	1,273	0.870	100.0%
60W Inc. to 10W LED - Int. Ballast	1	1	43	10	3,386	97	97	0.870	100.0%
60W Inc. to 10W LED - Int. Ballast	2	2	43	10	3,386	194	194	0.870	100.0%
4' 4L T12ES to 18W LED - Non-Int. Ballast	1	2	144	18	3,386	318	318	0.870	100.0%

42W CFL to 18W LED - Int. Ballast	2	2	42	18	3,386	141	141	0.870	100.0%
<b>Total</b>						<b>7,342</b>	<b>7,342</b>		<b>100.0%</b>

*Lighting Retrofit kW Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		CF	Expected kW Savings	Realized kW Savings	IEFD	Realization Rate
	Base	Post	Base	Post					
60W Inc. to 10W LED - Int. Ballast	3	3	43	10	0.77	0.09	0.09	1.200	100.0%
4' 4L T12ES to 18W LED - Non-Int. Ballast	2	4	144	18	0.77	0.20	0.20	1.200	100.0%
4' 4L T12ES to 18W LED - Non-Int. Ballast	2	4	144	18	0.77	0.20	0.20	1.200	100.0%
4' 2L T12ES to 18W LED - Non-Int. Ballast	1	1	72	18	0.77	0.05	0.05	1.200	100.0%
4' 4L T12ES to 18W LED - Non-Int. Ballast	2	4	144	18	0.77	0.20	0.20	1.200	100.0%
4' 2L T12ES to 18W LED - Non-Int. Ballast	1	1	72	18	0.77	0.05	0.05	1.200	100.0%
4' 2L T12ES to 18W LED - Non-Int. Ballast	1	1	72	18	0.77	0.05	0.05	1.200	100.0%
4' 4L T12ES to 18W LED - Non-Int. Ballast	4	8	144	18	0.77	0.40	0.40	1.200	100.0%
4' 4L T12ES to 18W LED - Non-Int. Ballast	2	4	144	18	0.77	0.20	0.20	1.200	100.0%
4' 4L T12ES to 18W LED - Non-Int. Ballast	2	4	144	18	0.77	0.20	0.20	1.200	100.0%
60W Inc. to 10W LED - Int. Ballast	1	1	43	10	0.77	0.03	0.03	1.200	100.0%
4' 4L T12ES to 18W LED - Non-Int. Ballast	4	8	144	18	0.77	0.40	0.40	1.200	100.0%
60W Inc. to 10W LED - Int. Ballast	1	1	43	10	0.77	0.03	0.03	1.200	100.0%
60W Inc. to 10W LED - Int. Ballast	2	2	43	10	0.77	0.06	0.06	1.200	100.0%
4' 4L T12ES to 18W LED - Non-Int. Ballast	1	2	144	18	0.77	0.10	0.10	1.200	100.0%
42W CFL to 18W LED - Int. Ballast	2	2	42	18	0.77	0.04	0.04	1.200	100.0%
<b>Total</b>						<b>2.30</b>	<b>2.30</b>		<b>100.0%</b>

## Results

The kWh realization rate for PRJ-350201 is 100.0% and the kW realization rate is 100.0%.

*Verified Gross Savings & Realization Rates*

<i>Measure</i>	<i>Verified</i>			
	<i>kWh Savings</i>	<i>kW Savings</i>	<i>kWh Realization Rate</i>	<i>kW Realization Rate</i>
60W Inc. to 10W LED - Int. Ballast	292	0.09	100.0%	100.0%
4' 4L T12ES to 18W LED - Non-Int. Ballast	636	0.20	100.0%	100.0%
4' 4L T12ES to 18W LED - Non-Int. Ballast	636	0.20	100.0%	100.0%
4' 2L T12ES to 18W LED - Non-Int. Ballast	159	0.05	100.0%	100.0%
4' 4L T12ES to 18W LED - Non-Int. Ballast	636	0.20	100.0%	100.0%
4' 2L T12ES to 18W LED - Non-Int. Ballast	159	0.05	100.0%	100.0%
4' 2L T12ES to 18W LED - Non-Int. Ballast	159	0.05	100.0%	100.0%
4' 4L T12ES to 18W LED - Non-Int. Ballast	1,273	0.40	100.0%	100.0%
4' 4L T12ES to 18W LED - Non-Int. Ballast	636	0.20	100.0%	100.0%
4' 4L T12ES to 18W LED - Non-Int. Ballast	636	0.20	100.0%	100.0%
60W Inc. to 10W LED - Int. Ballast	97	0.03	100.0%	100.0%
4' 4L T12ES to 18W LED - Non-Int. Ballast	1,273	0.40	100.0%	100.0%
60W Inc. to 10W LED - Int. Ballast	97	0.03	100.0%	100.0%
60W Inc. to 10W LED - Int. Ballast	194	0.06	100.0%	100.0%
4' 4L T12ES to 18W LED - Non-Int. Ballast	318	0.10	100.0%	100.0%
42W CFL to 18W LED - Int. Ballast	141	0.04	100.0%	100.0%
<b>Total</b>	<b>7,342</b>	<b>2.30</b>	<b>100.0%</b>	<b>100.0%</b>

**Project Number** PRJ-3522691  
**Program** Small Business Solutions

## Project Background

The participant is a retail facility that received incentives from EGSL for implementing energy efficient lighting. On-site, the evaluators verified the participant had installed:

- (10) 18W LED fixtures, replacing 4' 2-lamp T12 fixtures;
- (12) 35W LED fixtures, replacing 8' 2-lamp T12 fixtures;
- (43) 18W LED fixtures, replacing 8' 2-lamp T12 fixtures; and
- (17) 18W LED fixtures, replacing 4' 2-lamp T8 fixtures.

## M&V Methodology

The evaluators found some lighting fixture counts deviated from those listed in the project application. Verified fixture counts were used in ex post savings calculations. Savings for the lighting measures were calculated using Louisiana stipulated deemed values by space type for hours of use, along with a stipulated peak Coincident Factor (CF), Interactive effects factor for energy ( $IEF_E$ ) and Interactive effects factor for demand ( $IEF_D$ ) determined using local weather data and stipulated peak parameters. The deemed values used in calculating savings are presented in the table below.

*Deemed Savings Parameters*

<b>Building Type</b>	<b>Heating Type</b>	<b>Annual Hours</b>	<b><math>IEF_E</math></b>	<b><math>IEF_D</math></b>	<b>CF</b>
Food Sales: Non 24-hour Supermarket/Retail	Electric Resistance	4,706	0.870	1.200	0.95
Outdoor	None	3,996	1.000	1.000	0.00

## Savings Calculations

Using deemed values from the table above, the evaluators calculated lighting savings as follows:

$$\text{Annual kWh Savings} = (kW_{base} * AOH_{base} - kW_{post} * AOH_{post}) * IEF_E$$

*Parameters for kWh Savings Calculation of Lighting Retrofit Measures*

$kW_{base}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{post}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
$AOH_{base}$	Annual Operating Hours of Baseline Fixtures
$AOH_{post}$	Annual Operating Hours of Installed Fixtures
$IEF_E$	Heating/Cooling Energy Interactive Effects Factor

Following this, the evaluators calculated peak kW savings. This is based upon Louisiana defined peak hours during summer weekdays. Peak kW savings are calculated as:

$$\text{Peak kW Savings} = (kW_{\text{base}} - kW_{\text{post}}) * CF * IEF_D$$

*Parameters for Peak Demand (kW) Savings Calculation of Lighting Retrofit Measures*

$kW_{\text{base}}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{\text{post}}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
CF	Peak Demand Coincident Factor, % Time During the Peak Period in Which Lighting is Operating
$IEF_D$	Heating/Cooling Demand Interactive Effects Factor

*Lighting Retrofit kWh Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		AOH	Expected kWh Savings	Realized kWh Savings	$IEF_E$	Realization Rate
	Base	Post	Base	Post					
4' 2L T12ES to 18W LED - Non-Int. Ballast	10	10	60	18	4,706	1,720	1,720	0.870	100.0%
8' 2L T12 to 35W LED - Non-Int. Ballast	6	12	173	35	4,706	3,365	2,530	0.870	75.2%
8' 2L T12 to 18W LED - Non-Int. Ballast	20	43	173	18	4,706	10,997	10,997	0.870	100.0%
4' 2L T8 to 18W LED - Non-Int. Ballast	17	17	58	18	3,996	2,717	2,717	1.000	100.0%
<b>Total</b>						<b>18,800</b>	<b>17,964</b>		<b>95.6%</b>

*Lighting Retrofit kW Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		CF	Expected kW Savings	Realized kW Savings	$IEF_D$	Realization Rate
	Base	Post	Base	Post					
4' 2L T12ES to 18W LED - Non-Int. Ballast	10	10	60	18	0.95	0.48	0.48	1.200	100.0%
8' 2L T12 to 35W LED - Non-Int. Ballast	6	12	173	35	0.95	0.94	0.70	1.200	74.5%
8' 2L T12 to 18W LED - Non-Int. Ballast	20	43	173	18	0.95	3.06	3.06	1.200	100.0%
4' 2L T8 to 18W LED - Non-Int. Ballast	17	17	58	18	0.00	0.00	0.00	1.000	N/A
<b>Total</b>						<b>4.47</b>	<b>4.24</b>		<b>94.6%</b>



## Results

The kWh realization rate for PRJ-3522691 is 95.6% and the kW realization rate is 94.6%.

On site, the evaluator verified (6) 8' 2-lamp T12 fixtures were replaced by (12) 35W LED fixtures. The ex ante calculations had the same (6) 8' 2-lamp T12 fixtures replaced by (12) 18W LED fixtures. The change in fixture wattage decreased kWh and kW savings.

### *Verified Gross Savings & Realization Rates*

<i>Measure</i>	<i>Verified</i>			
	<i>kWh Savings</i>	<i>kW Savings</i>	<i>kWh Realization Rate</i>	<i>kW Realization Rate</i>
4' 2L T12ES to 18W LED - Non-Int. Ballast	1,720	0.48	100.0%	100.0%
8' 2L T12 to 35W LED - Non-Int. Ballast	2,530	0.70	75.2%	74.5%
8' 2L T12 to 18W LED - Non-Int. Ballast	10,997	3.06	100.0%	100.0%
4' 2L T8 to 18W LED - Non-Int. Ballast	2,717	0.00	100.0%	N/A
<b>Total</b>	<b>17,964</b>	<b>4.24</b>	<b>95.6%</b>	<b>94.6%</b>

**Project Number** PRJ-354390  
**Program** Small Business Solutions

## Project Background

The participant is a 24-hour retail facility that received incentives from EGSL for implementing energy efficient lighting. On-site, the evaluators verified the participant had installed:

- (92) 22W LED fixtures, replacing (46) 4' 3-lamp T12 fixtures;
- (6) 22W LED fixtures, replacing (3) 4' 2-lamp T12 fixtures; and
- (17) 15W LED fixtures, replacing 6' 1-lamp T12 fixtures.

## M&V Methodology

The evaluators confirmed installation of all fixtures listed in the project application. Savings for the lighting measures were calculated using Louisiana stipulated deemed values by space type for hours of use, along with a stipulated peak Coincident Factor (CF), Interactive effects factor for energy ( $IEF_E$ ) and Interactive effects factor for demand ( $IEF_D$ ) determined using local weather data and stipulated peak parameters. The deemed values used in calculating savings are presented in the table below.

*Deemed Savings Parameters*

<b>Building Type</b>	<b>Heating Type</b>	<b>Annual Hours</b>	<b><math>IEF_E</math></b>	<b><math>IEF_D</math></b>	<b>CF</b>
Food Sales: 24-hour Supermarket/Retail	Electric Resistance	6,900	0.980	1.200	0.95
Food Sales: 24-hour Supermarket/Retail	Electric Resistance	6,900	1.250	1.250	0.95

## Savings Calculations

Using deemed values from the table above, the evaluators calculated lighting savings as follows:

$$\text{Annual kWh Savings} = (kW_{\text{base}} * AOH_{\text{base}} - kW_{\text{post}} * AOH_{\text{post}}) * IEF_E$$

*Parameters for kWh Savings Calculation of Lighting Retrofit Measures*

$kW_{\text{base}}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{\text{post}}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
$AOH_{\text{base}}$	Annual Operating Hours of Baseline Fixtures
$AOH_{\text{post}}$	Annual Operating Hours of Installed Fixtures
$IEF_E$	Heating/Cooling Energy Interactive Effects Factor

Following this, the evaluators calculated peak kW savings. This is based upon Louisiana defined peak hours during summer weekdays. Peak kW savings are calculated as:

$$\text{Peak kW Savings} = (kW_{\text{base}} - kW_{\text{post}}) * CF * IEF_D$$

*Parameters for Peak Demand (kW) Savings Calculation of Lighting Retrofit Measures*

$kW_{\text{base}}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{\text{post}}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
CF	Peak Demand Coincident Factor, % Time During the Peak Period in Which Lighting is Operating
$IEF_D$	Heating/Cooling Demand Interactive Effects Factor

*Lighting Retrofit kWh Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		AOH	Expected kWh Savings	Realized kWh Savings	$IEF_E$	Realization Rate
	Base	Post	Base	Post					
4' 3L T12ES to 22W LED - Non-Int. Ballast	46	92	144	22	6,900	31,105	27,614	0.870	88.8%
4' 2L T12ES to 22W LED - Non-Int. Ballast	3	6	72	22	6,900	568	504	0.870	88.7%
6' 1L T12 to 15W LED - Non-Int. Ballast	17	17	76	15	6,900	7,155	8,944	1.250	125.0%
<b>Total</b>						<b>38,828</b>	<b>37,062</b>		<b>95.5%</b>

*Lighting Retrofit kW Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		CF	Expected kW Savings	Realized kW Savings	$IEF_D$	Realization Rate
	Base	Post	Base	Post					
4' 3L T12ES to 22W LED - Non-Int. Ballast	46	92	144	22	0.95	5.24	5.24	1.200	100.0%
4' 2L T12ES to 22W LED - Non-Int. Ballast	3	6	72	22	0.95	0.10	0.10	1.200	100.0%
6' 1L T12 to 15W LED - Non-Int. Ballast	17	17	76	15	0.95	1.00	1.23	1.250	123.0%
<b>Total</b>						<b>6.34</b>	<b>6.57</b>		<b>103.6%</b>

## Results

The kWh realization rate for PRJ-354390 is 95.5% and the kW realization rate is 103.6%.

The low kWh saving is due to two reasons:

- 1) On site, the evaluators verified that the facility uses electric resistance heating, which has an IEF<sub>E</sub> of 0.87. Ex ante heating calculations listed heating system as “Undetermined,” which has an IEF<sub>E</sub> of 0.98.
- 2) Ex post calculations used IEF<sub>E</sub> for cooler of 1.250 while the ex ante calculations used 1.000 for IEF<sub>E</sub>. This change increase the kWh savings for the (17) 15W LED fixtures.

Overall the decrease in savings from the heating type change was greater than the increase in savings from cooler IEF<sub>E</sub>.

The high kW savings is due to ex post calculations using IEF<sub>D</sub> of 1.250 while the ex ante calculations used 1.000 for IEF<sub>D</sub>. This change increase the kW savings for the (17) 15W LED fixtures.

### *Verified Gross Savings & Realization Rates*

<i>Measure</i>	<i>Verified</i>			
	<i>kWh Savings</i>	<i>kW Savings</i>	<i>kWh Realization Rate</i>	<i>kW Realization Rate</i>
4' 3L T12ES to 22W LED - Non-Int. Ballast	27,614	5.24	88.8%	100.0%
4' 2L T12ES to 22W LED - Non-Int. Ballast	504	0.10	88.7%	100.0%
6' 1L T12 to 15W LED - Non-Int. Ballast	8,944	1.23	125.0%	123.0%
<b>Total</b>	<b>37,062</b>	<b>6.57</b>	<b>95.5%</b>	<b>103.6%</b>

**Project Number** PRJ-360753  
**Program** Small Business Solutions

## **Project Background**

The participant is a retail facility that received incentives from EGSL for implementing energy efficient lighting. On-site, the evaluators verified the participant had installed:

- (34) 18W LED fixtures, replacing (17) 4' 4-lamp T8 fixtures

## **M&V Methodology**

The evaluators confirmed installation of all fixtures listed on the project application. Savings for the lighting measures were calculated using Louisiana stipulated deemed values by space type for hours of use, along with a stipulated peak Coincident Factor (CF), Interactive effects factor for energy (IEF<sub>E</sub>) and Interactive effects factor for demand (IEF<sub>D</sub>) determined using local weather data and EGSL Power peak

parameters. The deemed values used in calculating savings are presented in the table below.

*Deemed Savings Parameters*

<b>Building Type</b>	<b>Heating Type</b>	<b>Annual Hours</b>	<b>IEF<sub>E</sub></b>	<b>IEF<sub>D</sub></b>	<b>CF</b>
Retail: Strip Shopping & Non-enclosed Mall	Electric Resistance	3,965	.870	1.200	0.90

## Savings Calculations

Using deemed values from the table above, the evaluators calculated lighting savings as follows:

$$\text{Annual kWh Savings} = (kW_{base} * AOH_{base} - kW_{post} * AOH_{post}) * IEF_E$$

*Parameters for kWh Savings Calculation of Lighting Retrofit Measures*

kW <sub>base</sub>	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
kW <sub>post</sub>	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
AOH <sub>base</sub>	Annual Operating Hours of Baseline Fixtures
AOH <sub>post</sub>	Annual Operating Hours of Installed Fixtures
IEF <sub>E</sub>	Heating/Cooling Energy Interactive Effects Factor

Following this, the evaluators calculated peak kW savings. This is based upon Louisiana defined peak hours during summer weekdays. Peak kW savings are calculated as:

$$\text{Peak kW Savings} = (kW_{base} - kW_{post}) * CF * IEF_D$$

*Parameters for Peak Demand (kW) Savings Calculation of Lighting Retrofit Measures*

kW <sub>base</sub>	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
kW <sub>post</sub>	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
CF	Peak Demand Coincident Factor, % Time During the Peak Period in Which Lighting is Operating
IEF <sub>D</sub>	Heating/Cooling Demand Interactive Effects Factor

*Lighting Retrofit kWh Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		AOH	Expected kWh Savings	Realized kWh Savings	IEF <sub>E</sub>	Realization Rate
	Base	Post	Base	Post					
4' 4L T8 to 18W LED - Int. Ballast	17	34	112	18	3,965	5,020	4,457	0.870	88.8%
<b>Total</b>						<b>5,020</b>	<b>4,457</b>		<b>88.8%</b>

*Lighting Retrofit kW Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		CF	Expected kW Savings	Realized kW Savings	IEF <sub>D</sub>	Realization Rate
	Base	Post	Base	Post					
4' 4L T8 to 18W LED - Int. Ballast	17	34	112	18	.90	1.40	1.40	1.200	100.0%
<b>Total</b>						<b>1.40</b>	<b>1.40</b>		<b>100.0%</b>

**Results**

The kWh realization rate for PRJ-360753 is 88.8% and the kW realization rate is 100.0%.

kWh savings are lower than listed in ex ante calculations because on site, the evaluators verified that the facility uses electric resistance heating, which has an IEF<sub>E</sub> of 0.87. Ex ante calculations listed heating system as “Undetermined”, which has an IEF<sub>E</sub> of 0.98. This change reduced project savings by 563 kWh (11.2%).

*Verified Gross Savings & Realization Rates*

Measure	Verified			
	kWh Savings	kW Savings	kWh Realization Rate	kW Realization Rate
4' 4L T8 to 18W LED - Int. Ballast	4,457	1.40	88.8%	100.0%
<b>Total</b>	<b>4,457</b>	<b>1.40</b>	<b>88.8%</b>	<b>100.0%</b>

**Project Number** PRJ-377042  
**Program** Small Business Solutions

## Project Background

The participant is a retail facility that received incentives from EGSL for implementing energy efficient lighting. On-site, the evaluators verified the participant had installed:

- 18W LED fixtures, replacing 4' 3-lamp T12 fixtures.

On-Site, the evaluators were not able to verify (6) 18W LED fixtures.

## M&V Methodology

The evaluators found some lighting fixture counts deviated from those listed in the project application. Verified fixture counts were used in ex post savings calculations. Savings for the lighting measures were calculated using Louisiana stipulated deemed values by space type for hours of use, along with a stipulated peak Coincident Factor (CF), Interactive effects factor for energy ( $IEF_E$ ) and Interactive effects factor for demand ( $IEF_D$ ) determined using local weather data and stipulated peak parameters. The deemed values used in calculating savings are presented in the table below.

*Deemed Savings Parameters*

<b>Building Type</b>	<b>Heating Type</b>	<b>Annual Hours</b>	<b><math>IEF_E</math></b>	<b><math>IEF_D</math></b>	<b>CF</b>
Retail: Strip Shopping & Non-enclosed Mall	Electric Resistance	3,965	0.87	1.200	0.9

## Savings Calculations

Using deemed values from the table above, the evaluators calculated lighting savings as follows:

$$\text{Annual kWh Savings} = (kW_{base} * AOH_{base} - kW_{post} * AOH_{post}) * IEF_E$$

*Parameters for kWh Savings Calculation of Lighting Retrofit Measures*

$kW_{base}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{post}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
$AOH_{base}$	Annual Operating Hours of Baseline Fixtures
$AOH_{post}$	Annual Operating Hours of Installed Fixtures
$IEF_E$	Heating/Cooling Energy Interactive Effects Factor

Following this, the evaluators calculated peak kW savings. This is based upon Louisiana defined peak hours during summer weekdays. Peak kW savings are calculated as:

$$\text{Peak kW Savings} = (kW_{\text{base}} - kW_{\text{post}}) * CF * IEF_D$$

*Parameters for Peak Demand (kW) Savings Calculation of Lighting Retrofit Measures*

$kW_{\text{base}}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{\text{post}}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
CF	Peak Demand Coincident Factor, % Time During the Peak Period in Which Lighting is Operating
$IEF_D$	Heating/Cooling Demand Interactive Effects Factor

*Lighting Retrofit kWh Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		AOH	Expected kWh Savings	Realized kWh Savings	$IEF_E$	Realization Rate
	Base	Post	Base	Post					
4' 3L T12ES to 18W LED - Non-Int. Ballast	18	36	144	18	3,965	8,915	7,041	0.870	79.0%
<b>Total</b>						<b>8,915</b>	<b>7,041</b>		<b>79.0%</b>

*Lighting Retrofit kW Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		CF	Expected kW Savings	Realized kW Savings	$IEF_D$	Realization Rate
	Base	Post	Base	Post					
4' 3L T12ES to 18W LED - Non-Int. Ballast	18	36	144	18	0.90	2.22	2.20	1.200	99.1%
<b>Total</b>						<b>2.22</b>	<b>2.20</b>		<b>99.1%</b>

## Results

The kWh realization rate for PRJ-377042 is 79.0% and the kW realization rate is 99.1%.

The low kWh savings is due to three reasons:

- 1) On-site, the evaluator verified (36) 18W LED fixtures instead of (42) 18W LED fixtures. Six of the 42 18W LED fixtures were on the invoice, and kept as back-ups.
- 2) The evaluators verified that the facility uses electric resistance heating, which has an  $IEF_E$  of 0.870. Ex ante calculations listed heating system as “Undetermined”, which has an  $IEF_E$  of 0.980.
- 3) The ex ante used Food Sales: Non 24-hour Supermarket/Retail as the building type. On-site, the evaluators determined the building type should be Retail: Strip Shopping & Non-enclosed Mall. This changed the AOH from 4,706 to 3,965.



The decrease in kW savings is also due to two reason:

- 1) Six of the 42 18W LED fixtures were on the invoice, and kept as back-ups.
- 2) The ex ante used Food Sales: Non 24-hour Supermarket/Retail as the building type. On-site, the evaluators determined the building type should be Retail: Strip Shopping & Non-enclosed Mall. This changed the CF from 0.95 to 0.90.

*Verified Gross Savings & Realization Rates*

<i>Measure</i>	<i>Verified</i>			
	<i>kWh Savings</i>	<i>kW Savings</i>	<i>kWh Realization Rate</i>	<i>kW Realization Rate</i>
4' 3L T12ES to 18W LED - Non-Int. Ballast	7,041	2.20	79.0%	99.1%
<b>Total</b>	<b>7,041</b>	<b>2.20</b>	<b>79.0%</b>	<b>99.1%</b>

## 9.2 Large Commercial & Industrial

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**Project Number** PRJ-283996  
**Program** Large Commercial and Industrial

## Project Background

The participant is a parking structure that received incentives from EGSL for implementing energy efficient lighting. On-site, the evaluators verified the participant had installed:

- (119) 51W LED fixtures, replacing 150W high pressure sodium fixtures;
- (17) 112W LED fixtures, replacing 150W metal halide fixtures;
- (11) 51W LED fixtures, replacing 5' 2-lamp T12 fixtures;
- (27) 31W LED fixtures, replacing 4' 2-lamp T12 fixtures;
- (6) 6W LED lamps, replacing 30W halogen lamps;
- (146) 31W LED fixtures, replacing 150W high pressure sodium fixtures;
- (14) 112W LED fixtures, replacing 150W high pressure sodium fixtures;
- (6) 168W LED fixtures, replacing 150W high pressure sodium fixtures;
- (18) 23W LED lamps, replacing 26W halogen lamps;
- (3) 14W LED lamps, replacing 75W incandescent lamps; and
- (4) 168W LED fixtures, replacing 400W metal halide fixtures.

## M&V Methodology

The evaluators confirmed installation of all fixtures listed in the project application. Savings for the lighting measures were calculated using Louisiana stipulated deemed values by space type for hours of use, along with a stipulated peak Coincident Factor (CF), Interactive effects factor for energy ( $IEF_E$ ) and Interactive effects factor for demand ( $IEF_D$ ) determined using local weather data and stipulated peak parameters. The deemed values used in calculating savings are presented in the table below.

*Deemed Savings Parameters*

<b>Building Type</b>	<b>Heating Type</b>	<b>Annual Hours</b>	<b><math>IEF_E</math></b>	<b><math>IEF_D</math></b>	<b>CF</b>
Parking Structure	None	7,884	1.000	1.000	1.00

## Savings Calculations

Using deemed values from the table above, the evaluators calculated lighting savings as follows:

$$\text{Annual kWh Savings} = (kW_{base} * AOH_{base} - kW_{post} * AOH_{post}) * IEF_E$$

*Parameters for kWh Savings Calculation of Lighting Retrofit Measures*

$kW_{base}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{post}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
$AOH_{base}$	Annual Operating Hours of Baseline Fixtures
$AOH_{post}$	Annual Operating Hours of Installed Fixtures
$IEF_E$	Heating/Cooling Energy Interactive Effects Factor

Following this, the evaluators calculated peak kW savings. This is based upon Louisiana defined peak hours during summer weekdays. Peak kW savings are calculated as:

$$Peak\ kW\ Savings = (kW_{base} - kW_{post}) * CF * IEF_D$$

*Parameters for Peak Demand (kW) Savings Calculation of Lighting Retrofit Measures*

$kW_{base}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{post}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
CF	Peak Demand Coincident Factor, % Time During the Peak Period in Which Lighting is Operating
$IEF_D$	Heating/Cooling Demand Interactive Effects Factor

*Lighting Retrofit kWh Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		AOH	Expected kWh Savings	Realized kWh Savings	$IEF_E$	Realization Rate
	Base	Post	Base	Post					
150W HPS to 51W LED - Non-Int. Ballast	119	119	188	51	7,884	128,533	128,533	1.000	100.0%
150W MH to 112W LED - Non-Int. Ballast	17	17	183	112	7,884	9,516	9,516	1.000	100.0%
4' 2L T12ES to 51W LED - Non-Int. Ballast	11	11	72	51	7,884	1,821	1,821	1.000	100.0%
4' 2L T12ES to 31W LED - Non-Int. Ballast	27	27	72	31	7,884	8,728	8,728	1.000	100.0%
30W 1L Halogen to 6W LED - Non-Int. Ballast	6	6	30	6	7,884	1,135	1,135	1.000	100.0%
150W HPS to 31W LED - Non-Int. Ballast	146	146	188	31	7,884	180,717	180,717	1.000	100.0%
150W HPS to 112W LED - Non-Int. Ballast	14	14	188	112	7,884	8,389	8,389	1.000	100.0%
150W HPS to 168W LED - Non-Int. Ballast	6	6	188	168	7,884	946	946	1.000	100.0%
26W 1L Halogen to 23W LED - Non-Int. Ballast	18	18	26	23	7,884	426	426	1.000	100.0%

75W Inc. to 13W LED - Non-Int. Ballast	3	3	53	13	7,884	1,466	946	1.000	64.5%
400W MH to 168W LED - Non-Int. Ballast	4	4	453	168	7,884	8,988	8,988	1.000	100.0%
<b>Total</b>						<b>350,665</b>	<b>350,144</b>		<b>99.9%</b>

*Lighting Retrofit kW Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		CF	Expected kW Savings	Realized kW Savings	IEF <sub>D</sub>	Realization Rate
	Base	Post	Base	Post					
150W HPS to 51W LED - Non-Int. Ballast	119	119	188	51	1.00	16.30	16.30	1.000	100.0%
150W MH to 112W LED - Non-Int. Ballast	17	17	183	112	1.00	1.21	1.21	1.000	100.0%
4' 2L T12ES to 51W LED - Non-Int. Ballast	11	11	72	51	1.00	0.23	0.23	1.000	100.0%
4' 2L T12ES to 31W LED - Non-Int. Ballast	27	27	72	31	1.00	1.11	1.11	1.000	100.0%
30W 1L Halogen to 6W LED - Non-Int. Ballast	6	6	30	6	1.00	0.14	0.14	1.000	100.0%
150W HPS to 31W LED - Non-Int. Ballast	146	146	188	31	1.00	22.92	22.92	1.000	100.0%
150W HPS to 112W LED - Non-Int. Ballast	14	14	188	112	1.00	1.06	1.06	1.000	100.0%
150W HPS to 168W LED - Non-Int. Ballast	6	6	188	168	1.00	0.12	0.12	1.000	100.0%
26W 1L Halogen to 23W LED - Non-Int. Ballast	18	18	26	23	1.00	0.05	0.05	1.000	100.0%
75W Inc. to 13W LED - Non-Int. Ballast	3	3	53	13	1.00	0.19	0.12	1.000	64.5%
400W MH to 168W LED - Non-Int. Ballast	4	4	453	168	1.00	1.14	1.14	1.000	100.0%
<b>Total</b>						<b>44.48</b>	<b>44.41</b>		<b>99.9%</b>

## Results

The kWh realization rate for PRJ-283996 is 99.9% and the kW realization rate is 99.9%.

The slight decrease in kWh and kW savings is due to the ex post calculations followed EISA standards for 75W incandescent lamps. Under EISA standards 75W incandescent lamps have a baseline of 53W instead of 75W.

*Verified Gross Savings & Realization Rates*

<i>Measure</i>	<i>Verified</i>			
	<i>kWh Savings</i>	<i>kW Savings</i>	<i>kWh Realization Rate</i>	<i>kW Realization Rate</i>
150W HPS to 51W LED - Non-Int. Ballast	128,533	16.30	100.0%	100.0%
150W MH to 112W LED - Non-Int. Ballast	9,516	1.21	100.0%	100.0%
4' 2L T12ES to 51W LED - Non-Int. Ballast	1,821	0.23	100.0%	100.0%
4' 2L T12ES to 31W LED - Non-Int. Ballast	8,728	1.11	100.0%	100.0%
30W 1L Halogen to 6W LED - Non-Int. Ballast	1,135	0.14	100.0%	100.0%
150W HPS to 31W LED - Non-Int. Ballast	180,717	22.92	100.0%	100.0%
150W HPS to 112W LED - Non-Int. Ballast	8,389	1.06	100.0%	100.0%
150W HPS to 168W LED - Non-Int. Ballast	946	0.12	100.0%	100.0%
26W 1L Halogen to 23W LED - Non-Int. Ballast	426	0.05	100.0%	100.0%
75W Inc. to 13W LED - Non-Int. Ballast	946	0.12	64.5%	64.5%
400W MH to 168W LED - Non-Int. Ballast	8,988	1.14	100.0%	100.0%
<b>Total</b>	<b>350,144</b>	<b>44.41</b>	<b>99.9%</b>	<b>99.9%</b>

**Project Number** PRJ-324003  
**Program** Large Commercial and Industrial

## Project Background

The participant is a restaurant that received incentives from EGSL for implementing energy efficient lighting. On-site, the evaluators verified the participant had installed:

- (64) 16W LED fixtures, replacing (32) 4' 4L T8 fixtures,
- (96) 16W LED fixtures, replacing (48) 4' 4L T8 fixtures,
- (2) 16W LED fixtures, replacing (2) U-tube 1-lamp T12 fixtures;
- (6) 12W LED lamps, replacing 65W incandescent lamps;
- (66) 285W LED fixtures, replacing (66) 1000W metal halide fixtures;
- (6) 16W LED fixtures, replacing (3) 4' 4L T8 fixtures;
- (3) 16W LED fixtures, replacing (3) U-tube 2-lamp T12 fixtures; and
- (15) 60W LED fixtures, replacing 400W metal halide fixtures.

## M&V Methodology

The evaluators found some lighting fixture counts deviated from those listed in the project application. Verified fixture counts were used in ex post savings calculations. Savings for the lighting measures were calculated using Louisiana stipulated deemed values by space type for hours of use, along with a stipulated peak Coincident Factor (CF), Interactive effects factor for energy ( $IEF_E$ ) and Interactive effects factor for demand ( $IEF_D$ ) determined using local weather data and stipulated peak parameters. The deemed values used in calculating savings are presented in the table below.

*Deemed Savings Parameters*

<b>Building Type</b>	<b>Heating Type</b>	<b>Annual Hours</b>	<b><math>IEF_E</math></b>	<b><math>IEF_D</math></b>	<b>CF</b>
Office	Electric Resistance	3,737	0.870	1.200	0.77
Manufacturing	Electric Resistance	5,740	0.870	1.200	0.73
Manufacturing	None	5,740	1.000	1.000	0.73
Outdoor	None	3,996	1.000	1.000	0.00

## Savings Calculations

Using deemed values from the table above, the evaluators calculated lighting savings as follows:

$$\text{Annual kWh Savings} = (kW_{base} * AOH_{base} - kW_{post} * AOH_{post}) * IEF_E$$

*Parameters for kWh Savings Calculation of Lighting Retrofit Measures*

kW <sub>base</sub>	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
kW <sub>post</sub>	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
AOH <sub>base</sub>	Annual Operating Hours of Baseline Fixtures
AOH <sub>post</sub>	Annual Operating Hours of Installed Fixtures
IEF <sub>E</sub>	Heating/Cooling Energy Interactive Effects Factor

Following this, the evaluators calculated peak kW savings. This is based upon Louisiana defined peak hours during summer weekdays. Peak kW savings are calculated as:

$$\text{Peak kW Savings} = (kW_{\text{base}} - kW_{\text{post}}) * CF * IEF_D$$

*Parameters for Peak Demand (kW) Savings Calculation of Lighting Retrofit Measures*

kW <sub>base</sub>	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
kW <sub>post</sub>	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
CF	Peak Demand Coincident Factor, % Time During the Peak Period in Which Lighting is Operating
IEF <sub>D</sub>	Heating/Cooling Demand Interactive Effects Factor

*Lighting Retrofit kWh Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		AOH	Expected kWh Savings	Realized kWh Savings	IEF <sub>E</sub>	Realization Rate
	Base	Post	Base	Post					
4' 4L T8 to 16W LED - Non-Int. Ballast	32	64	112	16	3,737	9,375	8,323	0.870	88.8%
4' 4L T8 to 16W LED - Non-Int. Ballast	48	96	112	16	5,740	17,958	19,176	0.870	106.8%
1L T12ES U-Tube to 16W LED - Non-Int. Ballast	2	2	72	16	5,740	524	559	0.870	106.7%
65W Inc. to 12W LED - Non-Int. Ballast	6	6	65	12	5,740	1,487	1,588	0.870	106.8%
1000W MH to 285W LED - Non-Int. Ballast	66	66	1,078	285	5,740	249,757	300,420	1.000	120.3%
4' 4L T8 to 16W LED - Non-Int. Ballast	3	6	112	16	5,740	1,145	1,378	1.000	120.3%
2L T8 U-Tube to 16W LED - Non-Int. Ballast	3	3	60	16	5,740	617	659	0.870	106.8%
400W MH to 60W LED - Non-Int. Ballast	15	15	453	60	3,996	23,556	23,556	1.000	100.0%
<b>Total</b>						<b>304,420</b>	<b>355,659</b>		<b>116.8%</b>



*Lighting Retrofit kW Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		CF	Expected kW Savings	Realized kW Savings	IEF <sub>D</sub>	Realization Rate
	Base	Post	Base	Post	Base				
4' 4L T8 to 16W LED - Non-Int. Ballast	32	64	112	16	0.77	2.37	2.37	1.200	100.2%
4' 4L T8 to 16W LED - Non-Int. Ballast	48	96	112	16	0.73	4.01	3.36	1.200	83.8%
1L T12ES U-Tube to 16W LED - Non-Int. Ballast	2	2	72	16	0.73	0.12	0.10	1.200	85.5%
65W Inc. to 12W LED - Non-Int. Ballast	6	6	65	12	0.73	0.33	0.28	1.200	84.3%
1000W MH to 285W LED - Non-Int. Ballast	66	66	1,078	285	0.73	45.53	38.21	1.000	83.9%
4' 4L T8 to 16W LED - Non-Int. Ballast	3	6	112	16	0.73	0.21	0.18	1.000	86.2%
2L T8 U-Tube to 16W LED - Non-Int. Ballast	3	3	60	16	0.73	0.14	0.12	1.200	87.1%
400W MH to 60W LED - Non-Int. Ballast	15	15	453	60	0.00	0.00	0.00	1.200	N/A
<b>Total</b>						<b>52.70</b>	<b>44.62</b>		<b>84.7%</b>

## Results

The kWh realization rate for PRJ-324003 is 116.8% and the kW realization rate is 84.7%.

The high kWh savings is due to the ex post calculations used greater hours of operations Areas (5,740) than the ex ante calculations (4,772) for Manufacturing.

The low kW savings is due to the ex post calculations used a smaller IEF<sub>D</sub> value (0.77) than the ex ante calculations (0.87) for Manufacturing Areas.

*Verified Gross Savings & Realization Rates*

<i>Measure</i>	<i>Verified</i>			
	<i>kWh Savings</i>	<i>kW Savings</i>	<i>kWh Realization Rate</i>	<i>kW Realization Rate</i>
4' 4L T8 to 16W LED - Non-Int. Ballast	8,323	2.37	88.8%	100.2%
4' 4L T8 to 16W LED - Non-Int. Ballast	19,176	3.36	106.8%	83.8%
1L T12ES U-Tube to 16W LED - Non-Int. Ballast	559	0.10	106.7%	85.5%
65W Inc. to 12W LED - Non-Int. Ballast	1,588	0.28	106.8%	84.3%
1000W MH to 285W LED - Non-Int. Ballast	300,420	38.21	120.3%	83.9%
4' 4L T8 to 16W LED - Non-Int. Ballast	1,378	0.18	120.3%	86.2%
2L T8 U-Tube to 16W LED - Non-Int. Ballast	659	0.12	106.8%	87.1%
400W MH to 60W LED - Non-Int. Ballast	23,556	0.00	100.0%	N/A
<b>Total</b>	<b>355,659</b>	<b>44.62</b>	<b>116.8%</b>	<b>84.7%</b>

**Project Number** PRJ-333574  
**Program** Large Commercial and Industrial

## Project Background

The participant is an enclosed mall that received incentives from EGSL for implementing energy efficient lighting. On-site, the evaluators verified the participant had installed:

- (13) 95W LED fixtures, replacing 400W metal halide fixtures;
- (10) 32W LED fixtures, replacing 150W metal halide fixtures;
- (14) 32W LED fixtures, replacing 100W metal halide fixtures;
- (13) 32W LED fixtures, replacing 150W metal halide fixtures;
- (11) 19W LED lamps, replacing 100W incandescent lamps;
- (13) 19W LED lamps, replacing 23W CF lamps;
- (140) 18W LED fixtures, replacing (70) 4' 3-lamp T8 fixtures;
- (16) 18W LED fixtures, replacing (8) 4' 3-lamp T8 fixtures;
- (6) 18W LED fixtures, replacing (3) 4' 3-lamp T8 fixtures;
- (72) 18W LED fixtures, replacing (34) 4' 4-lamp T8 fixtures;
- (88) 18W LED fixtures, replacing (44) 4' 3-lamp T8 fixtures;
- (40) 18W LED fixtures, replacing (20) 4' 3-lamp T8 fixtures;
- (32) 18W LED fixtures, replacing (16) 4' 3-lamp T8 fixtures;
- (82) 18W LED fixtures, replacing (41) 4' 4-lamp T8 fixtures;
- (8) 18W LED fixtures, replacing (4) 4' 4-lamp T8 fixtures;
- (42) 18W LED fixtures, replacing (21) 4' 3-lamp T8 fixtures; and
- (8) 18W LED fixtures, replacing (4) 4' 3-lamp T8 fixtures;

On-site the evaluators did not verify the participants installed:

- (1) 21W LED fixtures;
- (13) 32W LED fixtures;
- (3) 19W LED lamps;
- (48) 8W LED lamps; and
- (10) 18W LED fixtures.

## M&V Methodology

The evaluators found some lighting fixture counts deviated from those listed in the project application. Verified fixture counts were used in ex post savings calculations. Savings for the lighting measures were calculated using Louisiana stipulated deemed values by space type for hours of use, along with a stipulated peak Coincident Factor (CF), Interactive effects factor for energy ( $IEF_E$ ) and Interactive effects factor for demand ( $IEF_D$ ) determined using local weather data and stipulated peak parameters. The deemed values used in calculating savings are presented in the table below.

*Deemed Savings Parameters*

<b>Building Type</b>	<b>Heating Type</b>	<b>Cooling Type</b>	<b>Annual Hours</b>	<b>IEF<sub>E</sub></b>	<b>IEF<sub>D</sub></b>	<b>CF</b>
Outdoor	None	None	3,996	1.000	1.000	0.00
Retail: Enclosed Mall	Gas	Electric Refrigerated	4,818	1.090	1.200	0.93

## Savings Calculations

Using deemed values from the table above, the evaluators calculated lighting savings as follows:

$$\text{Annual kWh Savings} = (kW_{base} * AOH_{base} - kW_{post} * AOH_{post}) * IEF_E$$

*Parameters for kWh Savings Calculation of Lighting Retrofit Measures*

kW <sub>base</sub>	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
kW <sub>post</sub>	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
AOH <sub>base</sub>	Annual Operating Hours of Baseline Fixtures
AOH <sub>post</sub>	Annual Operating Hours of Installed Fixtures
IEF <sub>E</sub>	Heating/Cooling Energy Interactive Effects Factor

Following this, the evaluators calculated peak kW savings. This is based upon Louisiana defined peak hours during summer weekdays. Peak kW savings are calculated as:

$$\text{Peak kW Savings} = (kW_{base} - kW_{post}) * CF * IEF_D$$

*Parameters for Peak Demand (kW) Savings Calculation of Lighting Retrofit Measures*

kW <sub>base</sub>	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
kW <sub>post</sub>	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
CF	Peak Demand Coincident Factor, % Time During the Peak Period in Which Lighting is Operating
IEF <sub>D</sub>	Heating/Cooling Demand Interactive Effects Factor

*Lighting Retrofit kWh Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		AOH	Expected kWh Savings	Realized kWh Savings	IEF <sub>E</sub>	Realization Rate
	Base	Post	Base	Post					
400W MH to 95W LED - Non-Int. Ballast	13	13	453	95	3,996	3,996	17,167	18,597	1.000
70W MH to 21W LED - Non-Int. Ballast	0	0	91	21	3,996	3,996	280	0	1.000
150W MH to 32W LED - Non-Int. Ballast	10	10	183	32	3,996	3,996	6,637	6,034	1.000
100W MH to 32W LED - Int. Ballast	14	14	124	32	4,813	4,813	6,412	6,199	1.000
150W MH to 32W LED - Int. Ballast	13	13	183	32	4,813	4,813	11,077	9,448	1.000
100W Inc. to 19W LED - Int. Ballast	11	11	72	19	4,813	4,813	4,534	3,059	1.090
39W 1L Halogen to 8W LED - Non-Int. Ballast	0	0	39	8	4,813	4,813	5,949	0	1.090
23W CFL to 19W LED - Int. Ballast	13	13	23	19	4,813	4,813	208	273	1.090
4' 3L T8 to 18W LED - Int. Ballast	70	140	85	18	4,813	4,813	20,962	17,994	1.090
4' 3L T8 to 18W LED - Int. Ballast	8	16	85	18	4,813	4,813	2,431	2,056	1.090
4' 3L T8 to 18W LED - Int. Ballast	3	6	85	18	4,813	4,813	612	771	1.090
4' 4L T8 to 18W LED - Int. Ballast	34	72	112	18	4,813	4,813	2,651	13,178	1.090
4' 3L T8 to 18W LED - Int. Ballast	44	88	85	18	4,813	4,813	6,525	11,311	1.090
4' 3L T8 to 18W LED - Int. Ballast	20	40	85	18	4,813	4,813	4,078	5,141	1.090
4' 3L T8 to 18W LED - Int. Ballast	16	32	85	18	4,813	4,813	3,135	4,113	1.090
4' 4L T8 to 18W LED - Int. Ballast	41	82	112	18	4,813	4,813	8,032	16,347	1.090
4' 4L T8 to 18W LED - Int. Ballast	4	8	112	18	4,813	4,813	1,427	1,595	1.090
4' 3L T8 to 18W LED - Int. Ballast	21	42	85	18	4,813	4,813	4,114	5,398	1.090
4' 3L T8 to 18W LED - Int. Ballast	4	8	85	18	4,813	4,813	784	1,028	1.090
<b>Total</b>						<b>100,785</b>	<b>43,337</b>		<b>43.0%</b>

*Lighting Retrofit kW Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		CF	Expected kW Savings	Realized kW Savings	IEF <sub>D</sub>	Realization Rate
	Base	Post	Base	Post					
400W MH to 95W LED - Non-Int. Ballast	13	13	453	95	0.00	0.00	0.00	0.00	1.000
70W MH to 21W LED - Non-Int. Ballast	0	0	91	21	0.00	0.00	0.00	0.00	1.000
150W MH to 32W LED - Non-Int. Ballast	10	10	183	32	0.00	0.00	0.00	0.00	1.000
100W MH to 32W LED - Int. Ballast	14	14	124	32	0.93	0.93	1.57	1.20	1.000
150W MH to 32W LED - Int. Ballast	13	13	183	32	0.93	0.93	2.72	1.83	1.000
100W Inc. to 19W LED - Int. Ballast	11	11	72	19	0.93	0.93	1.22	0.65	1.200
39W 1L Halogen to 8W LED - Non-Int. Ballast	0	0	39	8	0.93	0.93	1.61	0.00	1.200
23W CFL to 19W LED - Int. Ballast	13	13	23	19	0.93	0.93	0.06	0.06	1.200
4' 3L T8 to 18W LED - Int. Ballast	70	140	85	18	0.93	0.93	5.66	3.83	1.200
4' 3L T8 to 18W LED - Int. Ballast	8	16	85	18	0.93	0.93	0.66	0.44	1.200
4' 3L T8 to 18W LED - Int. Ballast	3	6	85	18	0.93	0.93	0.17	0.16	1.200
4' 4L T8 to 18W LED - Int. Ballast	34	72	112	18	0.93	0.93	0.72	2.80	1.200
4' 3L T8 to 18W LED - Int. Ballast	44	88	85	18	0.93	0.93	1.76	2.41	1.200
4' 3L T8 to 18W LED - Int. Ballast	20	40	85	18	0.93	0.93	1.10	1.09	1.200
4' 3L T8 to 18W LED - Int. Ballast	16	32	85	18	0.93	0.93	0.85	0.87	1.200
4' 4L T8 to 18W LED - Int. Ballast	41	82	112	18	0.93	0.93	2.17	3.48	1.200
4' 4L T8 to 18W LED - Int. Ballast	4	8	112	18	0.93	0.93	0.39	0.34	1.200
4' 3L T8 to 18W LED - Int. Ballast	21	42	85	18	0.93	0.93	1.11	1.15	1.200
4' 3L T8 to 18W LED - Int. Ballast	4	8	85	18	0.93	0.93	0.21	0.22	1.200
<b>Total</b>						<b>20.36</b>	<b>20.53</b>		<b>100.8%</b>

## Results

The kWh realization rate for PRJ-333574 is 114.5% and the kW realization rate is 93.5%.

The high kWh savings is due to the greater hours of operation used in the ex post calculations for Enclosed Mall building type (4,813), than the ex ante calculations (3,668). The increase in savings from hours of operation change was greater than the decrease in savings from 75 unverified fixtures.

The low kW savings is due to 75 unverified fixtures. The increase in hours of operation does not affect demand savings.

*Verified Gross Savings & Realization Rates*

<i>Measure</i>	<i>Verified</i>			
	<i>kWh Savings</i>	<i>kW Savings</i>	<i>kWh Realization Rate</i>	<i>kW Realization Rate</i>
400W MH to 95W LED - Non-Int. Ballast	18,597	0.00	108.3%	N/A
70W MH to 21W LED - Non-Int. Ballast	0	0.00	0.0%	N/A
150W MH to 32W LED - Non-Int. Ballast	6,034	0.00	90.9%	N/A
100W MH to 32W LED - Int. Ballast	6,199	1.20	96.7%	76.3%
150W MH to 32W LED - Int. Ballast	9,448	1.83	85.3%	67.3%
100W Inc. to 19W LED - Int. Ballast	3,059	0.65	67.5%	53.1%
39W 1L Halogen to 8W LED - Non-Int. Ballast	0	0.00	0.0%	0.0%
23W CFL to 19W LED - Int. Ballast	273	0.06	131.3%	106.8%
4' 3L T8 to 18W LED - Int. Ballast	17,994	3.83	85.8%	67.6%
4' 3L T8 to 18W LED - Int. Ballast	2,056	0.44	84.6%	67.0%
4' 3L T8 to 18W LED - Int. Ballast	771	0.16	126.0%	96.8%
4' 4L T8 to 18W LED - Int. Ballast	13,178	2.80	497.1%	391.0%
4' 3L T8 to 18W LED - Int. Ballast	11,311	2.41	173.4%	136.7%
4' 3L T8 to 18W LED - Int. Ballast	5,141	1.09	126.1%	98.9%
4' 3L T8 to 18W LED - Int. Ballast	4,113	0.87	131.2%	102.7%
4' 4L T8 to 18W LED - Int. Ballast	16,347	3.48	203.5%	160.4%
4' 4L T8 to 18W LED - Int. Ballast	1,595	0.34	111.7%	88.2%
4' 3L T8 to 18W LED - Int. Ballast	5,398	1.15	131.2%	103.5%
4' 3L T8 to 18W LED - Int.	1,028	0.22	131.2%	103.9%

Ballast				
<b>Total</b>	<b>122,542</b>	<b>20.53</b>	<b>114.5%</b>	<b>93.5%</b>



**Project Number** PRJ-345649  
**Program** Large Commercial and Industrial

## Project Background

The participant is a hospital that received incentives from EGSL for implementing energy efficient lighting in its parking garage. On-site, the evaluators verified the participant had installed:

- (556) 40W LED fixtures, replacing 70W High Pressure Sodium fixtures; and
- (28) 60W LED fixtures, replacing 400W High Pressure Sodium fixtures.

## M&V Methodology

The evaluators confirmed installation of all fixtures listed in the project application. Savings for the lighting measures were calculated using Louisiana stipulated deemed values by space type for hours of use, along with a stipulated peak Coincident Factor (CF), Interactive effects factor for energy ( $IEF_E$ ) and Interactive effects factor for demand ( $IEF_D$ ) determined using local weather data and stipulated peak parameters. The deemed values used in calculating savings are presented in the table below.

*Deemed Savings Parameters*

<b>Building Type</b>	<b>Heating Type</b>	<b>Annual Hours</b>	<b><math>IEF_E</math></b>	<b><math>IEF_D</math></b>	<b>CF</b>
Parking Structure	None	7,884	1.000	1.000	1.000

## Savings Calculations

Using deemed values from the table above, the evaluators calculated lighting savings as follows:

$$\text{Annual kWh Savings} = (kW_{base} * AOH_{base} - kW_{post} * AOH_{post}) * IEF_E$$

*Parameters for kWh Savings Calculation of Lighting Retrofit Measures*

$kW_{base}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{post}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
$AOH_{base}$	Annual Operating Hours of Baseline Fixtures
$AOH_{post}$	Annual Operating Hours of Installed Fixtures
$IEF_E$	Heating/Cooling Energy Interactive Effects Factor

Following this, the evaluators calculated peak kW savings. This is based upon Louisiana defined peak hours during summer weekdays. Peak kW savings are calculated as:

$$\text{Peak kW Savings} = (kW_{\text{base}} - kW_{\text{post}}) * CF * IEF_D$$

*Parameters for Peak Demand (kW) Savings Calculation of Lighting Retrofit Measures*

$kW_{\text{base}}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{\text{post}}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
CF	Peak Demand Coincident Factor, % Time During the Peak Period in Which Lighting is Operating
$IEF_D$	Heating/Cooling Demand Interactive Effects Factor

*Lighting Retrofit kWh Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		AOH	Expected kWh Savings	Realized kWh Savings	$IEF_E$	Realization Rate
	Base	Post	Base	Post					
70W HPS to 40W LED - Non-Int. Ballast	556	556	95	40	7,884	241,093	241,093	1.000	100.0%
400W HPS to 60W LED - Non-Int. Ballast	28	28	465	60	7,884	89,405	89,405	1.000	100.0%
<b>Total</b>						<b>330,497</b>	<b>330,497</b>		<b>100.0%</b>

*Lighting Retrofit kW Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		CF	Expected kW Savings	Realized kW Savings	$IEF_D$	Realization Rate
	Base	Post	Base	Post					
70W HPS to 40W LED - Non-Int. Ballast	556	556	95	40	1.000	30.58	30.58	1.000	100.0%
400W HPS to 60W LED - Non-Int. Ballast	28	28	465	60	1.000	11.34	11.34	1.000	100.0%
<b>Total</b>						<b>41.92</b>	<b>41.92</b>		<b>100.0%</b>

## Results

The kWh realization rate for PRJ-345649 is 100.0% and the kW realization rate is 100.0%.

*Verified Gross Savings & Realization Rates*

<i>Measure</i>	<i>Verified</i>			
	<i>kWh Savings</i>	<i>kW Savings</i>	<i>kWh Realization Rate</i>	<i>kW Realization Rate</i>
70W HPS to 40W LED - Non-Int. Ballast	241,093	30.58	100.0%	100.0%
400W HPS to 60W LED - Non-Int. Ballast	89,405	11.34	100.0%	100.0%
<b>Total</b>	<b>330,497</b>	<b>41.92</b>	<b>100.0%</b>	<b>100.0%</b>

**Project Number** PRJ-350044  
**Program** Large Commercial and Industrial

## Project Background

The participant is museum facility that received incentives from EGSL for implementing energy efficient lighting. On-site, the evaluators verified the participant had installed:

- (153) 14W LED lamps, replacing 150W incandescent lamps;
- (109) 12W LED lamps, replacing 150W incandescent lamps;
- (18) 12W LED lamps, replacing 65W incandescent lamps;
- (5) 8W LED lamps, replacing 50W incandescent lamps;
- (131) 18W LED lamps, replacing 100W incandescent lamps;
- (6) 105W LED fixtures, replacing 400W mercury vapor fixtures; and
- (458) 9W LED lamps, replacing 60W incandescent lamps.

On-site, the evaluators did not verify (2) 105W LED fixtures.

## M&V Methodology

The evaluators found some lighting fixture counts deviated from those listed in the project application. Verified fixture counts were used in ex post savings calculations. Savings for the lighting measures were calculated using Louisiana stipulated deemed values by space type for hours of use, along with a stipulated peak Coincident Factor (CF), Interactive effects factor for energy ( $IEF_E$ ) and Interactive effects factor for demand ( $IEF_D$ ) determined using local weather data and stipulated peak parameters. The deemed values used in calculating savings are presented in the table below.

*Deemed Savings Parameters*

<b>Building Type</b>	<b>Heating Type</b>	<b>Annual Hours</b>	<b><math>IEF_E</math></b>	<b><math>IEF_D</math></b>	<b>CF</b>
Retail: Excluding Malls & Strip Centers	Electric Resistance	3,668	0.870	1.200	0.9
Outdoor	None	3,996	1.000	1.000	0.00

## Savings Calculations

Using deemed values from the table above, the evaluators calculated lighting savings as follows:

$$\text{Annual kWh Savings} = (kW_{base} * AOH_{base} - kW_{post} * AOH_{post}) * IEF_E$$

*Parameters for kWh Savings Calculation of Lighting Retrofit Measures*

$kW_{base}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{post}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
$AOH_{base}$	Annual Operating Hours of Baseline Fixtures
$AOH_{post}$	Annual Operating Hours of Installed Fixtures
$IEF_E$	Heating/Cooling Energy Interactive Effects Factor

Following this, the evaluators calculated peak kW savings. This is based upon Louisiana defined peak hours during summer weekdays. Peak kW savings are calculated as:

$$Peak\ kW\ Savings = (kW_{base} - kW_{post}) * CF * IEF_D$$

*Parameters for Peak Demand (kW) Savings Calculation of Lighting Retrofit Measures*

$kW_{base}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{post}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
CF	Peak Demand Coincident Factor, % Time During the Peak Period in Which Lighting is Operating
$IEF_D$	Heating/Cooling Demand Interactive Effects Factor

*Lighting Retrofit kWh Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		AOH	Expected kWh Savings	Realized kWh Savings	$IEF_E$	Realization Rate
	Base	Post	Base	Post					
150W Inc. to 14W LED - Int. Ballast	153	153	150	14	3,668	71,778	66,402	0.870	92.5%
150W Inc. to 12W LED - Int. Ballast	109	109	150	12	3,668	51,888	48,001	0.870	92.5%
65W Inc. to 12W LED - Int. Ballast	18	18	65	12	3,668	3,291	3,044	0.870	92.5%
50W Inc. to 8W LED - Int. Ballast	5	5	50	8	3,668	724	670	0.870	92.5%
100W MV to 18W LED - Int. Ballast	131	131	125	18	3,996	56,012	56,012	1.000	100.0%
400W MV to 105W LED - Non-Int. Ballast	6	6	455	105	3,996	11,189	8,392	1.000	75.0%
60W Inc. to 9W LED - Int. Ballast	458	458	43	9	3,668	90,762	49,693	0.870	54.8%
<b>Total</b>						<b>285,645</b>	<b>232,214</b>		<b>81.3%</b>

*Lighting Retrofit kW Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		CF	Expected kW Savings	Realized kW Savings	IEF <sub>D</sub>	Realization Rate
	Base	Post	Base	Post					
150W Inc. to 14W LED - Int. Ballast	153	153	150	14	0.90	22.47	22.47	1.200	100.0%
150W Inc. to 12W LED - Int. Ballast	109	109	150	12	0.90	16.25	16.25	1.200	100.0%
65W Inc. to 12W LED - Int. Ballast	18	18	65	12	0.90	1.03	1.03	1.200	100.0%
50W Inc. to 8W LED - Int. Ballast	5	5	50	8	0.90	0.23	0.23	1.200	100.0%
100W MV to 18W LED - Int. Ballast	131	131	125	18	0.00	0.00	0.00	1.000	N/A
400W MV to 105W LED - Non-Int. Ballast	6	6	455	105	0.00	0.00	0.00	1.000	N/A
60W Inc. to 9W LED - Int. Ballast	458	458	43	9	0.90	25.23	16.82	1.200	66.7%
<b>Total</b>						<b>65.20</b>	<b>56.79</b>		<b>87.1%</b>

**Results**

The kWh realization rate for PRJ-340044 is 81.3% and the kW realization rate is 87.1%.

The low kWh saving is due to three reasons:

- 1) The ex post calculations used EISA standard wattages for the 60W incandescent lamps. Under EISA standards 60W incandescent lamps have a baseline of 43W.
- 2) The ex post calculations used AOH of 3,668 hours for Retail: Excluding Malls & Strip Centers while the ex ante used AOH of 3,965 for the same building type.
- 3) The two 105W LED fixtures were not verified on site.

EISA standard wattages for the 60W incandescent lamps also lowered kW savings.

*Verified Gross Savings & Realization Rates*

Measure	Verified			
	kWh Savings	kW Savings	kWh Realization Rate	kW Realization Rate
150W Inc. to 14W LED - Int. Ballast	66,402	22.47	92.5%	100.0%
150W Inc. to 12W LED -	48,001	16.25	92.5%	100.0%

Int. Ballast				
65W Inc. to 12W LED - Int. Ballast	3,044	1.03	92.5%	100.0%
50W Inc. to 8W LED - Int. Ballast	670	0.23	92.5%	100.0%
100W MV to 18W LED - Int. Ballast	56,012	0.00	100.0%	N/A
400W MV to 105W LED - Non-Int. Ballast	8,392	0.00	75.0%	N/A
60W Inc. to 9W LED - Int. Ballast	49,693	16.82	54.8%	66.7%
<b>Total</b>	<b>232,214</b>	<b>56.79</b>	<b>81.3%</b>	<b>87.1%</b>

**Project Number** PRJ-350047  
**Program** Large Commercial and Industrial

## Project Background

The participant is a manufacturing facility that received incentives from EGSL for implementing energy efficient lighting. On-site, the evaluators verified the participant had installed:

- (42) 359W LED fixtures, replacing 1000W metal halide fixtures;
- (18) 539W LED fixtures, replacing 1000W metal halide fixtures;
- (8) 359W LED fixtures, replacing 1000W metal halide fixtures; and
- (4) 539W LED fixtures, replacing 1000W metal halide fixtures.

## M&V Methodology

The evaluators confirmed installation of all fixtures listed in the project application. Savings for the lighting measures were calculated using Louisiana stipulated deemed values by space type for hours of use, along with a stipulated peak Coincident Factor (CF), Interactive effects factor for energy ( $IEF_E$ ) and Interactive effects factor for demand ( $IEF_D$ ) determined using local weather data and stipulated peak parameters. The deemed values used in calculating savings are presented in the table below.

*Deemed Savings Parameters*

<b>Building Type</b>	<b>Heating Type</b>	<b>Cooling Type</b>	<b>Annual Hours</b>	<b><math>IEF_E</math></b>	<b><math>IEF_D</math></b>	<b>CF</b>
Manufacturing	Electric Resistance	Electric Refrigerated	5,740	0.870	1.200	0.73
Manufacturing	Electric Resistance	None	5,740	0.870	1.000	0.73

## Savings Calculations

Using deemed values from the table above, the evaluators calculated lighting savings as follows:

$$\text{Annual kWh Savings} = (kW_{base} * AOH_{base} - kW_{post} * AOH_{post}) * IEF_E$$

*Parameters for kWh Savings Calculation of Lighting Retrofit Measures*

$kW_{base}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{post}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
$AOH_{base}$	Annual Operating Hours of Baseline Fixtures
$AOH_{post}$	Annual Operating Hours of Installed Fixtures
$IEF_E$	Heating/Cooling Energy Interactive Effects Factor



Following this, the evaluators calculated peak kW savings. This is based upon Louisiana defined peak hours during summer weekdays. Peak kW savings are calculated as:

$$\text{Peak kW Savings} = (kW_{\text{base}} - kW_{\text{post}}) * CF * IEF_D$$

*Parameters for Peak Demand (kW) Savings Calculation of Lighting Retrofit Measures*

$kW_{\text{base}}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{\text{post}}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
CF	Peak Demand Coincident Factor, % Time During the Peak Period in Which Lighting is Operating
$IEF_D$	Heating/Cooling Demand Interactive Effects Factor

*Lighting Retrofit kWh Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		AOH	Expected kWh Savings	Realized kWh Savings	$IEF_E$	Realization Rate
	Base	Post	Base	Post					
1000W MH to 359W LED - Non-Int. Ballast	42	42	1,078	359	5,740	173,337	150,803	0.870	87.0%
1000W MH to 539W LED - Non-Int. Ballast	14	14	1,078	539	5,740	43,314	37,683	0.870	87.0%
1000W MH to 359W LED - Non-Int. Ballast	8	8	1,078	359	5,740	33,016	28,724	0.870	87.0%
1000W MH to 539W LED - Non-Int. Ballast	4	4	1,078	539	5,740	12,375	10,767	0.870	87.0%
<b>Total</b>						<b>262,042</b>	<b>227,977</b>		<b>87.0%</b>

*Lighting Retrofit kW Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		CF	Expected kW Savings	Realized kW Savings	$IEF_D$	Realization Rate
	Base	Post	Base	Post					
1000W MH to 359W LED - Non-Int. Ballast	42	42	1,078	359	0.73	22.04	26.45	1.200	120.0%
1000W MH to 539W LED - Non-Int. Ballast	14	14	1,078	539	0.73	5.51	6.61	1.200	120.0%
1000W MH to 359W LED - Non-Int. Ballast	8	8	1,078	359	0.73	4.20	4.20	1.000	100.0%
1000W MH to 539W LED - Non-Int. Ballast	4	4	1,078	539	0.73	1.57	1.57	1.000	100.0%
<b>Total</b>						<b>33.33</b>	<b>38.84</b>		<b>116.5%</b>

## Results

The kWh realization rate for PRJ-350047 is 89.3% and the kW realization rate is 116.5%.

On site, the evaluators verified that the facility uses electric resistance heating in some buildings, which has an IEF<sub>E</sub> of 0.870. Ex ante calculations listed heating system as “None”, which has an IEF<sub>E</sub> of 1.000. Correcting this error reduced project savings by 34,065 kWh (13%).

Ex post calculations used IEF<sub>D</sub> of 1.200 due to the electric resistance heating in some buildings. Ex ante calculations used 1.000 for no heating type. Correcting this error increased savings by 5.51 kW (16.5%).

### *Verified Gross Savings & Realization Rates*

<i>Measure</i>	<i>Verified</i>			
	<i>kWh Savings</i>	<i>kW Savings</i>	<i>kWh Realization Rate</i>	<i>kW Realization Rate</i>
1000W MH to 359W LED - Non-Int. Ballast	150,803	26.45	87.0%	120.0%
1000W MH to 539W LED - Non-Int. Ballast	37,683	6.61	87.0%	120.0%
1000W MH to 359W LED - Non-Int. Ballast	28,724	4.20	87.0%	100.0%
1000W MH to 539W LED - Non-Int. Ballast	10,767	1.57	87.0%	100.0%
<b>Total</b>	<b>227,977</b>	<b>38.84</b>	<b>87.0%</b>	<b>116.5%</b>

**Project Number:** PRJ-369138  
**Program** Large C&I Solutions

## Project Background

The participant is a retail business that received incentives from EGSL for implementing energy efficient lighting in their outdoor parking lot. On-site, the evaluators verified the participant had installed:

- (2) 460W Non-Integrated Ballast LED lamps, replacing (2) 1000W High Pressure Sodium lamps;
- (4) 883W Integrated Ballast lamps, replacing (10) 1000W High Pressure Sodium lamps.

## M&V Methodology

The evaluators confirmed installation of all fixtures listed in the project application. Savings for the lighting measures were calculated using Louisiana stipulated deemed values by space type for hours of use, along with a stipulated peak Coincident Factor (CF), Interactive effects factor for energy ( $IEF_E$ ) and Interactive effects factor for demand ( $IEF_D$ ) determined using local weather data and stipulated peak parameters. The deemed values used in calculating savings are presented in the table below.

*Deemed Savings Parameters*

<i>Building Type</i>	<i>Heating Type</i>	<i>Annual Hours</i>	<i><math>IEF_E</math></i>	<i><math>IEF_D</math></i>	<i>CF</i>
Outdoor	None	3,996	1.00	1.00	-

## Savings Calculations

Using deemed values from the table above, the evaluators calculated lighting savings as follows:

$$\text{Annual kWh Savings} = (kW_{\text{base}} * AOH_{\text{base}} - kW_{\text{post}} * AOH_{\text{post}}) * IEF_E$$

*Parameters for kWh Savings Calculation of Lighting Retrofit Measures*

$kW_{\text{base}}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{\text{post}}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
$AOH_{\text{base}}$	Annual Operating Hours of Baseline Fixtures
$AOH_{\text{post}}$	Annual Operating Hours of Installed Fixtures
$IEF_E$	Heating/Cooling Energy Interactive Effects Factor

Following this, the evaluators calculated peak kW savings. This is based upon Louisiana defined peak hours during summer weekdays. Peak kW savings are calculated as:

$$\text{Peak kW Savings} = (kW_{\text{base}} - kW_{\text{post}}) * CF * IEF_D$$

*Parameters for Peak Demand (kW) Savings Calculation of Lighting Retrofit Measures*

kW <sub>base</sub>	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
kW <sub>post</sub>	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
CF	Peak Demand Coincident Factor, % Time During the Peak Period in Which Lighting is Operating
IEF <sub>D</sub>	Heating/Cooling Demand Interactive Effects Factor

*Lighting Retrofit kWh Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		AOH	Expected kWh Savings	Realized kWh Savings	IEF <sub>E</sub>	Realization Rate
	Base	Post	Base	Post					
1000W HPS to 460W LED - Non-Int. Ballast	2	2	1,100	460	3,996	5,115	5,115	1.00	100.0%
1000W HPS to 883W LED-Int. Ballast	10	4	1,110	883	3,996	29,842	29,842	1.00	
<b>Total</b>						<b>34,957</b>	<b>34,957</b>		<b>100.0%</b>

*Lighting Retrofit kW Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		CF	Expected kW Savings	Realized kW Savings	IEF <sub>D</sub>	Realization Rate
	Base	Post	Base	Post					
1000W HPS to 460W LED - Non-Int. Ballast	2	2	1,100	460	-	-	-	1.00	-
1000W HPS to 883W LED-Int. Ballast	10	4	1,000	883	-	-	-	1.00	-
<b>Total</b>						-	-		-

**Results**

The kWh realization rate for Project PRJ-369138 is 100.0%

*. Verified Gross Savings & Realization Rates*

Measure	Verified			
	kWh Savings	kW Savings	kWh Realization Rate	kW Realization Rate
1000W MH to 400W LED - Non-Int. Ballast	34,957	-	100.0%	-
<b>Total</b>	<b>34,957</b>	-	<b>100.0%</b>	-

**Project Number** PRJ-379724  
**Program** Large Commercial and Industrial

## Project Background

The participant is a manufacturing facility that received incentives from EGSL for implementing energy efficient lighting. On-site, the evaluators verified the participant had installed:

- (80) 290W LED fixtures, replacing 1000W metal halide fixtures;
- (5) 267W LED fixtures, replacing 400W high pressure sodium fixtures; and
- (40) 267W LED fixtures, replacing 1000W metal halide fixtures.

On-site, the evaluators did not verify (40) 290W LED fixtures.

## M&V Methodology

The evaluators found some lighting fixture counts deviated from those listed in the project application. Verified fixture counts were used in ex post savings calculations. Savings for the lighting measures were calculated using Louisiana stipulated deemed values by space type for hours of use, along with a stipulated peak Coincident Factor (CF), Interactive effects factor for energy ( $IEF_E$ ) and Interactive effects factor for demand ( $IEF_D$ ) determined using local weather data and stipulated peak parameters. The deemed values used in calculating savings are presented in the table below.

*Deemed Savings Parameters*

<i>Building Type</i>	<i>Heating Type</i>	<i>Annual Hours</i>	<i><math>IEF_E</math></i>	<i><math>IEF_D</math></i>	<i>CF</i>
Manufacturing	None	5,740	1.000	1.000	0.73

## Savings Calculations

Using deemed values from the table above, the evaluators calculated lighting savings as follows:

$$\text{Annual kWh Savings} = (kW_{base} * AOH_{base} - kW_{post} * AOH_{post}) * IEF_E$$

*Parameters for kWh Savings Calculation of Lighting Retrofit Measures*

$kW_{base}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{post}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
$AOH_{base}$	Annual Operating Hours of Baseline Fixtures
$AOH_{post}$	Annual Operating Hours of Installed Fixtures

IEF <sub>E</sub>	Heating/Cooling Energy Interactive Effects Factor
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Following this, the evaluators calculated peak kW savings. This is based upon Louisiana defined peak hours during summer weekdays. Peak kW savings are calculated as:

$$\text{Peak kW Savings} = (kW_{\text{base}} - kW_{\text{post}}) * CF * IEF_D$$

*Parameters for Peak Demand (kW) Savings Calculation of Lighting Retrofit Measures*

kW <sub>base</sub>	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
kW <sub>post</sub>	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
CF	Peak Demand Coincident Factor, % Time During the Peak Period in Which Lighting is Operating
IEF <sub>D</sub>	Heating/Cooling Demand Interactive Effects Factor

*Lighting Retrofit kWh Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		AOH	Expected kWh Savings	Realized kWh Savings	IEF <sub>E</sub>	Realization Rate
	Base	Post	Base	Post					
1000W MH to 290W LED - Non-Int. Ballast	80	80	1,078	290	5,740	295,266	361,850	1.000	122.6%
400W HPS to 267W LED - Non-Int. Ballast	5	5	465	267	5,740	5,683	5,683	1.000	100.0%
1000W MH to 267W LED - Non-Int. Ballast	40	40	1,078	267	5,740	186,206	186,206	1.000	100.0%
<b>Total</b>						<b>487,154</b>	<b>553,738</b>		<b>113.7%</b>

*Lighting Retrofit kW Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		CF	Expected kW Savings	Realized kW Savings	IEF <sub>D</sub>	Realization Rate
	Base	Post	Base	Post					
1000W MH to 290W LED - Non-Int. Ballast	80	80	1,078	290	0.73	37.55	46.02	1.000	122.6%
400W HPS to 267W LED - Non-Int. Ballast	5	5	465	267	0.73	0.72	0.72	1.000	100.0%
1000W MH to 267W LED - Non-Int. Ballast	40	40	1,078	267	0.73	23.68	23.68	1.000	100.0%
<b>Total</b>						<b>61.96</b>	<b>70.42</b>		<b>113.7%</b>

## Results

The kWh realization rate for PrJ-379724 is 113.7% and the kW realization rate is 113.7%.

The evaluator believe an entry error was made in the ex ante calculations which combined the fixtures counts of two invoices submitted for this project. The preliminary invoice showed (120) 267W LED fixtures ordered. The final invoice showed that (80) 290W LED fixtures and (40) 290W LED fixtures ordered. This error increased in kWh and kW savings.

### *Verified Gross Savings & Realization Rates*

<i>Measure</i>	<i>Verified</i>			
	<i>kWh Savings</i>	<i>kW Savings</i>	<i>kWh Realization Rate</i>	<i>kW Realization Rate</i>
1000W MH to 290W LED - Non-Int. Ballast	361,850	46.02	122.6%	122.6%
400W HPS to 267W LED - Non-Int. Ballast	5,683	0.72	100.0%	100.0%
1000W MH to 267W LED - Non-Int. Ballast	186,206	23.68	100.0%	100.0%
<b>Total</b>	<b>553,738</b>	<b>70.42</b>	<b>113.7%</b>	<b>113.7%</b>

**Project Number:** PRJ-98255  
**Program** Large C&I Solutions

## Project Background

The participant is a retail building that received incentives from EGSL for implementing energy efficient lighting in their parking lot. On-site, the evaluators verified the participant had installed:

- (15) 400W LED Non-Int. Ballast lamps, replacing (15) 1000W Metal Halide lamps.

## M&V Methodology

The evaluators confirmed installation of all fixtures listed in the project application. Savings for the lighting measures were calculated using Louisiana stipulated deemed values by space type for hours of use, along with a stipulated peak Coincident Factor (CF), Interactive effects factor for energy ( $IEF_E$ ) and Interactive effects factor for demand ( $IEF_D$ ) determined using local weather data and stipulated peak parameters. The deemed values used in calculating savings are presented in the table below.

*Deemed Savings Parameters*

<i>Building Type</i>	<i>Heating Type</i>	<i>Annual Hours</i>	<i><math>IEF_E</math></i>	<i><math>IEF_D</math></i>	<i>CF</i>
Outdoor	None	3,996	1.00	1.00	-

## Savings Calculations

Using deemed values from the table above, the evaluators calculated lighting savings as follows:

$$\text{Annual kWh Savings} = (kW_{\text{base}} * AOH_{\text{base}} - kW_{\text{post}} * AOH_{\text{post}}) * IEF_E$$

*Parameters for kWh Savings Calculation of Lighting Retrofit Measures*

$kW_{\text{base}}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{\text{post}}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
$AOH_{\text{base}}$	Annual Operating Hours of Baseline Fixtures
$AOH_{\text{post}}$	Annual Operating Hours of Installed Fixtures
$IEF_E$	Heating/Cooling Energy Interactive Effects Factor



Following this, the evaluators calculated peak kW savings. This is based upon Louisiana defined peak hours during summer weekdays. Peak kW savings are calculated as:

$$\text{Peak kW Savings} = (kW_{\text{base}} - kW_{\text{post}}) * CF * IEF_D$$

*Parameters for Peak Demand (kW) Savings Calculation of Lighting Retrofit Measures*

$kW_{\text{base}}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{\text{post}}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
CF	Peak Demand Coincident Factor, % Time During the Peak Period in Which Lighting is Operating
$IEF_D$	Heating/Cooling Demand Interactive Effects Factor

*Lighting Retrofit kWh Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		AOH	Expected kWh Savings	Realized kWh Savings	$IEF_E$	Realization Rate
	Base	Post	Base	Post					
1000W MH to 400W LED - Non-Int. Ballast	15	15	1,067	400	3,996	39,980	39,980	1.00	100.0%
<b>Total</b>						<b>39,980</b>	<b>39,980</b>		<b>100.0%</b>

*Lighting Retrofit kW Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		CF	Expected kW Savings	Realized kW Savings	$IEF_D$	Realization Rate
	Base	Post	Base	Post					
1000W MH to 400W LED - Non-Int. Ballast	15	15	1,067	400	-	-	-	1.00	-
<b>Total</b>						<b>-</b>	<b>-</b>		<b>-</b>

## Results

The kWh realization rate for PRJ-398255 is 100.0%

*. Verified Gross Savings & Realization Rates*

Measure	Verified			
	kWh Savings	kW Savings	kWh Realization Rate	kW Realization Rate
1000W MH to 400W LED - Non-Int. Ballast	39,980	-	100.0%	-
<b>Total</b>	<b>39,980</b>	<b>-</b>	<b>100.0%</b>	<b>-</b>

# Evaluation of PY1 Energy Efficiency Program Portfolio for the Legacy Entergy Louisiana, LLC Service Area

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Submitted to:

*Entergy Louisiana, LLC*

*February 2016*

Submitted by:



**ADM Associates, Inc.**

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# 1. Executive Summary

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This report is a summary of the evaluation effort of the November 1, 2014-October 31, 2015 program year (“Program Year 1” or “PY1”) Quick Start energy efficiency (“EE”) program portfolio for the legacy Entergy Louisiana, LLC (“ELL” or “Entergy”) service area. The portfolio includes programs offered to customers located in both the legacy ELL and Entergy Gulf States Louisiana, L.L.C. (“EGSL”) service areas. Because the programs for the two service areas were funded and administered separately, the evaluation report for the legacy EGSL programs is being provided in a separate document. This evaluation was led by ADM Associates Inc. (“ADM”, or “the Evaluators”).

## 1.1 Summary of ELL Energy Efficiency Programs

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In PY1, the ELL EE portfolio included the following programs:

- Residential Solutions;
- Income Qualified;
- CoolSaver AC Tune-Up & Replacement;
- Lighting & Appliances;
- Small Business Direct Install; and
- Large Commercial & Industrial Solutions.

## 1.2 Evaluation Objectives

---

The goals of the PY1 EM&V effort are as follows:

- For prescriptive measures, verify that savings are being calculated according to the appropriate Arkansas TRM V3.0 guidelines, adapted for Louisiana weather.
- For custom measures, this effort comprises the calculation of savings according to accepted protocols (such as International Performance Measurement and Verification Protocol, “IPMVP”). This is to ensure that custom measures are cost-effective and provide reliable savings.
- Conduct process evaluation of all ELL programs and of the portfolio overall. This is to provide a comprehensive review of program operations, marketing and outreach, quality control procedures, and program successes relative to goals. From this, the Evaluators are to provide program and portfolio-level recommendations for ELL. Process evaluation activities include interviews of key program actors, surveys of participants and non-participants, literature reviews and best-practices assessments, and documentation of program activities, successes, and shortcomings.



### 1.3 Impact Findings

Table 1-1 presents the impacts by program. The values in this table are a comparison of the savings listed by Entergy and their program implementation contractor, CLEAResult, (“Expected Savings”) and those verified by the Evaluators (“Verified Savings”).

*Table 1-1 Impact Summary*

Program	Annual Energy Savings (kWh)		Realization Rate	Peak kW		Realization Rate
	Expected	Verified		Expected	Verified	
Residential Solutions	3,200,020	3,398,741	106.2%	691.54	691.54	100.0%
Income Qualified	612,648	623,201	101.7%	95.67	95.67	100.0%
CoolSaver	1,538,226	1,526,575	99.2%	489.11	488.39	99.9%
Lighting & Appliances	3,010,777	3,023,121	100.4%	664.53	668.55	100.6%
Small Business Direct Install	1,814,748	1,667,792	91.9%	293.93	283.09	96.3%
Large C&I	5,641,801	5,381,724	95.4%	743.66	762.49	102.5%
<b>Total</b>	<b>15,818,220</b>	<b>15,621,154</b>	<b>98.8%</b>	<b>2,978.44</b>	<b>2,989.73</b>	<b>100.4%</b>

The contribution to portfolio savings by program is summarized in Figure 1-1

*Figure 1-1 Contribution to Portfolio Savings by Program*

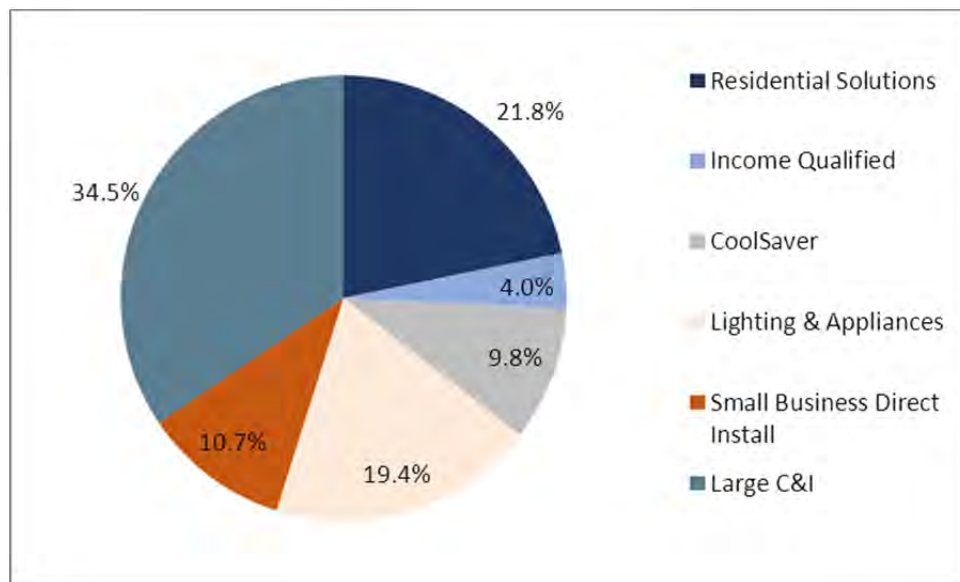


Figure 1-2 through Figure 1-5 summarize the share of savings by measure category for residential programs.

Figure 1-2 Savings Share by Measure – Residential Solutions

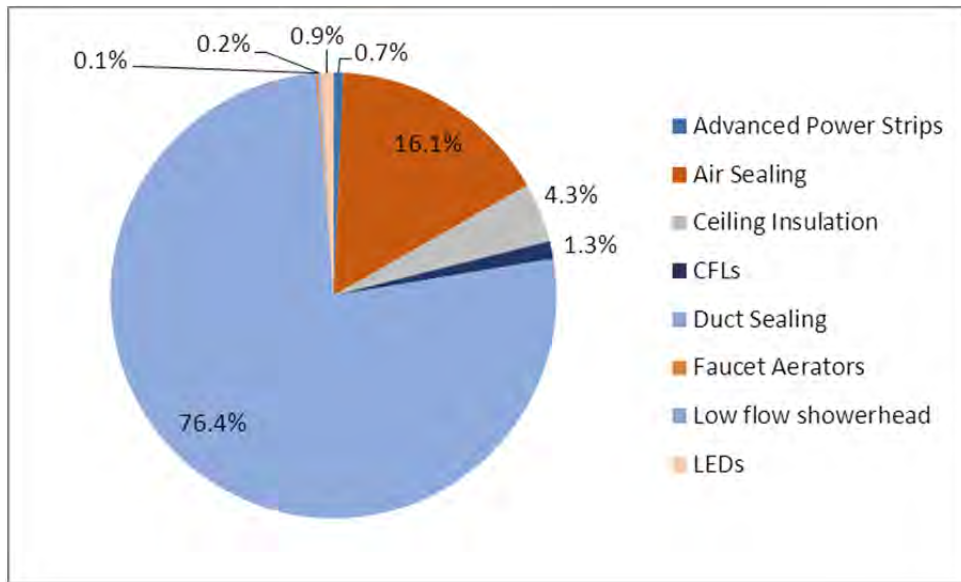


Figure 1-3 Savings Share by Measure – Income Qualified

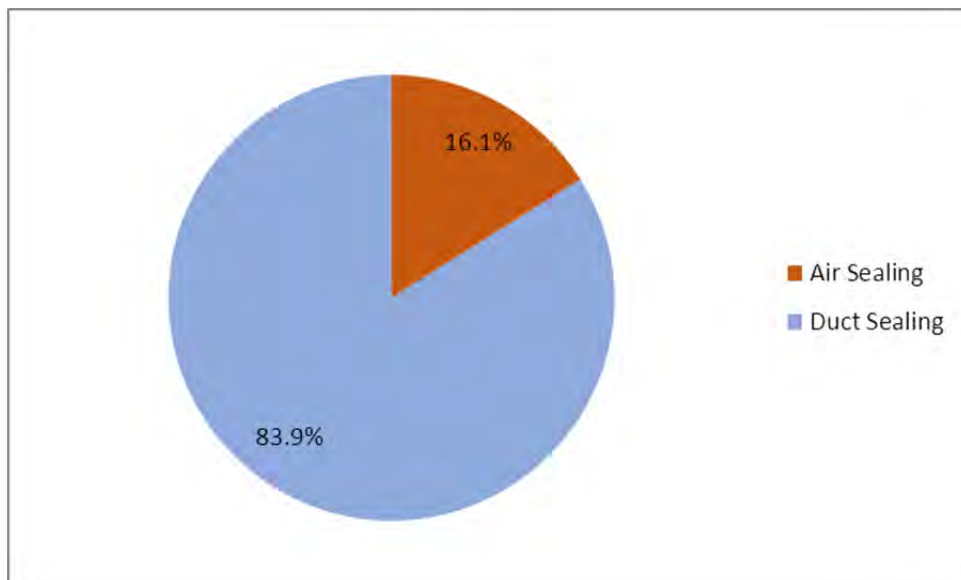


Figure 1-4 Savings Share by Measure – CoolSaver

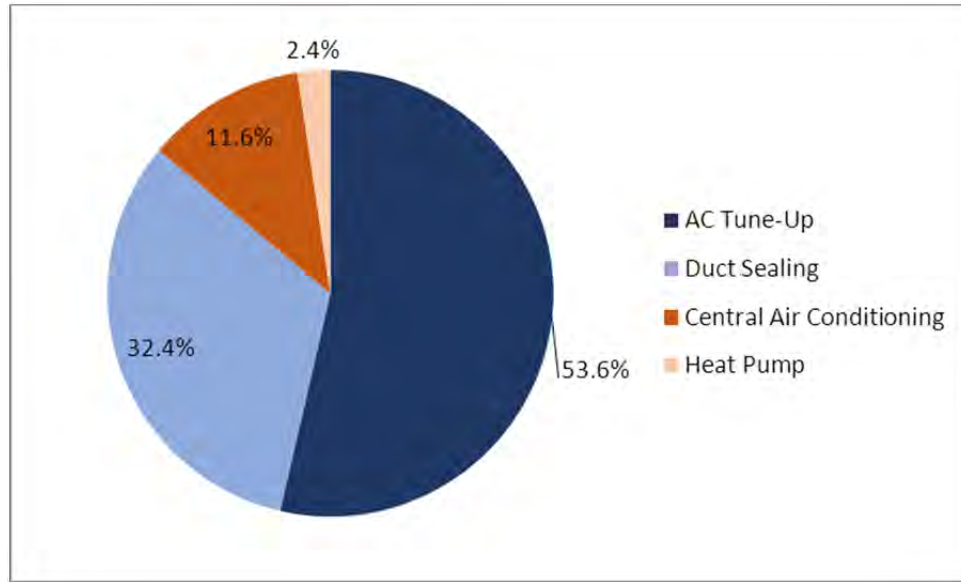
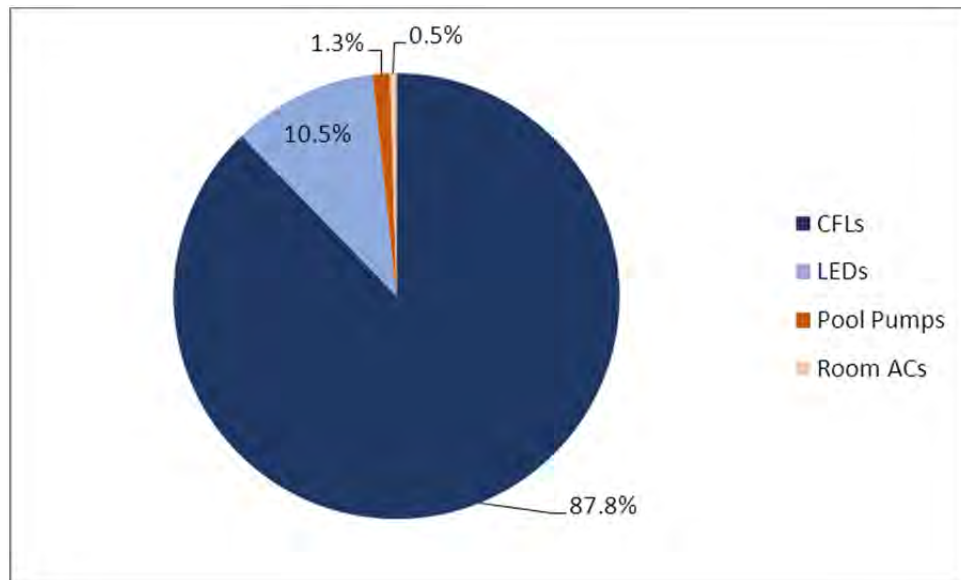


Figure 1-5 Savings Share by Measure – Lighting & Appliances



The Small Business Program was comprised entirely of lighting. 98% of savings from the Large C&I Program came from lighting projects.

Table 1-2 and Table 1-3 summarize the program goal attainment for kWh and kW, respectively. This table compares the verified savings values from Table 1-1 to the program goals filed by Entergy prior to the program launch.

*Table 1-2 Summary of kWh Goal Attainment*

<b>Program</b>	<b>Verified kWh</b>	<b>kWh Goal</b>	<b>% of Goal Attained</b>
Residential Solutions	3,398,741	2,454,704	138.5%
Income Qualified	623,201	509,375	122.3%
CoolSaver	1,526,575	1,427,077	107.0%
Lighting & Appliances	3,023,121	2,704,330	111.8%
Small Business Direct Install	1,667,792	1,793,523	93.0%
Large C&I	5,381,724	4,987,003	107.9%
<b>Total</b>	<b>15,621,154</b>	<b>13,876,012</b>	<b>112.6%</b>

*Table 1-3 Summary of kW Goal Attainment*

<b>Program</b>	<b>Verified kW</b>	<b>kW Goal</b>	<b>% of Goal Attained</b>
Residential Solutions	691.54	716.00	96.6%
Income Qualified	95.67	99.00	96.6%
CoolSaver	488.39	547.00	89.3%
Lighting & Appliances	668.55	645.00	103.7%
Small Business Direct Install	283.09	316.00	89.6%
Large C&I	762.49	952.00	80.1%
<b>Total</b>	<b>2,989.73</b>	<b>3,275.00</b>	<b>91.3%</b>

All programs other than Small Business Direct Install exceeded their PY1 kWh savings goal. The portfolio reached 112.6% of the filed kWh goal and 91.3% of the filed kW goal. This difference in goal attainment is attributable to two factors:

- 1) In the residential sector, kWh savings was driven largely by building envelope improvements (duct sealing, air sealing, ceiling insulation) in homes with electric resistance heating. This occurred at a significantly higher rate than anticipated in program planning, resulting in lower kW savings than planned for this level of kWh savings. For example, 100% of Income Qualified homes had electric resistance heating.
- 2) In the non-residential sector, the Small Business Direct Install and Large Commercial & Industrial Solutions programs both had a significant amount of

exterior lighting projects. Exterior lighting accounted for 26.8% of Small Business and 12.6% of Large C&I program savings.

#### 1.4 Program Expenditures

Table 1-4 summarizes total program budgets and expenditures.

*Table 1-4 ELL PY1 Summary of Program Expenditures*

<b>Program</b>	<b>Planned</b>	<b>Actual</b>	<b>Difference</b>
Residential Solutions	\$843,181	\$783,134.00	(\$60,047.00)
Income Qualified	\$352,033.00	\$318,036.90	(\$33,996.10)
CoolSaver	\$348,397.00	\$328,340.50	(\$20,056.50)
Lighting & Appliances	\$505,782.00	\$442,591.00	(\$63,191.00)
Small Business Direct Install	\$514,918.00	\$467,078.08	(\$47,839.92)
Large C&I	\$1,067,463.00	\$962,804.00	(\$104,659.00)
Residential Market Development	\$181,493.00	\$164,994.00	(\$16,499.00)
Commercial Market Development	\$99,926.00	\$90,842.00	(\$9,084.00)
<b>Total</b>	<b>\$3,913,193.00</b>	<b>\$3,557,820.48</b>	<b>(\$355,372.52)</b>

Figure 1-1 compares the kWh goal attainment against program budget spend. Overall, the ELL portfolio reached 112.6% of the PY1 kWh goal while spending 91.8% of program budget.

*Figure 1-6 Goal Attainment vs. Budget Spend*

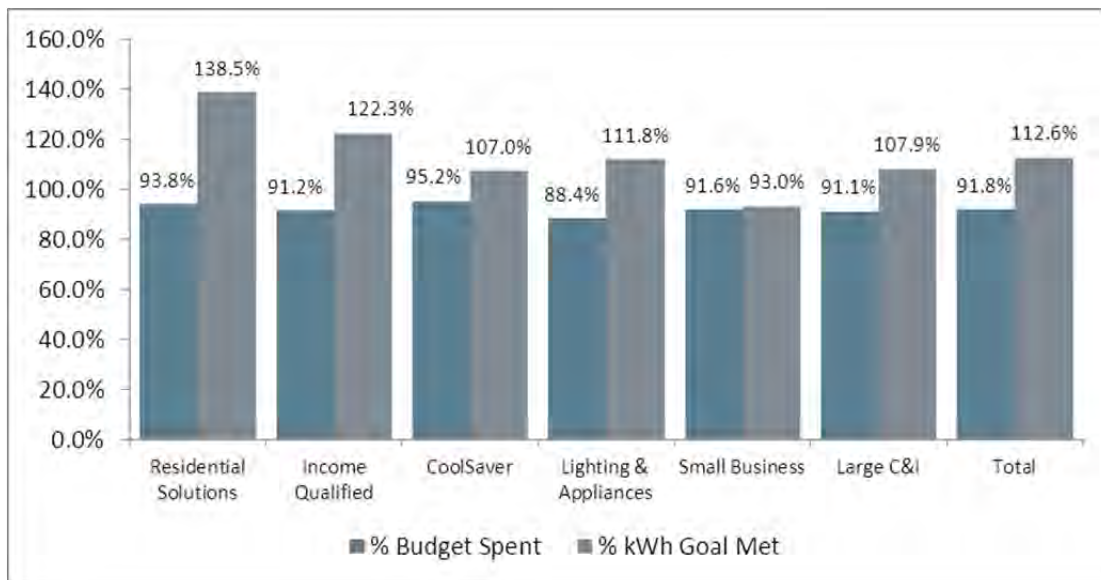


Table 1-5 summarizes program cost-effectiveness. All programs and the portfolio overall passed TRC (with scores greater than 1.0). For further detail pertaining to the cost-benefit analyses, see Appendix A.

Table 1-5 Cost-Effectiveness by Program, PY1

<i>Program</i>	<i>Verified Peak Demand Reduction (kW)</i>	<i>Verified Annual Energy Savings (kWh)</i>	<i>Total Program Expenditures</i>	<i>TRC (b/c ratio)</i>	<i>UCT (b/c ratio)</i>
Residential Solutions	691.54	3,398,741	\$783,134.00	1.84	3.18
Income Qualified	95.67	623,201	\$318,036.90	1.41	1.37
CoolSaver	488.39	1,526,575	\$328,340.50	2.39	3.12
Lighting & Appliances	668.55	3,023,121	\$442,591.00	1.36	2.22
Small Business Direct Install	283.09	1,667,792	\$467,078.08	1.94	2.03
Large C&I	762.49	5,381,724	\$962,804.00	2.32	3.05
Residential Market Development	-	-	\$164,994.00	.00	.00
Commercial Market Development	-	-	\$90,842.00	.00	.00
<b>Total</b>	<b>2,989.73</b>	<b>15,621,154</b>	<b>\$3,557,820.48</b>	<b>1.93</b>	<b>2.67</b>

## 1.5 Process Findings

### 1.5.1 Portfolio Findings

#### 1.5.1.1 Program Staffing

The Evaluators found that the programs were well-staffed and that Entergy and CLEARResult collaborated effectively in administering the PY1 programs. CLEARResult uses 16 full time staff to support the programs. This staffing includes engineers, field associates, and two program coordinators. Oversight is provided by two program managers who oversee all of the Entergy programs.

CLEARResult is responsible for the primary program implementation tasks, namely:

- Perform onsite pre- and post-inspections and other quality control and quality assurance activities;
- Customer and trade ally education and outreach;
- Process qualifying incentives;
- Review and approval of proposed projects; and
- Oversight and training of program trade allies.

Entergy is responsible for authorization and issuing payments to CLEARResult for reimbursement of incentives paid and general oversight of the implementation contractor. Entergy also provides quality control related to program communications including review and approval of the program website.

### **1.5.1.2 Program Communications**

CLEARResult holds brief daily meetings with staff supporting all of the residential and non-residential Entergy programs. During these meetings, staff members discuss daily plans and any current issues faced. Additionally, biweekly staff meetings are held during which the program's status is reviewed. The purpose of this meeting and primary topics have changed throughout the program year as the program transitioned from initial launch to ongoing maintenance of the program.

The program manager also meets on a biweekly basis with Entergy program staff. The primary objectives of this meeting are to review program status and to discuss any recommendations CLEARResult may have. During this meeting, a program status report generated by CLEARResult is reviewed.

Entergy and CLEARResult meet biweekly with program managers and the larger implementation team. The purpose of the meeting is to review program status in relation to energy saving goals and the program budget, discuss any issues that the programs are facing, any proposed changes in implementation or outreach, and any issues with program trade allies or customers. Additionally, Entergy staff meets with one of the CLEARResult program managers on a weekly basis for similar purposes. Entergy and CLEARResult report that communications and coordination between the utility and the implementer have been effective.

### **1.5.1.3 Program Marketing and Outreach**

The program implementation contractor markets the programs and provides outreach and educational services to increase awareness of it and energy saving measures. CLEARResult staff promote the program through direct customer outreach and through the recruitment of trade allies and energy consultants into the program. A tri-fold brochure for the program was developed and provided to trade allies as well as for use by CLEARResult staff. The tri-fold provides information on the residential and business programs offered and provides the website address and a contact phone number. The program uses a variety of messaging strategies to appeal to the customer. Key aspects of the messaging include:

- Informational material on energy use in homes and offices by end-use;
- A statement about the financial benefits of saving energy;
- A description of non-energy benefits that can result from energy efficiency improvements such as a reduced carbon footprint and increased comfort;
- Customer-centric language such as "The Entergy Solutions program allows customers like you..."; and
- Prosocial messaging such as "Make a Difference!" and that the program benefits the community.

The trifold is used by program staff and also represents the primary collateral provided to trade allies for use in promoting the programs. Trade allies may also use a template

for promoting their services along with the program incentives using program approved branding.

Entergy also markets the programs to its customers. The overall marketing approach is set out in a plan developed in coordination with program staff and the company's communication department. Staff reported that marketing efforts are coordinated with CLEAResult to ensure that efforts are not duplicated. Various channels are used by Entergy to promote the program, namely, a radio spot, bill inserts, and social media (Facebook posts).

All of the ELL and EGSL energy efficiency programs operate under the Entergy Solutions brand<sup>1</sup>. Customers can access information about the program through the Entergy Solutions website. Through the website, customers may find information about the program incentives and the participation steps. A single page PDF fact sheet may also be accessed from the website. Additionally, a list of program qualified trade allies and their contact information is provided. The list indicates which services the trade allies provide and the areas of Entergy's service area they cover.

Entergy's marketing efforts are coordinated with CLEAResult to ensure that efforts are not duplicated. Additionally, Entergy approves customer facing outreach materials developed by CLEAResult.

Trade allies also play a role in marketing programs to their customers. One staff member indicated that trade allies have indicated that it is too expensive to market the program, suggesting they may be somewhat limited in their promotional effort of the program. However, it was also noted that some trade allies have engaged in outreach to customers to promote the program.

## **1.5.2 Residential Solutions Program**

### ***1.5.2.1 Program Design and Participation Process***

- The Residential Solutions Program provides similar services and measures to other programs operated in the region. The program provides a walkthrough home energy assessment as well as the option for more in-depth home performance testing. Typical direct install measures such as CFLs, advanced power strips, and low-flow devices are offered. Single and multi-family buildings are eligible.
- 22% of mass-market participants reported that their energy consultant did not discuss the available rebates or discounts for energy saving improvements.

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<sup>1</sup> Programs administered by the Entergy New Orleans operating company are marketed separately as Entergy Energy Smart Programs.



Additionally, program staff reported that the audit budget was utilized early in the program year and there were some concerns that audits were not resulting in as many incentive projects as hoped for.

- A sizable share of mass-market participants reported having income levels that would qualify them for the income qualified component.
- The program provided in-depth trade ally training related to building certification, however, less training was provided on program participation processes.
- Trade allies noted a few issues with the CLEAResult OPEN technology platform including an inability to edit entered data and needing to enter data multiple times.

#### **1.5.2.2 Program Marketing and Outreach**

- Program mass-market energy assessment participants most often reporting learning of the program from a program representative (25%), from friends, family, or colleagues (18%), or from a home energy consultant (18%) or trade ally (12%). Similarly, 30% of non-energy assessment participants learned of the program from a friend, family member, or colleague, 24% learned of it from a trade ally, and 18% learned of it from a program representative.
- 50% of surveyed income qualified participants reported that they learned of the program from family members, friends, or colleagues. Another 17% reported learning of the program from a program representative.

#### **1.5.2.3 Customer and Trade Ally Satisfaction**

- Mass-market energy assessment participants were most likely to report satisfaction with the walkthrough measures and the quality of the trade allies work, followed by the program overall. Though satisfaction was high for all program elements, lower satisfaction levels were reported for the energy savings and the rebate or discount amount for the assessment.
- Mass-market participants who did not receive an energy assessment were most likely to report satisfaction with the work performed by the trade ally, followed by the energy efficiency measure installed, and the program participation process.
- All participants in the income qualified channel reported satisfaction with the program overall and the individual aspects of the program.
- 50% of mass-market energy assessment participants, 57% of the non-assessment participants, and 67% of the income qualified participants reported that participation in the program increased their satisfaction with Entergy.
- Most interviewed trade allies were satisfied with the program overall. Issues raised by trade allies included slower than expected review of project materials and a desire for larger rebates.

### **1.5.3 CoolSaver AC Tune Up and HVAC Program**

#### **1.5.3.1 Program Design and Participation Process**

- Training provided is comprehensive and trade allies are provided with a manual of how to complete the tune-ups.
- Electronic tools and gauges are used to transmit data on the efficiency of the unit, which is effective for providing a “live snapshot” of the unit’s energy-use performance. A recently introduced refrigerant stability indicator was praised by trade allies.
- Indoor fan measurement is not currently implemented with the automated data acquisition system. There are two types of measurement procedures approved for the program, although each is susceptible to errors. Program staff is considering adding differential pressure measurement and subsequent airflow calculation to the automated data acquisition system to improve calculation accuracy.
- Observed trade allies performed more thorough tune-ups for single-family home jobs than multifamily home jobs. During visits to multifamily homes, trade allies were more focused on quickly servicing multiple units.
- CLEAResult staff provided high quality support to trade allies during the visits. Overall, trade allies are effectively implementing the tune-ups.

#### **1.5.3.2 Program Marketing and Outreach**

- The program launched during a period when trade allies had a large number of emergency calls which limited their promotion of the program and provision of services for a period.
- Trade allies are driving a significant share of AC tune-up program activity. 41% of AC tune-up participants reported learning of the program from a trade ally, which was the most commonly reported means of learning of the program. Participants that replaced HVAC systems or had duct sealing performed were mostly likely to report learning of the program from a friend, family member, or colleague (38%) and 15% reported learning of the program from a trade ally.

#### **1.5.3.3 Participant and Trade Ally Satisfaction**

- 96% of participants who completed AC tune-up participants were satisfied with the program overall. Participants were most likely to report dissatisfaction with the energy savings on their bill, but only 16% were dissatisfied with this aspect of their experience.

- HVAC replacements and duct sealing participants were generally satisfied with the program participants, however, 17% noted dissatisfaction with the measure implemented and 9% were dissatisfied with the savings on their bill.
- 70% of AC tune-up participants and 67% of HVAC replacement or duct sealing participants indicated that participation increased their satisfaction with Entergy.

#### **1.5.4 Lighting & Appliances**

##### ***1.5.4.1 Program Design and Incentives***

- Overall, program incentive levels appear to be sufficient for the included lighting, appliance, and advanced power strip measures. Incentive levels are comparable to program offerings in other states and the program did not have difficulty meeting its overall energy savings goal. However, much of the program savings was generated through lighting measures and less activity occurred for the rebated appliances.
- The program has recruited 33 retailer locations in Entergy Louisiana's service area to deliver lighting rebates. The discounts for LEDs and standard CFLs are comparable to discounts provided through other regional programs. Appliance rebates are also comparable to rebates offered through other programs. Staff is considering reducing the number of stores offering the discounts to extend the program discounts throughout the program year.
- Program staff noted that promotion of rebates for advanced smart strips in stores is challenging because customers do not understand the benefits of the product that costs considerably more than standard products.
- Program staff have yet to establish store contacts and training of retailer staff has been generally informal (program staff discuss program with retail staff available during visits).
- Rebates are provided for ENERGY STAR ® qualified pool pumps but incentive levels are the same for multi-speed and variable speed pumps, despite differences in energy savings potential.

#### **1.5.5 Small Business Program**

##### ***1.5.5.1 Program Design and Participation Process***

- The program utilizes a paperless process for completing the energy assessments and submitting customer proposals that reduces paperwork. These submissions can be made through the program software tool or by email. Submissions are sent to CLEAResult's central team in Austin, TX. Neither program staff nor trade allies identified any significant issues with the participation process or software.
- Interviewed trade allies stated that the measures offered through the program met the needs of the small businesses they work with. The primary barrier to

participation identified by trade allies was skepticism about the legitimacy of program offerings. Additionally, measure costs are a factor. Trade allies indicated that the reason for customers not pursuing a project is the cost of the project.

#### **1.5.5.2 Program Marketing and Outreach**

- The program is designed to have trade allies perform the majority of direct customer outreach. Interviewed trade allies indicated that they were performing direct outreach to customers.
- Participants most frequently reported learning of the program from a trade ally (39%), friends or colleagues (18%), or a vendor (18%).

#### **1.5.5.3 Customer and Trade Ally Satisfaction**

- Trade allies were generally satisfied with the program including the participation process, the incentives, measures offered, and support from program staff. There was greater dissatisfaction with the wait time to receive the rebates, with one-third of trade allies reporting that they were dissatisfied with this aspect of the program.
- Most participants were satisfied with their experience with the program overall. One respondent indicated dissatisfaction with the program overall and 18% of respondents reported dissatisfaction with the length of time between the audit and the installation of the equipment.

### **1.5.6 Large Commercial & Industrial Program**

#### **1.5.6.1 Program Design and Participation Process**

- The program provides financial incentives and technical assistance to non-residential customers with greater than 100 kW peak demand.
- Incentives are based on energy savings. The program appropriately offers higher incentives HVAC, refrigeration, and efficient cooking equipment of \$0.15 per kWh that are less often implemented through efficiency programs. Lighting incentives are \$0.09 kWh and incentives for air compressor and custom projects are \$0.06 per kWh saved.
- Most participants (92%) reported that the incentive amount was what they expected and all who knew how long it took to receive the incentive indicated that they had received it in 6 weeks or less.

#### **1.5.6.2 Program Marketing and Outreach**

- Program marketing efforts were minimal during the year. Staff reported that there was a relatively high level of awareness among contactors and customers that the program would be introduced.
- 50% of participants reported that they learned of the program through an internet search. This suggests that a sizable share of program activity is initiated by

customers. Additionally, 25% reported that they first learned of the program from a trade ally.

#### **1.5.6.3 Trade Ally and Participant Satisfaction**

- Trade allies reported that staff is readily available to provide assistance and have generally been satisfied with the support they received. Trade allies also reported that they were satisfied with the program overall.
- None of the program participants were dissatisfied with the program overall and 75% reported that participation in the program increased their satisfaction with Entergy.

### **1.6 Report Organization**

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This report is organized with one chapter providing the full impact and process summary for each specified program. The report is organized as follows:

- Chapter 2 provides general methodologies;
- Chapter 3 provides results for the Residential Solutions and Income Qualified programs;
- Chapter 4 provides results for the CoolSaver AC Tune Up and HVAC Program;
- Chapter 5 provides results for the Lighting & Appliances Program;
- Chapter 6 provides results for the Small Business Program;
- Chapter 7 provides results for the Large Commercial & Industrial Solutions Program;
- Appendix A details cost-benefit analyses; and
- Appendix B provides the site-level custom reports for the Small Business and C&I Solutions Program.

## 2. General Methodology

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This section details general impact evaluation methodologies by program-type as well as data collection methods applied. This section will present full descriptions of:

- Savings Estimation;
- Sampling Methodologies;
- Process Evaluation Methodologies; and
- Data Collection Procedures.

### 2.1 Glossary of Terminology

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As a first step to detailing the evaluation methodologies, the Evaluators provide a glossary of terms to follow<sup>2</sup>:

- *Ex Ante* – Forecasted savings used for program and portfolio planning purposes
- *Ex Post* – Savings estimates reported by an evaluator after the energy impact evaluation has been completed
- *Deemed Savings* – An estimate of an energy savings or demand savings for a single unit of an installed energy efficiency measure. This estimate (a) has been developed from data sources and analytical methods that are widely accepted for the measure and purpose and (b) is applicable to the situation being evaluated (e.g., assuming 112 kWh savings for a residential advanced power strip)
- *Realization Rate* – Ratio of Ex Post Savings / Ex Ante Savings (e.g., if the Evaluators verify 105 kWh per showerhead, Realization Rate =  $105/112= 93.8\%$  realization rate)

### 2.2 Overview of Methodology

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The proposed methodology for the evaluation of the PY1 ELL Portfolio is intended to provide:

- Impact results; and
- Program feedback and recommendations via process evaluation.

In doing so, this evaluation will provide the verified savings results, provide the recommendations for program improvement, and ensure cost-effective use of ratepayer funds. Leveraging experience and lessons learned from impact evaluations can provide

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<sup>2</sup> Arkansas TRM V3.0, Volume 1, Pg. 80-86

greater guidance as to methods by which program and portfolio performance could be improved.

## 2.2.1 Sampling

Programs are evaluated on one of two bases:

- Simple Random Sample
- Stratified Random Sample

### 2.2.1.1 Simple Random Sampling

For programs with relatively homogenous measures (largely in the residential portfolio), the Evaluators conducted a simple random sample of participants. The sample size for verification surveys is calculated to meet 90% confidence and 10% precision (90/10). To meet 90/10 requirements, the sample size is calculated based on the coefficient of variation of savings for program participants. Coefficient of Variation (CV) is defined as:

$$CV = \frac{Mean_x}{Standard\ Deviation_x}$$

Where x is the average kWh savings per participant. Without data to use as a basis for a higher value, it is typical to apply a CV of .5 in residential program evaluations. The resulting sample size is estimated at:

$$n_0 = \left( \frac{1.645 * CV}{RP} \right)^2$$

Where,

1.645 = Z-Score for 90% confidence interval in a normal distribution

CV = Coefficient of Variation

RP = Required Precision, 10% in this evaluation

### 2.2.1.2 Stratified Sampling

For the ELL Commercial & Industrial programs, Simple Random Sampling is not an effective sampling methodology as the CV values observed in business programs are typically very high because the distributions of savings are generally positively skewed. Often, a relatively small number of projects account for a high percentage of the estimated savings for the program.

To address this situation, we use a sample design for selecting projects for the M&V sample that takes such skewness into account. With this approach, we select a number of sites with large savings for the sample with certainty and take a random sample of the remaining sites. To further improve the precision, non-certainty sites are selected for the sample through systematic random sampling. That is, a random sample of sites

remaining after the certainty sites have been selected is selected by ordering them according to the magnitude of their savings and using systematic random sampling. Sampling systematically from a list that is ordered according to the magnitude of savings ensures that any sample selected will have some units with high savings, some with moderate savings, and some with low savings. Samples cannot result that have concentrations of sites with atypically high savings or atypically low savings. As a result of this methodology, the required sample for the C&I Solutions Program was reduced to 12 with one certainty stratum and three sample strata.

### **2.2.2 Impact Calculations**

The general approach for calculation of verified kWh and kW savings applied deemed savings specified from the Arkansas TRM V3.0. There were exceptions to this, largely pertaining to weather-updating specific high-impact measures. Weather updates were completed for residential duct sealing and air sealing. The details of these updates can be found in Section 3.3.

### **2.2.3 Process Evaluation**

The Evaluator's general approach to process evaluation begins with a review of the tests for timing and appropriateness of process. In this review, the Evaluators determine what aspects of the program warrant a process evaluation. Most Entergy programs over-performed, and as such most of the PY1 process evaluation activity was focused around first year implementation.

The PY1 process overviews began with interviews of program staff. These interviews, inform the establishment of goals for the process evaluation, provide background history of programs, and give an introduction to portfolio-level issues. From this, the Evaluators then develop a list of data collection activities. The data collection procedures for process evaluations typically included:

- *Participant Surveying.* The Evaluators surveyed statistically significant samples of participants in each program to provide feedback for the program and provide an assessment of participant satisfaction. Surveys cover topics including:
  - Source of program awareness;
  - Their decision to participate and complete an energy efficiency project;
  - Experience with the participation process; and
  - Satisfaction with various elements of the program and the program overall.
- *Program Staff Interviews.* The Evaluators conducted in-depth interviews with high-level program actors, including staff from Entergy and CLEAResult. These interviews are semi-structured, in having general topics to be covered, without



fully prescribed question and answer frameworks. Topics discussed in program staff interviews include:

- Program goals and objectives;
  - Marketing and outreach;
  - Communication processes;
  - Program management and staffing; and
  - Quality control and verification processes.
- *Trade ally Interviews.* The Evaluators completed interviews with program trade allies. These interviews are conducted in a manner similar to program staff interviews. Topics discussed in trade ally interviews include:
    - Promotion of the program and barriers to participation;
    - Program marketing;
    - The program participation process;
    - Training and communication with program staff;
    - Business and market impact; and
    - Overall impressions and satisfaction.
  - *Review of Marketing Materials.* The Evaluators reviewed marketing materials for each program, providing feedback as to the appropriateness of the message in reaching its target audience, the breadth of the audience that the effort is attempting to reach, and identifying possible cross-promotional opportunities.

### 3. Residential Solutions & Income Qualified

#### 3.2 Program Description

The Residential Solutions Program is designed to promote energy efficiency by offering home energy surveys and/or deeper energy assessments to its residential customers through a participating trade ally. The Residential Solutions Program provides residential customers with access to qualified vendors and installation trade allies (trade allies) within the ELL service area. The participating trade allies are to help the residential customer analyze their energy use, identify energy efficiency improvements, and install low cost measures in their home. The trade ally inspection includes a consultation about the customer’s concerns, a visual inspection of the living space, attic, crawl space/basement, and exterior of the home, as well as installation of direct install measures (e.g., CFL lighting and faucet aerators). Following the assessment, the trade ally recommends home improvements to increase energy efficiency. The Residential Solutions Program provides incentives for installing ceiling insulation, duct sealing, and air infiltration sealing improvements.

Prescriptive incentives were available to residential customers for installing efficiency equipment such as heat pumps, heat pump water heaters and other measures. Program approved trade allies were allowed to install certain energy efficiency measures without an initial survey or assessment, such as ceiling and wall insulation.

The direct install measures include:

*Table 3-1 Summary of Measures of Measure Offerings – Residential Solutions*

<b><i>Delivery Mechanism</i></b>	<b><i>Measure Name</i></b>
Direct Install Measures	Advanced Power Strips
	CFLs
	Faucet Aerators
	Low-flow Showerhead
	LED Light Bulbs
Incentive Measures	Air Sealing
	Ceiling Insulation
	Duct Sealing

Further, increased incentives are available for customers eligible for the Income Qualified component for the following measures:

- Duct Sealing; and
- Air Sealing

■ Ceiling Insulation

A total of 1,631<sup>3</sup> households participated in the Residential Solutions an Income Qualified programs. Below, Table 3-2 and Table 3-3 summarize the total number of homes a measure was installed in/performed at, total measures installed/performed and the expected kWh and peak kW savings, by measure for the mass-market and low income channels, respectively.

*Table 3-2 Summary of Measures and Expected Savings – Residential Solutions*

<b>Measure</b>	<b>Number of Homes</b>	<b>Total Expected kWh Savings</b>	<b>Total Expected peak kW Savings</b>
Assessment Tier 1	384	0	0.00
Assessment Tier 2	267	0	0.00
Inspection	37	0	0.00
Advanced Power Strips	209	24,255	2.94
Air Sealing	655	469,696	198.51
Ceiling Insulation	44	145,898	35.02
CFLs	302	43,519	9.97
Duct Sealing	827	2,473,462	437.20
Faucet Aerators	93	5,048	.52
Low-flow showerhead	29	6,754	.70
LED Light Bulbs	236	31,389	7.08
<b>Total:</b>	<b>3,083</b>	<b>3,200,021</b>	<b>691.94</b>

*Table 3-3 Summary of Measures and Expected Savings – Income Qualified*

<b>Measure</b>	<b>Number Homes</b>	<b>Total Expected kWh Savings</b>	<b>Total Expected peak kW Savings</b>
Air Sealing	63	86,081	28.00
Duct Sealing	117	526,567	67.67
<b>Total:</b>	<b>180</b>	<b>612,648</b>	<b>95.67</b>

<sup>3</sup> This total does not equal the sum of the “Number of Homes” column in Table 3-2 due to individual residences receiving multiple measures.

In PY1, the programs goals were as follows:

- **Residential Solutions:**

- kWh: 2,454,704
- kW: 716

- **Income Qualified:**

- kWh: 509,375
- kW: 99

Program achievements were as follows:

- **Residential Solutions:**

- kWh: 3,398,741, 138.5% of goal
- kW: 691.54, 96.6% of goal

- **Income Qualified:**

- kWh: 623,201, 122.3% of goal
- kW: 95.67, 96.6% of goal

The high goal attainment was due to an outside share of electric resistance heating in the program. For example, in PY1, there were 827 duct sealing projects in the mass-market channel and 117 in the income-qualified channel. The share of homes with electric resistance heating was 59.4% in mass-market and 100% in low income, both exceeding program projections.

### **3.3 Impact Savings Calculation Methodology**

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For equipment and retrofits rebated through the PY1 Residential Solutions Program, calculation methodologies were performed as described in the TRM. Table 3-4 identifies the sections in the TRM that were used for verification of measure-level savings under the Residential Solutions Program.

*Table 3-4 TRM Sections by Measure Type*

<b>Measure</b>	<b>Section in TRM</b>
Advanced Power Strips	2.4.4
Air Sealing	2.2.9
Ceiling Insulation	2.2.2
CFLs	2.5.1
Duct Sealing	2.1.11
Faucet Aerators	2.3.4
Low-flow Showerhead	2.3.5
LED Light Bulbs	2.5.1

Air infiltration reduction and duct sealing accounted for 92.0% of program savings. The Evaluators reviewed deemed savings for these high impact measures and completed a weather-normalization procedure to reflect Louisiana IECC 2003 weather zone mapping. The calculation methodologies for these measures, as well as the results of the weather update, are detailed in the following sections.

### 3.3.1 Air Infiltration Reduction Savings Calculations

The deemed savings values for air infiltration reduction were developed through EnergyGauge, a simulation software program. Multiple equipment configurations were simulated in each of the four Louisiana weather zones in developing savings values denominated in deemed savings per CFM<sub>50</sub> of air leakage rate reduction. Table 3-5 summarizes the deemed savings values for the Louisiana weather zones.

Table 3-5 Deemed Savings Values for Air Infiltration Reduction

Equipment Type	Zone 3 (New Orleans)	Zone 4 (Baton Rouge)	Zone 5 (Alexandria)	Zone 6 (Shreveport)
Electric AC with Gas Heat	.3267	.2740	.2433	0.2689
Electric Resistance with AC	.9334	.9574	1.0849	1.3605
Heat Pump	.6376	.6233	.6734	0.8268

For example, consider a residence with electric AC and gas heat located in Tangipahoa Parish (Zone 4). If the residence had a leakage rate of 7,200 CFM<sub>50</sub> before air infiltration reduction and a leakage rate of 3,500 CFM<sub>50</sub> after, then the residence would have an annual savings of:

$$\text{Air Infiltration Savings} = 0.2740 \frac{\text{kWh Savings}}{\text{CFM}_{50}} \cdot (7,200 \text{ CFM}_{50 \text{ pre}} - 3,500 \text{ CFM}_{50 \text{ post}})$$

$$\text{Air Infiltration Savings} = 1,019 \text{ kWh}$$

### 3.3.2 Duct Sealing Savings Calculations

Duct sealing savings was calculated using the following savings algorithms from the TRM.

#### 3.3.2.1 Cooling Savings (Electric):

$$\text{kWh}_{\text{savings,C}} = \frac{(DL_{\text{pre}} - DL_{\text{post}}) \times EFLH_C \times (h_{\text{out}}\rho_{\text{out}} - h_{\text{in}}\rho_{\text{in}}) \times 60}{1,000 \times SEER}$$

Where:

$DL_{pre}$  = Pre-improvement duct leakage at 25 Pa (ft<sup>3</sup>/min)  
 $DL_{post}$  = Post-improvement duct leakage at 25 Pa (ft<sup>3</sup>/min)  
 $\Delta DSE$  = Assumed improvement in distribution system efficiency = 5% = 0.05  
 $EFLH_C$  = Equivalent Full Load Hours. See Table 3-6  
 $h_{out}$  = Outdoor design specific enthalpy (Btu/lb) See Table 3-6  
 $h_{in}$  = Indoor design specific enthalpy (Btu/lb.) See Table 3-6

**Table 3-6 Deemed Savings Values for Duct Sealing Calculations**

<b>Parameter</b>	<b>Zone 3 (New Orleans)</b>	<b>Zone 4 (Baton Rouge)</b>	<b>Zone 5 (Alexandria)</b>	<b>Zone 6 (Shreveport)</b>
EFLH <sub>C</sub>	2,040	1,807	2,035	2,426
HDD	1,842	1,322	1,229	925
$h_{out}$	40	40	37	37
$h_{in}$	30	30	30	30
$\rho_{in}$	.076	.076	.076	.076
$\rho_{out}$	.074	.074	.074	.074
SEER	11.5	11.5	11.5	11.5

$\rho_{out}$  = Density of outdoor air at 95°F = 0.0740 (lb/ft<sup>3</sup>)<sup>4</sup>  
 $\rho_{in}$  = Density of conditioned air at 75°F = 0.0756 (lb./ft<sup>3</sup>)<sup>4</sup>  
 60 = Constant to convert from minutes to hours  
 CAP = Cooling capacity (Btu/hr)  
 1,000 = Constant to convert from W to kW  
 SEER = Seasonal Energy Efficiency Ratio of existing system (Btu/W·hr)  
 Default value for SEER = 11.5<sup>5</sup>

As an example, assume the duct leakage before sealing was measured at 360 CFM and the leakage after sealing was 90 CFM for a home in Metairie (Zone 3). Using the SEER value of 11.5, the annual savings would be:

$$\text{kWh per year} = (360-90) \times 2,426 \times (37 \times 0.076 - 30 \times 0.074) \times 60 / (1000 \times 11.5) = 2,023 \text{ kWh per year.}$$

**3.3.2.2 Heating Savings (Heat Pump):**

$$kWh_{savings,H} = \frac{(DL_{pre} - DL_{post}) \times 60 \times HDD \times 24 \times 0.018}{1,000 \times HSPF}$$

Where:

$DL_{pre}$  = Pre-improvement duct leakage at 25 Pa (ft<sup>3</sup>/min)  
 $DL_{post}$  = Post-improvement duct leakage at 25 Pa (ft<sup>3</sup>/min)  
 $\Delta DSE$  = Assumed improvement in distribution system efficiency = 5% = 0.05  
 $EFLH_H$  = Equivalent full load heating hours (see Table 3-6)

<sup>4</sup> ASHRAE Fundamentals 2009, Chapter 1: Psychometrics, Equation 11, Equation 41, Table 2

<sup>5</sup> Average of Department of Energy minimum allowed SEER for new air conditioners from 1992-2006 (10 SEER) and after January 23, 2006 (13 SEER)

60 = Constant to convert from minutes to hours  
*HDD* = Heating degree days (see Table 3-6)  
 24 = Constant to convert from days to hours  
 0.018 = Volumetric heat capacity of air (Btu/ft<sup>3</sup>°F)  
*CAP* = Heating capacity (Btu/hr)  
 1,000 = Constant to convert from W to kW  
*HSPF* = Heating Seasonal Performance Factor of existing system (Btu/W·hr)  
 Default value for *HSPF* = 7.30.<sup>6</sup>

**3.3.2.3 Heating Savings (Electric Resistance):**

$$kWh_{savings,H} = \frac{(DL_{pre} - DL_{post}) \times 60 \times HDD \times 24 \times 0.018}{3,412}$$

Where:

*DL<sub>pre</sub>* = Pre-improvement duct leakage at 25 Pa (ft<sup>3</sup>/min)  
*DL<sub>post</sub>* = Post-improvement duct leakage at 25 Pa (ft<sup>3</sup>/min)  
*ΔDSE* = Assumed improvement in distribution system efficiency = 5% = 0.05  
 60 = Constant to convert from minutes to hours  
*HDD* = Heating degree days (see Table 3-6)  
 24 = Constant to convert from days to hours  
 0.018 = Volumetric heat capacity of air (Btu/ft<sup>3</sup>°F)  
*EFLH<sub>H</sub>* = Equivalent full load heating hours (see Table 3-6)  
*CAP* = Heating capacity (Btu/hr)  
 3,412 = Constant to convert from Btu to kWh

**3.3.2.4 Heating Savings (Gas Furnace):**

$$Therms_{savings,H} = \frac{(DL_{pre} - DL_{post}) \times 60 \times HDD \times 24 \times 0.018}{100,000 \times AFUE}$$

Where:

*DL<sub>pre</sub>* = Pre-improvement duct leakage at 25 Pa (ft<sup>3</sup>/min)  
*DL<sub>post</sub>* = Post-improvement duct leakage at 25 Pa (ft<sup>3</sup>/min)  
*ΔDSE* = Assumed improvement in distribution system efficiency = 5% = 0.05  
 60 = Constant to convert from minutes to hours  
*HDD* = Heating degree days (see Table 3-6)  
 24 = Constant to convert from days to hours  
 0.018 = Volumetric heat capacity of air (Btu/ft<sup>3</sup>°F)  
*EFLH<sub>H</sub>* = Equivalent full load heating hours (see Table 3-6)  
*CAP* = Heating capacity (Btu/h or Btu/hr)  
 100,000 = Constant to convert from Btu to therms  
*AFUE* = Annual Fuel Utilization Efficiency of existing system  
 Default value for *AFUE* = 0.8.

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<sup>6</sup> Average of Department of Energy minimum allowed *HSPF* for new heat pumps from 1992-2006 (6.8 *HSPF*) and after January 23, 2006 (7.7 *HSPF*)

**3.3.2.5 Demand Savings (Cooling):**

$$kW_{savings,C} = \frac{kWh_{savings,C}}{EFLH_C} \times CF$$

Where:

$kWh_{savings,C}$  = Calculated kWh savings for cooling  
 $EFLH_C$  = Equivalent full load cooling hours (see Table 3-6)  
 $CF$  = Coincidence factor = 0.87

### **3.4 Verified Savings by Measure – Residential Solutions**

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After reviewing the tracking data and inputs for savings calculations, the Evaluators provided verified savings according to TRM protocols. The following measures were revised after reviewing CLEARResult calculations:

- Air Sealing; and
- Duct Sealing.

The Evaluators verified measure-level savings according to TRM guidelines and obtained results that differed from CLEARResult's calculations for the following measures:

#### **3.4.1 Infiltration/Air Sealing**

- 1) The calculator uses values from the AR TRM V.3.0 for El Dorado, AR and the New Orleans area.
- 2) Tracking information provided for review does not indicate cooling type and leaves the question open as to whether there is cooling.
- 3) The CFM check requires a drop down menu to effectively use the formulas. The current index(match) function is non-functioning.
- 4) The following values were not included in program in tracking data:
  - Wind shielding of home;
  - Number of bedrooms per home;
  - Approximate square footage of home; and
  - Number of stories of home.

These omissions did not affect savings calculations.



*Table 3-7 Expected and Realized Air Sealing Savings*

<i>Heating Type</i>	<i>Expected kWh Savings</i>	<i>Realized kWh Savings</i>	<i>kWh Realization Rate</i>	<i>Expected Peak kW Savings</i>	<i>Realized Peak kW Savings</i>	<i>Peak kW Realization Rate</i>
Gas Furnace	70,246	83,343	120.1%	67.72	67.72	100.0%
Air Source Heat Pump	3,331	4,779	143.5%	1.95	1.95	100.0%
Electric Resistance	396,119	464,997	117.4%	128.84	128.84	100.0%
<b>Total</b>	<b>469,696</b>	<b>554,099</b>	<b>118.0%</b>	<b>198.51</b>	<b>198.51</b>	<b>100.0%</b>

### 3.4.2 Ceiling Insulation

Savings calculations for ceiling insulation were not revised.

*Table 3-8 Expected and Realized Ceiling Insulation Savings*

<i>Expected kWh Savings</i>	<i>Realized kWh Savings</i>	<i>kWh Realization Rate</i>	<i>Expected Peak kW Savings</i>	<i>Realized Peak kW Savings</i>	<i>Peak kW Realization Rate</i>
145,898	145,898	100.0%	35.0	35.0	100.0%

### 3.4.3 Duct Sealing

- 1) EFLH and HDD were set to IECC 2009 weather zone mapping (with Louisiana split into two zones). This was changed to reflect IECC 2003 zone mapping (four zones), as this mapping corresponds with the Arkansas TRM V3.0.
- 2) Cooling capacity is in Tons on the 'Summary' tab but in BTU/hr in the calculation tab. Units may be applied incorrectly.
- 3) No cooling type listed in tracking data. All ex ante calculations assumed central air conditioning cooling equipment with a SEER of 11.5.

*Table 3-9 Expected and Realized Duct Sealing Savings*

<i>Heating Type</i>	<i>Expected kWh Savings</i>	<i>Realized kWh Savings</i>	<i>kWh Realization Rate</i>	<i>Expected Peak kW Savings</i>	<i>Realized Peak kW Savings</i>	<i>Peak kW Realization Rate</i>
Gas Furnace	502,381	560,468	111.6%	183.03	183.03	100.0%
Air Source Heat Pump	16,636	17,553	105.4%	3.26	3.26	100.0%
Electric Resistance	1,954,445	2,009,780	102.8%	250.91	250.91	100.0%
<b>Total</b>	<b>2,473,462</b>	<b>2,587,781</b>	<b>104.6%</b>	<b>437.20</b>	<b>437.20</b>	<b>100.0%</b>

### 3.5 Verified Savings by Measure – Residential Solutions

Table 3-10 presents the savings results of the evaluation of the PY1 Residential Solutions Program by measure. Total savings summarizes the savings calculations performed as per TRM protocols.

*Table 3-10 Verified Savings by Measure Type – Residential Solutions*

<b>Measure</b>	<b>Ex Ante kWh Savings</b>	<b>Ex Post kWh Savings</b>	<b>kWh Realization Rate</b>	<b>Ex Ante Peak kW Savings</b>	<b>Ex Post Peak kW Savings</b>	<b>Peak kW Realization Rate</b>
Advanced Power Strips	24,255	24,255	100.0%	2.94	2.94	100.0%
Air Sealing	469,696	544,099	118.0%	198.51	198.51	100.0%
Ceiling Insulation	145,898	145,898	100.0%	35.02	35.02	100.0%
CFLs	43,519	43,519	100.0%	9.57	9.57	100.0%
Duct Sealing	2,473,462	2,587,781	104.6%	437.20	437.20	100.0%
Faucet Aerators	5,048	5,048	100.0%	.52	.52	100.0%
Low-flow showerhead	6,754	6,754	100.0%	.70	.70	100.0%
LED Light Bulbs	31,389	31,389	100.0%	7.08	7.08	100.0%
<b>Total</b>	<b>3,200,020</b>	<b>3,398,741</b>	<b>106.2%</b>	<b>691.54</b>	<b>691.54</b>	<b>100.0%</b>

### 3.6 Verified Savings by Measure – Income Qualified

Savings for the income qualified channel were comprised entirely from air sealing and duct sealing. Savings for these measures were calculated in the same manner as detailed for the Residential Solutions Program in Section 3.3.1 and 3.3.2.

*Table 3-11 Verified Savings by Measure Type – Income Qualified*

<b>Measure</b>	<b>Ex Ante kWh Savings</b>	<b>Ex Post kWh Savings</b>	<b>kWh Realization Rate</b>	<b>Ex Ante Peak kW Savings</b>	<b>Ex Post Peak kW Savings</b>	<b>Peak kW Realization Rate</b>
Air Sealing	86,081	100,080	117.2%	28.00	28.00	100.0%
Duct Sealing	526,567	522,321	99.2%	67.67	67.67	100.0%
<b>Total</b>	<b>612,648</b>	<b>623,201</b>	<b>101.7%</b>	<b>95.67</b>	<b>95.67</b>	<b>100.0%</b>

### 3.7 Process Findings

This chapter presents the results of the process evaluation of the Residential Solutions Program. The process evaluation focuses on aspects of program policies and organization, as well as the program delivery framework.

The process chapter begins with an overview of the program. This is followed by a discussion of the methodological approach used in the evaluation. A summary of findings and recommendations for program improvement follow the discussion of the methodology. This discussion is followed by detailed findings of the evaluation activities.

### 3.7.1 Data Collection Activities

The process of evaluation of the Residential Solutions Program included the following data collection activities:

*Table 3-12 Residential Solutions Process Evaluation – Summary of Data Collection*

<b>Activity</b>	<b>Sample Size</b>
Entergy Staff	2
CLEAResult Staff	4
Participant Survey – Mass-market – Energy Assessment	58
Participant Survey – Mass-market – No Energy Assessment	33
Participant Survey – Income Qualified	6
Trade Ally Interviews	9

### 3.7.2 Program Overview

The Residential Solutions Program provides financial incentives for home energy assessments and energy efficiency measures to reduce energy consumption among residential customers. The program contains two channels directed at different residential markets:

- A mass-market program channel for all residential customers; and
- An income qualified channel for customers with household income less than 200% of the federal poverty line.

#### 3.7.2.1 Mass-market Channel

Entergy customers may receive a \$75 rebate on the cost of a trade ally provided home energy assessment. Participating customers can elect to receive a Tier 1 or Tier 2 Assessments, which are described below:

- **Tier 1 Assessment:** Trade ally completes a walk-through inspection to identify energy saving opportunities. The trade ally provides a written report identifying opportunities to save energy in the household.
- **Tier 2 Assessment:** In addition to the services provided under the Tier 1 assessment, customers also receive diagnostic testing including blower door testing, duct testing, and combustion safety testing.

During the home energy assessments, home energy consultants may install low cost energy efficiency measures as follows:

- Up to six CFLs or LEDs (60W equivalent);
- One Advanced Power Strip; and
- Faucet aerators and low-flow showerheads (electric hot water heating).

Upon completion of the energy assessment, customers have up to six months to receive incentives for energy saving home improvements. Customers that receive a Tier 1 assessment are eligible for insulation incentives.

Customers may receive incentives for completing air sealing, duct sealing, and ceiling insulation. To receive incentives for air sealing or duct sealing, customers must have the pre- and post- testing completing, although they do not necessarily need to receive a full Tier 2 energy assessment.

Incentives for these measures are as follows.

*Table 3-13 Residential Solutions: Incentive Levels for Mass-market Measures*

<b>End- Use</b>	<b>Air Sealing</b>	<b>Duct Sealing</b>	<b>Ceiling Insulation</b>	
			<b>R-0 to R-4</b>	<b>R-5 to R-8</b>
Gas Furnace	\$.05/CFM50	\$.75/CFM25	\$.12	\$.14
Heat Pump	\$.13/CFM50	\$1.50/CFM25	\$.30	\$.16
Electric Resistance	\$.18/CFM50	\$1.50/CFM25	\$.35	\$.20

Residential Energy Louisiana customers are eligible for the program. The program is available for single family and multifamily homes. Owners and renters are both eligible.

Measure savings for both programs are estimated using the deemed savings values from the Arkansas Technical Reference Manual (TRM) V.3.0.

**3.7.2.2 Income Qualified Channel**

The Income Qualified program channel provides energy efficiency home upgrades to customers who meet the income requirements of the federal Weatherization Assistance Program (WAP). However, in PY1, staff from CLEAResult used the criteria specified for the Louisiana Low Income Home Energy Assistance Program (LIHEAP), which is based on 60% of Estimated State Median Income. This is a more stringent income qualification.

The incentives provided for ceiling insulation, air sealing, and duct sealing are displayed in Table 3-14. The program does not provide a discount on home energy assessments.

*Table 3-14 Residential Solutions: Incentive Levels for Income Qualified Measures*

<b>Measure</b>	<b>Incentive Level</b>
Ceiling insulation (R0 – R4)	\$0.60 / sqft
Ceiling insulation (R5 – R8)	\$0.42 / sqft
Air Sealing	\$0.14 / CFM
Duct Sealing	\$4.50 / CFM reduced

### 3.7.3 Detailed Findings

#### 3.7.3.1 Analysis of Participation Data

Table 3-15 displays expected energy savings by measure type for the mass-market channel. As shown, duct sealing, ceiling insulation, and air sealing measures accounted for 96.5% of program expected savings.

*Table 3-15 Program Activity by Measure, Mass-market*

<i>Measure</i>	<i>Number of Projects</i>	<i>Expected kWh Savings</i>
Duct Sealing	827	2,473,462
Air Sealing	655	469,696
Ceiling Insulation	44	145,898
CFL	302	43,519
LED	236	31,390
Advanced Power Strip	209	24,255
Low-flow Showerhead	29	6,754
Low-flow Aerator	93	5,048
Total	2,395	3,200,022

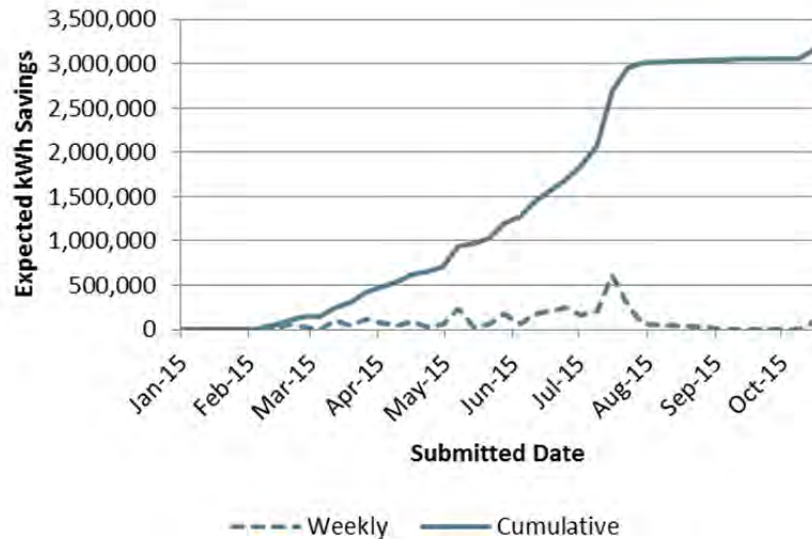
Table 3-16 displays expected energy savings by measure type for the income qualified channel. As shown, duct sealing and air sealing measures accounted for all of the program’s savings.

*Table 3-16 Program Activity by Measure, Income Qualified*

<i>Measure</i>	<i>Number of Projects</i>	<i>Expected kWh Savings</i>
Duct Sealing	117	526,567
Air Sealing	63	86,081
Total	180	612,648

The weekly and cumulative accruals of energy savings for the mass-market channel are displayed in Figure 3-1 **Error! Reference source not found.** As shown, program activity climbed steadily from March through August, at which point the program met its energy saving targets.

Figure 3-1 Weekly and Cumulative Expected kWh Energy Savings, Mass-market



Similarly, weekly and the cumulative accrual of energy savings for the income qualified channel are displayed in Figure 3-2. As shown, the first projects were submitted in mid-August and most program activity occurred during the final two months of the program year.

Figure 3-2 Weekly and Cumulative Expected kWh Energy Savings, Income Qualified

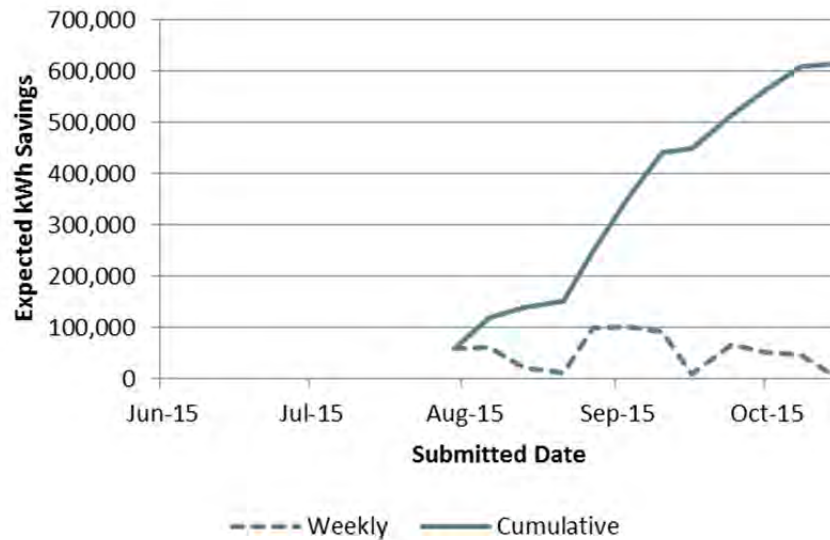


Figure 3-3 displays the share of energy savings associated with trade ally firms that completed projects through the mass-market channel of the program. As shown, four contactors accounted for more than 90% of

program energy savings. It is not atypical to find a relatively small share of contactors account for a large share of program savings.

*Figure 3-3 Share of Expected kWh Savings by Trade Ally, Mass-market*

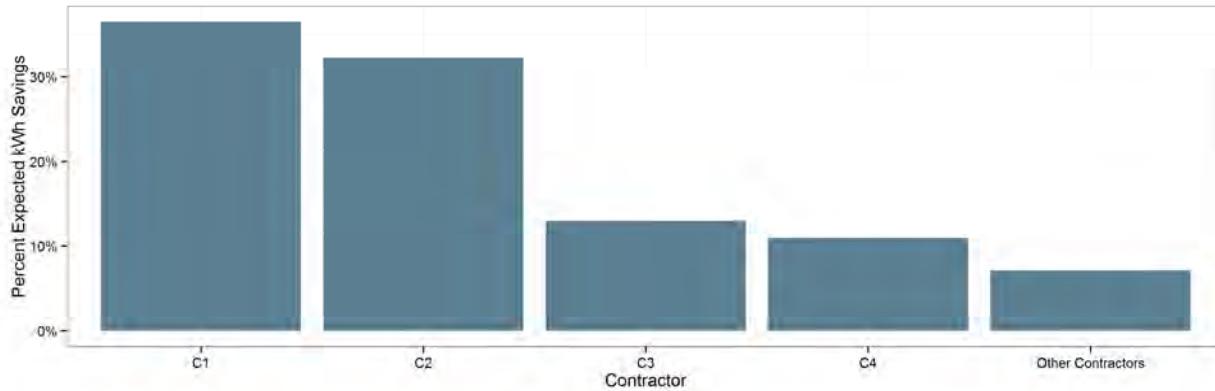
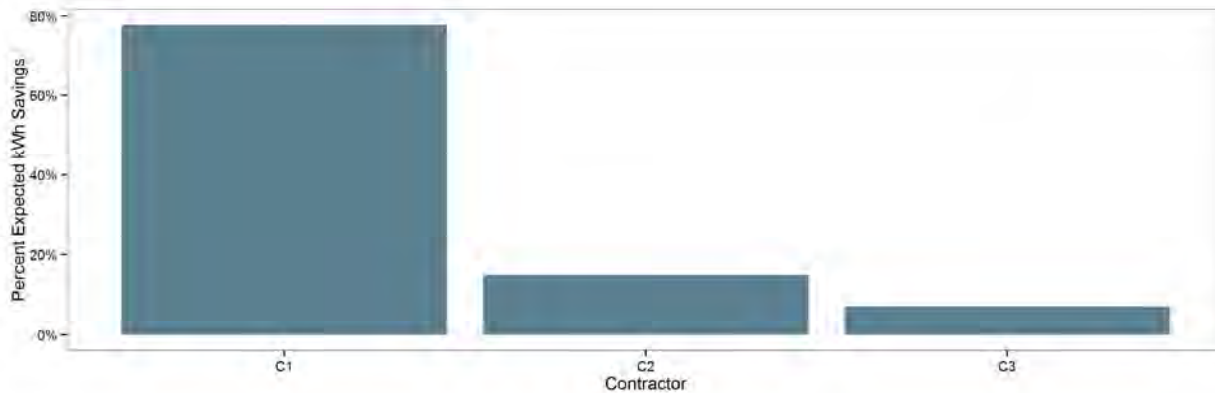


Figure 3-4 **Error! Reference source not found.** displays results of the same analysis for income qualified projects. As shown, one of the trade allies accounted for most of the program savings.

*Figure 3-4 Share of Expected kWh Savings by Trade Ally, Income Qualified*



The Evaluators summarized the number and share of assessment and measure installation projects completed by the four trade ally firms that completed assessments. The purpose of the analysis was to determine if some trade allies were more aggressively completing assessments but not generating energy saving projects. The results, summarized in Table 3-17, demonstrate that were not any cases where trade allies accounted for a significantly higher share of assessment projects than measure projects.

*Table 3-17 Share of Assessment Projects and Measure Projects, Mass-market Channel*

<b>Trade Ally</b>	<b>Number of Assessment Projects</b>	<b>Percent of Assessment Projects</b>	<b>Number of Measure Projects</b>	<b>Percent of Measure Projects</b>
Trade Ally 1	273	43%	390	31%
Trade Ally 2	235	37%	364	29%
Trade Ally 3	103	16%	460	36%
Trade Ally 4	6	1%	3	<1%
Trade Ally 5	4	1%	0	0%
Trade Ally 6	4	1%	4	<1%
Trade Ally 7	2	<1%	1	<1%
Trade Ally 8	1	<1%	39	3%
Trade Ally 9	1	<1%	9	1%

### **3.7.3.2 Mass-market Program Comparison**

The Evaluators reviewed multiple residential, regional whole house programs to assess how Entergy Louisiana’s Residential Solutions Program compared in terms of audit processes, available measures, eligibility, and incentives. This comparison is intended to provide context as to whether the Residential Solutions Program aligns with regional practices in terms of program design, eligibility requirements, and incentive levels. The programs used in this comparison are all in the comprehensive phase of implementation (i.e., no longer in a Quick Start or pilot phase), but this distinction only manifests in program scale (number of participants) rather than program structure (eligibility rules and incentive levels).

Table 3-18 provides a summary of the programs reviewed. Each of these programs provides an onsite whole house audit, although they vary in their comprehensiveness. The Entergy program offers a two-tier system. The first tier includes a walkthrough assessment, while the second tier offers diagnostic home performance testing. Three of the four programs have a direct install component which includes CFLs and/or water saving devices.

The eligible measures offered by the Residential Solutions Program are very much in-line with other program offerings from around the county, which emphasizes insulation and sealing. The biggest difference for incentives is the amount offered for the audit where the incentives range from \$75 to \$300. TVA’s eScore program offers the same incentive, but the costs are paid for by the customer rather than the trade ally invoicing the service. SWEPCO Arkansas’ program has the highest audit incentive as well as the highest incentivized measures in their program. Overall, the Entergy program is comparable with other whole house programs regionally.



*Table 3-18 Residential Solutions Mass-market – Regional Benchmarking*

<b>Utility</b>	<b>Audit Component</b>	<b>Direct Install</b>	<b>Program Measures</b>	<b>Incentive Amount</b>	<b>Eligibility Criteria</b>
<b>Entergy Louisiana, Entergy Gulf States Residential Solutions</b>	Tier 1 – Informational Energy Survey Direct install, visual walk-through inspections, Tier 1 report. Tier 2 – Energy Assessment – Direct install, walk-through inspection, blower door test, duct blaster test, combustion safety education, Tier 2 report.	CFLs (max 6), low-flow showerhead, faucet aerator, power strip.	Air sealing, duct sealing, ceiling, and insulation.	Tier 1: \$75 deducted from survey invoice. Tier 2: No additional incentive provided. Air sealing: Up to \$0.13/CFM50 reduction. Duct sealing: Up to \$1.50/CFM 25. Max 35% leakage cap. Ceiling insulation: Up to \$0.35/Square Foot installed area	Residential customer of utility. Single-family home or multifamily unit (4 or more units). Must live in home for at least one year. Electric cooling.
<b>SWEPCO Arkansas Residential Home Performance with ENERGY STAR®</b>	Comprehensive energy assessment – diagnostic and combustion safety testing, and energy assessment report.	Faucet aerator, low-flow showerhead, advanced power strip, and CFLs	Attic insulation, central air conditioner, windows, duct sealing, air sealing, and electric water heating.	Comprehensive energy assessment: \$300 Duct Sealing: \$175-\$325 Duct Insulation: \$0.50/linear ft. of insulated duct Air Infiltration: \$100 Ceiling Insulation: \$0.25/sq.ft. Extra incentive: \$100 bonus if 2 or more measures installed within six months of assessment.	Any residential dwelling served by SWEPCO – condominiums, apartments, townhomes, multifamily dwellings, manufacture, and mobile homes. Units must be occupied.
<b>Oklahoma Gas &amp; Electric Home Energy Efficiency Program (HEEP)</b>	Cooling inspections and A/C tune-up.	N/A	Duct repair and tightening, duct sealing, and attic insulation.	Assessment: \$85 A/C: One pound of A/C system refrigerant and filters. Duct sealing: up to \$300. Attic insulation: Up to 30% of costs of additional insulation (max \$500).	OG&E customers with central air conditioning.

<b>Utility</b>	<b>Audit Component</b>	<b>Direct Install</b>	<b>Program Measures</b>	<b>Incentive Amount</b>	<b>Eligibility Criteria</b>
<b>Tennessee Valley Authority eScore Program</b>	eScore evaluation (\$75) – customized list of upgrades and rebates available.	CFLs (max 12)	Air sealing, attic insulation, duct sealing, HVAC, water heaters, and windows and doors.	Air sealing: 50% of total installation cost (max \$200/home). Attic Insulation: 50% of total installation cost (max \$250/home). Duct sealing: 50% of total installation cost (max \$200). Heat Pump: \$250/unit. Geothermal: \$500. Central AC: \$150/unit. Dual Fuel Heat Pump: \$250/unit. Tune-up: \$15/unit. Window Replacement: \$25/window (max \$500). Exterior Door: \$50/door (max \$300). Storm Windows: \$12.50/window (max \$250).	Single-family homeowners.

**3.7.3.3 Income Qualified Program Comparison**

The Evaluators reviewed multiple regional home improvement programs targeting lower income customer to assess how Entergy Louisiana and Gulf States’ Residential Solutions Income Qualified Program component compared in terms of program measures, eligibility, and advertisements. Table 3-19 provides a summary of the programs. The Entergy Residential Solutions Income Qualified Program focuses on insulation, air sealing, and duct sealing improvements. Other programs have also focused on these same program measures as well as offering a variety of measures including high efficiency appliances, low-flow water devices, energy efficient windows, and many others.

The Entergy program marketing focuses on energy savings/cost savings, comfort, and improved indoor air quality.

Overall, the Entergy program is comparable with other low income weatherization programs regionally with the exception of the eligibility requirement.

*Table 3-19 Residential Solutions Income Qualified – Regional Benchmarking*

	<b>ELL &amp; EGSL</b>	<b>OG&amp;E</b>	<b>Oncor Texas</b>	<b>AEP Texas - Central</b>	<b>Louisville Gas &amp; Electric</b>
<b>Program Name</b>	Entergy Solutions Income Qualified Residential Program	Weatherization Program	Low-Income Weatherization Program	Hard-to-Reach Standard Offer Program	WeCare Program
<b>Program Measures</b>	Ceiling insulation, air sealing, and duct sealing, low	Attic insulation, sealing air leakage around windows and doors, duct sealing, and CFLs.	Insulation, duct sealing, caulking and weather-stripping, CFLs, and water-saving devices.  Other qualifying measures: High-efficiency central air conditioner or room air conditioner, floor insulation, solar screens, ENERGY STAR® appliances, energy-efficient windows.	Insulation, air infiltration, CFLs. High efficiency water heaters, insulation blankets, pipe insulation. Low-flow showerheads, ENERGY STAR home appliances. A/C duct testing and sealing, HE split-system HVAC, HE packaged-unit HVAC, room A/Cs.	Air and duct sealing and insulation, attic and wall insulation, water heater jacket, water devices, heating and central A/C tune-ups, CFLs, programmable thermostats, and energy-efficient refrigerators, window and A/Cs.
<b>Participation limit</b>	No information	No information	No information	No information	The customer's home must not have received WeCare services or an On-Site Home Energy Analysis in the last three years.
<b>Advertised “reduce energy usage”</b>	Yes	Yes	Yes	Yes	Yes
<b>Advertised “comfort”</b>	Yes	Yes	Yes	No	Yes
<b>Advertised safety/health</b>	Yes	Yes	No	No	Yes
<b>Eligibility Requirements</b>	Resident must be a current/active ELL or EGSL electric customer with an annual household income at or below 200% above the federal poverty guidelines.	OG&E residential customers who own or lease a single-family, duplex or mobile home and have an income of less than \$50,000/year.	Qualified low-income residential consumers have an annual household income at or below 200% above the federal poverty guidelines. Oncor customers who rent their homes can	Household incomes at or below 200% of the federal poverty guidelines or that participates in an approved government program.	Lived in their home for one year with 12 months of continuous service. The customer's income must meet the guidelines of the federal government's Low Income Heating

	<i>ELL &amp; EGSL</i>	<i>OG&amp;E</i>	<i>Oncor Texas</i>	<i>AEP Texas - Central</i>	<i>Louisville Gas &amp; Electric</i>
			participate provided they have permission from their landlords.		Assistance Program (LIHEAP) at 150% poverty.

### **3.7.4 Program Design, Operations and Activities**

The following sections describe the Residential Solutions Program design, operations, and activities and were developed from reviews of program documentation and interviews with program staff.

#### **3.7.4.1 Program Objectives**

The primary program objective is to assist residential customers in achieving electric energy savings and peak demand reductions through providing home energy assessments and rebates on energy saving home improvements. The mass-market channel has a savings goal of 2,454,704 kWh and peak demand reduction goal of 716 kW. The income qualified channel has a savings goal of 509,375 kWh and a peak demand reduction goal of 99 kW. The program also has ancillary objectives related to educating customers and trade allies about energy efficient technologies and home characteristics, and generally transforming the market for residential equipment and services.

Overall, both Entergy and CLEAResult staff indicated that the program is well designed to meet its goals and objectives. Program staff did not foresee any difficulty in meeting the first year savings goals and it was noted that program activity in the Entergy Louisiana service area was high soon after launch. This is attributable to the close proximity of trade allies that have participated in Entergy New Orleans’ Energy Smart programs in years prior to the launch of Entergy Louisiana programs.

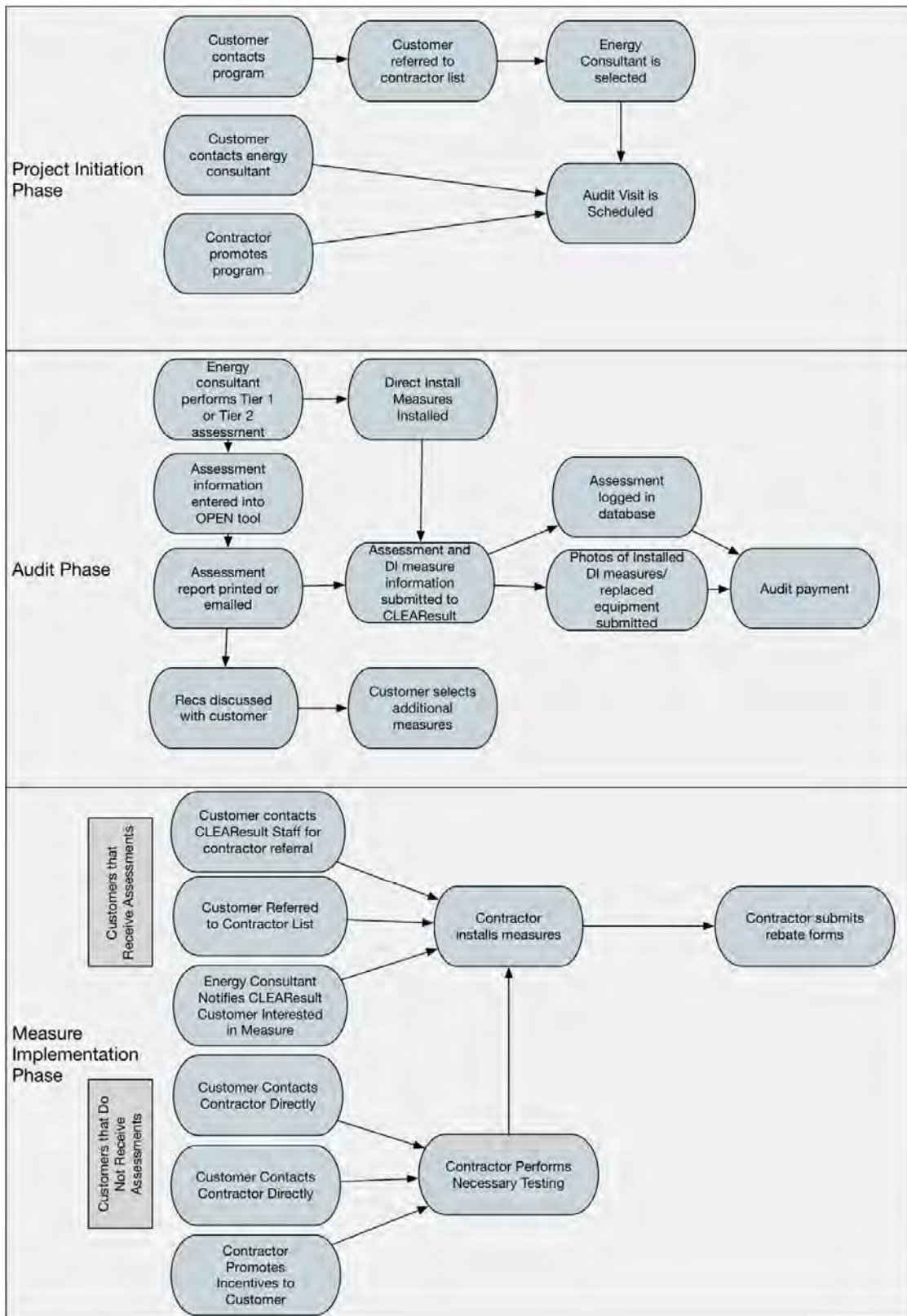
#### **3.7.4.2 Program Participation Process**

There are three forms of program participation: mass-market energy assessments, income qualified energy assessments and the implementation of measures without receiving an assessment. The participation process for the energy assessments, and subsequent measure implementation, is similar for income qualified and mass-market participants. Customers can receive an assessment that includes a walk-through of the residence to identify energy saving opportunities, direct installation of energy efficient light bulbs, low-flow faucet aerators and shower heads, and advanced power strips. Customers may also opt for additional performance testing such as blower door testing

and duct tightness testing. Completing the performance testing makes these customers eligible to receive incentives on perimeter air sealing and duct sealing in addition to the incentives for insulation.

Customers that do not elect to have a home energy assessment performed may also receive incentives for insulation, air sealing, and duct sealing. Customers receiving incentives for air sealing and duct sealing must complete the necessary performance testing before and after the implementation of the measures.

Figure 3-5 Residential Solutions Program Participation Process



#### **3.7.4.3 Barriers to Participation**

Program staff have not identified any significant barriers to participation and expect the program to meet the energy saving goals. However, it was noted that the program had a slower start in terms of activity in the Gulf States area. Additionally, Entergy staff noted that in future years, the program may focus more on targeting specific submarkets of residential customers, but are currently focused primarily on meeting overall energy saving objectives.

#### **3.7.4.4 Quality Control and Verification Processes**

Staff reported that they target the first five projects completed by a new trade ally firm for a pre- and post-inspection visit and that 10% of the projects are inspected after that. If a trade ally firm has a change in crew leader staffing, the firm is subject to the first five project verification requirement again.

Project verification visits check for consistency between reported performance testing, site information, and measure information. Additionally, staff reported that they discuss the customer's satisfaction with the trade ally during visits.

Staff report that few issues have been identified with the work performed by trade allies.

#### **3.7.4.5 Trade Ally Recruitment and Management**

As of September 2015, the program had approximately 40 trade ally firms in the network. To participate in the program, the trade ally firm must employ a staff member who has at least one of the following certifications: Building Performance Institute (BPI) Building Analyst, BPI Energy Auditor, or RESNET Home Energy Rater. Trade allies that provide ceiling and wall insulation only can substitute with the BPI Science Principals Certificate of Knowledge. Energy consultants must also be certified as a BPI Building Analyst, BPI Energy Auditor, or RESNET Home Energy Rater (HERS) rater. If the assessor was certified as a RESNET HERS rater before January 1<sup>st</sup>, 2014, RESNET Combustion Safety training is also required.

The key trade ally training provided during the program year was training to enable trade allies to become BPI certified, as required by the program.<sup>7</sup> Three classes were held between November 2014 and February 2015, during which approximately 30-45 trade allies were trained in total.

Additional training is planned for the coming year, including a webinar to review best practices / quality standards and on blower door testing.

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<sup>7</sup> The program requires that registered trade allies are certified as Building Performance Analyst or Auditor, or as a RESNET Home Energy Rater.

Program staff’s assessment is that the trade ally network is sufficiently well developed in terms of numbers and types of services provided to meet the programs current needs. Similarly, the recruitment effort was assessed as successful and staff believes they have a group of high skilled trade allies in the network. The program consultant’s previous experience as a home energy rater was a resource for identifying capable firms.

Staff reported that feedback is solicited from trade allies and that most feedback received has been positive. The feedback has been positive although program modifications have been made based on trade ally feedback. For example, when the program initially launched, they had multiple forms that trade allies were required to complete. Based on trade allies’ feedback, these forms were combined into a single form.

### 3.7.5 Participant Survey Results

The following sections summarize the findings from a survey of participants in the following groups:

- **Mass-market Home Assessment:** participants which received an Inspection, Tier 1 Assessment, or Tier 2 Assessment. This group is comprised with both participants who followed through with a rebate measure and participants that did not install a rebate measure subsequent to the assessment. (n=58)
- **Mass-market Non-Assessment:** participants that installed a rebate measure, but did not receive an assessment. The measures included in this survey group were duct sealing and air sealing (n=33)
- **Income Qualified:** participants from the Income Qualified program channel, who receive a higher incentive level covering the full cost of the retrofit.

#### 3.7.5.1 Demographic Summary

Table 3-20 summarizes housing characteristics collected for the Residential Solutions mass-market respondents.

*Table 3-20 Residential Solutions Housing Summary*

<i>Housing Characteristic</i>	<i>Home Assessment (n = 58)</i>	<i>Non-Assessment (n = 33)</i>
% in Single Family	86%	85%
% owning home	84%	91%
Average number home occupants	3.2	3.2

Figure 3-6 summarizes the income brackets for the mass-market survey groups (Home Assessment and Non-Assessment). A significant number of respondents in both groups stated income levels less than \$25,000 per year (20.7% and 21.2% for Assessment and



Non-Assessment, respectively). These respondents would have been eligible for the Income Qualified Program component.

Figure 3-6 Income Brackets of Mass-market Survey Respondents

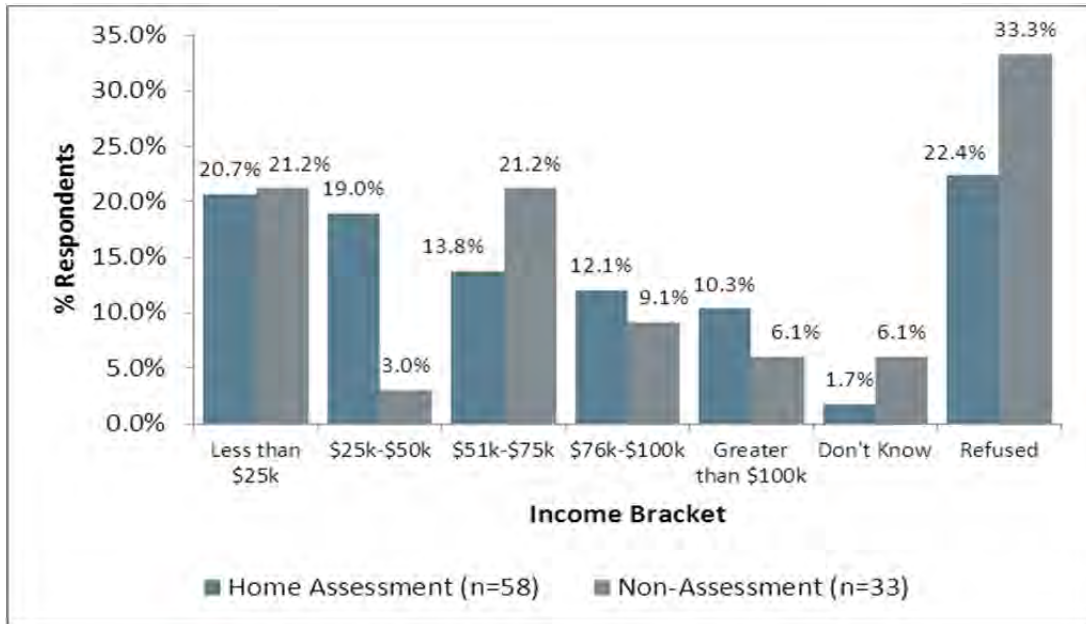
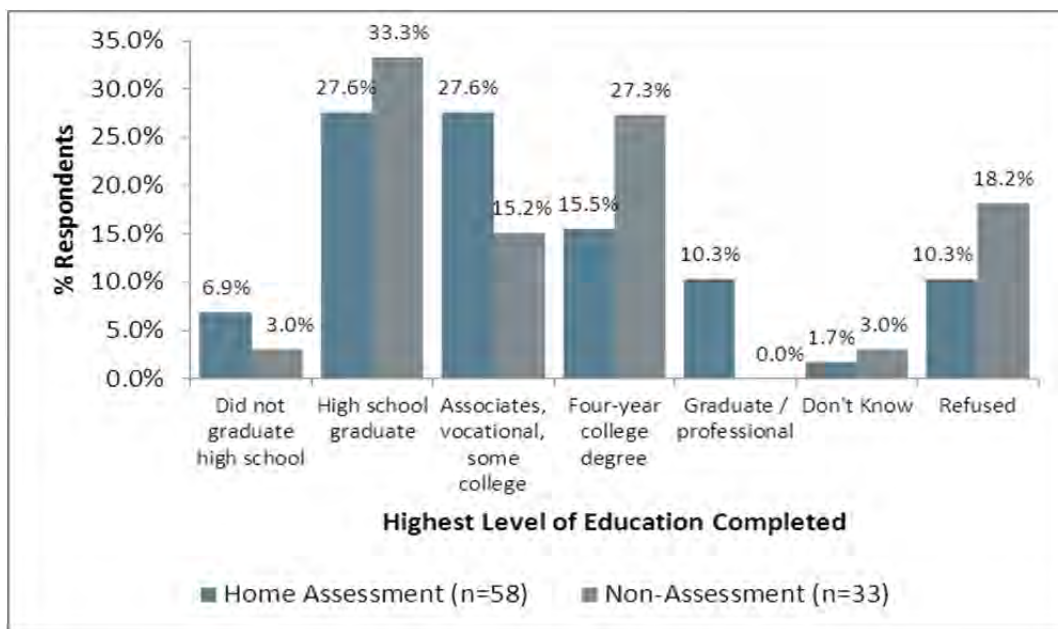


Figure 3-7 summarizes the education levels of program participants in the two mass-market channels.

Figure 3-7 Education Level of Mass-market Survey Respondents



### 3.7.5.2 Sources of Awareness

Participant sources of awareness are summarized in Table 3-21. The most common way participants first learned about the program was through a program representative, followed by a friend, family member, or colleague, and through a program trade ally.

*Table 3-21 How Participants Learned of the Program*

<i>How did you first learn of the [PROGRAM]?</i>	<i>Percent Indicating</i>		
	<i>Home Assessment (n = 58)</i>	<i>Non-Assessment (n = 33)</i>	<i>Income Qualified (n=6)</i>
Program Representative	25%	18%	18%
Friend, family member, or colleague	18%	30%	50%
Home energy consultant	16%	0%	0%
Trade Ally	12%	30%	30%
A radio or television advertisement	8%	0%	0%
Bill insert or utility mailer	2%	3%	0%
Email from utility	2%	0%	0%
Social media post (e.g., Facebook, Twitter)	2%	0%	0%
Through an internet search (e.g. Google)	2%	0%	0%
Through an internet advertisement	2%	0%	0%
Church meeting	0%	3%	0%
Other	8%	3%	0%
Don't know	2%	12%	32%
Refused	2%	0%	0%

### 3.7.5.3 Decisions to Participate

Table 3-22 summarizes the factors identified by survey respondents that affected their decision to participate in the Residential Solutions Program. Across all three survey groups, the most commonly identified reason was to save money on energy bills (ranging from 73% for non-assessment to 100% of income qualified respondents).

Secondary considerations identified by all survey groups included conserving energy or protecting the environment and improving home comfort. Home Assessment respondents were significantly more likely to specify that their participation was in-part driven by a desire to “become as energy efficient as my friends and neighbors” (41%) than non-assessment participants (21%). Further, 28% of Home Assessment respondents indicated that “identifying structural problems with my home” was a motivating factor. This would indicate potential areas for segmentation in program marketing for the assessment services offered by the program.

*Table 3-22 Factors Affecting Decision to Participate*

<b>Which of the following factors helped you decide to install the [MEASURE]?</b>	<b>Home Assessment (n = 58)</b>	<b>Non-Assessment (n = 33)</b>	<b>Income Qualified (n=6)</b>
Saving money on energy bills	78%	73%	100%
Conserving energy/Protecting the environment	57%	48%	50%
Improving the comfort of your home	43%	33%	87%
Improving the value of my home	34%	27%	0%
Getting the rebate or discount	24%	27%	0%
Becoming as energy efficient as my friends or neighbors	41%	21%	0%
Identifying structural problems with my home	28%	0%	0%
Other	0%	3%	0%
Don't know	0%	0%	0%
Refused	0%	0%	0%

**3.7.5.4 Decision to Receive an Assessment**

Among Home Assessment respondents, 26% of stated that they were considering a home energy assessment before they learned of the rebate or discount available through the ELL program, while 74% said they were not planning to do one.

As shown in Table 3-23, 47% of respondents reported they probably would have had the home energy assessment completed without a rebate or discount, while 12% said they definitely would have. The remaining participants indicated they probably would not have (22%), definitely would not have (14%), or didn't know (5%).

*Table 3-23 Likelihood of Completing Assessment without Rebate or Discount*

<b>If the rebate or discount had not been provided for the home energy assessment, do you think you would have had the assessment completed anyway?</b>	<b>Home Assessment Respondents (n = 58)</b>
Probably would have	47%
Probably would not have	22%
Definitely would not have	14%
Definitely would have	12%
Don't know	5%
Refused	0%

In reviewing the responses detailed in Table 3-22 and Table 3-23, the Evaluators' conclusion is that:

- 1) Most participants are not considering examining their home for energy-saving opportunities until they learn of the program; and
- 2) A significant share of audit participants would complete the audit without the incentive for doing so.

This would imply that for the target market for Residential Solutions home assessments, the greater market barrier is in customer awareness of energy-saving opportunities, rather than the cost of the assessment itself.

When participants who implemented project measures following a home energy assessment were asked if they would have implemented the same measures without the assessment, 13% said they definitely would have, 17% said they probably would have, 48% said they probably would not have, and 17% said they definitely would not have. These responses suggest that the energy assessments were influential in customer’s decisions to complete energy saving projects.

*Table 3-24 Likelihood of Implementing Measure without Assessment*

<b><i>Had you not had the home energy assessment, do you think you would have implemented the project measures?</i></b>	<b><i>Home Assessment Respondents (n = 23)</i></b>
Probably would not have	48%
Probably would have	17%
Definitely would not have	17%
Definitely would have	13%
Don't know	4%
Refused	0%

**3.7.5.5 Decision to Install without an Assessment**

30% of respondents from the non-assessment group said they were considering installing the measure before learning of the rebate or discount available through the program, while 74% said they were not planning the project prior to learning of the program.

Participant survey responses suggested that a significant share would have implemented the measure without the rebate or discount provided. 63% of participants reported they probably (33%) or definitely would have (30%) implemented the measure without a rebate or discount. The remaining participants indicated they probably would not have (18%), definitely would not have (9%), or didn’t know (9%). These results suggest that rebate or discount may not have been a critical factor in a sizable share of participants’ decisions about completing the energy assessment.

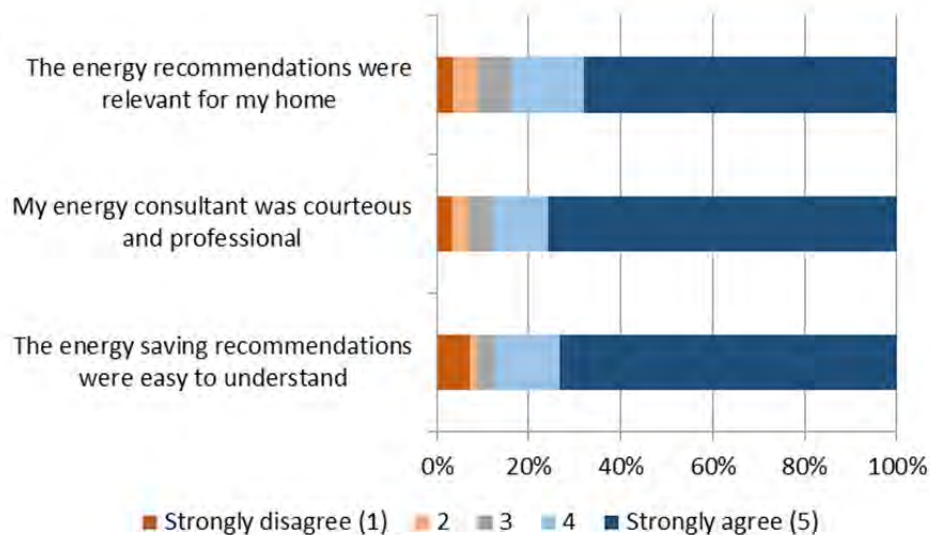
*Table 3-25 Likelihood of Completing Assessment without Rebate or Discount*

<i>If the rebate or discount had not been provided for the [MEASURE], do you think you would have installed it anyway?</i>	<i>Percent of Respondents (n = 33)</i>
Definitely would have	30%
Probably would have	33%
Probably would not have	18%
Definitely would not have	9%
Don't know	9%
Refused	0%

**3.7.5.6 Participation Process – Home Assessment**

Overall, participants thought the energy saving recommendations were easy to understand, the energy consultant was courteous and professional, and the energy recommendations were relevant for their home. As shown in Figure 3-8, at least 86% gave favorable assessments of the recommendations provided and the energy consultant.

*Figure 3-8 Participants Rating of the Home Energy Assessments*

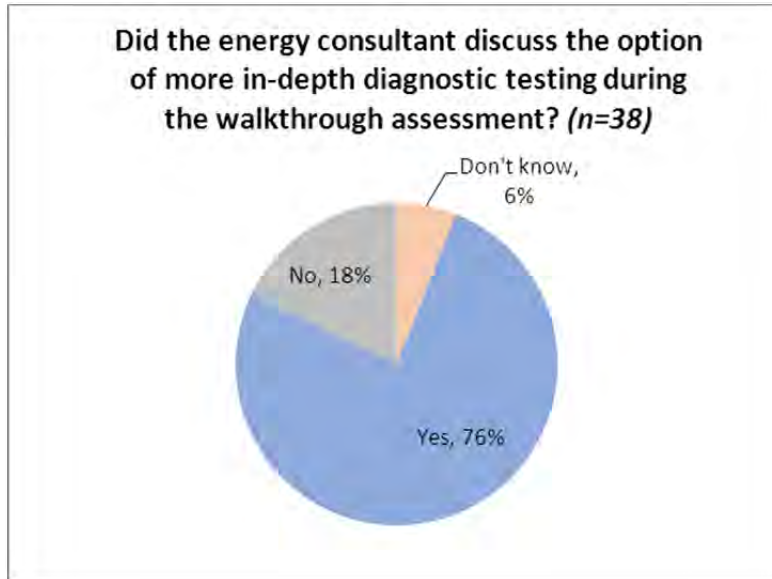


Participants reported the energy consultant discussed the availability of rebates or discounts for energy saving recommendations 53% of the time, while 22% said this was not discussed. 24% did not know if a discussion about rebates and discounts took place.

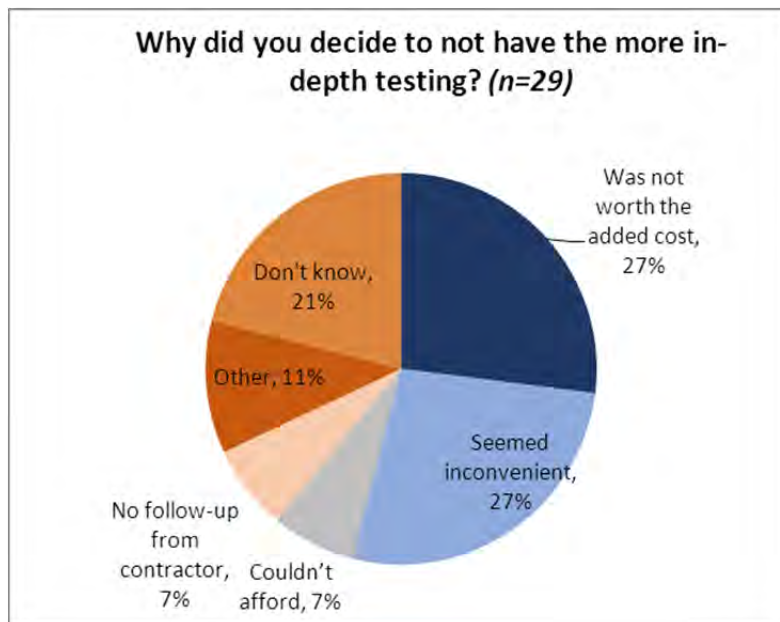
Respondents that completed Inspections or Tier 1 audits were then asked if trade allies discussed the Tier 2 audit offering with them. If they were discussed, the respondent

was then asked to identify why they did not elect to have more in-depth testing on their home. The responses to these questions are presented in Figure 3-9 and Figure 3-10.

*Figure 3-9 Discussion of In-depth Diagnostic Testing with Walkthrough Participants*



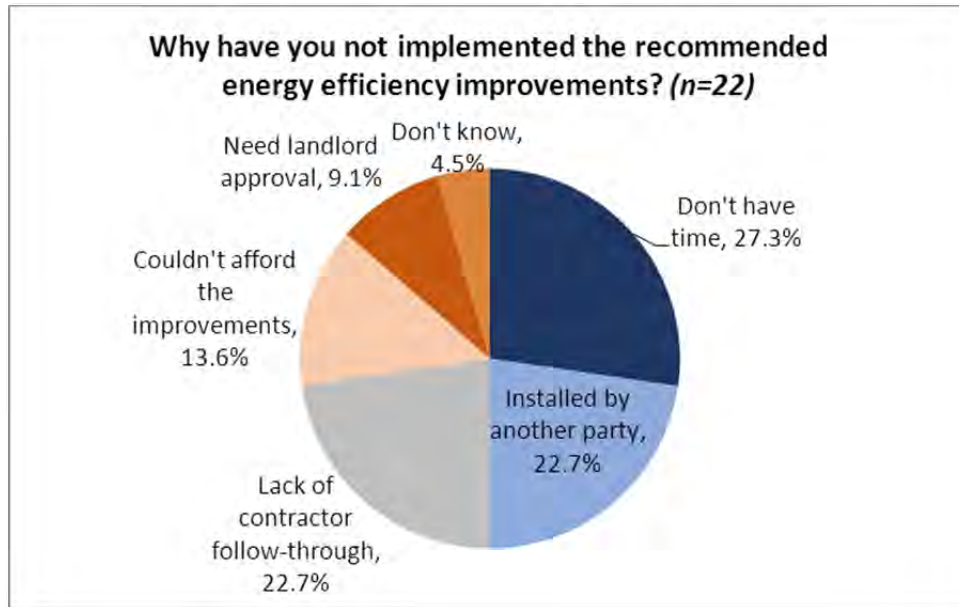
*Figure 3-10 Reasons for Declining More In-depth Testing*



Further, the Evaluators then identified customers that received recommendations from a home energy consultant but then did not follow through with any incentive measures.

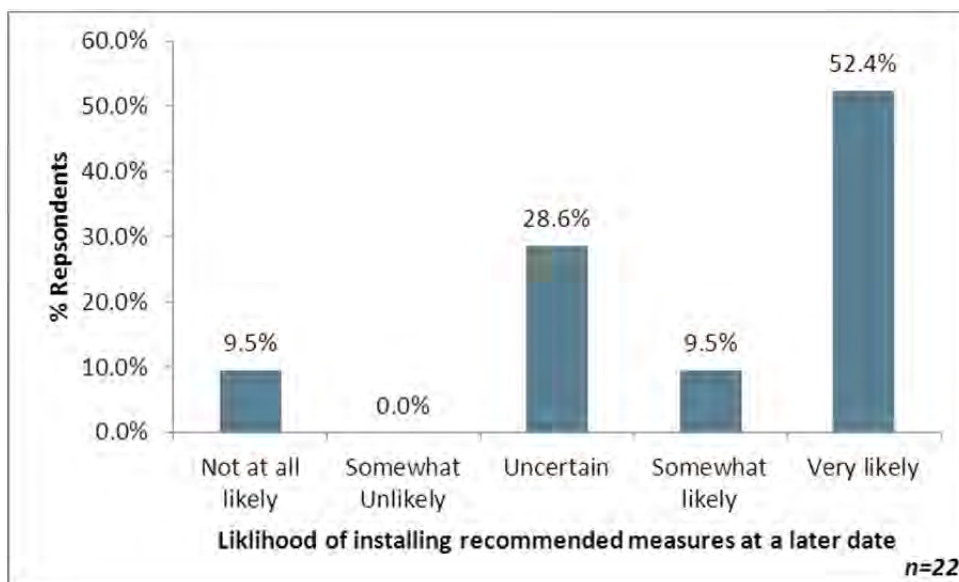
36% of survey respondents completed an assessment but did not install subsequent incentive measures. The reasons identified by these respondents are presented in Figure 3-11.

*Figure 3-11 Reasons for not Installing Recommended Improvements*



These respondents were also asked to identify their likelihood of installing recommended improvements in the future. As shown in Figure 3-12, 52% indicated they were very likely to do so in the future, while 10% said they were somewhat likely to do so, and 10% said this was very unlikely.

*Figure 3-12 Likelihood of Installing Recommended Measures at a Later Date*



The majority of respondents reported that finding a participating trade ally to implement the energy efficiency measures was either very easy (85%) or somewhat easy (5%). The energy consultant who did the assessment recommended the trade ally to 22% of respondents. The utility program website or a program representative provided the information to 13% of respondents. The remaining respondents found the trade ally some other way (e.g., internet search, friend referral, prior trade ally).

**3.7.5.1 Participation Process – Non-Assessment**

30% of non-assessment respondents indicated that they or someone else in their household completed the rebate application. This finding is surprising since all of the measures implemented by respondents were trade ally installed measures. However, it is possible that survey respondents may be unaware of the full scope of program paperwork.

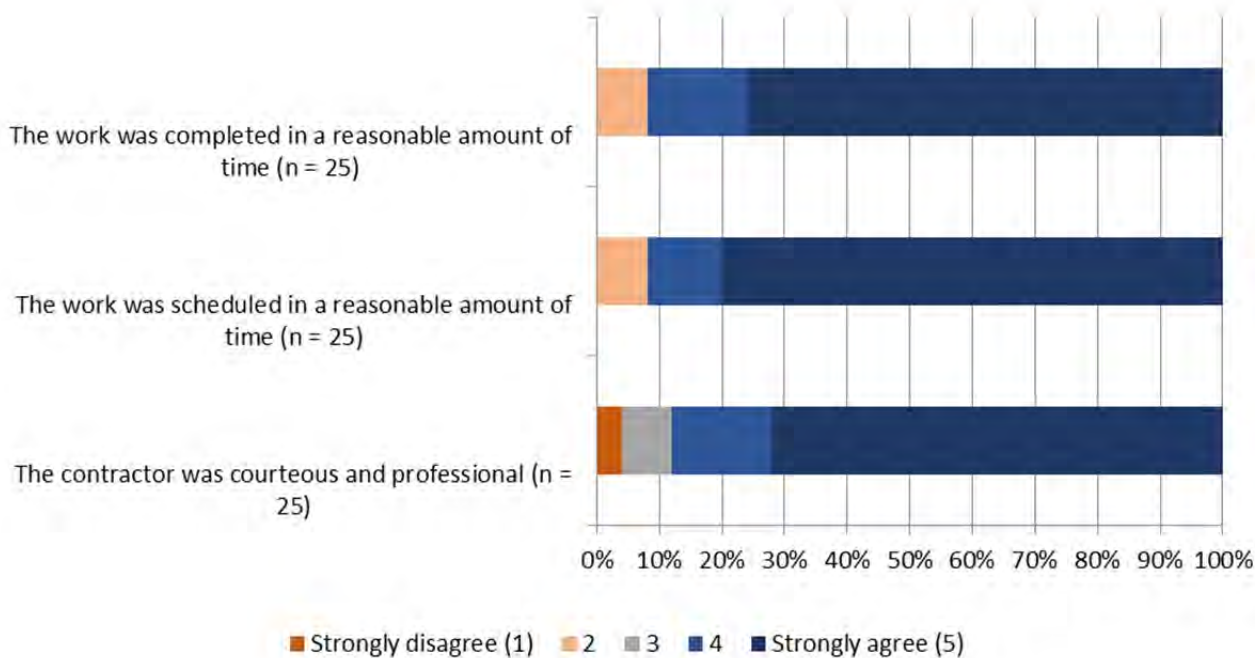
*Table 3-26 Who Completed the Rebate Application*

<b><i>Who completed the application for the utility rebate for the [MEASURE]?</i></b>	<b><i>Percent of Respondents (n = 33)</i></b>
I filled it out	24%
Someone else in my household filled it out	6%
The salesperson or installation trade ally filled it out	42%
Don't know	27%
Refused	0%

Figure 3-13 displays participants responses regarding assessments of their experience in working with the trade ally that installed the measures implemented through the program. As shown, most respondents provided favorable assessments of their trade ally, although a minority disagreed that the work was completed and scheduled in a reasonable amount of time or that the trade ally was courteous and professional.



Figure 3-13 Respondents Assessments of Installing Trade Ally



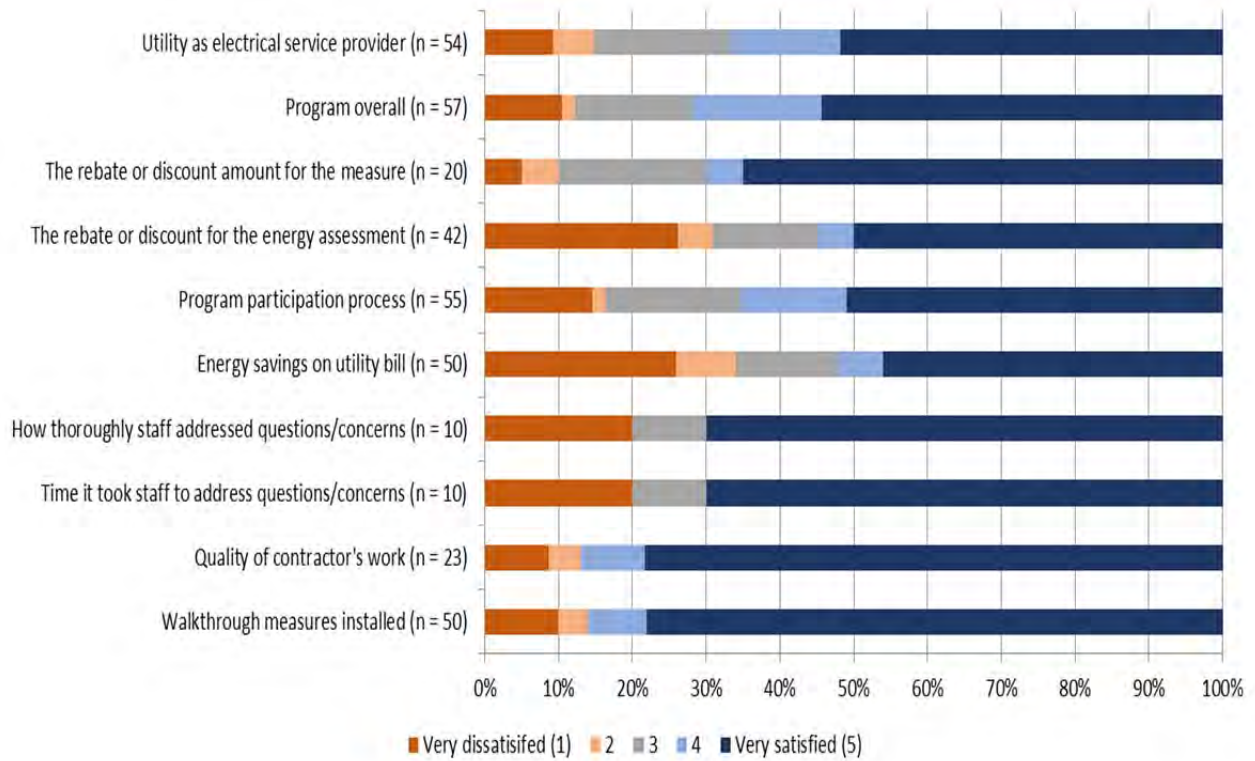
**3.7.5.2 Participant Satisfaction**

Figure 3-14 through Figure 3-16 summarizes participant satisfaction with multiple aspects of the program. Participants were most satisfied with the quality of the trade ally’s work and the walkthrough measures installed.

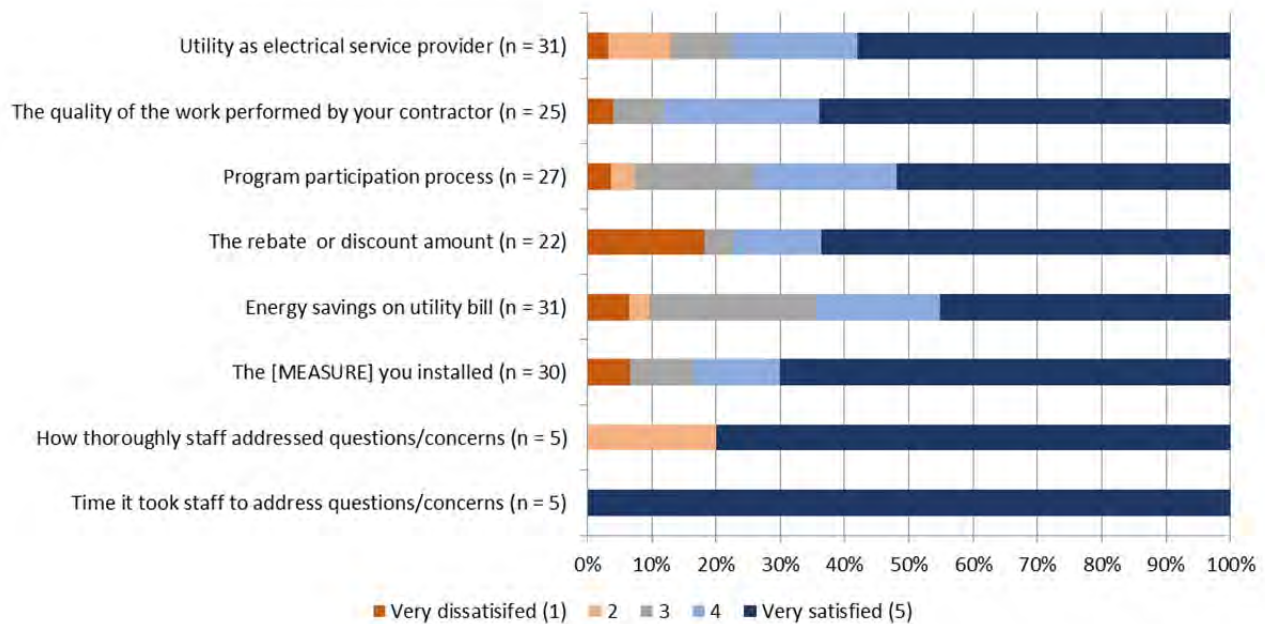
Satisfaction scores were generally high across all categories.

Though respondents reported high satisfaction for all program elements discussed in the survey, satisfaction scores were lower for the rebate or discount for the energy assessment and the energy savings on their utility bill. Reasons for dissatisfaction for participants who listed some level of dissatisfaction are listed in the Table 3-27. The most commonly provided reasons were: had not noticed energy savings (35%) and no rebate provided/discussed (35%). The latter responses suggest that trade allies may not be informing all participants that they are receiving a discount provided by the utility. 17% were also dissatisfied with the follow-up and follow-through of the trade ally or program representative.

*Figure 3-14 Participant Satisfaction Scores – Home Assessment Group*



*Figure 3-15 Participant Satisfaction Scores – Non-Assessment Group*



*Figure 3-16 Participant Satisfaction Scores – Income Qualified Group*

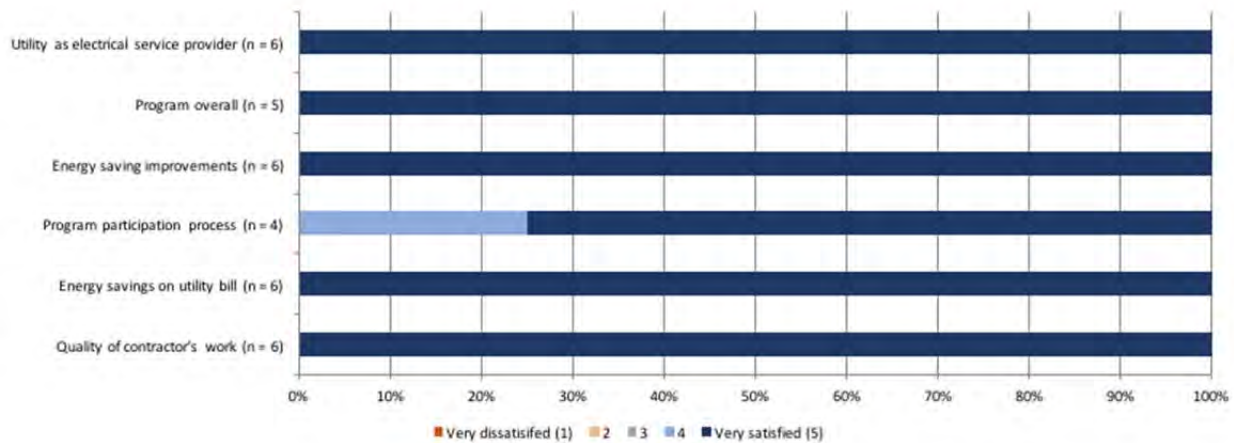


Table 3-27 summarizes reasons for dissatisfaction specified by survey respondents. This table does not include a column for Income Qualified as no survey respondents from this group indicated any dissatisfaction.

*Table 3-27 Reasons for Dissatisfaction with the Program*

<b>Reason for dissatisfaction</b>	<b>Percent of Dissatisfied Respondents (n = 16)</b>	<b>Percent of Dissatisfied Respondents (n = 12)</b>
Had not noticed energy savings	35%	8%
No rebate provided or discussed	35%	42%
Lack of follow-up or follow-through	17%	0%
Higher bill	9%	0%
Long wait times	4%	0%
Trade Ally did a poor job	0%	8%
Electricity costs too much	0%	8%
Cost is too much	0%	17%
Trade Ally not clear about the rebate	0%	8%
Other	0%	8%
Don't know	4%	0%
Refused	4%	0%

Table 3-28 summarizes respondents' self-reported impact of participation on satisfaction with the utility. Across all survey groups, the Residential Solutions Program largely increased satisfaction with Entergy.

*Table 3-28 Impact of Participation on Satisfaction with Entergy*

<b>Effect of participation in Entergy's program?</b>	<b>Home Assessment (n = 58)</b>	<b>Non-Assessment (n = 33)</b>	<b>Income Qualified (n=6)</b>
Greatly increased your satisfaction with Entergy	31%	21%	67%
Somewhat increased your satisfaction with Entergy	19%	36%	17%
Did not affect your satisfaction with Entergy	26%	33%	17%
Somewhat decreased your satisfaction with Entergy	9%	0%	0%
Greatly decreased your satisfaction with Entergy	7%	6%	0%
Don't know	3%	0%	0%
Refused	5%	3%	0%

### **3.7.6 Participating Trade Ally Interviews**

The Evaluators completed interviews with nine participating trade allies who had all completed at least one project in the Residential Solutions Program. The interviewed trade allies participate in the Entergy Louisiana, Entergy Gulf States, SWEPCO, or Cleco programs and many of the trade allies interviewed participate in more than one program.

#### **3.7.6.1 Background**

Six of the nine respondents were energy consultants that deliver energy assessments and all were installing trade allies. Four respondents stated that their business

specialized in energy efficiency, while others offer more generalized services including insulation, infiltration, and duct efficiency. All of the respondents provide services for residential (single and/or multi-family), and one-half provide for the non-residential sector as well.

### **3.7.6.2 Trade Ally Feedback - Motivations for Participating**

To gain insight into their decision making processes, respondents were asked what motivated them to participate in the Residential Solutions Program. The Evaluators asked about how participating trade allies learned of the program, their motivation for becoming a trade ally, and any concerns they had about participating.

Five respondents first learned of the program through direct utility or program staff outreach. One respondent stated that he or she learned about the program from other trade allies in the area, and another said their firm was seeking out energy efficiency programs to participate in Louisiana. One respondent had been a participant of the Residential Solutions Program and decided to expand their business to provide the program sponsored services to become a participating trade ally.

Trade allies provided information on any initial concerns they had about participating in the program. The most common concerns cited were with program processes like the application process and the wait time to receive the rebates. One respondent had a concern about the incentive levels, but noted that this did not end up being a problem. Another said that they were worried that customers would be uninterested in participating, but noted that their business is doing very well.

The major factors that influenced the respondents' decision to participate was the opportunity to expand their business (60%; either revenue or market sectors) and to help customers make their homes more energy efficient (30%).

### **3.7.6.3 Trade Ally Feedback - Program Marketing**

Many of the respondents stated that their marketing or promotion of the program is through word-of-mouth and direct referrals. Those respondents have found that this was one of the most effective and cost-effective means to promote the program. One respondent specifically uses the approach of canvassing neighborhoods to generate business. Trade allies also reported using other approaches such as purchasing mailing lists, distributing fliers, magazine ads, social media, and emails. One respondent contacted to the utility to get approval to distribute their own marketing materials to promote the program to potential customers.

Trade allies provided estimates ranging from 0% to 15% for the number of projects that are initiated by customers approaching them first, indicating that most projects are initiated through trade ally outreach efforts. The relatively small share of projects initiated by customers may also indicate a general lack of awareness of the program. A

low level of customer awareness of the program is not surprising given that program are new.

When trade allies were asked about the program marketing efforts directed at customers, a few responded that they had seen television advertisements or knew that the utility websites were used to promote the programs. However, many were unable to specify the utility's marketing efforts for the program. Even though they were unsure about the specific materials being used to promote the program, the respondents thought the program outreach and marketing efforts were effective because they had received some phone calls from customers about the program.

All of the respondents received guidelines on the use of the utility and program name for their marketing materials. Respondents were asked if the program or utility staff had provided them with any marketing materials for them to distribute to promote the program. Approximately one-half the trade allies confirmed they had received materials from the program staff. The available materials included brochures, other paperwork, and business cards. One respondent stated:

*"They had a few brochures, but they were limited in supply. I never had very many of them and I probably didn't ask for a larger supply. They did give me some brochures that I used quickly."*

However, even though the program staff had given some of the respondents marketing materials, about one-half of them stated that they have not used the materials while the remainder said to have used them frequently.

Respondents were asked for any suggestions on how to improve on the materials to make them more effective. Some suggestions included the addition of a place to input their own company information on the flyer and clearer messaging about using a specific trade ally for the program.

#### **3.7.6.4 Trade Ally Feedback - Barriers to Participation**

To identify any customer barriers to participation, respondents were asked about customers' awareness of the Residential Solutions Program, concerns they may have had before participating, and feedback on the financial incentives offered.

About one-half of the respondents said that the several of their customers were initially skeptical about the program offerings. Trade allies indicated that some customers are worried that the program is "too good to be true" and assume there is a "catch" to it. Additionally, some customers are wary about allowing the trade ally into their home to conduct the audit. Another customer concern that was mentioned is whether or not they will see a lower utility bill as a result of their participation.

A customer's primary concern when deciding whether or not to implement a trade ally's recommendations is cost. One respondent stated that in many cases the customer

knows about the problems in their home before the assessment is performed, but solving the problem is cost prohibitive. Other potential barriers to participation noted include customers not wanting to let people in their homes to perform the work and concerns about the time required to complete the energy saving improvements.

Almost 70% of the trade allies said that they think the rebate for the audit is not a sufficient enough incentive to encourage customers to have an energy assessment performed. Their suggested incentive range should be between \$100 and \$150.

When asked whether or not the financial incentives are sufficient to encourage customers to install energy efficient equipment, respondents replied:

*"I think it's a nice gesture when we offer the rebate. I'm not sure if it would be a 'game changer.' It's not a 'make or break situation.'"*

*"If they're going to do it anyway, they like [the recommendations]. If they don't want it, they're less inclined."*

*"If the incentives were larger, more people would be inclined to do it, because everyone wants something for nothing...The rebates are reasonable. I think they need to be higher for me to be able to attract people out here. The main thing is advertising and letting people know about the programs."*

#### **3.7.6.5 Trade Ally Feedback - Participation Process**

Several questions were asked of trade allies regarding the application procedures, the level of effort to complete the program steps, feedback on the OPEN tool software, and any suggestions for improvement.

All of the respondents choose to fill out the application for the customer and return the paperwork for them to sign. They prefer this method, as opposed to having the customer fill it out, because it *"takes a lot of the hassle away from the customer"* and they *"like to make it as simple as they can for them."* Also, respondents said that it took them "minimal" effort to fill out the applications. None of the respondents had suggestions for improving the application.

Respondents provided feedback on the use of the OPEN tool. About one-half of the respondents did not experience any major issues, and all indicated that it was fairly easy to use. However, some did have issues such as difficulty logging into the system, input data not showing up in real-time, having to input data multiple times, and being unable to edit data inputs. Example comments on use of the tool include the following:

*"I always have trouble logging on. The main issue is getting kicked out. I've been having a problem with inputting data multiple times and only one name showing up. Sometimes it gets stuck."*

*“It would be a very good tool if they could have worked all the kinks out. Going back to edit, it wouldn’t allow you to edit an address. Some things didn’t show up in real-time and it repeated values later.”*

#### **3.7.6.6 Trade Ally Feedback - Training and Staff Support**

Trade allies provided information on the training they received. 78% of the respondents had received training; some received more formal training and others received informal training. Some respondents noted that program staff came to them to give the training while another said they went to the program staff’s office to receive training. Those respondents that did receive training said that it was comprehensive and easy, and the timing and location were convenient. The only suggestion for improving the training would be to hold additional trainings to cover program changes.

All but one respondent was provided written documentation describing program procedures and requirements. Overall, the information provided to the trade allies was assessed as clear, simple, and user-friendly.

#### **3.7.6.7 Trade Ally Feedback - Market Effects**

Energy efficiency programs may cause market effects such as altering the products and services provided by trade allies. One-third of respondents indicated that they had made changes to the products or services they offer as a result of participating in the program. One-third also said that they did not provide residential energy audits prior to their involvement in the program.

In addition to changes in the services provided, two respondents said that participation in the program has led them to increase their staffing by two to three full-time employees. Two other trade allies reported that to meet the needs to deliver the program services, they have hired between 10 and 12 full-time employees. One of these respondents also indicated that their firm opened a new office location in Louisiana.

#### **3.7.6.8 Trade Ally Feedback - Overall Satisfaction**

Respondents were then asked to rate their satisfaction on a scale of 1 to 10, with “1” meaning very dissatisfied and “10” meaning very satisfied, on a range of elements related to their program experience. Table 3-29 tabulates the satisfaction results.



Table 3-29 Trade Ally Satisfaction Levels of Program Elements

<i>Element of Program Experience</i>	<i>Very Satisfied (10 -9)</i>	<i>Somewhat Satisfied (8-7)</i>	<i>Neither Satisfied or Dissatisfied (6-5)</i>	<i>Somewhat Dissatisfied (4-3)</i>	<i>Very Dissatisfied (2-1)</i>	<i>Don't Know</i>
The application process	33%	44%	0%	0%	0%	22%
The wait time to receive the rebate	11%	22%	22%	0%	33%	11%
Incentive levels	22%	33%	11%	33%	0%	0%
The range of measures covered by the program	44%	56%	0%	0%	0%	0%
Service from program staff	44%	33%	11%	11%	0%	0%
Overall program	44%	33%	11%	11%	0%	0%

Overall satisfaction with the Residential Solutions Program is high. A majority of the trade allies reported high satisfaction with most of the program elements such as the range of measures covered by the program, the service from program staff, and the application process. Respondents who rated specific program elements lower than 5 were asked to clarify the low rating. Specifically, respondents who had issues with the wait to receive the rebate said:

*“You submit the stuff and you wait a couple of weeks to hear back...We’re waiting between 3-4 weeks. The turnover is slower than expected.”*

*“We email them daily. They had some ‘communication errors’ on their end and lost some rebates. We had to reissue applications...They are still delayed on some, but it’s better.”*

Respondents were also asked to describe the greatest strengths of the Residential Solutions Program. Many of them said the greatest strength was the ability to help people. More specifically, they responded:

*“Helping improve peoples’ lives.”*

*“You’re helping a customer. Helping someone who can’t afford to insulate their home.”*

*“The fact that the program is easy for people to understand and implement the program. There are people available to answer questions. There is little effort on what to do and how to do it because it’s explained so well.”*

Lastly, respondents were asked for recommendation or suggestions on how to improve the program or the role that they play as trade allies in the program. Three respondents

mentioned advertising; one specifically said that the opportunity for the creation of marketing materials that would allow them to add their contact information would be very helpful in future promotion of the program. Two respondents mentioned providing more program money for future years. Two other respondents mentioned faster rebate processing. Overall, respondents were generally satisfied with the program.

#### **3.7.6.9 Trade Ally Feedback - Conclusions and Recommendations**

Key findings from the participating trade ally interviews were as follows:

- Of the nine interviewed trade allies, more than one-half of them learned about the program through utility or program staff directly contacting them about the program.
- The major factors that influenced the respondents' decision to participate as a trade ally was the opportunity to expand their business (either revenue and/or market sectors) and to help customers make their homes more energy efficient.
- Many customers are still unaware about the program, where respondents cited that up to 15% of their customers contacted them about the Residential Solutions Program.
- A customer's primary concern when deciding whether or not to implement a trade ally's recommendations is cost.
- Almost all respondents received training, but would like trainings in a more convenient location and whenever there are program changes.
- All the respondents said that the program documents they received from the utility were clear and easy.
- When trade allies used the OPEN Tool, approximately one-half of the respondents did not experience any major issues, and everyone found it fairly easy to use. However, others did not have some issues with operating the software including not being able to edit entered information or having to enter information multiple times.
- Respondents are generally satisfied with the Residential Solutions Program.

The Evaluators recommend the following:

- Marketing materials – Marketing materials are utilized by a number of trade allies. Ensure that trade allies have sufficient supplies or access to electronic versions for printing. Ensure that trade allies have access to materials that promote the program and include space for their contact information.
- Training – Schedule training events at slower times of the year (late fall or early winter). Additionally, provide program updates on any changes. To provide trainings in more convenient locations, the Evaluators recommend that utilities co-sponsor training events to reach all service territories.
- OPEN tool software – Include an “Edit” feature for trade allies to fix input data in real-time and offer the tool in bigger font sizes.

### **3.7.7 Conclusions**

The following sections summarize key process evaluation findings and recommendations.

#### **3.7.7.1 Program Design and Participation Process**

- The Residential Solutions Program provides similar services and measures to other programs operated in the region. The program provides a walkthrough home energy assessment as well as the option for more in-depth home performance testing. Typical direct install measures such as CFLs, advanced power strips, and low-flow devices are offered. Single and multi-family buildings are eligible.
- A sizable share of mass-market energy assessment participants, 22%, reported that their energy consultant did not discuss the available rebates or discounts for energy saving improvements. Additionally, program staff reported that the audit budget was utilized early in the program year and there were some concerns that audits were not resulting in as many incentive projects as hoped for.
- Few participant survey respondents that installed incentivized measures had difficulty locating a trade ally to install the measures.
- A sizable share of mass-market participants reported having income levels that would qualify them for the income qualified component.
- The program provided in-depth trade ally training related to building certification, however, less training was provided on program participation processes.
- A sizable share of participants indicated that the rebate/discount was not discussed, suggesting that trade allies may not be discussing this with participants.
- Trade allies noted a few issues with the OPEN tool including an inability to edit entered data and needing to enter data multiple times.

#### **3.7.7.2 Program Marketing and Outreach**

- The program utilizes a variety of commonly used approaches to promote residential program. These approaches include direct outreach by program staff, outreach performed by participating trade allies, a radio spot, bill inserts, and social media.
- The program developed a tri-fold brochure to promote the residential and small business programs that incorporates a number of recognized marketing tactics such as a call to action and information on multiple benefits from energy efficiency projects. A fact sheet for the residential solutions program was also developed. Trade allies are provided materials that include program branding and a location for trade ally information for use in promoting the program.
- The program website provides information the program incentives, a description of the participation process, eligibility criteria, and an example of a typical single family home project.
- Program mass-market energy assessment participants most often reporting learning of the program from a program representative (25%), from friends, family, or colleagues 18%, or from a home energy consultant (18%) or trade ally (12%). Similarly, 30% of non-energy assessment participants learned of the program from a friend, family member, or

colleague, 24% learned of it from a trade ally, and 18% learned of it from a program representative.

- 50% of surveyed income qualified participants reported that they learned of the program from family members, friends, or colleagues. Another 17% reported learning of the program from a program representative.
- Consistent with the program design, trade allies report actively promoting the program.
- Not all trade allies utilize the program marketing collateral, but those that do use it extensively and reported running out of materials.

#### **3.7.7.3 Quality Control and Verification Processes**

- Program staff report sufficient project verification processes. The first five projects completed by a new trade ally receive pre- and post-installation verification inspections. After the first five projects are completed, 10% of the additional projects completed by that trade ally are verified.
- The program manual contains limited description of quality control and verification procedures.
- Staff reported that few issues with trade allies have been identified.

#### **3.7.7.4 Customer and Trade Ally Satisfaction**

- Mass-market energy assessment participants were most likely to report satisfaction with the walkthrough measures and the quality of the trade allies work, followed by the program overall. Participants were most likely to report dissatisfaction with the energy savings and the rebate or discount amount for the assessment. Several survey responses suggested that energy consultants may not be discussing the discount on the assessment with program participants.
- Mass-market participants that did not receive an energy assessment were most likely to report satisfaction with the work performed by the trade ally, followed by the energy efficiency measure installed, and the program participation process.
- All participants in the income qualified channel reported satisfaction with the program overall and the individual aspects of the program.
- As shown in Table 3-28 , 50% of mass-market energy assessment participants, 57% of the non-assessment participants, and 67% of the income qualified participants reported that participation in the program increased their satisfaction with Entergy.
- Program staff reported that trade allies are satisfied with the program and that they have incorporated feedback received from trade allies into the program.
- Most interviewed trade allies were satisfied with the program overall. Issues raised by trade allies included slower than expected review of project materials and a desire for larger rebates.

### **3.7.8 Recommendations**

The Evaluator's' recommendations for the Residential Solutions Program are as follows:

- **Monitor the rate of audits completed by energy consultants that result in energy efficiency projects.**

- **Encourager trade allies to install the direct install measures at income qualified participant residences.**
- **Provide training or information to participating trade allies when program changes are made.**
- **Review options for adding data editing capabilities to the OPEN tool.** Allowing for edits may improve the quality of data submitted by trade allies.
- **Include links to the program fact sheet and downloadable brochure on the program website.** Providing access to printable program material is considered good marketing practice.
- **Several trade allies listed on the website do not have the area they serve identified.** This information should be identified to provide better information to prospective program participants.
- **Ensure that trade allies are aware of marketing collateral that includes space for the trade ally to put their firm's information.** This information may help them promote the program and improve customer's perceptions of program legitimacy.
- **Provide electronic copies of program marketing materials to trade allies so that they can be printed as needed.**
- **Consider providing information about the income qualified incentive on website.** Although the program did not have difficulty meeting its goals, the program should consider some limited marketing of the program to ensure that a larger share of income qualified customers are aware that they are eligible for larger incentives than are available through the mass-market program. At a minimum, staff should consider providing information about the program on the residential program website.
- **To ensure clear communication to all relevant parties, include information on quality control and verification procedures in the program manual.** This should include the rate of project verifications and the quality standards used to assess trade ally performance.

## 4. CoolSaver AC Tune Up and HVAC

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The CoolSaver AC Tune Up and HVAC Program provides financial incentives to encourage residential customers to improve the efficiency of their HVAC systems. Incentives are provided for a tune-up of the system and for HVAC system replacements.

Incentives provided for tune-ups for single family homes range from \$150 per unit, depending on the size of the system. Incentives of \$75 are provided for multifamily air conditioning units.

Tune-ups are provided by a qualified technician and involve testing the performance of the unit before and after measures are implemented. Typical measures implemented as part of the tune-up procedure include air flow correction; cleaning of the indoor blower, evaporator coils, condenser coils; and correction of refrigerant charge.

Incentives are provided for replacement of air conditioning systems and heat pump systems. Incentives for air conditioner replacements range from \$75 to \$550, depending on the size and SEER of the new unit. Incentives for ducted heat pumps range from \$100 to \$650, depending on size and SEER of the new unit. Ductless heat pumps may receive incentives ranging from \$225 to \$700 depending on the size of the unit

In PY1, the CoolSaver Program had savings goals of 1,427,077 kWh and 547.00 kW. Total verified savings for the CoolSaver Program are:

- 1,526,575 kWh – 107.0% of goal; and
- 488.39 kW – 89.3% of goal.

### **4.1 M&V Methodology**

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Evaluation of the CoolSaver Program included the following:

- Ride-alongs with participating trade allies to observe the tune-up process;
- Surveys with tune-up and rebate participants; and
- Interviews with program trade allies.

### **4.2 Impact Savings Calculation Methodology**

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For equipment and retrofits rebated through the PY1 CoolSaver Program, calculation methodologies were performed as described in the TRM. Table 4-1 identifies the sections in the TRM that were used for verification of measure-level savings under the CoolSaver Program.

Table 4-1 CoolSaver TRM Sections by Measure Type

Measure	Section in TRM
AC Tune up	2.1.5
Central AC Replacement	2.1.6
Heat Pump Replacement	2.1.8

In addition to the TRM, the Evaluators also examined the Excel workbook distributed to trade allies to assess savings by measure. The workbook utilizes TRM savings algorithms with trade ally inputs to calculate savings based on the measure and input parameters. The Evaluators verified the factor tables for each measure to ensure the values were appropriate.

#### 4.2.1 Central Air Conditioner/Heat Pump Tune-Up Savings Calculations

The deemed savings values for air infiltration reduction were developed through the weather-adjustment of TRM values.

The formula for calculating savings from air conditioning tune-ups is as follows:

$$kW_{Savings} = Capacity \times \frac{1 kW}{1000 W} \times \left( \frac{1}{EER_{pre}} - \frac{1}{EER_{post}} \right) \times CF$$

$$kWh_{Savings} = Capacity \times \frac{1 kW}{1000 W} \times \left[ \left( \frac{EFLH_C}{EER_{pre}} + \frac{EFLH_C}{HSPF_{pre}} \right) - \left( \frac{EFLH_C}{EER_{post}} + \frac{EFLH_C}{HSPF_{post}} \right) \right]$$

Where,

- Capacity = Rated tons
- EER<sub>pre</sub> = Adjusted efficiency of equipment prior to the tune-up (11.2 if unknown)
- EER<sub>post</sub> = Nameplate efficiency of existing equipment
- HSPF<sub>pre</sub> = Measured efficiency of heating equipment before tune-up
- HSPF<sub>post</sub> = Measured efficiency of heating equipment before tune-up
- CF = Coincidence Factor, .87
- EFLH<sub>C</sub> = Equivalent full-load cooling hours
- EFLH<sub>H</sub> = Equivalent full-load heating hours

Baseline EER is calculated as follows:

$$EER_{pre} = (1 - EL) \times EER_{post}$$

Where,

- EL = Efficiency Loss

*Table 4-2 Efficiency Loss Percentage by Refrigerant Charge Level*

<b>% Charged</b>	<b>EL – Fixed Orifice</b>	<b>EL – TXV</b>
≤70	.37	.12
75	.29	.09
80	.20	.07
85	.15	.06
90	.10	.05
95	.05	.03
100	.00	.00
≥120	.03	.04

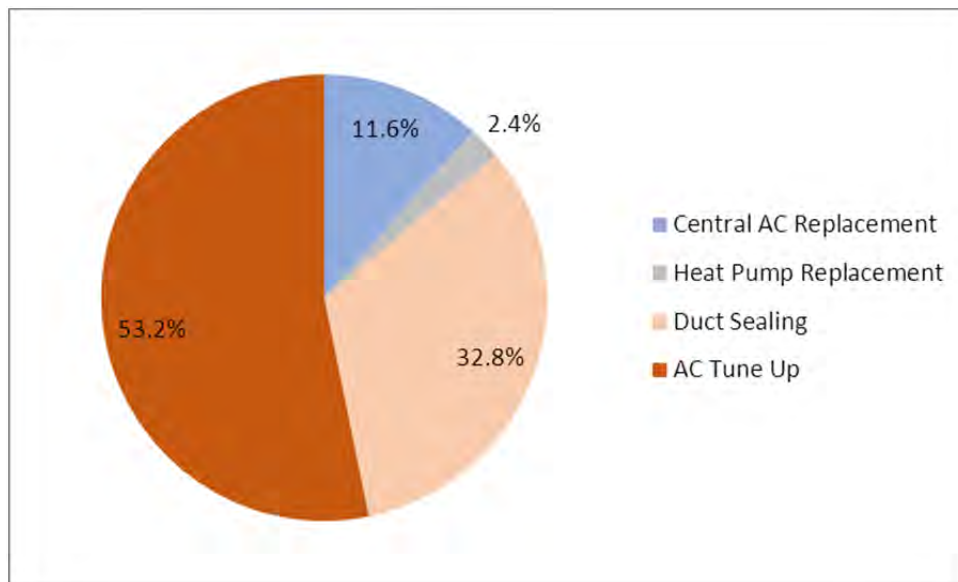
#### 4.2.2 Duct Sealing Calculations

Duct sealing in this program is calculated in the same manner as indicated for the Residential Solutions Program.

#### 4.1 Participation Summary

Savings from the CoolSaver Program by measure are summarized in the chart below.

*Figure 4-1 Savings Share by Measure – CoolSaver*

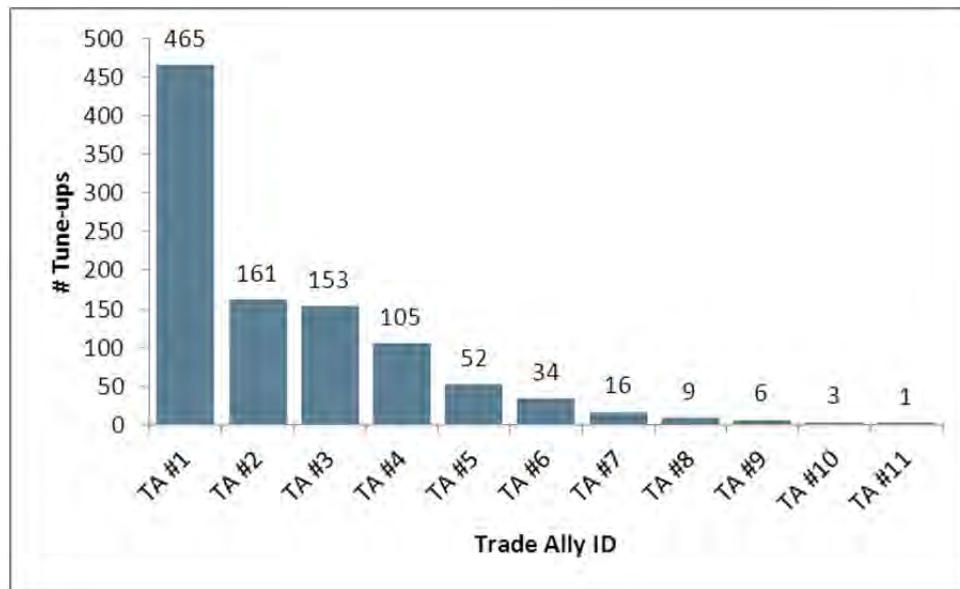


#### 4.1.1 Participation Detail: AC-Tune Ups

The AC tune-up portion of the program had 1,005 participants in PY1. ELL had 11 participating trade allies. Figure 4-2 summarizes tune-ups completed by trade allies.



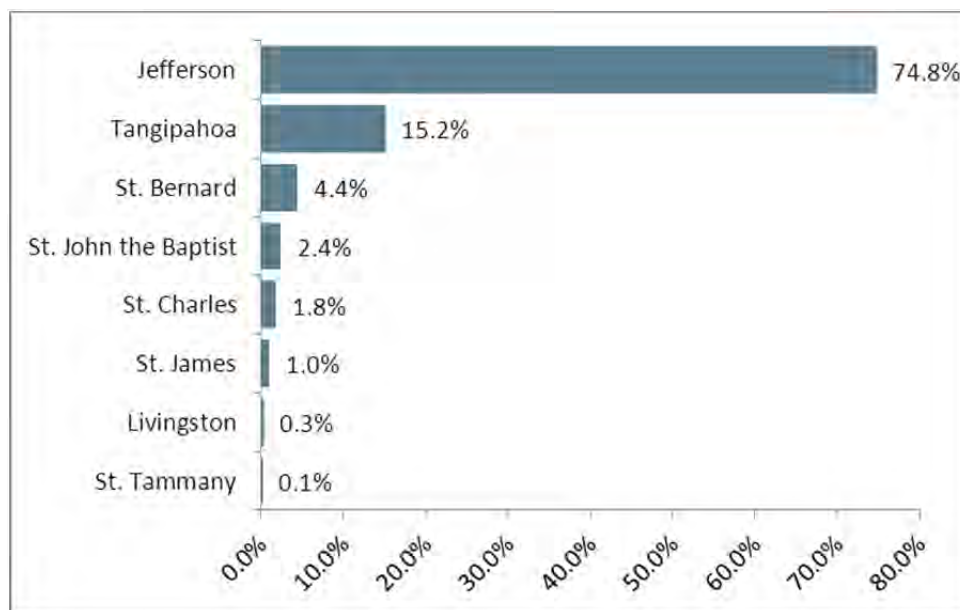
Figure 4-2 Tune-Ups Completed by Trade Ally



One trade ally was responsible for 46.0% of tune-ups completed, and the top four were responsible for 87.6% of tune-ups.

Figure 4-3 summarizes participation by parish for the AC Tune-Up measure.

Figure 4-3 Participation by Parish – CoolSaver Tune-Up



#### 4.1.2 Participation Detail: Duct Sealing

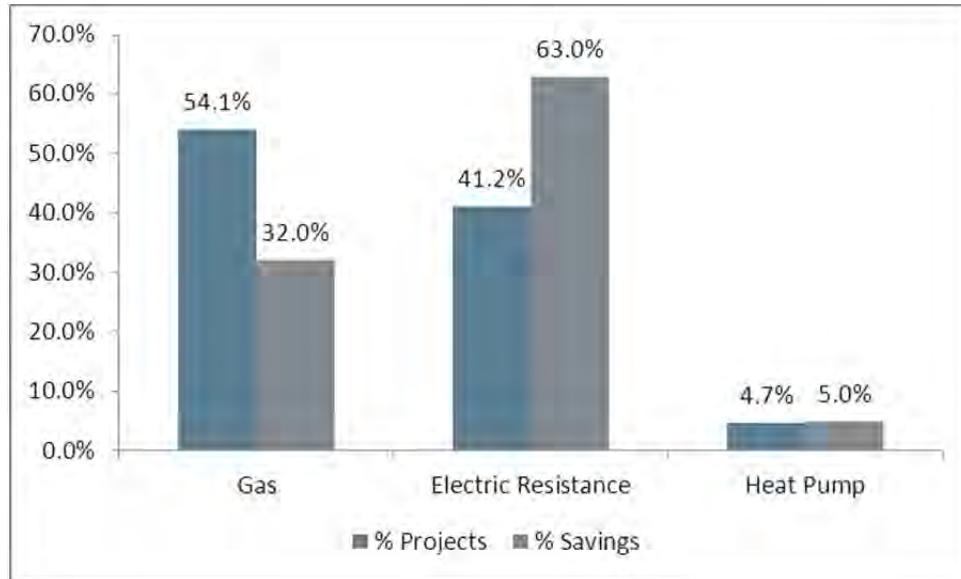
The program tracking listed two types of duct sealing:

- Single-participant; and
- Bulk-retrofit.

There were three line items for bulk multifamily duct sealing retrofits, comprising of a total of 247,137 kWh. Additionally, there were 85 single family homes with duct sealing in the program in PY1, totaling 257,313 expected kWh and 53.32 expected kW.

The contribution to savings and participation by HVAC system type is detailed below.

*Figure 4-4 % Participation and kWh Savings by Heating System Type*



#### 4.1.3 Central AC/Heat Pump Replacement

The PY1 CoolSaver Program rebated 70 central air conditioners and 13 heat pumps. Four trade allies accounted for 69.9% of program savings.

### 4.2 Savings Results

The Evaluators found that largely, program savings corresponded with Arkansas TRM values. The deviations of note were as follows:

- Differences in weather zone mapping.** Program staff used IECC2009 weather zone mapping, which splits Louisiana into two weather zones (Zone 2 and Zone 3). The Arkansas TRM applies IECC2003 weather zone mapping, and if this mapping is applied to Louisiana, Louisiana is split in four weather zones (Zone 3, 4, 5, and 6). The ELL area is largely comprised of IECC2003 Zone 3 (New Orleans) and Zone 4 (Baton Rouge). The northern Louisiana portion of ELL service area (Ouachita Parish) had no participation in the CoolSaver Program in PY1; as such there were no Zone 5 (Alexandria) or Zone 6 (Shreveport) residences. The effect of this overall is that deemed savings used by CLEAResult overstated savings for customers in IECC2003 Zone 3 but understated savings for customers in Zone 4. This is due to Zone 4 having a higher space heating load, and this difference is lost when aggregated with Zone 3. This is a change that should be accounted for in PY2; if there is increased

participation from northern Louisiana ELL customers then the IECC2009 zone mapping will result in underestimation of savings. This change would affect savings from duct sealing by less than 0.1% in PY1 and as such the Evaluators have chosen to not apply it.

- **Ineligible units identified in air conditioning replacement data.** The Evaluators identified two 13 SEER units in ELL program tracking (Lennox Models 13ACX-024-230 and 13ACX-030-230). These units are ineligible for the program and provide no savings as they are federal minimum standard units.
- **Errors in unit classification.** The Evaluators identified four central air conditioning rebates that were actually heat pumps.

Verified savings are summarized in Table 4-3 and Table 4-4.

*Table 4-3 kWh Realization Summary*

<i>Measure</i>	<i>Expected kWh Savings</i>	<i>Verified kWh Savings</i>	<i>Realization</i>
AC Tune-Up	818,659	818,659	100.0%
Duct Sealing	504,350	495,133	98.2%
Central Air Conditioning	178,934	176,500	98.6%
Heat Pump	36,283	36,283	100.0%
Total	1,538,226	1,526,575	99.2%

*Table 4-4 kW Realization Summary*

<i>Measure</i>	<i>Expected kW Savings</i>	<i>Verified kW Savings</i>	<i>Realization</i>
AC Tune-Up	337.13	337.13	100.0%
Duct Sealing	88.71	88.71	100.0%
Central Air Conditioning	53.47	52.75	98.7%
Heat Pump	9.80	9.80	100.0%
Total	489.11	488.39	99.8%

### **4.3 Process Evaluation**

This chapter presents the results of the process evaluation of the CoolSaver Program. The process evaluation focuses on aspects of program policies and organization, as well as the program delivery framework.

The process chapter begins with an overview of the program. This is followed by a discussion of the methodological approach used in the evaluation. A summary of findings and recommendations for program improvement follow the discussion of the methodology. This discussion is followed by detailed findings of the evaluation activities.

### 4.3.1 Data Collection Activities

The process evaluation of the CoolSaver Program included the following data collection activities:

*Table 4-5 CoolSaver Process Evaluation – Summary of Data Collection*

<b>Activity</b>	<b>Sample Size</b>
Entergy Staff	2
CLEAResult Staff	3
Participant Survey – AC Tune-up	29
Participant Survey – HVAC Replacement	12
Trade Ally Interviews	9
Trade Ally Ride-Alongs	5

### 4.3.2 Program Overview

The CoolSaver Program provides financial incentives to encourage residential and customers to improve the efficiency of their HVAC systems. Incentives are provided for a tune-up of the system and for HVAC system replacements.

### 4.3.3 Detailed Findings

#### 4.3.3.1 Review of Participation Data

The Evaluators reviewed tracking data submitted at the end of August and identified the following issues with the AC tune-up data:

- Customer phone numbers were missing for a few sites (< 5%).
- The data does not include an indicator for housing type (i.e., single family, multifamily, mobile home).
- Trade ally firm is identified, but trade ally name and contact information was not provided.

The following issues were identified for the HVAC and duct sealing data provided:

- Customer phone numbers were missing for more than 25% of projects.
- The data does not include an indicator for housing type (i.e., single family, multifamily, mobile home).
- Trade ally firm is identified, but trade ally name and contact information was not provided.

#### 4.3.3.2 Review of Participation Data

Table 4-6 displays the number of projects and the expected kWh savings by measure type. As shown, AC tune-ups accounted for nearly three-quarters of the program

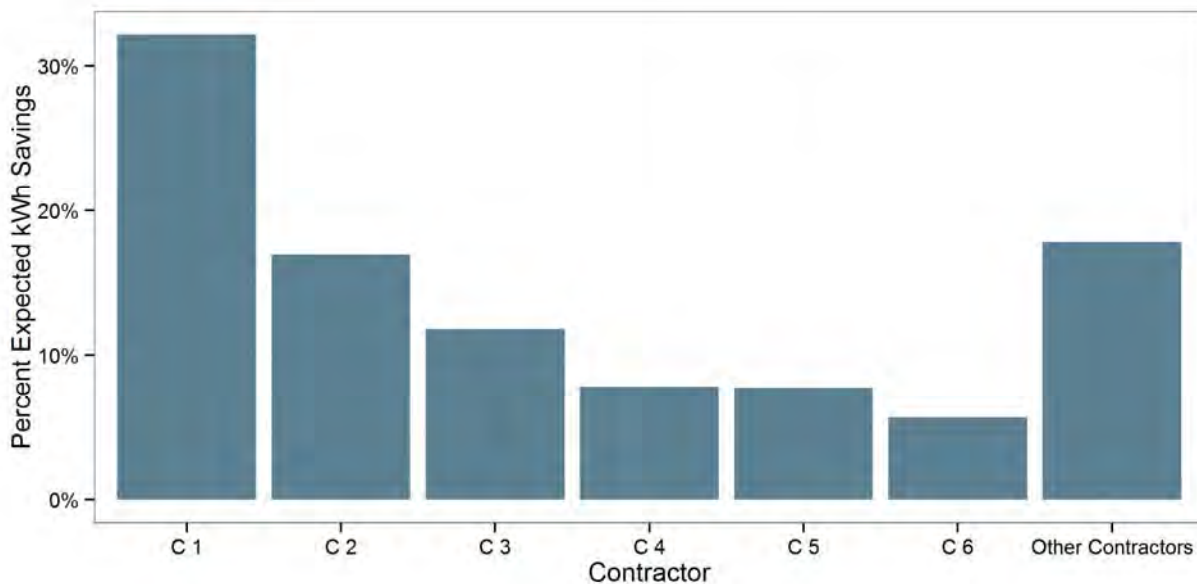
expected kWh savings. Duct sealing also accounted for a large share of energy savings.

*Table 4-6 Number of Projects and Expected kWh Savings by Measure Type*

<b>Measure</b>	<b>Number of Projects</b>	<b>Expected kWh Savings</b>
AC Tune-Up	1005	818,659
Duct Sealing	88	504,350
Central Air Conditioning	70	178,934
Heat Pump	13	36,283
<b>Total</b>	<b>1,176</b>	<b>1,538,226</b>

Figure 4-5 displays energy savings by trade ally. In total there were 27 trade allies that completed program projects but the six most active accounted for more than 80% of the program energy savings.

*Figure 4-5 Share of Energy Savings by Program Trade Ally*



#### **4.3.3.3 Program Comparison**

The Evaluators reviewed several AC Tune-Up programs from around the country to assess how the Entergy Louisiana and Entergy Gulf States CoolSaver Program compared in terms of work performed, available rebates, eligibility, and incentives. The programs included in this comparison are all in comprehensive-phase implementation. However this difference manifests largely in program scale rather than in program design.

Table 4-7 CoolSaver provides a summary of the programs. The Entergy programs differ from other programs reviewed because incentives are provided for air conditioner and heat pump replacements, as well tune-ups. The only other program reviewed that also

includes air conditioner and heat pump replacements is the WestPenn Power HVAC & Water-Heating Program. Additionally, NV Energy's EXACTcomfort program offers air conditioner replacements, but does not cover heat pump replacements.

The Entergy Louisiana and Entergy Gulf States programs, and the Entergy Arkansas program, are the only utilities among the programs reviewed that provide incentives for tune-ups based on the size of the air conditioning unit.

The Southern California Edison program provides a rebate for an initial assessment and then additional rebates for making improvements that improve the energy efficiency of the unit either through servicing the unit, preventative maintenance, or replacement of the motor with a brushless unit.

The NV Energy program is structured similarly. Prescriptive incentives are provided for an initial assessment and for specific services performed that are intended to improve the efficiency of the unit. Incentives are also provided for brushless motors for multi-family units and for the installation of heat strip controls.

Both the WestPenn Power HVAC & Water-Heating Program and CenterPoint Minnesota Air Conditioner Tune-up Programs provide a single incentive amount for tune-up services. The WestPenn program also provides a rebate for the installation of a brushless motor.

Rebates for duct sealing are provided through NV Energy program. The Entergy Louisiana and Gulf States Programs provided duct sealing rebates, although these were not stated in the program materials such as the program manual and the website. These were added to the program halfway through PY1, as program trade allies were interested in providing additional services to customers while completing CoolSaver Tune-Ups. CLEAResult staff requested the Evaluators' input before making this addition, and the Evaluators concluded that this was a viable enhancement to the program.

Table 4-7 CoolSaver – Regional Benchmarking

Utility	Work Performed	Available Rebates	Incentive Amounts	Eligibility Criteria	Market Sector
<p>Entergy Louisiana and Entergy Gulf States CoolSaver Program</p>	<ul style="list-style-type: none"> <li>•Clean condenser coil</li> <li>•Clean evaporator coil</li> <li>•Cleaning blower</li> <li>•Measure refrigerant</li> <li>•Change air filter</li> <li>•Measure &amp; adjust air flow</li> <li>•Measure &amp; adjust refrigerant after performing improvements</li> <li>•Calculate system pre- and post-efficiency</li> </ul>	<p>A/C and electric heat pump systems</p>	<p>\$150 instant rebate CoolSaver A/C Tune-Up incentives size vary by size of system: Tons 3-5: \$150 Tons 6-10: \$200 Tons 11-15: \$250 Tons 16 -25: \$400 Multi-Family: \$100 A/C Replacement Incentives vary by size and efficiency of the system: Tons 1.5: \$75 – 175 Tons 2: \$100 – 225 Tons 2.5: \$125 – 300 Tons 3: \$150 - 350 Tons 3.5: \$175 – 425 Tons 4: \$200 – 475 Tons 5: \$250 – 550 SEER 15: \$75 – 250 SEER 16: \$100 – 350 SEER 17: \$150 – 475 SEER 18+ : \$175 - 550 Heat Pump Replacement Incentives: Tons 1.5: \$100 – 225 Tons 2: \$125 – 300 Tons 2.5: \$150 – 375 Tons 3: \$200 – 450 Tons 3.5: \$225 – 500 Tons 4: \$250 – 575 Tons 5: \$375- 700 SEER 15: \$100 – 325 SEER 16: \$125 – 400 SEER 17: \$175 – 575 SEER 18+: \$200 – 650 SEER 20 (Ductless) : \$225 - 700</p>	<p>CoolSaver Tune-Up: Customers of ELL &amp; EGSL that own A/C and electric heat pump systems. Residential systems up to 5 tons and commercial/industrial systems up to 25 tons. System must be at least one year old and cannot have had a CoolSaver tune-up within the past five years.</p> <p>HVAC Replacement: New equipment must meet efficiency requirements.</p> <p>Program-qualified replacement efficiencies are:</p> <ol style="list-style-type: none"> <li>1. Split central air conditioners or heat pumps must have a minimum Seasonal Energy Efficiency Ratio of (SEER) 14.5, a minimum Energy Efficiency Ratio (EER) of 12, and a minimum Heating Seasonal Performance Factor of 8.2 (heat pumps only).</li> <li>2. Packaged central air conditioners and heat pumps must have: a SEER of at least 14.0, an EER of at least 11.0, and a Heating Seasonal Performance Factor of at least 8 (heat pumps only). Systems up to 65,000 btu/h are eligible for replacement. Heat fuel sources cannot be switched when replacing a heat pump or central air conditioning system.</li> </ol>	<p>Residential</p>

<b>Utility</b>	<b>Work Performed</b>	<b>Available Rebates</b>	<b>Incentive Amounts</b>	<b>Eligibility Criteria</b>	<b>Market Sector</b>
Southern California Edison Quality Maintenance Program	<ul style="list-style-type: none"> <li>•Diagnostic services</li> <li>•Optimization</li> <li>•Measure changes in EER</li> </ul>	A/C, brushless fan motors	<p>System Assessment Rebate: \$50 instant rebate for allowing a program trade ally to perform a baseline assessment.</p> <p>System Optimization Rebate: If the assessment shows that the unit is operating in suboptimal condition and the trade ally makes improvements then the participant is eligible for an additional \$50 rebate.</p> <p>Preventative Maintenance Rebate: Purchasing the 1-year preventative maintenance agreement leads to eligibility for another \$50 rebate for customers whose systems meet the requirements for the System Optimization Rebate.</p> <p>Advanced Airflow Rebate: if the owner makes repairs to improve the airflow of the system to 400 cfm per ton or greater, they may be eligible for a \$350 rebate.</p> <p>Brushless Fan Motors: if the owner installs a brushless fan motor, they may be eligible for a \$220 rebate.</p>	Services must be performed at a single family dwelling with an active SCE Residential account. The Assessment and Optimization service must utilize a Program-approved Diagnostic System with advanced air flow and refrigeration testing. The system must meet Program Test-In and Test-Out diagnostic assessments. Any applicable rebate forms must be complete and submitted by the participating trade ally.	Residential
Entergy Arkansas CoolSaver Program	<ul style="list-style-type: none"> <li>•Clean evaporator coil</li> <li>•Clean outdoor condenser</li> <li>•Clean indoor blower</li> <li>•Adjust refrigerant charge to</li> </ul>	A/C and heat pump systems	<p>Tons &gt;= 5: \$175</p> <p>Tons 6-10: \$200</p> <p>Tons 11-15: \$300</p> <p>Tons 16-25: \$450</p> <p>Tons 26-30: \$600</p> <p>Tons 31-50: \$900</p> <p>Tons 51-80: \$1800</p>	Customers with a valid account number and whose central air conditioning systems are at least one year old are eligible. Any AC systems that have received a CoolSaver Tune-up in the past five years are not eligible. Systems above 25 tons must be pre-approved on a case-by-case basis by the Program Implementer.	Commercial and residential



<b>Utility</b>	<b>Work Performed</b>	<b>Available Rebates</b>	<b>Incentive Amounts</b>	<b>Eligibility Criteria</b>	<b>Market Sector</b>
	manufacturer specifications •Airflow correction				
NV Energy EXACTcomfort	AC Improvement Measures: •Diagnostic evaluation •Refrigerant adjustment •Coil cleaning (indoor and outdoor) •Heat strip control install •Heat strip control reset •BPM motor with constant fan •Return air modification AC Early Replacement Measures: •AC replacement with new AC •Heat pump replacement with new heat pump •AC	A/C (heat pumps and ducts)	The program is divided into three sections: AC Improvement Measures, AC Early Replacement Measures, and Duct Testing & Sealing Measures. Rebate size varies with housing type (Single-Family Home, Manufactured Housing, or Multi-Family Housing) AC Improvement Measures: Diagnostic Evaluation: \$25 Refrigerant Adjustment: \$50 – 75 (Multi-Family Homes receive lower rebate) Outdoor Coil Cleaning: \$25 Indoor Coil Cleaning: \$50 Heat Strip Control Install: \$50 – 75 (Multi-Family Homes receive lower rebate) Heat Strip Control Reset: \$20 BPM Motor with Constant Fan: \$175 – 350 (Multi-Family Homes receive lower rebate) Return Air Modification: \$250 (Multi-Family Homes not eligible) AC Early Replacement Measures: (Multi-Family Homes receive lower rebate) Replace an existing operational AC system with a new AC system with a SEER rating of $\geq 14$ : \$325 – 400 Replace an existing operational heat pump system with a new heat pump system with a SEER rating of $\geq 14$ : \$400 – 475 Replace an existing operational AC system that has electric strip heat, with new heat	AC Improvement Measures: existing AC must be operational and customer cannot have participated in the same measure in a previous NV Energy program in the past 8 years.  AC Early Replacement Measures: Existing AC system must be operational with an EER of $\leq 8$ , and be a minimum of 10 years old. Customer cannot have participated in an early replacement measure in a previous NV Energy program in the last 20 years.  Duct Testing & Sealing Measures: Existing system must be operational and home must be $\geq 20$ years old. Customer cannot have participated in a duct testing and sealing measure in a previous NV Energy program in the last 20 years  Overall: Customers in the Southern Service Area. Renters can participate given the permission of the homeowner, homes with multiple AC systems are eligible, and multiple homes owned by the same customer can participate.	Residential

<b>Utility</b>	<b>Work Performed</b>	<b>Available Rebates</b>	<b>Incentive Amounts</b>	<b>Eligibility Criteria</b>	<b>Market Sector</b>
	replacement with heat pump Duct Testing & Sealing Measures: •Leakage reduction		pump system with a SEER rating of $\geq 14$ : \$450 - 475 Duct Testing & Sealing Measures: Tier 1 – Leakage Reduction $\leq 200$ CFM from leaks outside conditioned space: \$100 – 125 (Multifamily Homes receive lower rebate) Tier 2 – Leakage Reduction is 201 CFM to 399 CFM from leaks outside conditioned space: \$175 – 300 (Multifamily homes receive lowest rebate, Manufactured Housing receives \$250) Tier 3 – Leakage Reduction $\geq 400$ CFM from leaks outside conditioned space: \$275 – 425 (Multi-Family Housing receives lowest rebate, Manufactured Housing receives \$350).		

#### **4.3.3.4 Program Design, Operations and Activities**

The following sections describe program operations and activities and were developed from reviews of program documentation and interviews with program staff.

#### **4.3.3.5 Program Objectives**

The primary program objective is to assist residential customers in achieving electric energy savings and peak demand reductions through improving the efficiency of their HVAC systems. The energy saving goal for the program year is 1,427,077 kWh and the peak demand reduction goal is 547.00 kW.

Ancillary program objectives include developing a group of trade allies capable of providing air conditioner tune-ups and replacement services, and to provide educational materials to customers.

CLEARResult staff identified some challenges the program faced in meeting its energy savings and peak demand reduction targets that occurred during the year. One issue was that the program launched later than the other energy efficiency programs offered due to temperature requirements for accurate diagnostic testing<sup>8</sup>. Additionally, during the summer, trade allies were primarily focused on handling emergency service calls rather than providing tune-ups or HVAC replacement services. The program did see increased activity towards the end of the program year, with significant participation in the multifamily sector.

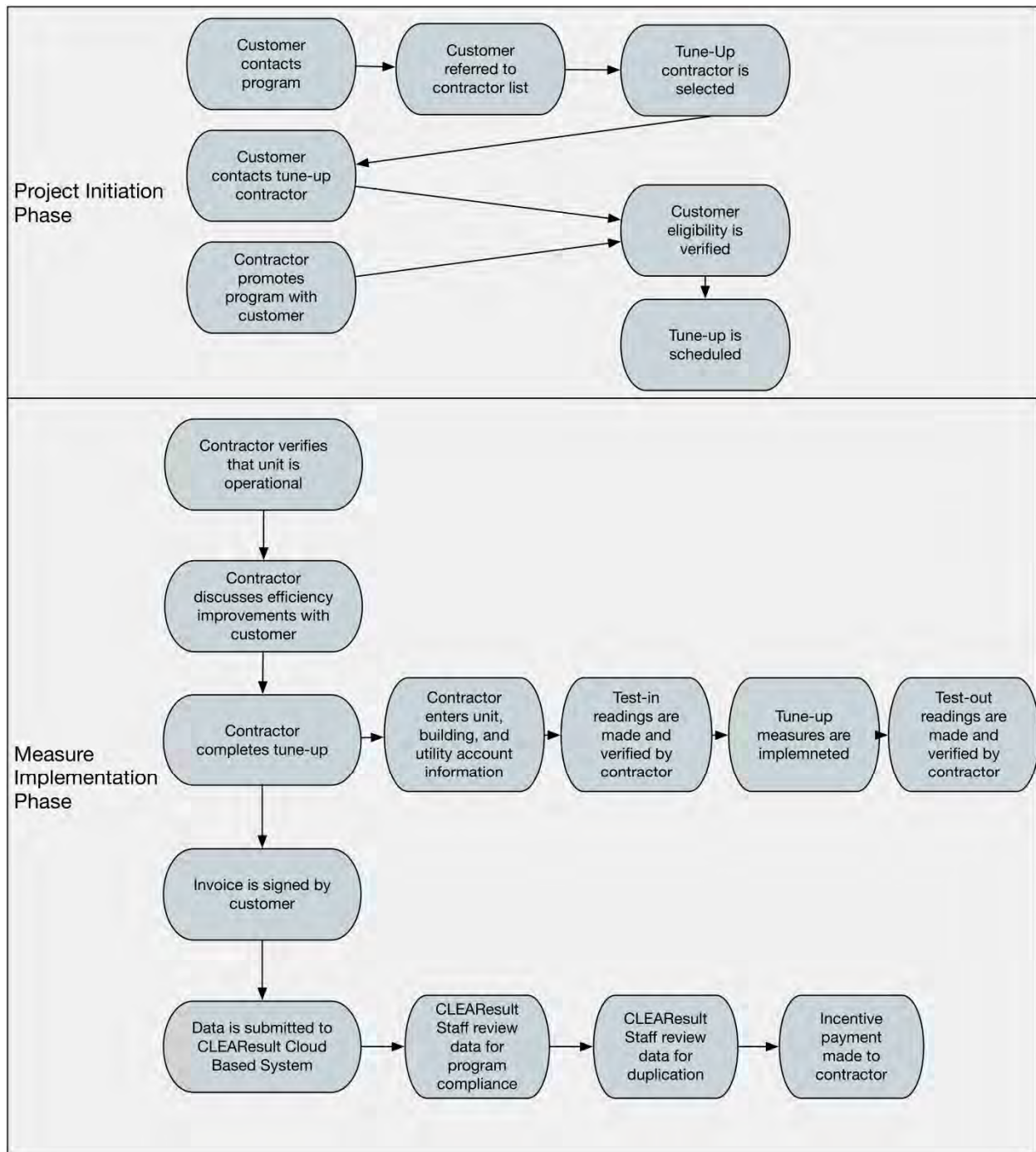
#### **4.3.3.6 Program Participation Process**

Figure 4-6 provides an overview of the tune-up participation process. Customer participation may be initiated either through the customer contacting program staff, the tune-up trade ally, or through trade ally outreach. Once a customer is verified as eligible for the program, an appointment is scheduled to complete the tune-up. During the tune-up, the trade ally completes an inspection of the unit and discusses the tune-up measures with the customer. Once the tune-up is completed, the information is submitted electronically to CLEARResult. CLEARResult staff review the submissions and provide payment to the trade ally.

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<sup>8</sup> The program launched on November 1, 2014. AC efficiency cannot be accurately tested when ambient conditions are below 70-75 deg. F.

Figure 4-6 CoolSaver Program Participation Process



#### 4.3.3.7 Barriers to Participation

Staff did not identify any significant barriers to participation and expect that program activity will increase as contractor awareness grows. However, trade allies' attention to emergency calls likely limited program activity during a portion of the year.

#### **4.3.3.8 Quality Control and Verification Processes**

Staff reported that they shadow the first five tune-up projects completed by a trade ally, but may attend more if they believe additional training is needed. After the first five visits, 10% of tune-ups performed by a trade ally are quality checked.

The program manual does not specify what share of projects will receive verification visits.

Staff report that few issues have been identified with the work performed by trade allies.

#### **4.3.3.9 Trade Ally Recruitment and Management**

As of October 2015, the program had 16 participating trade allies providing tune-up services and 24 providing system replacements. CLEAResult staff indicated that they view the current number of registered trade allies as satisfactory.

Program staff noted that participating trade allies have previously performed similar work but typically need to acquire the iManifold tools. Additionally, not all of the steps and procedures for completing a tune-up were part of the trade allies' standard practice.

The primary training for the CoolSaver program covered the program procedures and use of the Imperial iManifold™ tool for making baseline efficiency measurements and efficiency measurements after the tune-up measures are complete. The training included information qualifying customers and HVAC equipment, tools needed to complete the work, steps for completing the tune-up process, and troubleshooting unusual readings. Trainees were provided with a manual covering program procedures as well. Staff's assessment is that the iManifold™ system is fairly easy to work with and that trade allies do not have difficulty with it.

#### **4.3.4 AC Tune-Up Participant Survey Results**

In total, 30 participants responded to the survey, 29 were residential customers who were not property managers or other multi-family operations. The remaining respondent had completed a multi-family project through the program.

**4.3.4.1 Demographic Summary**

Table 4-8 summarizes housing characteristics collected for the Residential Solutions mass-market respondents.

*Table 4-8 CoolSaver Housing Summary*

<b>Housing Characteristic</b>	<b>AC Tune-Up (n = 29)</b>	<b>AC Replacement / Duct Sealing (n = 12)</b>
% in Single Family	59%	85%
% owning home	69%	83%
Average number home occupants	3.4	2.8

Figure 4-7 and Figure 4-8 summarize the income and education level of survey respondents, respectively

*Figure 4-7 Income Brackets of CoolSaver Survey Respondents*

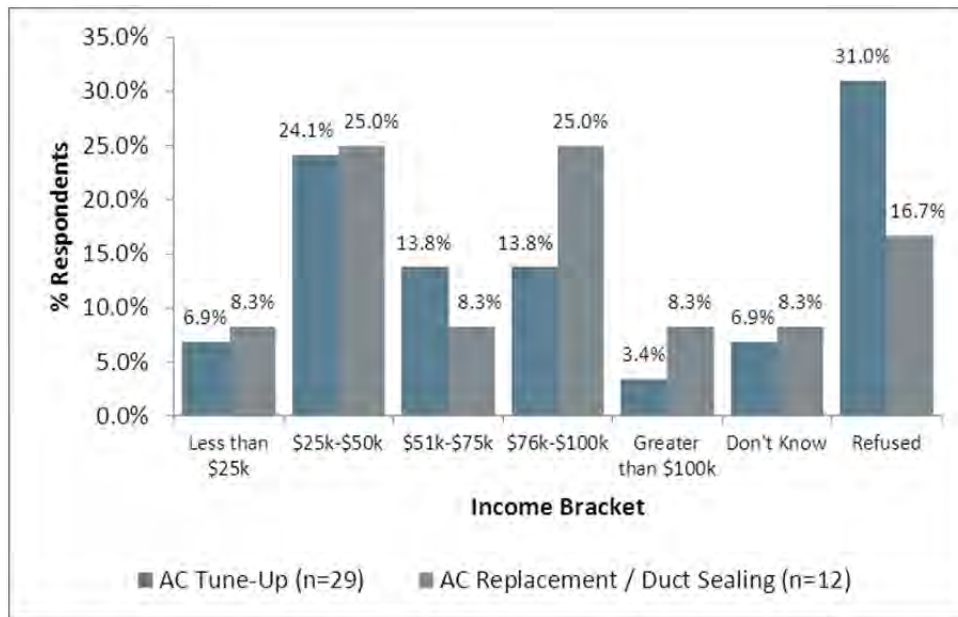
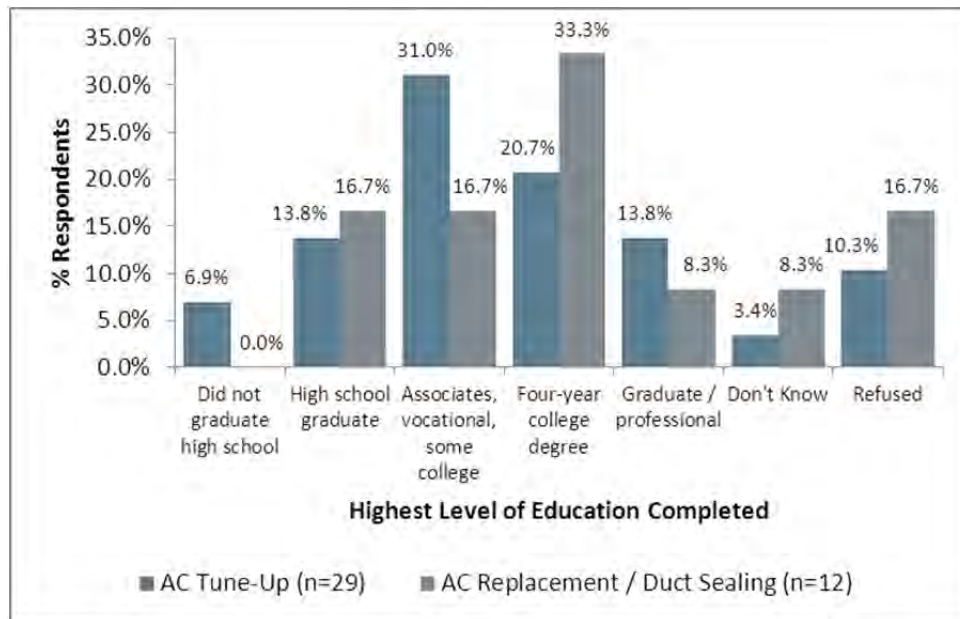


Figure 4-8 Education Level of CoolSaver Survey Respondents



From these figures, the Evaluators concluded that the AC Tune-Up channel is providing more services to lower income market segments than the AC Replacement / Duct Sealing channel.

#### 4.3.4.2 Source of Awareness

Table 4-9 summarizes sources of awareness for both program channels. For both channels, trade allies and friends/family/colleagues were the two most-commonly indicated sources of program awareness.

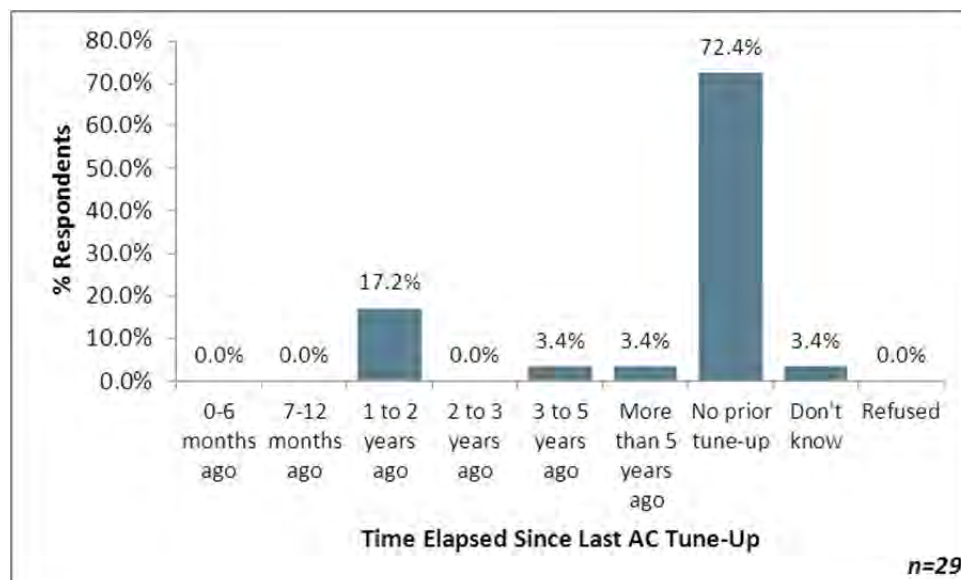
*Table 4-9 How Participants Learned of the Program*

<i>How did you first learn about the rebate or discount?</i>	<i>AC Tune-Up (n = 29)</i>	<i>AC Replacement/Duct Sealing (n=12)</i>
Trade Ally	41%	25%
Friend, family member, or colleague	28%	42%
Retailer	10%	0%
Program Representative	7%	0%
Landlord	7%	0%
Other Program	3%	0%
Through an internet search (e.g. Google)	3%	0%
From utility's website	0%	8%
A radio or television advertisement	0%	8%
A print advertisement	0%	8%
Don't know	0%	8%

**4.3.4.3 AC Tune-Up Air Conditioner Characteristics**

The average age of the serviced air conditioner was 7.53 years. 73% of respondents had not had the air conditioner tuned-up before, while 27% had a prior tune-up. For those respondents who had a prior tune-up, 63% had it completed one to two years prior, while 26% had it completed more than three years prior.

*Figure 4-9 CoolSaver – Time Elapsed since Last Tune-Up*





**4.3.4.4 Decision to Participate**

Table 4-10 summarizes reasons for participation indicated by survey respondents. Answers provided by respondents were for the most part similarly-aligned. The most notable difference found was that 25% of AC Replacement/Duct Sealing respondents stated that “Getting the rebate or discount” helped them decide to participate, whereas this was indicated by 7% of AC Tune-Up respondents. This is likely due to the AC Replacement/Duct Sealing channel providing direct end-user incentives whereas the AC Tune-Up channel provides incentives to the trade allies. If the trade allies do not specifically discuss the incentive with the participant, then the participant is less likely to note this as a program benefit.

*Table 4-10 Factors Affecting Decision to Implement the Measure*

<b>Which of the following factors helped you decide to install the [MEASURE]?</b>	<b>AC Tune-Up (n = 29)</b>	<b>AC Replacement/Duct Sealing (n=12)</b>
Saving money on energy bills	73%	58%
Conserving energy/Protecting the environment	37%	42%
Improving the comfort of your home	33%	33%
Improving the value of my home	20%	33%
Becoming as energy efficient as my friends or neighbors	23%	33%
Getting the rebate or discount	7%	25%
Other	0%	0%
Don't know	3%	0%
Refused	0%	0%

Respondents were asked to indicate whether they considered completing a similar project prior to learning about Entergy’s program, and if they believe they would have followed through with a similar project without the program. Their responses are summarized in Table 4-11 and Table 4-12.

*Table 4-11 Likelihood of Installing Similar Measure without Program Rebate*

<b>Were you considering (installing [MEASURE] / completing a tune-up), prior to learning about the program?</b>	<b>AC Tune-Up (n = 29)</b>	<b>AC Replacement/Duct Sealing (n=12)</b>
Yes	53%	42%
No	47%	58%
Don't know	0%	0%
Refused	0%	0%

*Table 4-12 Likelihood of Installing Similar Measure without Program Rebate*

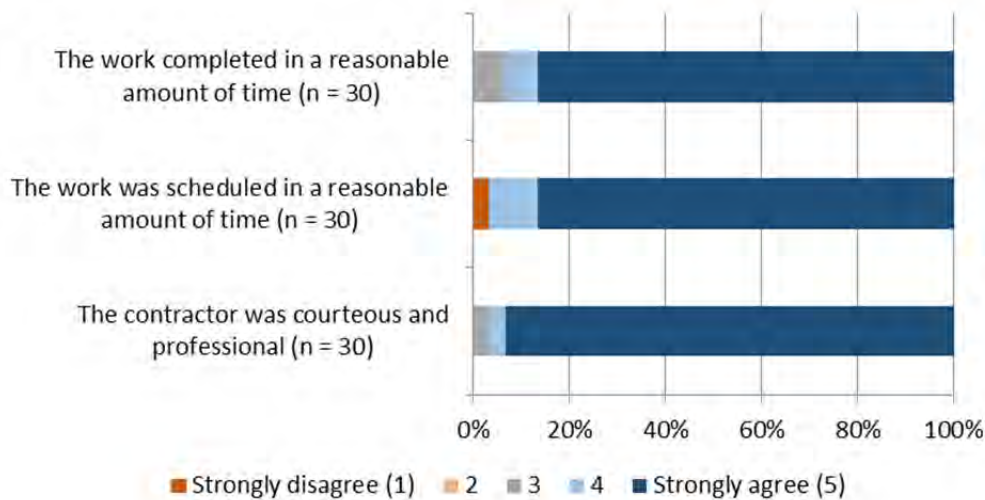
<b><i>If the rebate or discount had not been provided for the [MEASURE], do you think you would have installed it anyway? Would you say that you...</i></b>	<b><i>AC Tune-Up (n = 29)</i></b>	<b><i>AC Replacement/Duct Sealing (n=12)</i></b>
Definitely would have	33%	33%
Probably would have	30%	42%
Probably would not have	20%	25%
Definitely would not have	17%	0%
Don't know	0%	0%
Refused	0%	0%

**4.3.4.5 Participation Process – AC Tune-Up**

Respondents most commonly found the contact information for their trade ally from a friend, neighbor, or colleague (33%), a prior trade ally (23%), or from a program representative (10%).

Eighty-seven of respondents strongly agreed that the trade ally was courteous and professional, and that they scheduled and completed the work in a reasonable amount of time.

*Figure 4-10 Participants Rating of the Trade Ally*



**4.3.4.1 Participation Process – AC Replacement / Duct Sealing**

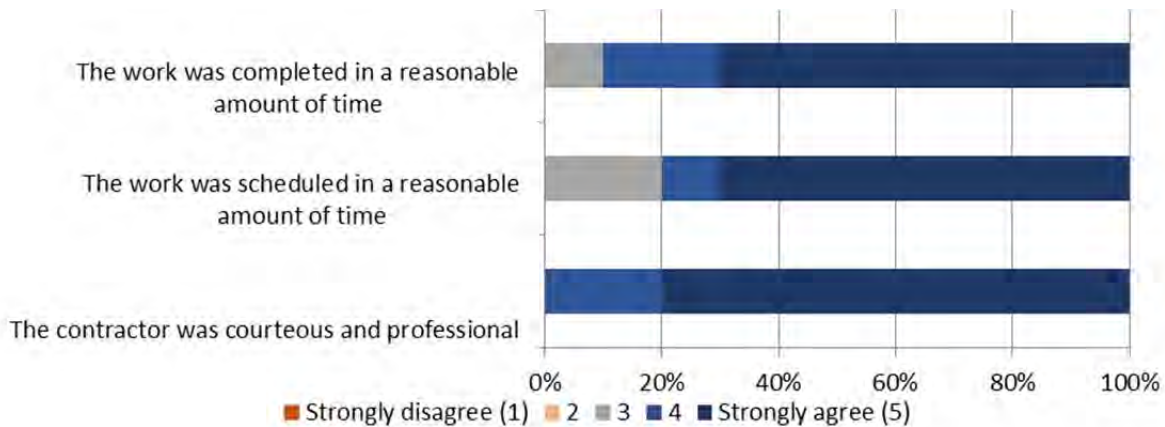
A sizable share of participants (58%) indicated that they or someone else in their household completed the rebate application.

*Table 4-13 Who Completed the Rebate Application*

<b>Who completed the application for the utility rebate for the [MEASURE]?</b>	<b>AC Replacement/Duct Sealing (n=12)</b>
I filled it out	33%
Someone else in my household filled it out	25%
The salesperson or installation trade ally filled it out	42%
Don't know	0%
Refused	0%

Figure 4-11 displays participants responses regarding assessments of their experience in working with the trade ally that installed the measures implemented through the program. As shown, all respondents provided favorable assessments of their trade ally and most agreed that the work was completed and scheduled in a reasonable amount of time.

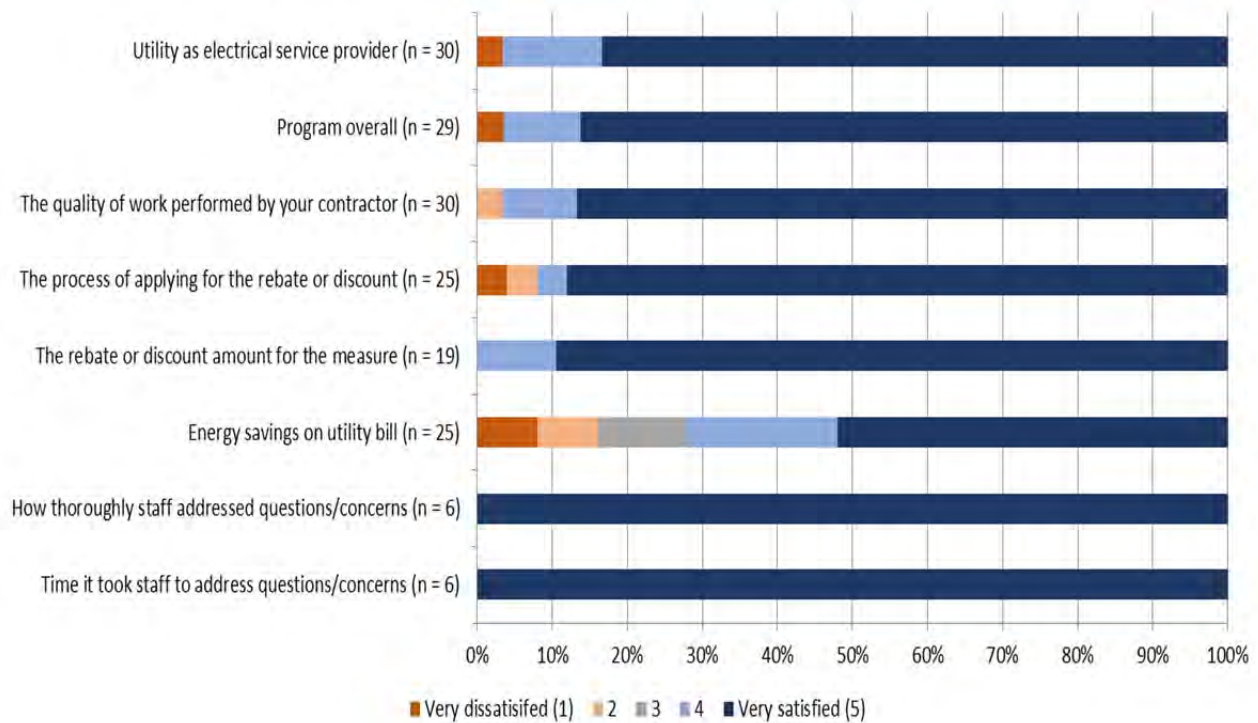
*Figure 4-11 Respondents Assessments of Installing Trade Ally*



**4.3.4.2 Participant Satisfaction**

Figure 4-12 and Figure 4-13 display participant satisfaction ratings. Participants were most satisfied with the time it took staff to address questions or concerns, how thoroughly staff addressed questions or concerns, and the rebate or discount amount for the measure. Though satisfaction scores were high across all program elements discussed in the survey, respondents indicated slightly lower satisfaction scores for the energy savings on their utility bill, and the process of applying for the rebate or discount.

*Figure 4-12 Participant Satisfaction Scores – AC Tune-Up*



*Figure 4-13 Participant Satisfaction Scores – AC Replacement / Duct Sealing*

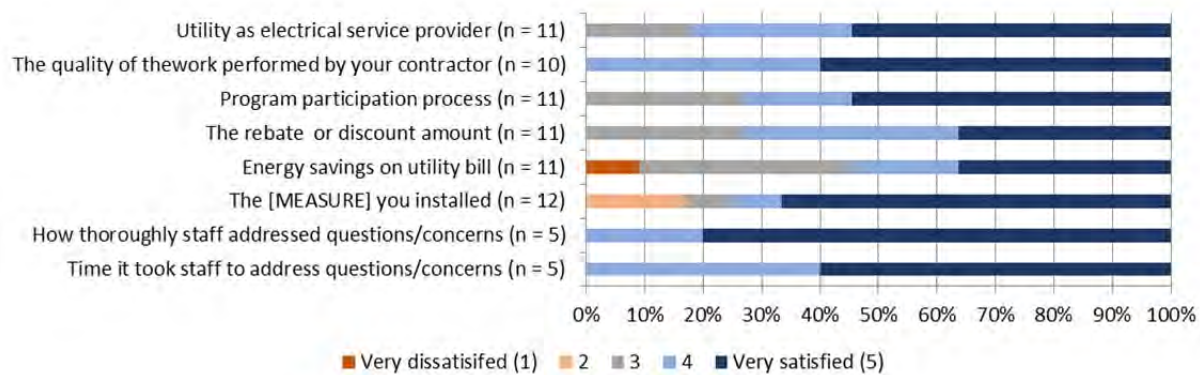


Table 4-14 summarizes respondents' answers when asked to assess the impact the program had on their satisfaction with Energy overall.

*Table 4-14 Impact of Participation on Satisfaction with Utility*

<b><i>Effect of participation in Entergy's Program?</i></b>	<b><i>AC Tune-Up (n = 29)</i></b>	<b><i>AC Replacement/Duct Sealing (n=12)</i></b>
Greatly increased your satisfaction with the Entergy	7%	50%
Somewhat increased your satisfaction with Entergy	14%	20%
Did not affect your satisfaction with Entergy	31%	13%
Somewhat decreased your satisfaction with Entergy	21%	10%
Greatly decreased your satisfaction with Entergy	14%	3%
Don't know	3%	3%
Refused	10%	0%

### **4.3.5 Findings from AC Tune-Up Trade Ally Interviews**

Sixteen trade allies that provide program air conditioning tune-up or HVAC replacement services were contacted for an interview. Two of the trade allies refused the interview and eight did not respond to multiple e-mail and telephone interview requests. In total, interviews were completed with six trade allies.

Interview respondents represented diverse businesses in terms of the clients served and the services provided. One-half of respondents indicated that they provide both tune-up and HVAC replacement services. The remaining respondents specialized in either tune-ups or replacements.

Respondents reported varying levels of activity in the utility sponsored tune-up programs. One-half of the respondents reported completing more than 100 tune-ups while the remainder of respondents reported completing 40 or fewer tune-ups.

All respondents reported that they were recruited into the program by a program representative.

#### **4.3.5.1 Trade Ally Feedback - Trade Ally and Program Marketing**

Five out of six respondents said that they had taken steps to promote the program. The most common means of promoting the program were through direct mail and by speaking about the program with customers while providing an estimate or developing a proposal. Respondents also reported promoting the program through radio spots and listing program information on their website. The trade allies that promote the program reported that they promote it among both current and new customers.

The one respondent who did not report promoting the program said that the majority of program promotion occurs through word-of-mouth communications among customers.

Overall, the responses given by trade allies suggest that consistent with the program design intent, most trade allies are actively engaged in promoting the program.

Several respondents felt that the marketing materials provided by the program could benefit from improvement. One-half of the respondents reporting not receiving any marketing materials and among those that did, the materials were reportedly used infrequently.

When asked how they would improve the marketing material, respondents suggested updating the materials and making them more detailed and specific.

Most respondents reported being aware of the program's marketing efforts directed at customers, but most felt that these marketing efforts were not effective.

#### **4.3.5.2 Trade Ally Feedback - Barriers to Participation**

One-half of the respondents reported that customers do not generally raise concerns about participating in the program. Among those trade allies that did note some concerns raised by customers, the types of concerns raised included:

- The cost of participation;
- The effectiveness of the tune-ups for reducing energy use;
- The time commitment for completing a project; and
- What steps would be taken to complete the project.

Trade allies also noted that some customers have concerns about the legitimacy of the program, including concerns about how their personal data may be used. Regarding this latter point, it is important to note that the program does not collect any sensitive personal information that the utility does not already possess. Moreover, the concern about the use of personal data may reflect a general sense of distrust, as well as customer lack of familiarity with the efficiency program and uncertainty about what will be required of them through the participation process.

Most respondents stated that the financial incentives were sufficient to encourage customers to participate in the program, but several respondents indicated that the incentives received by AC Tune-Up trade allies did not reflect the technical scope and rigor of the tune-up. One trade ally expressed frustration with the fact that trade allies receive lower rebates when they cannot physically access the entire AC system, and another trade ally suggested that trade allies should receive rebates for the equipment they are required to purchase to participate in the program.

#### **4.3.5.3 Trade Ally Feedback - Participation Process**

Trade allies' characterizations of the program process were consistent and conformed to the intended procedures. Respondents described key steps in the participation process such as qualifying the customer and recording information about the customer and the air conditioning unit. Respondents also described the use of the iManifold™ software to record information on the performance of the unit.

Additionally, one respondent described an augmentation to the standard procedures that involved sending out a pre-appointment letter describing in detail the components of the tune-up.

Only two of the interviewed trade allies provided recommendations for enhancing the program process. One recommendation was to provide a way of identifying whether or not the customer had recently had a tune-up performed (and as such, would be disqualified from subsequent participation). Another indicated that the software was somewhat cumbersome to use. However, another respondent provided a different view of the software and stated that the availability of the software and its ability to automate some portion of the data-collection process was what convinced him or her to participate.

#### ***4.3.5.4 Trade Ally Feedback - Training and Staff Support***

Respondents were satisfied with the training that they received. One respondent suggested moving the location of the training to a neutral location, as opposed to a competitor's office. Another, respondent reported that they were not able to attend to the training due to the small size of their firm.

Five of the six trade allies reported that they had contacted staff with questions about the program or a project. All provided favorable assessments of the assistance provided by program staff.

#### ***4.3.5.5 Trade Ally Feedback - Market Effects***

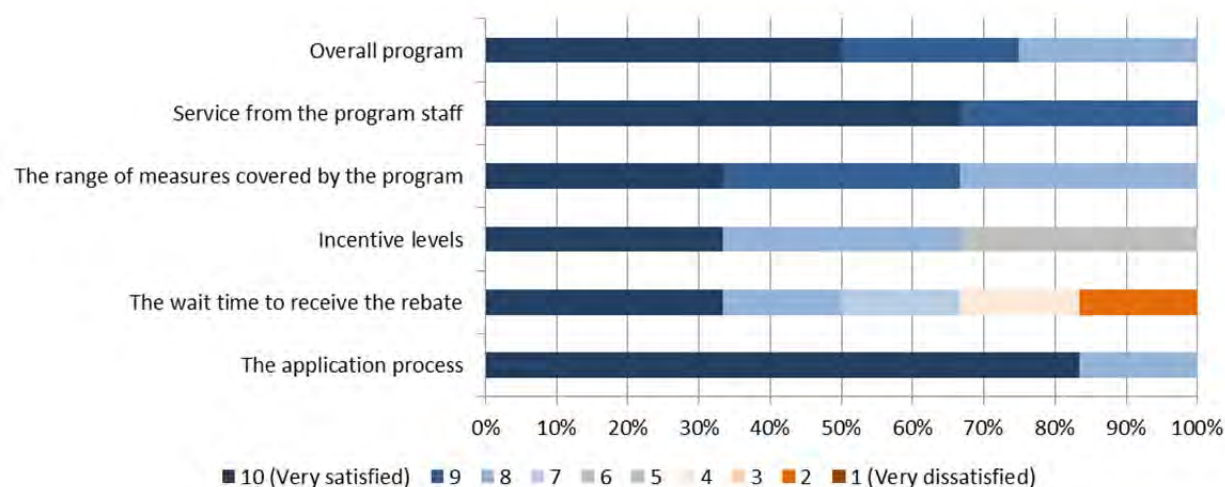
Three of the six interview respondents reported that they had either not previously provided the same air conditioning services as they provide under the program, or had not provided as extensive of services. These responses suggest that the program is increasing the capacity of trade allies in the state to provide energy saving tune ups or efficient air conditioner replacement services.

Additionally, three respondents reported that the programs had produced employment effects. Each of these respondents indicated that they had hired two full-time staff members as a result of the program.

#### ***4.3.5.6 Trade Ally Feedback - Overall Satisfaction***

Figure 4-14 summarizes the trade allies satisfaction with the program overall and various aspects of the program experience. As shown, trade allies were satisfied with most aspects of the program and the program overall. The area of greatest dissatisfaction was with the wait time to receive the rebate.

Figure 4-14 CoolSaver Trade Ally Satisfaction



Other potential areas of improvement noted were improving the usability of the program software and streamlining the program instructions provided to trade allies. One trade ally whose work encompassed Tune-Up programs affiliated with several different energy utilities noted that subtle differences in the program contracts can cause confusion. Another trade ally said that the program manual provided to trade allies was too long, and another suggested presenting the material in the form of a step-by-step manual that clearly outlines program policies and procedures as they apply to different stages of the program process.

The most consistently identified strengths of the program were its ability to benefit the consumer financially while allowing them to save energy and improving their health

#### 4.3.6 Findings from AC Tune-Up Trade Ally Observation

Staff from the Evaluators observed five trade allies performing air conditioner tune-ups. The purpose of the observations was to:

- Validate test-in baseline and test-out values;
- Identify any training issues;
- Observe trade ally interactions with customers; and
- Observe assistance provided by program staff.

Trade allies were observed completing jobs at multifamily and single-family sites. It was noted that trade allies completing multifamily jobs used a “batch” approach to efficiently complete the work. Overall, single-family units received a more thorough tune-up and cleaning, likely because the multi-family technicians were seeking to complete the largest quantity of units in the least amount of time.



The program uses electronic sensors and refrigerant gauges which transmit readings to a tablet running the correct software application. This approach is an effective way to capture the live data and take a system “snapshot” with all the data points from the same moment. The recent addition of a refrigerant system “stability” indicator in the software also helps the technicians wait for the system to stabilize after work has been performed before taking their measurement snapshot. Multiple technicians expressed positive comments regarding feature.

The indoor fan airflow measurement is not currently implemented with the automated data acquisition system. As a result, there is greater variation in the type of measurement and its accuracy compared to other measurements made.

There are two types of measurement approved for the program: 1) Differential pressure measurement and 2) Vane anemometer. Both types of measurement are susceptible to errors.

- 1) The differential pressure measurement is intended to measure the differential static pressure across the indoor supply fan only. Some technicians were taking static pressure measurements wherever it was most convenient, many times including the cooling coil and also the furnace.
- 2) Vane anemometer measurement was either taken from the return air grill or as a summation of all supply registers. Many times only one anemometer reading was taken at the center of the airflow stream. This leads to inaccurate estimates of airflow.

Program staff mentioned there was a possibility of adding the differential pressure measurement and subsequent airflow calculation to the automated data acquisition system. This addition, coupled with an additional emphasis in training for the proper measurement locations, would improve calculation accuracy.

It was generally observed that the software and testing equipment performed well and were easy to operate. There were reports of some temperature probes failing and some isolated issues of software updates/compatibility, but nothing out of the ordinary. Program staff does an excellent job of helping the trade allies with any issues that occur.

The effort put forth for system cleaning ranged from simple brushing of cooling coil (if in fact it needed cleaning) to some unit disassembly and brush/chemical cleaning. The range of cleaning for outdoor condensing units ranged from a simple garden hose spray to full cabinet dis-assembly with chemical and pressure nozzle cleaning.

Excellent customer service and customer interactions were observed and no issues were identified regarding trade ally interactions with customers.

Overall, the tune-up services are performed well and program staff ably supports trade allies' completion of the work.

Based on the observations made, the Evaluators offer the following recommendations:

- Bolster training with further cleaning guidelines to improve consistency and/or ask trade allies to record how system components were cleaned.
- Provide additional training on measurement practices to improve the accuracy of calculations.
- Provide refresher training to trade allies prior to the start of the cooling season.

### **4.3.7 Conclusions**

#### **4.3.7.1 Program Design and Participation Process**

- Training provided is comprehensive and trade allies are provided with a manual of how to complete the tune-ups.
- Electronic tools and gauges are used to transmit data on the efficiency of the unit, which is effective for providing a “live snapshot” of the unit’s energy-use performance. A refrigerant stability indicator recently introduced was praised by trade allies.
- Indoor fan measurement is not currently implemented with the automated data acquisition system. There are two types of measurement procedures approved for the program, although each is susceptible to errors. Program staff is considering adding differential pressure measurement and subsequent airflow calculation to the automated data acquisition system to improve calculation accuracy.
- Observed trade allies performed more thorough tune-ups for single-family home jobs than multifamily home jobs. During visits to multifamily homes, trade allies were more focused on quickly servicing multiple units.
- CLEAResult staff provided high quality support to trade allies during the visits. Overall, trade allies are effectively implementing the tune-ups.
- CoolSaver AC Tune-Up participants that had interactions with program staff were all very satisfied with those interactions. Nearly all participants (90% or more) agreed that the trade ally was courteous and professional and that the work was scheduled and completed in a reasonable amount of time. 97% of participants were satisfied with the quality of work performed by the trade ally.
- CoolSaver participants that replaced their HVAC systems or had duct sealing performed were largely satisfied with the program participation process. All respondents that had interactions with program staff were satisfied with those interactions. The majority of respondents reported that they were satisfied with the participation process and none indicated dissatisfaction. All were satisfied with the quality of work performed by the trade ally.

#### **4.3.7.2 Program Marketing and Outreach**

- The program is primarily marketed by participating trade allies. Program staff reported that trade allies are increasingly aware of the program and that this will have a positive effect on promotion of the program.

- The program launched during a period when trade allies had a large number of emergency calls which limited their promotion of the program and provision of services for a period.
- Trade allies are driving a significant share of AC tune-up program activity. 41% of AC tune-up participants reported learning of the program from a trade ally, which was the most commonly reported means of learning of the program. Participants that replaced HVAC systems or had duct sealing performed were mostly likely to report learning of the program from a friend, family member, or colleague (38%) and 15% reported learning of the program from a trade ally.
- Trade allies reported either not being aware of program marketing materials or not utilizing them. Interview respondents indicated a preference for program marketing materials that were more specific to the AC Tune-Up program.

#### **4.3.7.3 Quality Control and Verification**

- The program employees appropriate project verification practices. The first five projects completed by a trade ally are quality checked, followed by 10% of the projects complete after the first five.
- Staff reported that few issues have been identified with trade ally performance.
- Data quality issues were identified during a mid-year review of the program tracking data including missing telephone numbers for customer contacts and fields such as housing/building type and trade ally contact name and information.

#### **4.3.7.4 Participant and Trade Ally Satisfaction**

- 96% of participants that completed AC tune-up participants were satisfied with the program overall. Participants were most likely to report dissatisfaction with the energy savings on their bill, 16% were dissatisfied with this aspect of their experience.
- HVAC replacements and duct sealing participants were generally satisfied with the program participants, however, 17% noted dissatisfaction with the measure implemented and 9% were dissatisfied with the savings on their bill.
- 70% of AC tune-up participants and 67% of HVAC replacement or duct sealing participants indicated that participation increased their satisfaction with Entergy.
- Interviewed trade allies reported satisfaction with the program. The only component of the program that trade allies reported dissatisfaction with was the wait time to receive the rebate.

### **4.3.8 Recommendations**

The Evaluators' recommendations for the CoolSaver Program are as follows:

- **Consider developing materials that promote the benefits and measures included in the CoolSaver Program.** Trade allies indicated a preference for program marketing materials that were specific to AC tune-up measures.

- **Provide a description of the incentives for duct sealing on the program website and manual.** This measure was included in the program but is not currently described in program materials.
- **Include additional data fields such as housing/building type and trade ally contact information.**
- **Incorporate data verification and/or quality checks to ensure that data fields are populated with valid data.**
- **Add further calculation data to program tracking.** Examples include EFLH used for duct sealing.

## 5. Lighting and Appliances

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The Lighting and Appliances Program provides mail-in rebates (downstream rebates) for window ACs, Pool Pumps, and Advanced Power Strips. Point of purchase discounts are provided for compact fluorescent lamps (CFLs) and light emitting diodes (LEDs) through participating retailers.

In PY1, the Lighting and Appliances Program had savings goals of 2,704,330 kWh and 645.00 kW. Total verified savings for the program are:

- 3,023,121 kWh – 111.8% of goal; and
- 668.55 kW – 103.7% of goal.

### 5.1 M&V Methodology

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Evaluation of the Lighting and Appliances Program included the following:

- Updating pool pump calculations to reflect ENERGY STAR parameters by drive type and horsepower;
- Review of program tracking and recreation of deemed savings calculations;
- Geographic Information Systems (GIS) analysis of lighting sales to track out-of-service-area leakage;
- Interviews with program staff; and
- Review of program Memoranda of Understanding (MOU).

### 5.2 Impact Findings

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#### 5.2.1 ENERGY STAR Pool Pump

##### 5.2.1.1 Energy Savings Calculations

In PY1, the Lighting and Appliances Program energy savings for this measure were derived using the ENERGY STAR® Pool Pump Savings Calculator.

$$kWhSavings = kWhconv - kWhES$$

Table 5-1 Parameters for kWh Savings Calculation of ENERGY STAR® Pool Pump

<i>kWhconv</i>	Conventional single-speed pool pump energy
<i>kWhES</i>	ENERGY STAR® variable speed pool pump energy

Algorithms to calculate the above parameters are defined as:

$$kWh_{conv} = PFR_{conv} \times 60 \times hours_{conv} \times daysEF_{conv} \times 1000$$

$$hours_{conv} = V_{pool} \times PTPFR_{conv} \times 60$$

$$kWh_{ES} = kWh_{HS} + kWh_{LS}$$

$$kWh_{HS} = PFR_{HS} \times 60 \times hours_{HS} \times daysEF_{HS} \times 1000$$

$$kWh_{LS} = PFR_{LS} \times 60 \times hours_{LS} \times daysEF_{LS} \times 1000$$

$$PFR_{LS} = V_{pool} turnover \times 60$$

Table 5-2 Parameters for kWh usage of conventional and ENERGY STAR® Pool Pump

<i>kWh<sub>HS</sub></i>	ENERGY STAR® variable speed pool pump energy at high speed
<i>kWh<sub>LS</sub></i>	ENERGY STAR® variable speed pool pump energy at low speed
<i>hours<sub>conv</sub></i>	Conventional single-speed pump daily operating hours
<i>hours<sub>HS,VS</sub></i>	ENERGY STAR® variable speed pump high speed daily operating hours = 2 hours
<i>hours<sub>LS,VS</sub></i>	ENERGY STAR® variable speed pump low speed daily operating hours = 10 hours
<i>hours<sub>HS,MS</sub></i>	ENERGY STAR® multi-speed pump high speed daily operating hours = 2 hours
<i>hours<sub>LS,VS</sub></i>	ENERGY STAR® multi-speed pump low speed daily operating hours
<i>days</i>	Operating days per year = 212.8 days
<i>PFR<sub>conv</sub></i>	Conventional single-speed pump flow rate (gal/min)
<i>PFR<sub>HS,VS</sub></i>	ENERGY STAR® variable speed pump high speed flow rate = 50 gal/min
<i>PFR<sub>LS,VS</sub></i>	ENERGY STAR® variable speed pump low speed flow rate (gal/min) = 30.6
<i>PFR<sub>HS,MS</sub></i>	ENERGY STAR® multi-speed pump high speed flow rate (gal/min)
<i>PFR<sub>LS,MS</sub></i>	ENERGY STAR® multi-speed pump low speed flow rate (gal/min)
<i>EF<sub>conv</sub></i>	Conventional single-speed pump energy factor (gal/W·hr)
<i>EF<sub>HS,VS</sub></i>	ENERGY STAR® variable speed pump high speed energy factor = 3.75 gal/W·hr
<i>EF<sub>LS,VS</sub></i>	ENERGY STAR® variable speed pump low speed energy factor = 7.26 gal/W·hr
<i>EF<sub>HS,MS</sub></i>	= ENERGY STAR® multi-speed pump high speed energy factor (gal/W·hr)
<i>EF<sub>LS,MS</sub></i>	ENERGY STAR® multi-speed pump low speed energy factor (gal/W·hr)
<i>V<sub>pool</sub></i>	Pool volume = 22,000 gal
<i>PT</i>	Pool turnovers per day = 1.5
<i>t<sub>turnover,VS</sub></i>	Variable speed pump time to complete 1 turnover = 12 hours
<i>t<sub>turnover,MS</sub></i>	Multi-speed pump time to complete 1 turnover

Table 5-3 Conventional Pool Pumps Assumptions

<b>Pump HP</b>	<b><i>hours<sub>conv</sub></i></b>	<b><i>PFR<sub>conv</sub></i> (gal/min)</b>	<b><i>EF<sub>conv</sub></i> (gal/W·h)</b>
0.5	11.0	50.0	2.71
0.75	10.4	53.0	2.57
1	9.2	60.1	2.40
1.5	8.6	64.4	2.09
2	8.5	65.4	1.95
2.5	8.1	68.4	1.88

*Table 5-4 ENERGY STAR® Multi-Speed Pool Pumps Assumptions*

<b>Pump HP</b>	<b><math>t_{turnover,Ms}</math></b>	<b><math>hours_{MS,L}</math></b>	<b><math>PFR_{HS,MS}</math> (gal/min)</b>	<b><math>EF_{HS,MS}</math> (gal/W·h)</b>	<b><math>PFR_{LS,MS}</math> (gal/min)</b>	<b><math>EF_{LS,MS}</math> (gal/W·h)</b>
1	11.8	9.8	56.0	2.40	31.0	5.41
1.5	11.5	9.5	61.0	2.27	31.9	5.43
2	11.0	9.0	66.4	1.95	33.3	5.22
2.5	10.8	8.8	66.0	2.02	34.0	4.80
3	9.9	7.9	74.0	1.62	37.0	4.76

Demand savings calculations are as follows:

$$kW_{Savings} = \left[ \frac{kWh_{conv}}{hours_{conv}} - \left( \frac{kWh_{HS} + kWh_{LS}}{hours_{HS} + hours_{LS}} \right) \right] \times \frac{CF}{days}$$

CF = Coincidence Factor = .31

Deemed kWh and kW savings are summarized in Table 5-5 and Table 5-6

*Table 5-5 ENERGY STAR® Variable Speed Pool Pumps – Deemed Savings Values*

<b>Pump HP</b>	<b>kW Savings</b>	<b>kWh Savings</b>
0.5	0.24	1,713
0.75	0.28	1,860
1	0.36	2,063
1.5	0.47	2,465
2	0.52	2,718
2.5	0.57	2,838
3	0.72	3,364

*Table 5-6 ENERGY STAR® Multi-Speed Pool Pumps – Deemed Savings Values*

<b>Pump HP</b>	<b>kW Savings</b>	<b>kWh Savings</b>
1	0.30	1,629
1.5	0.40	1,945
2	0.41	1,994
2.5	0.46	2,086
3	0.54	2,292

### 5.2.2 Energy Savings Calculations

In PY1, the Lighting and Appliances Program marked down 167,244 CFLs and 15,831 LEDs. The models rebated in this channel in PY1 were all general service lamps.

Rebates were administered through 32 participating big box retail locations. Energy savings for markdown lighting is calculated as follows:

$$kWh\ Savings = Hours \times (W_{Base} - W_{Post}) \times IEF \times ISR / 1000$$

Where,

- Hours = Annual hours of use, 803.6
- $W_{base}$  = Baseline watts
- $W_{post}$  = Installed watts
- IEF = Energy Interactive Factor, .79 for unknown heating system type
- ISR = In Service Rate, .86 for CFLs, .95 for LEDs
- 1000 = W/kW conversion

### 5.2.3 Leakage Calculations

The Evaluators leveraged Geographic Information Systems (GIS) to refine attempts at estimating “leakage” of Independent Operated Utility (IOU) discounted CFL and LED bulbs distributed in or near a service area to non-utility customers. At the project’s core there are four major data processes that take place:

1. Intersect utility service areas of Louisiana with 2010 population census data
2. Derive customer base for participating stores by dividing store sales area based on the time it takes to drive to the nearest store
3. Allocate a portion of discount from each store to the population within each drive time zone
4. Calculate the percent of CFL and LEDS that leaked out of state, percent that transferred to a different IOU, and percent that stayed in state but not in any participating IOU service area

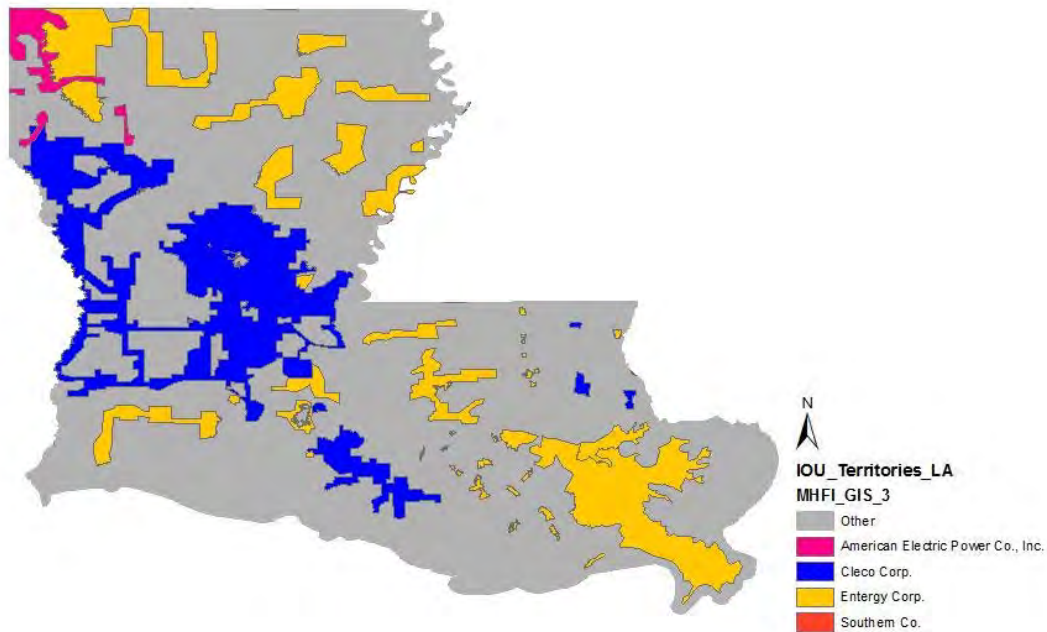
The data used in this analysis is detailed in the following subsections.



### 5.2.3.1 Independent Operated Utilities

The Evaluators purchased a shapefile (a format commonly used in GIS that geographically displays the underlying tabular data) showing the service areas of each IOU in Louisiana from Platts/McGraw-Hill<sup>9</sup>. The “Electric IOU Service Territories” data set was the best available for Louisiana with no publicly available equivalent for comparison in a GIS environment. Verification of the data included confirming that no two IOUs overlapped the same area and visual comparison to the flat maps of IOUs distributed by the state of Louisiana<sup>10</sup>. Figure one shows each of the service areas, with no discrepancies in the data.

Figure 5-1 Louisiana Utility Service Areas



### 5.2.3.2 Population

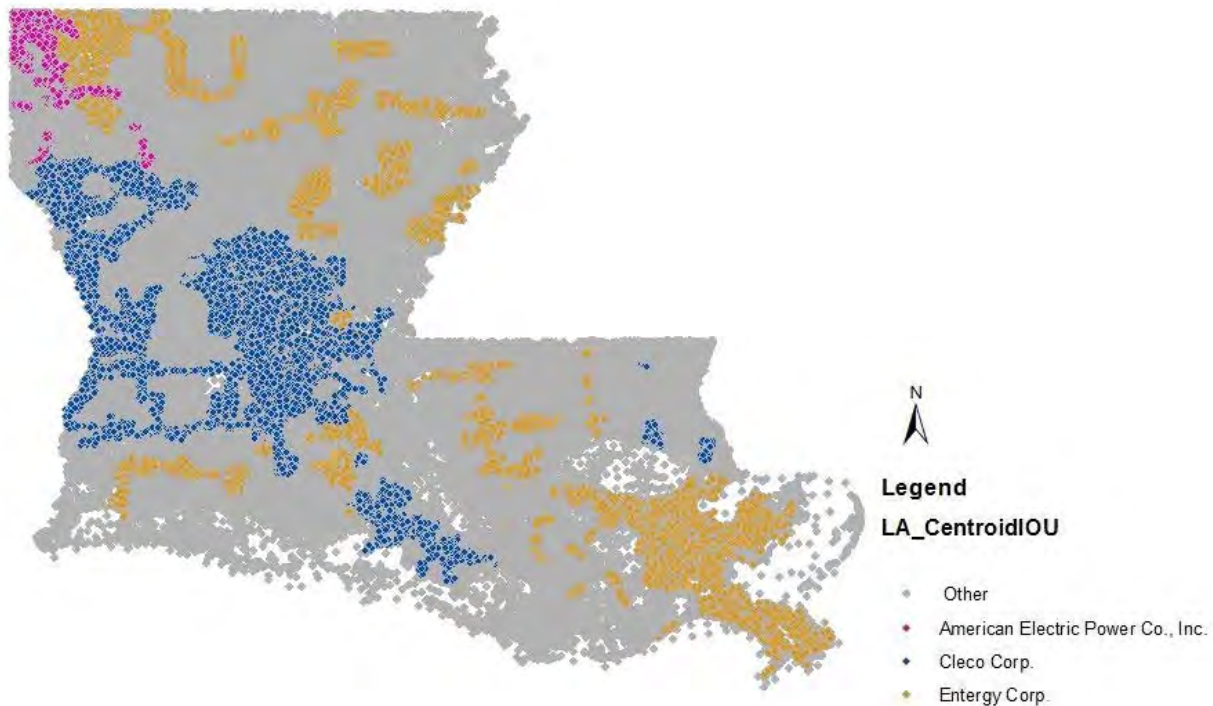
Population data comes from the 2010 Decennial Census as conducted by the US Census Bureau reported at the census block level. Block level is the highest resolution spatial data offered by the census, with 2010 being the most recent year of the Decennial Census which offers the highest accuracy. To ensure that no census block was double counted in the analysis, each was converted to a centroid or point where

<sup>9</sup> Source: [http://www.platts.com/IM.Platts.Content/ProductsServices/Products/gismetadata/iou\\_terr.pdf](http://www.platts.com/IM.Platts.Content/ProductsServices/Products/gismetadata/iou_terr.pdf).

<sup>10</sup> Source: [http://www.lpsc.louisiana.gov/images/service\\_investor\\_111412.jpg](http://www.lpsc.louisiana.gov/images/service_investor_111412.jpg)

the geographic center of the block fell. In Figure 5-2 below, Census centroids are displayed using the IOU service area in which they fell, with a total of 204,447 Census blocks.

*Figure 5-2 Census Block Centroids by Utility Service Area*



#### 5.2.4 Store Locations and Incentive Program

Entergy worked with 31 participating stores to distribute 183,075 lamps throughout Louisiana. Participating retailers fell into two categories: Home Improvement and Mass Merchants/Big Box stores. For this analysis, the Evaluators assumed that customers would purchase high efficiency bulbs from a single retailer within a market category and drive to the closest store within that category. Holding with this assumption, store territories do not overlap within category, but territories for different categories of store (e.g., grocers and home improvement) can overlap. Table 5-7 summarizes market categories, retail chains and number of participating stores.

*Table 5-7 Participating Stores by Category*

<b>Store Category</b>	<b>Store Name</b>	<b>Number of Stores</b>
Home Improvement	DIY1	7
	DIY2	7
Mass Merchant	MM1	17
Total		31

There are many stores throughout the state that are similar, though did not participate in the program. To accurately estimate the extent of participating store’s territories, data on non-participating stores in the same market category was included. Data on non-participating stores in each category was purchased from InfoUSA<sup>11</sup> including the store name, SIC and address for all of Louisiana and bordering areas in Texas, Mississippi and Arkansas. The Evaluators conducted QA to ensure that all stores included were the same categories as participants and to remove duplicates. Next participating and non-participating stores were integrated, with Table 5-8 summarizing store type, name and location. Column LA indicates stores that are in Louisiana only and the column labeled “All” includes stores in Louisiana and bordering areas.

*Table 5-8 Number of Stores by Louisiana and Bordering Areas*

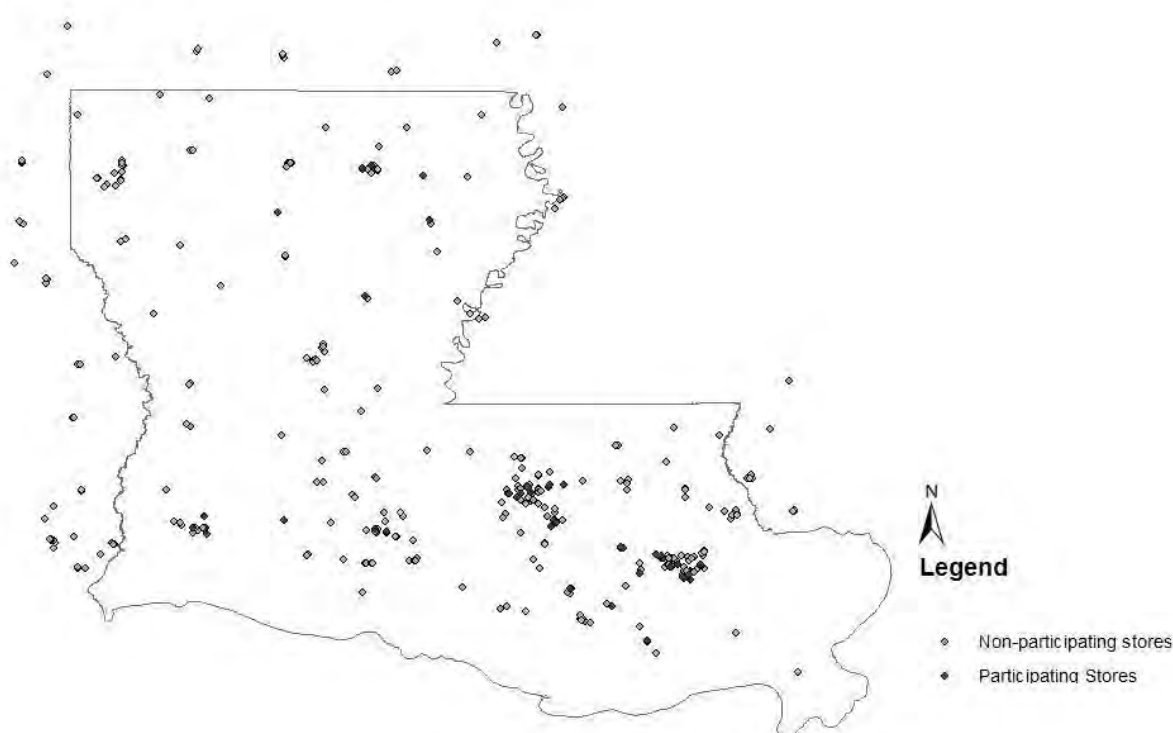
<b>Store Name</b>	<b>LA</b>	<b>All</b>
Mass Merchant 1	177	140
DIY1	27	33
DIY2	31	37
Grand Total	235	210

Next geocoding was performed to convert the provided street addresses to latitude and longitude coordinates. QA was performed by using two separate tools to perform the geocoding: a publicly available Google geocoding API and Esri StreetMap North America road data. All stores used are displayed in Figure 5-3 by participation status.

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<sup>11</sup> Source: <http://www.infousa.com>.

Figure 5-3 Geocoded Store Locations



#### 5.2.4.1 Roads

Imputing drive time requires the use of a proprietary road network dataset<sup>12 13</sup> owned by ESRI containing the shapes of roads, speed limit, historical drive time, one way road flags and turn restriction which affect drive time. This gives a much more precise definition of a service area than straight line radial distance which does not account for the accessibility of a store or traffic that may make one store more favorable than a closer alternative. StreetMap North America road dataset included all of the necessary attributes to accurately calculate drive time.

#### 5.2.4.2 Consumer Drive Time Data

Cadmus recently conducted a similar study in Arkansas. To estimate store territories researchers at Cadmus conducted a phone survey in which they asked participants to estimate their willingness to drive given the store category they generally purchase high efficiency bulbs from. The results of that phone survey are applicable to Louisiana as the store coverage per square mile throughout the state varied minimally in each category between Louisiana and Arkansas. Figure 5-4 displays their results, with

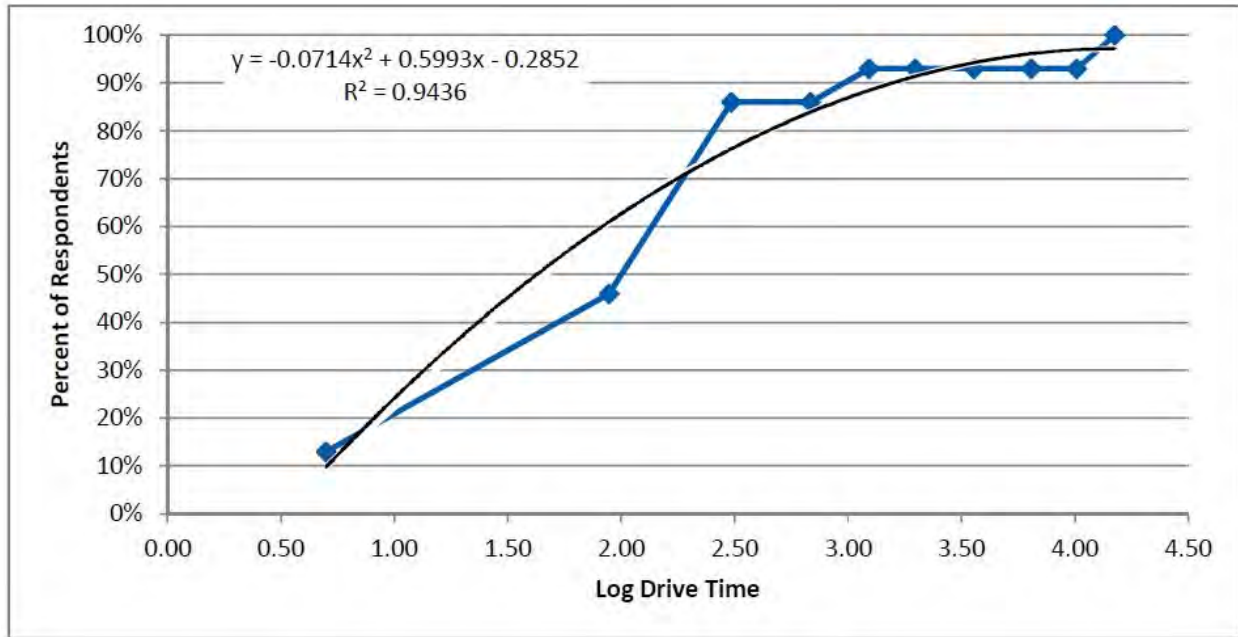
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<sup>12</sup> Source: <http://www.esri.com/data/streetmap>

<sup>13</sup> Source: <http://resources.arcgis.com/en/help/main/10.1/index.html#//001z00000039000000>

smoothed distribution<sup>14</sup>, Best-fit, second order polynomial equation and R-squared are included in the figure.

Figure 5-4 Distribution of Drive Times to Stores



#### 5.2.4.3 Leakage Analysis

To estimate the percentage of incentivized bulbs leaked, the following steps were taken.

##### 1. Spatially Join Utility Service Areas to Census Population Data

The block level Census centroids were joined to the utility service area that they fell in using the INTERSECT option through ArcMap. In doing so the utilities' name was attached to all population points that they serve.

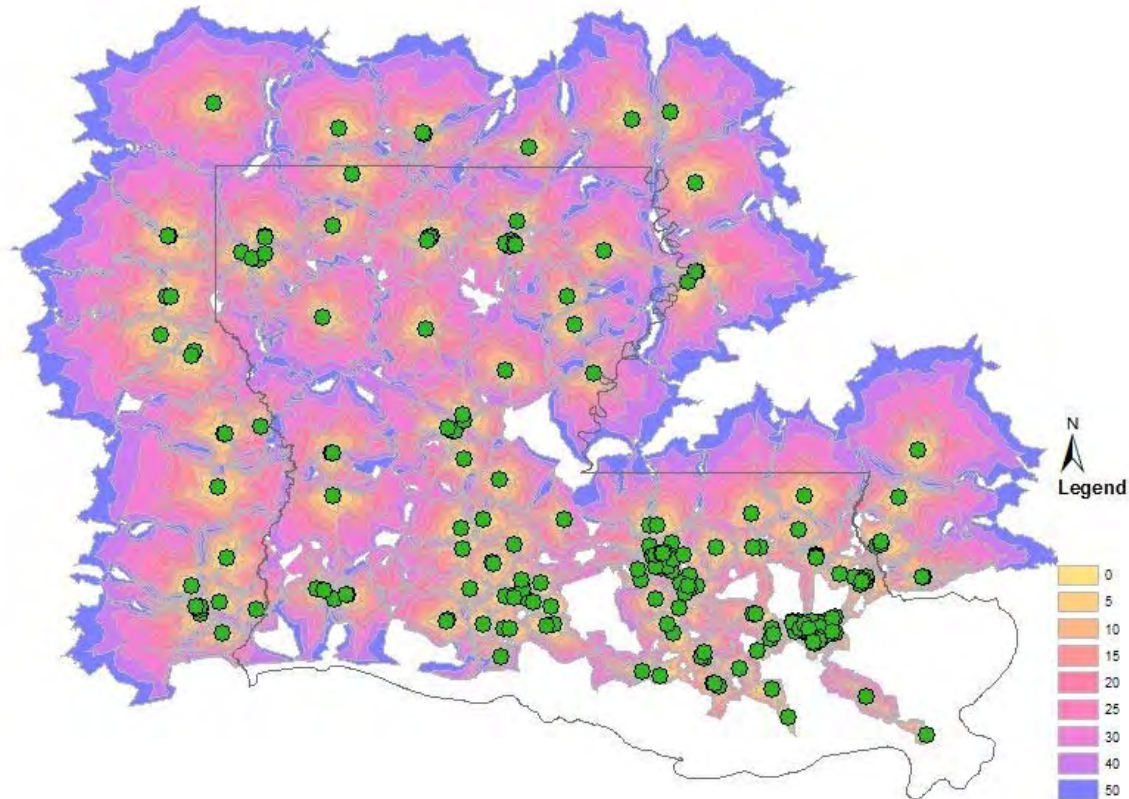
##### 2. Delineation of Store Service Territories

The Evaluators used the road data to create concentric drive time zones from the geocoded store locations. Each category was calculated separately, allowing territories to overlap between but not within store categories. Travel times were broken into 5, 10, 15, 20, 25, 30, 40, 50, and 60 minutes. Store territories were generated using the generalized (hierarchical) methodology within the Network Analyst extension to ArcGIS. Adjacent store territories do not overlap; they meet along an edge where the travel time is approximately equal to the two stores. An example set of drive time polygons

<sup>14</sup> Source: Entergy Arkansas, Inc. Arkansas Energy Efficiency Program Portfolio Annual Report 2013 Program Year

(showing store territories for the home improvement category) is shown in Figure 5-5 with the legend indicating the beginning of the drive time break.

*Figure 5-5 Store Territories with Drive time for Home Improvement Stores*



### **3. Spatially Join Drive Time Breaks to Population**

After the drive times were created, they were spatially joined to population points. Points falling within one of the drive time breaks were assigned the appropriate value (5, 10, etc.) to the closest store by category in addition to the utility service area assigned in step one.

### **4. Summarize Population and Calculate Leakage Risk**

For each store population points were summarized by store, utility service area (in/out of service area, in/out of state), and drive time break. A fraction of the population served from each store was allocated based on the results from the drive time survey and percentage of population in and out of the service area. Each store is summarized in Table 5-9 below by percentage leaked out of service area, state, and percentage transferred to a different utility.

Table 5-9 Summary of Leakage by Retail Location

<b>Home Improvement Stores</b>			
Store ID	Leaked IOU to Non	Leaked Out Of State	Transferred
HomeImprove1	0.00%	0.00%	0.00%
HomeImprove2	6.15%	0.00%	0.00%
HomeImprove3	8.75%	0.00%	0.00%
HomeImprove4	0.00%	0.00%	0.00%
HomeImprove5	0.00%	0.00%	0.00%
HomeImprove6	0.00%	0.00%	0.00%
HomeImprove7	0.00%	0.00%	0.00%
HomeImprove8	0.00%	0.00%	0.00%
HomeImprove9	0.00%	0.00%	0.00%
HomeImprove10	11.82%	0.00%	0.00%
HomeImprove11	5.15%	0.00%	0.00%
HomeImprove12	2.49%	0.00%	0.00%
HomeImprove13	0.00%	0.00%	0.00%
HomeImprove14	2.30%	0.00%	0.00%
BigBox1	7.35%	0.00%	0.00%
BigBox2	6.69%	0.00%	0.00%
BigBox3	8.98%	0.00%	0.00%
BigBox4	9.03%	0.00%	0.00%
BigBox5	8.53%	0.00%	0.00%
BigBox6	2.20%	0.00%	0.00%
BigBox7	2.73%	0.00%	0.00%
BigBox8	9.20%	0.00%	0.00%
BigBox9	9.25%	0.00%	0.00%
BigBox10	2.19%	0.00%	0.00%
BigBox11	2.64%	0.00%	0.00%
BigBox12	8.48%	0.00%	0.00%
BigBox13	12.07%	0.00%	0.00%
BigBox14	8.29%	0.00%	0.00%
BigBox15	10.65%	0.00%	0.00%
BigBox16	3.98%	0.00%	0.00%
BigBox17	8.39%	0.00%	0.00%

No stores displayed out-of-state leakage. This is due to each participating store being at least 40 miles from the state boarder. Additionally, there is no transfer from one utility to another. Comparing **Error! Reference source not found.** and **Error! Reference source not found.** demonstrates that there are large swaths of land in between most of the utility service areas and no participating store is particularly close to this boarder.

Another contributing factor is the non-overlap between each store sales area within a category.

#### 5.2.4.4 Application of Results

The leakage values listed in Table 5-9 were applied to all CFLs and LEDs rebated through that location. These lamps provide a benefit to Louisiana ratepayers, but do not result in lost sales on the part of the sponsoring utility. As such, the Evaluators elected to specify the leakage total for the purpose of reducing the Lost Contribution to Fixed Cost (LCFC) estimate for this program, but not to subtract it from program goal attainment. This is similar to how upstream lighting program savings was addressed in Arkansas.

When applying these values to ELL markdown lighting, the program leakage to non-IOU service area is 5.1%.

### 5.2.5 Verified Savings

Table 5-10 summarizes the savings from the Lighting and Appliances Program. This savings reflects program goal attainment, and includes lighting leaked to non-IOU service area.

*Table 5-10 kWh Realization Summary*

<b>Measure</b>	<b>Expected kWh Savings</b>	<b>Verified kWh Savings</b>	<b>Realization</b>
CFL	2,653,478	2,653,478	100.0%
LED	317,677	317,677	100.0%
Pool Pumps	25,572	37,916	148.0%
Room ACs	14,050	14,050	100.0%
<b>Total</b>	<b>3,010,777</b>	<b>3,023,121</b>	<b>100.4%</b>

*Table 5-11 kW Realization Summary*

<b>Measure</b>	<b>Expected kW Savings</b>	<b>Verified kW Savings</b>	<b>Realization</b>
CFL	575.54	575.54	100.00%
LED	68.91	68.91	100.00%
Pool Pumps	3.92	7.94	202.60%
Room ACs	16.16	16.16	100.00%
<b>Total</b>	<b>664.53</b>	<b>668.55</b>	<b>100.6%</b>

Total leakage is as follows:

- 150,910 kWh; and



- 32.73 kW.

### 5.3 Process Evaluation

This chapter presents the results of the process evaluation of the Lighting and Appliances Program. The process evaluation focuses on aspects of program policies and organization, as well as the program delivery framework.

The process chapter begins with an overview of the program. This is followed by a discussion of the methodological approach used in the evaluation. A summary of findings and recommendations for program improvement follow the discussion of the methodology. This discussion is followed by detailed findings of the evaluation activities.

#### 5.3.1 Program Overview

The Lighting and Appliances Program provides mail-in rebates (downstream rebates) for window ACs, Pool Pumps, and Advanced Power Strips. Point of purchase discounts are provided for compact fluorescent lamps (CFLs) and light emitting diodes (LEDs) through participating retailers. The energy saving goal for the program during its first year of operation was 2,704,330 kWh. The peak demand reduction goal was 645.50 kW.

##### 5.3.1.1 Lighting Component

Entergy provides point-of-sale discounts on standard A19 CFLs and LEDs three retail chains. CFLs receive a discount of \$1 per bulb and LEDs receive a discount of \$3 per bulb. Table 5-12 summarizes the number of retail locations offering discounted bulbs in the Entergy Louisiana service area. All locations offered both CFLs and LEDs.

*Table 5-12 Number of Participating Retailers*

<b>Retailer</b>	<b>Number of Participating Locations</b>
Home Improvement #1	7
Big Box #1	17
Home Improvement #2	7
Total	31

##### 5.3.1.2 Appliance Component

Mail-in rebates are offered for Window AC ENERGY STAR®, ENERGY STAR® Pool Pumps installed in an in-ground pool, and Advanced Power Strips. The rebates available for these products are summarized in Table 5-13.

*Table 5-13 Appliance Rebates*

<b><i>Appliance</i></b>	<b><i>Rebate Amount</i></b>
Window AC units	\$25
Pool Pumps	\$200
Advanced Power Strips	\$10

### **5.3.2 Detailed Findings**

#### ***5.3.2.1 Program Design, Operations and Activities***

The following sections describe program design, operations, and activities and were developed from reviews of program documentation and interviews with program staff.

#### ***5.3.2.2 Program Objectives***

The primary program objective is to assist residential customers in achieving electric energy savings and peak demand reductions through the installation of efficient lighting and select appliances. The energy saving goal for the program year was 2,704,330 kWh. The peak demand reduction goal was 645.50 kW.

Ancillary program objectives include improving access to the qualified products and providing consumers information about the quality of efficient lighting and appliances.

The program met its energy saving goal, largely through lighting sales, in the late July through early August period. Because the program fully met its goal early on, staff is considering offering the discounts at fewer stores in the coming program year to be able to offer the discounts throughout the program year.

#### ***5.3.2.3 Program Participation Process***

A key component of the program participation process is the establishment of Memoranda of Understanding with the participating manufacturers and retailers. CLEARResult staff work with lighting product manufacturer retailer representatives to establish an agreement between CLEARResult, the lighting product manufacture, and the retailer. The terms of the agreement are set forth in the MOU signed by the parties. Under the terms of the MOU, retailers agree to the following:

- Provide discounts on the qualified products;
- Display point of purchase materials and advertising with the utility's logo;
- Submit point-of-sale data to corroborate information provided in invoices; and
- Limit purchases to 12 bulbs per customer.

Manufacturers agree to the following:

- Notify the program of any proposed changes to the approved product mix; and
- Submit invoices for the discounted products purchased.

Once the program is in place, customers participate by receiving an instant discount on the incentivized products.

The following are the key steps in the participation process for customers to receive the rebates on the appliances:

- Customer purchases a qualifying product;
- Customer completes the rebate form and submits it and a sales receipt by mail, email, or fax;
- CLEARResult staff review the rebate submission for completeness;
- CLEARResult staff request complete information from customer if needed; and
- CLEARResult staff approves the rebate and mails payment to the customer.

#### ***5.3.2.4 Roles and Responsibilities***

CLEARResult is responsible for the primary program implementation tasks, namely:

- Recruiting and establishing agreements with retailers to offer the discounted lighting products;
- Ensuring that participating retailers comply with the terms of the MOU;
- Providing training to retailer staff;
- Reviewing sales reports and invoicing submitted for lighting discounts;
- Reviewing rebate materials submitted by customers; and
- Process and distribute incentive payments to retailers and customers.

CLEARResult staffs the program with a program consultant and a field representative who split time between the Entergy Louisiana, Entergy Gulf States, and Cleco programs. The Entergy program is overseen by a program manager.

#### ***5.3.2.5 Program Marketing and Outreach***

The lighting discounts are primarily promoted through point of service materials. CLEARResult staff supplies participating retailers with materials for display in participating stores. These materials include shelf stickers that display the program name and utility next to every item, as well as, larger signs. Program staff reported that no in-store promotion days were held during the program year. However, the program's field representative speaks with customers and retailer staff about the discounts during monthly store visits.

Similarly, the rebates for Window AC units and pool pumps are promoted through materials displayed at retailers and include copies of the application forms. Staff reported that in-store promotion of advanced power strips is challenging because they compete against sales of standard power strips. The standard power strips cost less and the benefits of the advanced power strips are often not clear to customers. Additionally,

not all retailers carry the advanced power strips. The advanced power strips are primarily promoted through the program website where customers can download the rebate form.

To promote the availability of the rebates for ENERGY STAR® qualified pool pumps, program staff met with pool pump trade allies to inform them of the availability of discounts on the pool pumps at two events. Staff also provided a large pool supply chain with rebate applications and a display board.

The program website is another tool for promoting the lighting discounts and appliance rebates. Energy customers can access information about the energy saving measures, rebate forms for the appliances, and a list of participating retailers for the lighting discounts.

#### **5.3.2.6 Quality Control and Verification Processes**

CLEAResult performs two types of quality control activities: monitoring participating retailer compliance with the MOU and verification and review of lighting sales and submitted rebates.

Activities related to monitoring compliance with the terms of the MOUs include:

- Verifying that the products provided at a discount are ENERGY STAR® qualified;
- Completing monthly visits to retail locations to verify that signage is displayed, product pricing is displayed, and that the pricing is accurate; and
- Educating retail staff to ensure that they are aware of the program discounts and the purchase limit. To date, this education has been relatively informal and involves the field representative discussing the discounts and program requirements with available staff during the in-store visits.

A review of lighting sales data is performed to ensure that invoiced sales data match point of purchase sales data and to identify anomalies such as large sales for items that suggest the purchase limit was not adhered to.

Quality control procedures for rebated appliances consist of reviewing the submitted rebate form for completeness of data, verifying that a sales receipt was submitted, and verifying that the rebate was requested for qualifying equipment.

Staff reported that few quality issues have occurred during the program year. One issue arose when a retail staff member removed the product pricing because the staff member assumed it was incorrect. A second issue occurred when there was a large purchase for a lighting item that was detected during review of sales data. The program was not charged for this sale.

**5.3.2.7 Review of Program Incentives**

The Evaluators reviewed discounts offered on lighting products for utilities operating in the southern region to benchmark Entergy’s discounts of \$1 per standard CFL and \$3 per LED. As shown in Table 5-14, Entergy’s discounts are similar to those offered by other utilities.

*Table 5-14 Lighting Discounts Offered by Regional Utilities*

<b>State</b>	<b>Utility</b>	<b>Lamp Type</b>	<b>Discount Amount</b>
MO	Ameren	LED Light Bulbs	Up to \$10
MO	Kansas City Power & Light	LED Light Bulbs	\$4.00
AR	AEP Southwestern Electric Power Company	LED Light Bulbs	\$3.00
AR	Entergy Arkansas	LED Light Bulbs	\$4.00 - \$8.00
MO	Ameren	Standard CFLs	\$0.50 - \$2.00
MO	Kansas City Power & Light	Standard CFLs	\$1.35
AR	AEP Southwestern Electric Power Company	Standard CFLs	\$1.00
AR	Entergy Arkansas	Standard CFLs	\$0.50 - \$1.00

Source: ENERGY STAR® Summary of Lighting Programs: September 2014 Update.  
[https://www.energystar.gov/ia/partners/downloads/FINAL\\_2014\\_ENERGY\\_STAR\\_Summary\\_of\\_Lighting\\_Programs.pdf?0544-2a1e](https://www.energystar.gov/ia/partners/downloads/FINAL_2014_ENERGY_STAR_Summary_of_Lighting_Programs.pdf?0544-2a1e)

Table 5-15 displays rebates and discounts provided through regional utility programs. As shown, the Entergy rebates for pool pumps are near the midpoint of the discounts provided in other jurisdictions. Rebates for power strips and window AC units tend to be towards the lower end of rebates reviewed.

*Table 5-15 Appliance and Discounts Offered by Regional Utilities*

<b>State</b>	<b>Utility / Administrator</b>	<b>Measure</b>	<b>Rebate / Discount Amount</b>
FL	Gulf Power	Pool Pump	\$100
MO	Ameren	Pool Pump	\$350
TX	CPS Energy	Pool Pump	\$200
AR	SWEPSCO	ENERGY STAR® Window AC	Up to \$35
FL	Gulf Power	ENERGY STAR® Window AC	\$75
MO	Ameren	ENERGY STAR® Window AC	\$20
MO	Kansas City Power & Light	ENERGY STAR® Window AC	\$25
AR	Entergy	Advanced Power Strips	\$15
MO	Kansas City Power & Light	Advanced Power Strips	\$10
MO	Ameren	Advanced Power Strips	7 outlet strip for \$4.95 (approx. \$20 discount)
Source: Data retrieved from <a href="http://www.dsireusa.org/">http://www.dsireusa.org/</a> and utility program websites.			

Currently, the program offers rebates on advanced power strips. However, this may not be an effective means for promoting this measure. As noted by program staff, customers may not fully understand the energy saving benefits and may be put off by the comparatively higher price. Offering a point of sale discounts so that the cost of the advanced power strips is similar to standard power strips or selling them through a utility website at a discounted price, may be more effective means of providing the incentive.

A \$200 incentive for ENERGY STAR® qualified pull pumps, which includes multi-speed and variable-speed pumps. Given the differences in potential energy savings between these two pumps, staff should consider offering different incentive amounts for these types of pumps.<sup>15</sup>

### **5.3.3 Conclusions**

#### **5.3.3.1 Program Design and Incentives**

- Overall, program incentive levels appear to be sufficient for the included lighting, appliance, and advanced power strip measures. Incentive levels are comparable to program offerings in other states and the program did not have difficulty meeting its overall energy savings goal. However, much of the program savings was generated through lighting measures and less activity occurred for the rebated appliances.
- The program has recruited 33 retailer locations in Entergy Louisiana’s service area to deliver lighting rebates. The discounts for LEDs and standard CFLs are

<sup>15</sup> Consortium for Energy Efficiency (2012). CEE<sup>SM</sup> High Efficiency Residential Swimming Pool Initiative.

comparable to discounts provided through other regional programs. Appliance rebates are also comparable to rebates offered through other programs. Staff is considering reducing the number of stores offering the discounts to extend the program discounts throughout the program year.

- Program staff noted that promotion of rebates for advanced smart strips in stores is challenging because customers do not understand the benefits of the product that costs considerably more than standard products.
- Program staff have yet to establish store contacts and training of retailer staff has been generally informal (program staff discuss program with retail staff available during visits).
- Rebates were provided for ENERGY STAR® qualified pool pumps but incentive levels are the same for multi-speed and variable speed pumps, despite differences in energy savings potential. CLEAResult staff have indicated that this was changed for PY2.

#### ***5.3.3.2 Program Marketing and Outreach***

- Lighting discounts are promoted through point-of purchase materials.
- Rebates for window AC units and pool pumps are promoted through retailer displays.

#### ***5.3.3.3 Quality Control and Verification Processes***

- Verification visits are performed with participating lighting retailer to ensure that the terms of the MOU are complied with. Consistent with common practice, these visits occur on a monthly basis and are unannounced. Additionally, lighting sales data are reviewed for anomalous purchase activity such as large purchases exceeding the program limit. Invoice amounts for the lighting discounts are corroborated with point-of-sale data submitted by the retailer.
- Rebated appliance verification procedures are consistent with similar programs. The process consist of reviewing the submitted rebate form for completeness of data, verifying that a sales receipt was submitted, and verifying that the rebate was requested for qualifying equipment.

#### **5.3.4 Recommendations**

The Evaluators' recommendations for the Lighting & Appliances Program are as follows:

- **Consider enhanced training or guidelines for pool pump installation trade allies.** Although there has been limited activity for pool pumps, enhanced training provided to trade allies on the proper programming of the units will increase the savings potential and may improve customer satisfaction with the units.

Alternatively, provide guidelines to installers on proper installation and programming.

- **Consider instore promotions for lighting.** Although additional marketing is not needed to increase discounted lighting sales, staff should consider offering in-store promotions to further facilitate achievement of the program's educational objectives.
- **Consider alternative incentive design for advanced power strips.** To achieve greater program savings for advanced power strips, consider providing a point of sale discount so that the power strips are priced comparatively to standard power strips.
- **Consider retailer distribution and leakage rates if the number of lighting retailers is reduced.** When considering limiting the number of retailers participating in the program, factor in the regional distribution of stores to maintain comparable access to the discounts for all customers as well as potential leakage rates associated with retail locations.
- **Enhance retailer staff training.** Provide more systematic training to lighting retailer staff to ensure that they are informed about the discounts provided, can explain the benefits of efficient lighting to customers, and are aware of and enforce program requirements such as the limit on the number of bulbs that can be purchased.



## 6. Small Business Program

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### 6.1 Program Description

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The ELL Small Business Program offers enhanced incentives to small business owners to help overcome the first-cost barrier unique to the small business market which interferes with small business adoption of energy efficiency measures.

The Small Business Program is designed to provide small business owners with energy efficiency information and develop awareness of energy/non-energy benefits of energy efficiency. It is intended to increase the awareness of the latest energy efficient technologies available to ELL small business customers. Through the SBP, a network of trade allies will be developed that have an interest in working with smaller customers.

In PY1, the SBP had savings goals of 1,793,535 kWh and 316 kW. Total verified savings for the SBP are:

- 1,667,792 kWh – 92.9% of goal; and
- 283.09 kW – 89.6% of goal.

### 6.2 M&V Methodology

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Evaluation of the SBP requires the following:

- Stratified Random Sampling, selecting large saving sites with certainty (as detailed in Section 2.4.2);
- Review of deemed savings parameters for prescriptive projects;
- On-site verification; and
- Interviewing of program participants and trade allies.

The main features of the approach used for the impact evaluation are as follows:

- Data for the study have been collected through review of program materials, on-site inspections, and end-use metering. Based on data provided by ELL, sample designs were developed for on-site data collection for the impact evaluation. Sample sizes were determined that provide savings estimates for the program with  $\pm 10\%$  precision at the 90% confidence level.
- On-site visits were used to collect data for savings impacts calculations. The on-site visits were used to verify installations and to determine any changes to the operating parameters since the measures were first installed. Facility staff were interviewed to determine the operating hours of the installed system and to locate any additional benefits or shortcomings with the installed system.

### 6.3 Impact Findings

Energy savings was estimated using proven techniques, including engineering calculations using industry standards to determine energy savings. Table 6-1 summarizes the total participation in the PY1 Small Business Program.

*Table 6-1 PY1 Small Business Program Participation Summary*

# Projects	Expected kWh	Expected kW
62	1,814,748	293.93

Data provided by CLEAResult showed that during PY1, there were 62 projects which were initially expected to provide savings of 1,814,748 kWh. The resulting overall sample is presented in Table 6-2.

**Table 6-2 Small Business Sample Summary**

# Sites in Population	Site Visit Sample Size	# Surveys
62	14	28

#### 6.3.1 SBP Savings Estimates

Sampling for evaluation of ELL's SBP was developed using the Stratified Random Sampling procedure detailed in Section 2.4.2. This procedure provides 90% confidence and  $\pm 10\%$  precision with a significantly reduced sample than random sampling would require, by selecting the highest saving facilities with certainty, thereby minimizing the variance that non-sampled sites can contribute to the overall results.

##### 6.3.1.1 Small Business Program Sample Design

The participant population for the SBP was divided into four strata. Table 6-3 summarizes the strata boundaries and sample frames for the Small Business Program.

*Table 6-3 Small Business Program Sample Design*

	Stratum 1	Stratum 2	Stratum3	Stratum 4	Totals
Strata boundaries (kWh)	<20,000	20,000-35,000	35,000 – 60,000	>60,000	
Number of sites	24	18	13	7	62
Total kWh savings	224,626	474,397	599,039	516,686	1,814,748
Average kWh	9,359	26,355	46,080	73,812	29,270
Standard deviation of kWh savings	3,680	5,179	8,474	9,455	21,952
Coefficient of variation	.39	.18	.18	.13	.75
Final sample	4	4	4	2	14

**6.3.1.2 Small Business Site-Level Realization**

Sites chosen within each stratum are visited to verify installation of rebated measures and to collect data needed for calculation of ex post verified savings. The realization rates for sites within each stratum are then applied to the non-sampled sites within their respective stratum. Table 6-4 presents realization at the stratum level, with Table 6-5 presenting results at the site level.

*Table 6-4 Summary of kWh Savings for Small Business Program by Sample Stratum*

<b>Stratum</b>	<b>Expected kWh Savings</b>	<b>Realized kWh Savings</b>	<b>Realization Rate</b>
4	152,088	144,623	95.1%
3	197,565	151,468	76.7%
2	99,367	98,071	98.7%
1	32,851	32,705	99.6%

Table 6-5 shows the expected and realized energy savings for the program by project.

*Table 6-5 Expected and Realized Savings by Project*

<b>Project ID(s)</b>	<b>City</b>	<b>Facility Type</b>	<b>Expected kWh Savings</b>	<b>Realized kWh Savings</b>	<b>Realization Rate</b>
PRJ-289266	Chalmette	Parking Lot	85,574	85,574	100.0%
PRJ-325672	Terrytown	Office	66,514	66,514	100.0%
PRJ-340027	Harvey	Industrial	59,730	39,317	65.8%
PRJ-351985	Marrero	Municipal	51,301	25,817	50.3%
PRJ-351962	LaPlace	Parking Lot	49,742	49,742	100.0%
PRJ-327280	Monroe	Retail	36,792	36,792	100.0%
PRJ-293692	Monroe	Grocery	32,626	38,286	117.3%
PRJ-314702	Norco	Grocery	23,377	23,377	100.0%
PRJ-291709	Metairie	Retail	23,245	18,861	81.1%
PRJ-289780	Metairie	Retail	20,109	17,547	87.3%
PRJ-293705	Monroe	Retail	13,974	15,933	114.0%
PRJ-337560	Metairie	Education	8,963	6,958	77.6%
PRJ-359702	Metairie	Religious	5,922	5,822	98.3%
PRJ-288361	Chalmette	Parking Lot	3,992	3,992	100.0%

**6.3.1.3 Small Business Program-Level Realization**

Using the realization rates presented in Table 6-4, the Evaluator extrapolated results from sampled sites to non-sampled sites in developing program-level savings estimates. Table 6-6 presents results by stratum.

Table 6-6 Small Business Program-Level Realization by Stratum

Stratum	# Sites	Expected kWh Savings	Realized kWh Savings	kWh Realization Rate	Expected kW Savings	Realized kW Savings	kW Realization Rate
4	7	516,686	516,686	100.0%	66.75	66.75	100.0%
3	15	599,039	459,268	76.7%	102.54	97.09	94.7%
2	19	474,397	468,210	98.7%	78.06	77.60	99.4%
1	24	224,626	223,628	99.6%	46.58	41.65	89.4%
Total	62	1,814,748	1,667,792	91.9%	293.93	283.09	96.3%

**6.3.1.4 Small Business – Causes of Savings Deviations**

Overall program-level kWh realization was high (91.9%). However, some projects demonstrated savings less than 100%. The Evaluators have summarized these projects Table 6-7 for illustrative purposes.

Table 6-7 Small Business – Causes of Low Realization

Project ID	Expected kWh	Realized kWh	Realization Rate	Causes of Low Realization
PRJ-340027	59,730	39,117	65.5%	This project is an auto repair facility. The project was processed as a Manufacturing facility (5,740 hours). However, as an auto repair facility hours of use are much lower than this. Evaluators revised facility type to Warehouse (3,501 hours), as this more accurately represents the facility type and operation.
PRJ-351985	51,301	25,817	50.3%	This project is a volunteer fire fighter station. This facility was processed using the “Food Sales: 24 Hour Supermarket/Retail” facility type (6,900 hours per year). Fire stations are not included in the Arkansas TRM. However as a volunteer firefighter station the hours are significantly lower. This facility was revised to “Public Order and Safety” (3,472 AOH).
PRJ-291709	23,245	18,861	81.1%	This project was a lighting retrofit at a retail facility. The ex ante calculations used an “Undetermined” space heating type, resulting in an Interactive Energy Factor of .98. The Evaluators verified that this facility uses electric resistant space heating, revising the interactive factor to .87. This correction accounted for an 11.2% reduction in savings. Further, 18 fixtures failed verification. This accounted for a 7.7% reduction in savings.
PRJ-289780	20,109	17,547	87.3%	This project was a lighting retrofit at a retail facility. The ex ante calculations used an “Undetermined” space heating type, resulting in an Interactive Energy Factor of .98. The Evaluators verified that this facility uses electric resistant heating, revising the interactive factor to .87. This correction accounted for an 11.2% reduction in savings. Further, two fixtures failed verification, accounting for a 1.7% reduction in savings.
PRJ-337560	8,963	6,958	77.6%	The project comprised the replacement of 40W, 60W, and 100W incandescent lamps with LEDs and an educational facility. The calculations did not account for EISA baseline changes. The Evaluators revised the baselines to 29W, 43W, and 72W (respectively)

Key issues identified in site-level analyses include:

- **Use of the “Undetermined” space heating type.** Many trade allies defaulted to using the “Undetermined” space heating value, which has an Energy Interactive Factor of .98. The Evaluators found that electric radiant heating was used in a large share of small business projects, and energy savings was reduced when the Energy Interactive Factor was corrected to .87. In response to this finding, program staff removed the “Undetermined” option from the OPEN Tool, and trade allies are now required to specify the heating system.
- **Facility type assignment for nonconforming business types.** Other significant corrections occurred when the program staff was required to make a judgment call in assigning a facility type from the list of Arkansas TRM facilities. The Evaluators made numerous corrections on projects of this type.
- **Improper baseline for screw-in lighting.** When installing screw-in LEDs and CFLs, ex ante calculations used listed wattage (40W, 60W, 75W, and 100W) as the baseline. The baseline values need to account for the Energy Independence and Security Act (EISA) baseline values (29W, 43W, 53W, 72W), as the remaining useful life of incandescent lighting is too short to use as the baseline for the life cycle savings of a lighting retrofit.

#### 6.4 Process Findings

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This chapter presents the results of the process evaluation of the Small Business Program. The process evaluation focuses on aspects of program policies and organization, as well as the program delivery framework.

##### 6.4.1 Data Collection Activities

The process of evaluation of the SBP included the following data collection activities:

*Table 6-8 Small Business Program Process Evaluation – Summary of Data Collection*

<b>Activity</b>	<b>Sample Size</b>
Entergy Staff	5
CLEAResult Staff	2
Participant Survey	28
Trade Ally Interviews	9

##### 6.4.2 Program Overview

The Small Business Program provides energy education to trade allies and customers, and financial incentives to customers, to encourage small businesses to implement energy efficiency projects that reduce their facilities electricity consumption. The program utilizes a network of participating trade allies to assist customers in identifying energy saving opportunities and to promote the incentives available.

Financial incentives are based on expected savings for the measure implemented. Incentives are \$0.16 per kWh saved and may cover up to 100% of the project cost. Incentives are paid directly to the trade ally implementing the project to reduce or eliminate the initial cost of the equipment to the customer. Incentives are capped at \$25,000.

Energy savings are calculated based on procedures outlined in the Arkansas TRM.

The primary measures offered through the program are the efficient lighting and refrigeration equipment listed below:

- Linear fluorescent lamp and ballast replacement;
- High-intensity discharge (HID) fixture replacement;
- Compact fluorescent lamps (CFLs);
- Interior and exterior light emitting diodes (LEDs);
- Solid and glass door reach in units;
- Electronically commutated motors (ECM) for evaporator fans;
- Door heater controls; and
- Vending misers.

Small business customers may also elect to install additional measures offered through the Large C&I Solutions Program and receive incentives of \$0.16 per kWh saved for that equipment.

To mitigate barriers to small business participation such as lack of program awareness and energy saving opportunities, the program relies upon a network of participating trade allies to perform direct customer outreach. The program provides trade allies with training and software used to perform on-site assessments and estimate energy savings associated with measures.

Any non-residential Entergy Louisiana customer with maximum peak demand of less than 100 kW is eligible for the program.

### **6.4.3 Detailed Findings**

#### **6.4.3.1 Analysis of Participation Data**

The SBP had 62 projects in PY1. Figure 6-1 summarizes percent of savings occurring by parish.

Figure 6-1 Percent of Program Savings by Parish

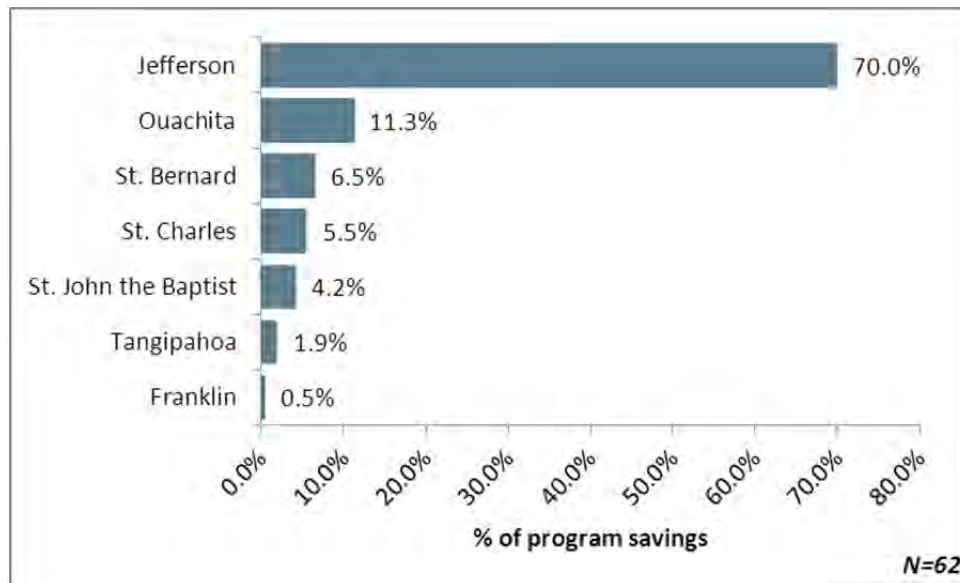
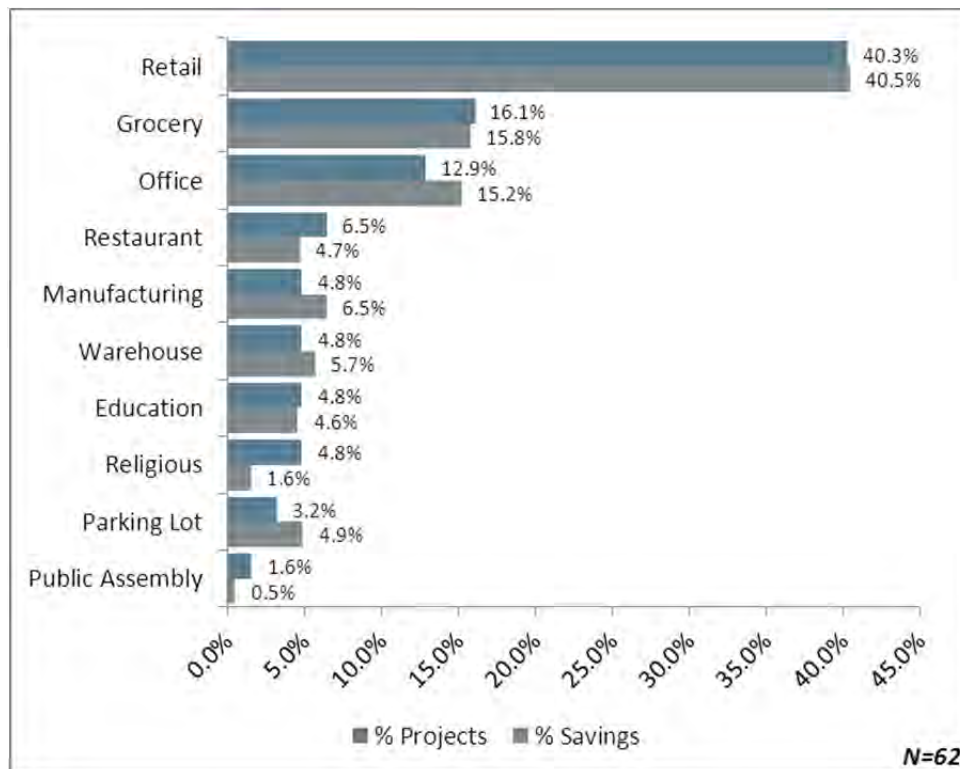


Figure 6-2 summarizes participation and savings by facility type.

Figure 6-2 Participation & Savings by Facility Type



PY1 savings was 100% comprised of lighting retrofits. The SBP offers other measures, and most notably refrigeration improvements. Restaurant and Grocery facilities accounted for 18.5% of participants and 17.3% of savings.

**6.4.3.2 Program Comparison**

Table 6-9 provides a summary of other regional programs. The eligible measures offered by the Small Business Program are consistent with other program offerings from around the county. The majority of programs emphasize lighting and refrigeration, HVAC tune-ups, and controls. However, several small business programs offer free direct install measures such as faucet aerators, pre-rinse sprayers, low-flow showerheads, and CFLs. The programs included in this comparison are all in comprehensive-phase implementation. However this difference manifests largely in program scale rather than in program design.

Entergy Louisiana targets incentives of \$0.16 per kWh saved. This incentive amount is slightly less than amounts offered by comparable utilities. Additionally, some utilities base their incentive off of demand reductions, such as Oncor Open, instead of energy savings. The Entergy programs define the small business segment as customers who have less than 100 kW in peak demand, which is comparable to the demand criteria used by other programs.

*Table 6-9 Small Business Direct Install – Regional Benchmarking*

<b>Utility</b>	<b>Available Measures</b>	<b>Direct Install</b>	<b>Incentive Amount</b>	<b>Eligibility Criteria</b>
Entergy Louisiana and Entergy Gulf States Small Business Energy Solutions Program	Refrigeration: Solid and glass door reach in units, electronically commutated motors (ECM) for evaporator fans, door heater controls, and vending misers. Linear fluorescent lamp and ballast replacement; High-intensity discharge (HID) fixture replacement; Lighting: Compact fluorescent lamps (CFLs), and interior and exterior light emitting diodes (LEDs).	N/A	\$0.16 per kWh reduced up to 100% of the project cost	< 100 kW
Public Service Company of New Mexico Quicksaver Program	Refrigeration: High efficiency electronically commutated motors and evaporator fan motor controllers, plastic strip curtains for walk in refrigerators and curtains, night covers for refrigerated open display cases, energy efficient anti-sweat heater controls, vending machine controls. Lighting: T12 to T8 lighting retrofits, cold cathode fluorescent lamps, LED exit sign upgrades, Switching from high intensity discharge fixtures to high output T5 fluorescent fixtures in high bay and exterior applications, Installing lighting occupancy sensors.	N/A	Range is between \$0.019/kWh- \$0.175/kWh	< 150 kW



<i>Utility</i>	<i>Available Measures</i>	<i>Direct Install</i>	<i>Incentive Amount</i>	<i>Eligibility Criteria</i>
Oncor Open	Refrigeration: Anti-sweat heater controls for refrigerator doors Lighting: T12 to T8 lighting retrofits, LED lighting upgrades, occupancy sensor installations, LED exit sign retrofits.	Lighting and low-flow faucet aerators	Customers with = 100kW demand up to \$800/kW saved Customers with = 10kW demand up to \$1,000/kW saved	< 100 kW
Entergy Arkansas Small Business Energy Solutions Program	Lighting: Interior/exterior lighting retrofits, interior lighting controls, refrigerated case lighting. Refrigeration: ECMs, anti-sweat heater controls, ECM controls, gaskets and strip curtains. Misc.: window film, ceiling insulation (converted residences only), duct sealing (converted residences only).	Low-flow faucet aerators, pre-rinse spray valves, vending misers, showerheads, and CFLs.	Lighting: \$0.18/kWh Refrigeration: \$0.30/kWh HVAC: \$0.18/kWh Lighting Controls: \$0.18/kWh Window film: \$0.35/kWh Duct Sealing: \$0.35/kWh Ceiling Insulation: \$0.35/kWh	< 100 kW

#### 6.4.4 Program Design, Operations, and Activities

The following sections describe program design, operations, and activities and were developed from reviews of program documentation and interviews with program staff.

##### 6.4.4.1 Program Objectives

The primary program objective is to assist small businesses in achieving electric energy savings and peak demand reductions through direct outreach, facility walkthrough energy assessments, and relatively large financial incentives on energy saving for typical small business end-uses. The savings goal for the first year of program operations was 1,793,535 kWh. The peak demand reduction goal was 316 kW. To meet the energy saving and peak demand reduction goals, the program has ancillary objectives to mitigate barriers to energy efficiency in small businesses. The program intends to provide customers with increased awareness of energy and non-energy benefits of energy efficiency measures, help small businesses overcome the initial cost of efficiency measures, and develop a network of trade allies that can assist small businesses with energy efficiency improvements.

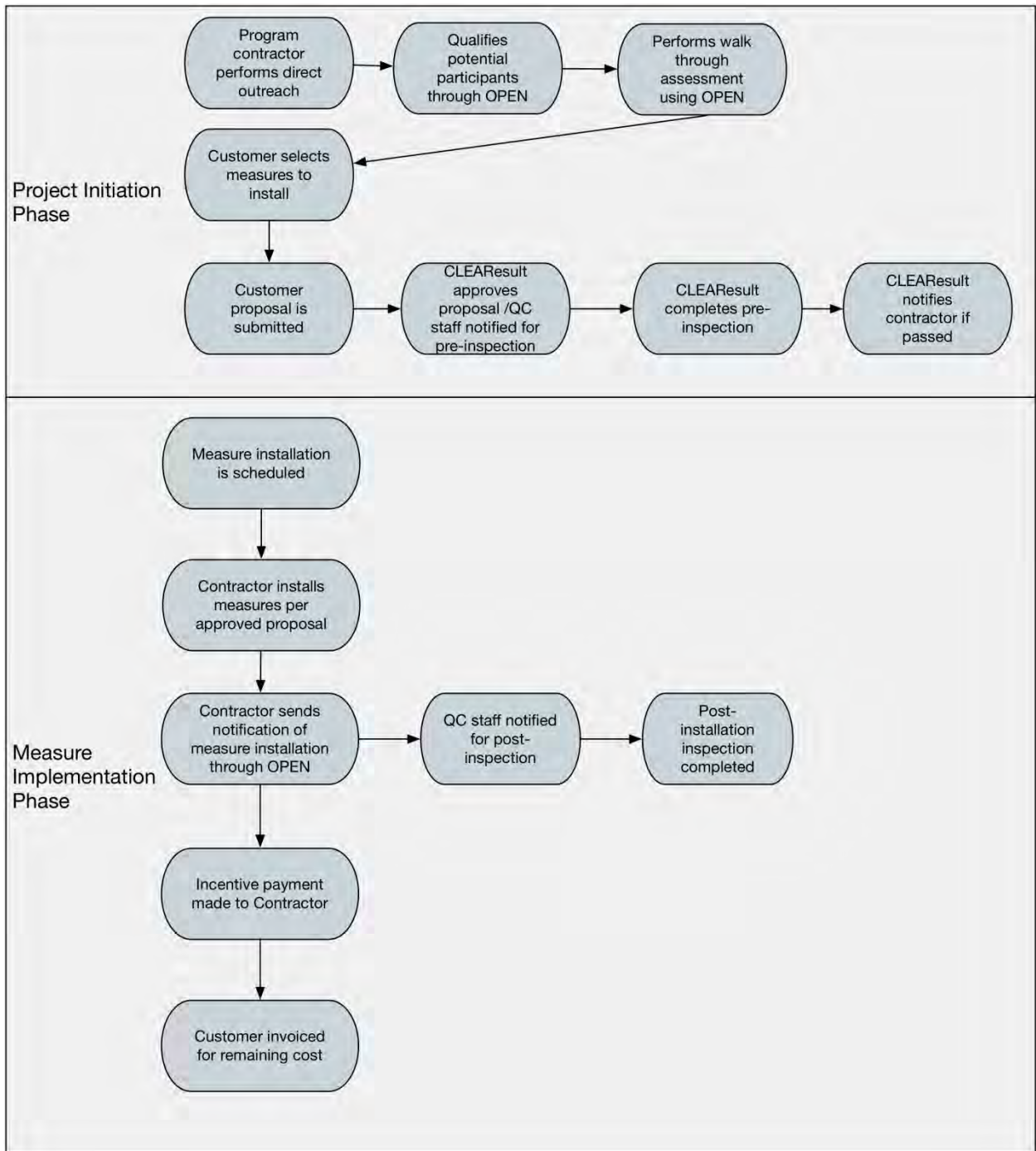
Overall, both Entergy and CLEAResult indicated that the program is well designed to meet its goals and objectives. One CLEAResult staff member noted that the program is working with a lot of independent, family-owned businesses and that there is a learning curve for this market segment.

#### **6.4.4.2 Program Participation Process**

Figure 6-3 provides an overview of the participation process. The key steps in the participation process are:

- Outreach to customer by the trade ally;
- Trade ally completion of walkthrough assessment using the OPEN software tool;
- Customer measure selection and submission of the project proposal;
- CLEAResult's review and approval of the proposal and associated pre-inspection;
- Measure implementation;
- Post-installation inspection; and
- Payment of incentives to the trade allies.

Figure 6-3 Small Business Solutions Program Participation Process



**6.4.4.3 Program Marketing and Outreach**

The program primarily relies upon trade allies to market the program to small businesses. Trade allies offer potential customers a free, no-commitment walkthrough of their facility to identify energy saving opportunities and discuss the discounts on

equipment and services available through the program. Staff reported that a tri-fold brochure and a fact sheet are made available to trade allies to help them promote the program. Additionally, the program provides pre-approved materials that include a spot for the trade ally's name to be printed. There have also been local television spots promoting the Entergy programs in some markets.

Consistent with the program design, CLEAResult staff reported little direct outreach to customers. One staff member stated that he will discuss the program if he sees a small business that could potentially benefit.

#### **6.4.4.4 Barriers to Participation**

The barriers to participation facing small business customers include:

- Lack of awareness of program offerings;
- Lack of knowledge about energy efficient technologies and the cost savings potential; and
- Insufficient financial and staff resources to implement energy saving measures.

The program includes design elements to overcome these barriers, namely direct outreach by trade allies to promote the program offerings and higher incentives than those made available to larger customers to reduce measure costs. Additionally, by providing the incentives to the trade ally, who in turn reduces the cost of the equipment services, the program allows small business customers to receive the incentives without covering the full measure installation cost until the incentive can be processed.

Program staff did not identify other barriers to participation aside from those the program design attempts to address. However, staff noted that working with "mom and pop" type businesses can be challenging and that they typically do not have the in-house expertise on energy efficient equipment typically seen in larger businesses.

#### **6.4.4.5 Quality Control and Verification Processes**

Several activities are integrated into the program processes to verify that projects are implemented in accordance with program requirements. The key activities are:

- Qualification of customer eligibility through use of the OPEN tool;
- Review of customer proposal;
- Pre-inspection of select sites;
- Review of final customer proposal and project documentation;
- Post-inspection of select sites; and
- Review of customer feedback.

Problems identified through the quality control procedures are grouped into critical and non-critical issues. Critical issues that arise may result in the immediate suspension or removal of the trade ally from the program. Non-critical issues that do not adversely

affect energy savings, peak-demand reductions, or incentive amounts result in the documentation of the issue and corrective action such as further training.

The first five projects completed by a trade ally receive pre- and post-inspection. Staff reported that 20% to 25% of the projects are inspected after that, although the manual states that 10% of projects are inspected after the first five. This discrepancy does not present a critical program operations concern because the interviewed staff do not select the sites for inspection (selection is done through a regional CLEAResult office).

The program consultants are notified through the OPEN software that a site requires a pre- or post-inspection. During pre- and post-inspection, staff counts and photographs every fixture and/or other equipment included in the project. Additionally, staff reviews equipment specification sheets and invoicing submitted by the trade ally through email.

Staff reported that few issues have been identified with completed projects. The issues noted were minor and included misreporting of lamp wattage or where the lamp count was slightly incorrect.

#### **6.4.4.6 Trade Ally Recruitment and Management**

CLEAResult's outreach efforts have been largely directed and trade ally recruitment. Staff reported recruiting trade allies through direct outreach and referrals from program staff operating other programs in the region. The Entergy Louisiana program benefitted from its proximity to the program operating in Entergy New Orleans. Trade allies were able to easily begin providing services to Entergy Louisiana customers.

Although staff reported that the recruitment of trade allies went well, generally, staff is looking to recruit additional trade allies into the program.

Trade allies who are new to the program receive training to familiarize them with the program procedures and requirements. Staff report that the training takes approximately 1-1.5 hours, during which the program and use of the OPEN software used to complete the energy assessments is explained. Staff also reported that they offer one-on-one training to trade allies. Additionally, trade allies are invited to pre- and post-inspection visits, which can provide a learning opportunity.

#### **6.4.5 Participant Survey Results**

Participants in the Small Business Program were surveyed to provide insight into the participants' experience with the program. A total of 28 program participants responded to the survey. 50% of respondents were the proprietor or owner, while 18% held managerial positions, 11% were the facilities manager, and 21% had some other role.

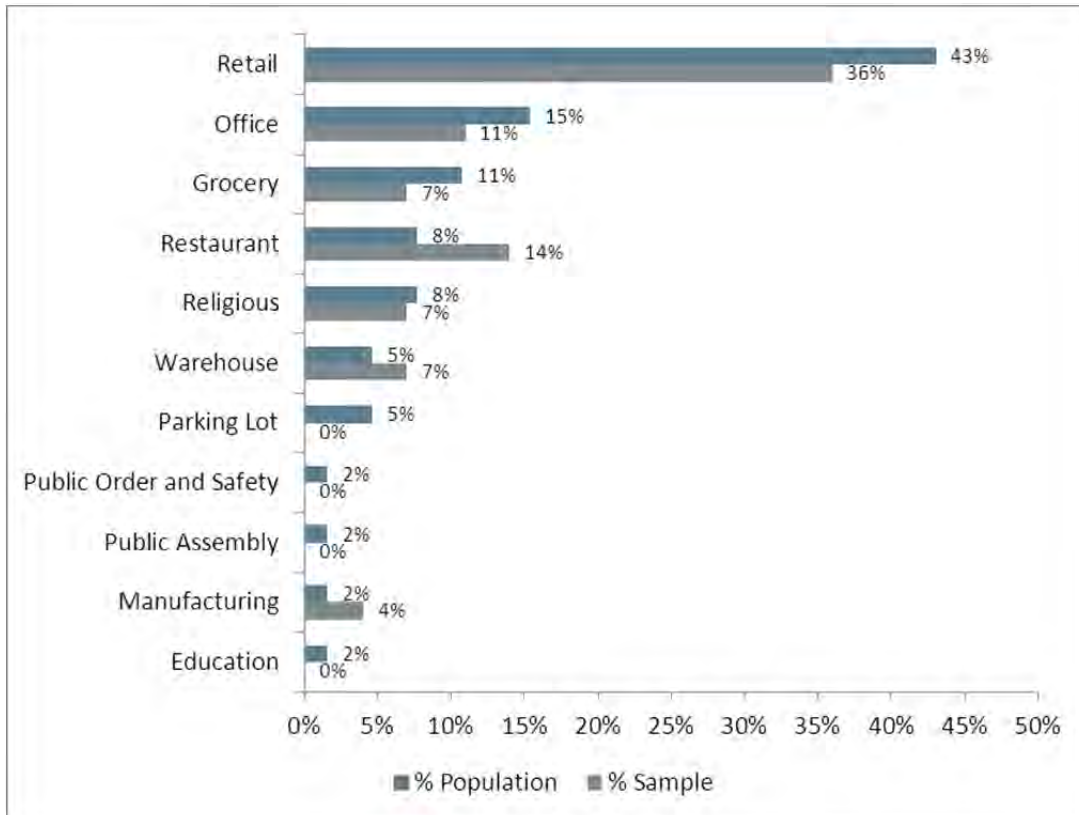
Of facilities surveyed, 18% were the company's headquarters, 29% were of a company with several other locations, and 50% were of a company's sole location. 54% owned

and occupied the facility of interest, while 39% rented, 4% owned and rented to someone else, and 4% refused to answer.

A majority of respondents (96%) reported that they were billed directly for their electricity use.

Figure 6-4 summarizes the business types surveyed and compares this share to the population of ELL Small Business Program participants.

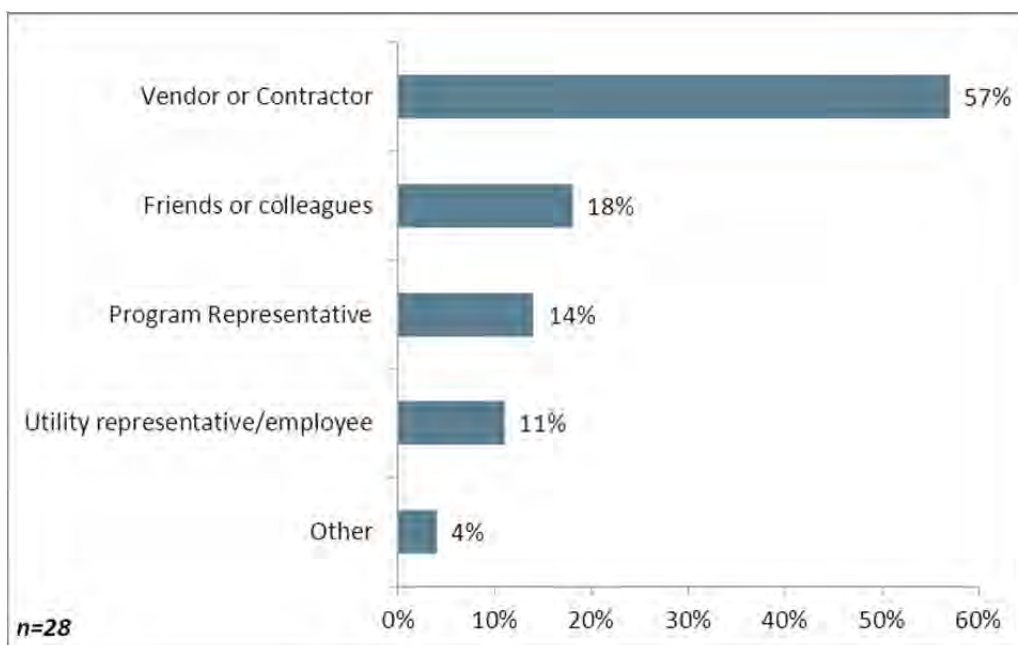
*Figure 6-4 Comparison of Survey Sample and Population Firmographics*



**6.4.5.1 Preferred Outreach and Sources of Awareness**

The majority of participants learned about the program incentives from a vendor or trade ally (57%), through friends and colleagues (18%), or through a program representative (14%). These results suggest that trade allies are actively promoting the program and driving a significant share of participation.

Figure 6-5 ELL Small Business – Participant Sources of Program Awareness



The largest share of respondents (43%) stated that visits from trade allies or program staff is the best way to contact them about energy saving opportunities, followed by email (36%), direct mail (11%), telephone (11%), or targeting owners and upper management (4%).

#### 6.4.5.2 Decisions to Participate

68% of respondents thought participating in the program was an easy decision, while 32% had some concerns.

All of those concerned thought that the program seemed “too good to be true.” Their concerns were resolved when they learned more about the program from program staff. These findings suggest that concerns about the credibility of the program offerings may present a barrier to some businesses participating. Actions taken by program staff to promote the program and increase awareness should mitigate concerns of the program’s legitimacy. Encouraging trade allies to utilize program marketing collateral may also help them improve perceptions of the legitimacy of the program during discussions with potential participants.

Reasons for participating in the program are shown in Table 6-10. The most common reasons provided were: saving on energy bills (93%), conserving energy and protecting the environment (71%), and acquiring the latest equipment (64%).

*Table 6-10 Reasons for Participating in the Program*

<b>Which of the following factors helped you decide to participate in the program?</b>	<b>Percent of Respondents (n = 28)</b>
Saving money on energy bills	93%
Participation was very easy	75%
Conserving energy/Protecting the environment	71%
Acquiring the latest equipment	64%
Replacing broken equipment	36%
Something else	7%

Table 6-11 displays the likelihood that participants would have installed the energy efficient equipment had their trade ally not completed the energy assessment of their facility. Over one-half (53%) indicated that they probably or definitely would not have installed the equipment without the assessment.

*Table 6-11 Likelihood of Installation without Assessment*

<b>If the onsite assessment had not been performed by your contractor, how likely is it that you would have installed energy efficient end-use type?</b>	<b>Percent of Respondents (n = 28)</b>
Definitely would have installed	7%
Probably would have installed	39%
Probably would not have installed	46%
Definitely would not have installed	7%
Don't know	0%
Refused	0%

Participants were also asked if they would have installed the energy efficient equipment without the financial incentives provided in the program. 72% said they probably or definitely would not have, while 21% said they probably would have, and 7% said they definitely would have. These responses indicate that the financial incentives provided in the program were important in the participant's decision to install equipment.



*Table 6-12 Likelihood of Installation without Financial Incentives*

<b><i>If the financial incentive from the program had not been available, how likely is it that you would have installed energy efficient equipment?</i></b>	<b><i>Percent of Respondents (n = 28)</i></b>
Definitely would have installed	7%
Probably would have installed	21%
Probably would not have installed	61%
Definitely would not have installed	11%
Don't know	0%
Refused	0%

The findings on the likelihood of installing the equipment without the recommendation and without the financial incentive suggest that the program is providing the needed educational and financial assistance to help facilitate energy efficiency in small businesses.

**6.4.5.3 Assessment of Audit**

Overall, participants were quite satisfied with the audit process. 76% were very satisfied with the audit of the facility, the project proposal, and the professionalism and knowledge of the trade ally.

*Figure 6-6 Participants Rating of the Auditing Process*

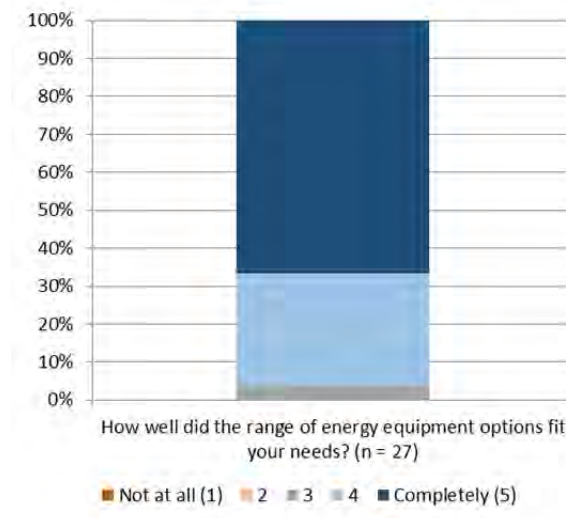


Over 95% of respondents stated that they would recommend the program to someone else and most thought the trade ally did a good job.

#### 6.4.5.4 Equipment Selection

The majority of participants surveyed installed all of the energy saving equipment recommended by the trade ally (93%), while 7% did not know. In addition, most of those surveyed thought the energy equipment options fit their needs completely (67%) or nearly completely (30%).

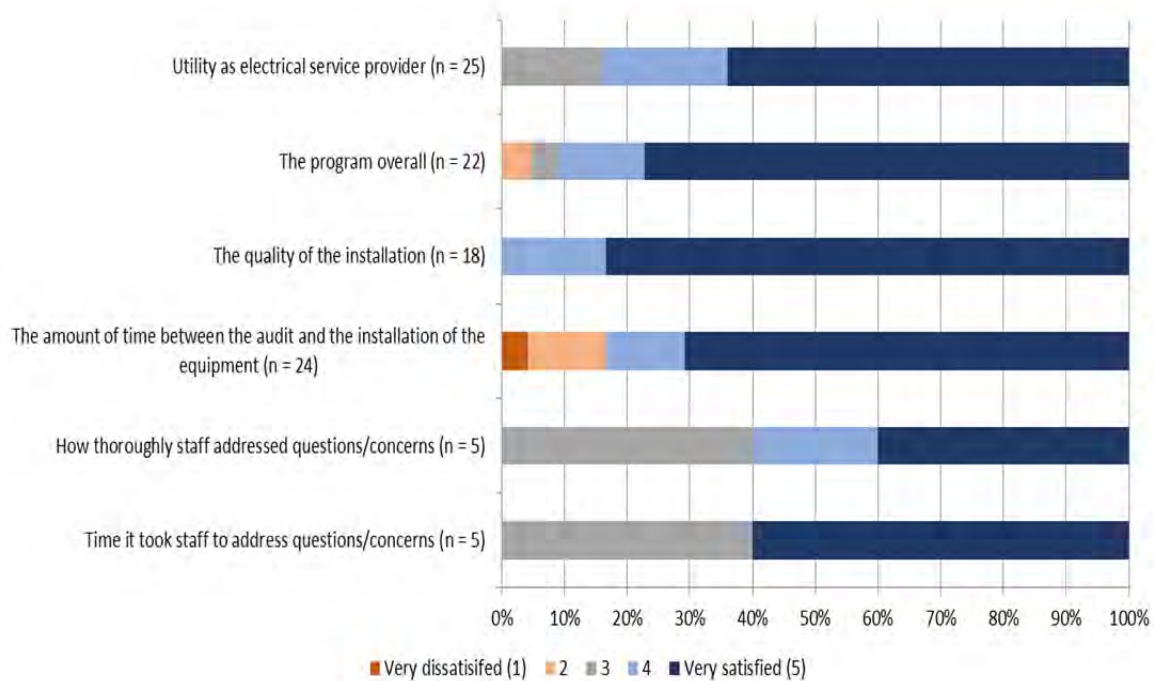
Figure 6-7 Fit of Equipment Options Provided



#### 6.4.5.5 Participant Satisfaction

Participants were most satisfied with the quality of the equipment installed and the utility as electrical service provider. A few participants were dissatisfied with the amount of time between the audit and the installation of the equipment, but most were satisfied. Five respondents reported that they had interactions with program staff during the course of their participation. None of the surveyed participants were dissatisfied with the thoroughness with which questions were addressed or the time to receive a response, and 60% of the respondents indicated satisfaction with the program staff's response.

*Figure 6-8 Small Business Solutions Participant Satisfaction*



The five respondents who reported dissatisfaction with the program elaborated on the reason why they were dissatisfied. The reasons given were as follows:

- The equipment never came (2 respondents, both had active projects at the time of the survey);
- Did not receive rebate check (1 respondent);
- There were some equipment failures that took some time to resolve (1 respondent); and
- There was a delay between when the assessment was performed and when the measures were installed (1 respondent).

Table 6-13 displays survey respondents reported impact of participation on their satisfaction with Energy Louisiana. 61% of participants stated that participating in the program increased their satisfaction with Entergy.

*Table 6-13 Effect of Participation on Satisfaction with Utility*

<b><i>Effect of participation in the Utility's Program</i></b>	<b><i>Percent of Respondents (n = 28)</i></b>
Greatly increased your satisfaction with the Utility	36%
Somewhat increased your satisfaction with the Utility	25%
Did not affect your satisfaction with the Utility	29%
Somewhat decreased your satisfaction with the Utility	0%
Greatly decreased your satisfaction with the Utility	0%
Don't know	11%
Refused	0%

#### **6.4.6 Participating Trade Ally Interviews**

A total of nine trade allies were interviewed. Seven worked for businesses that specialized in energy efficient equipment, and five of these worked for a business that specialized specifically in LED lighting. The remaining two trade allies worked for an electrical contracting business and a business that specialized in all types of lighting.

All but two respondents stated that their business did not specialize in any specific type of customer. One respondent stated that government entities make up most of their customer base and another stated that they specialize in providing lighting to gas stations and beauty supply businesses.

##### ***6.4.6.1 Trade Ally Feedback - Motivations for Participating***

The most common ways that trade allies reported becoming aware of the SBP was through researching rebates available in the area (44%) and being contacted by CLEAResult directly about the program (33%). In addition, one trade ally stated that a customer contacted them about the program and one trade ally was not sure how their business found out about the program.

When asked what factors influenced their decision to participate in the program, all trade allies stated one or both of the following influences: gaining a broader customer base or because of the financial benefits of the program to the customer.

Most trade allies (55%) did not have any initial concerns about participating in the program. Of the four trade allies that had concerns, three stated that they were concerned about the funding and how they would be getting paid. The final trade ally was concerned that the program would not support the installation of custom LEDs because they lack the required documentation. The trade ally stated that program staff was accommodating and they had no issues getting approval for custom LEDs.

##### ***6.4.6.2 Trade Ally Feedback - Program Marketing***

When asked whether their company or the customer first brings up the program, most trade allies (66%) stated that they generally approach customers about the program.

22% stated that the customer first approaches them about the program, or that it is split evenly. One trade ally did not know.

Only three trade allies reported actively promoting the program beyond one-on-one interactions with potential customers. One trade ally reported that their marketing used direct mail pieces as well as calling individual businesses to make them aware of the program. Although few respondents market the program, 45% of respondents reported that they had received guidelines on how to use Entergy's name of the Small Business Program name on any marketing materials, and three-quarters of these respondents stated that the guidelines were clear.

Only two trade allies reported that they had received marketing materials to promote the program. Both these trade allies reported using the materials "every time" or "all the time". One trade ally stated that Entergy was supposed to supply them with materials, but had not. Another trade ally stated that they generally rely on the website to give information to the customer about the program.

When asked if there was anything the program could do to help them promote the program more effectively, three trade allies stated that the program should provide more marketing materials including pamphlets, ads, fliers, and other literature. Two trade allies stated that it would be helpful for them if there was a list of trade allies that are certified by the program on the program website. However, Entergy maintains a qualified trade ally list on the website, and the Evaluators verified that these contracts are in fact included on this list.

#### **6.4.6.3 Trade Ally Feedback - Customer Awareness and Barriers to Participation**

When asked how aware customers are of the measures that the trade allies recommend, 55% of respondents stated that customers are generally unaware of the measures, 22% stated that they are generally aware of the measures, and 22% stated that the level of awareness is mixed across customers. Trade allies stated that customers are generally unaware of advances in LEDs and new LED technologies applicable to their business.

Two-thirds of the surveyed trade allies stated that the main concern potential customers raised about program was skepticism about the offer – that it seemed "too good to be true." The other concern that was raised was that potential customers must decide quickly whether or not to commit to the project because of funding constraints.

The main reason trade allies reported that customers do not follow through with a project is because the incentive does not cover enough of the costs for them to participate.

All the trade allies stated that they thought the measures offered through the program met the needs of small businesses. When asked if there were any measures that are

not currently included that should be, one respondent stated that including energy management controls for HVAC systems would be attractive to customers, and two trade allies stated that they experienced in some inconsistency in the process of getting measures approved. Specifically, one trade ally had trouble with one program staff person approving 2' LED lamps, but had not had a problem with approval from other program staff person. The other trade ally stated that they thought the case-by-case approval process for custom LEDs could be improved, but did not offer specific suggestions.

#### **6.4.6.4 Trade Ally Feedback - Participation Process**

Trade allies provided responses to a series of questions about the participation process. The key documentation that trade allies collected during the walkthrough was a copy of the business's energy bill and photographs of the existing equipment.

The walkthrough assessments are completed using a software tool developed CLEAResult called OPEN. When asked to assess the OPEN software, one-third of trade allies stated that they had not had any issues with it. Another third of respondents reported minor issues with the software, such as the software tends to freeze or processes information slowly. The difference in experiences with OPEN may be a function of the specific device trade allies are using with the software. One trade ally stated that the software was not user friendly enough.

When asked how the OPEN software tool might be improved, four trade allies requested that it include all the measures that are in the Small Commercial & Industrial Program calculator, but maintain its user friendliness. Other suggestions, each stated by one trade ally, included the following:

- Enable to the customer to sign the proposal and complete the submission process through the tool;
- Create an offline Excel form instead of an online tool; and
- Complete additional quality control checks on the tool before the start of the next program year.

Trade allies were asked what method(s) they used most often for submitting a customer proposal. Most trade allies reported that they had submitted project proposals by e-mail (66%), followed by the OPEN tool (33%), and in person (22%). The time it takes for proposals to be approved reported by trade allies ranged from a few days to two weeks. One trade ally elaborated that the approval time depended on a variety of factors.

Three respondents stated that they had had one or more proposals rejected. One respondent stated that the issue was resolved and the customer reapplied at a later date. However, two respondents stated that the rejection was made because the projects did not qualify for the Small Business Program (they did not meet the facility 100 kW demand requirement).

Overall, trade allies appear to understand what documentation is required by the program, few had issues with using the OPEN software tool, and project proposals are generally approved in a reasonable period of time.

#### **6.4.6.5 Trade Ally Feedback - Training and Staff Support**

Most respondents (77%) reported that the training that they received about the program was good or sufficient.

One trade ally found the training on the software tools to not be sufficient, but also stated a lack of comfort using software in general. A second trade ally stated that although the training was great, five or six new requirements were added to the program and no training had been provided. Another trade ally did not find the training useful to begin with, and the program changed quickly making them feel that most of what they learned was irrelevant.

Three trade allies suggested having an updated training if tools, methods, or program requirements change substantially.

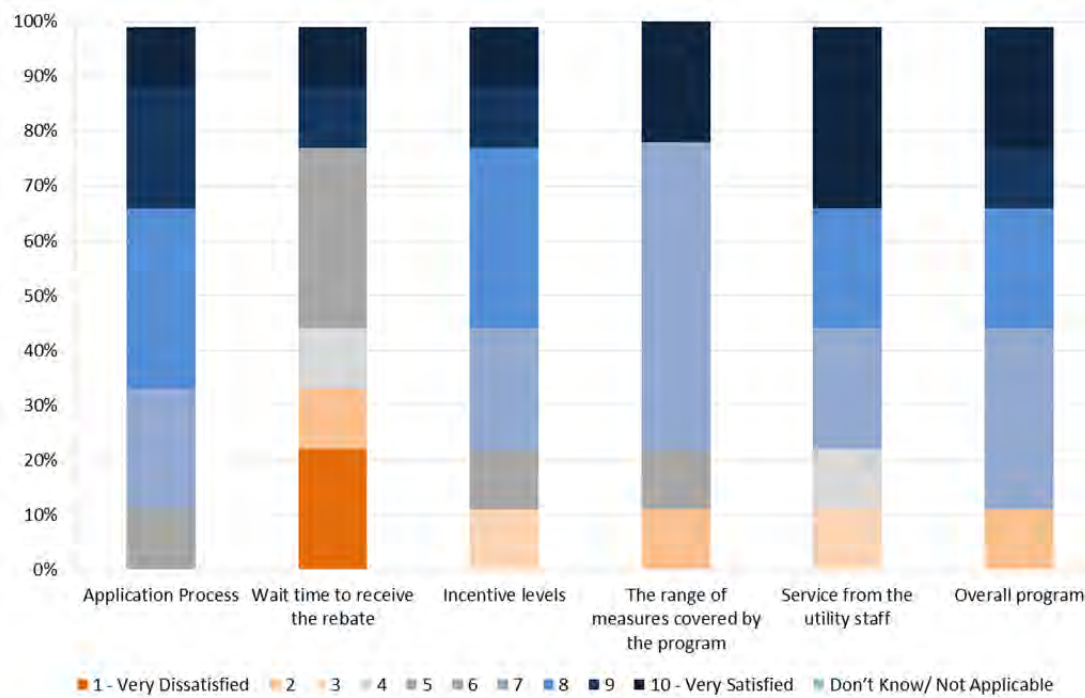
Although most trade allies stated that they received written documents describing program procedures and requirements, only one-third reported that they met their needs for understanding how the program worked. One third did not remember the materials that were provided, and another third did not think the materials were sufficient. One trade ally suggested updating the materials as program requirements changed, and another trade ally suggested providing more material and literature about the program.

With the exception of one respondent, trade allies reported that they had a good relationship with program staff. Respondents stated that program staff was easy to get a hold of and that they addressed their questions.

#### **6.4.6.6 Trade Ally Feedback - Overall Satisfaction**

Trade allies were asked a series of questions rated on a 1-10 scale, where one meant very dissatisfied, and ten meant very satisfied. They were asked to rate various aspects of the program. Their responses are summarized in Figure 6-9.

Figure 6-9 Small Business Solutions Trade Ally Satisfaction



Although most trade allies were satisfied with the overall program (88%), the wait time to receive the rebate was scored lower than other program elements. Most trade allies (77%) were dissatisfied with the wait time to receive the rebate, scoring it at 5 or below.

Several trade allies stated that the time between installation and receiving the rebate can be inconsistent. One trade ally reported an average wait time of one month, with several projects taking up to six months to receive the rebate. The long wait time was the result of several factors, including changes to the program resulting in additional requirements and a subsequent delay.

Although trade allies were generally satisfied with their interactions with staff, two trade allies brought up an issue with the accountability of program staff. These trade allies stated that they had nobody to complain to when they were having issues with program staff responding to them in a timely manner.

## 6.4.7 Conclusions

### 6.4.7.1 Program Design and Participation Process

- The Small Business Program is consistent with the design of similar programs offered in other jurisdictions. It incorporates three key design characteristics to reduce common barriers to small business.



- The program provides relatively high incentives for small businesses that typically have less capital for energy efficiency investments.
- The program uses high-contact, direct outreach performed by approved trade allies to improve program awareness among harder to reach small businesses.
- Incentive payments are paid to trade allies to reduce the initial cost to participants.
- Small businesses are defined as businesses that with less than 100 kW average peak demand. This is a typical threshold for small business programs.
- The program utilizes a paperless process for completing the energy assessments and submitting customer proposals that reduces paperwork. These submissions can be made through the program software tool or by email. Submissions are sent to CLEAResult's central team in Austin, Texas.
- Trade allies received training from CLEAResult on the program processes and use of the program software. Most of the interviewed trade allies provided favorable assessments of the training. However, one respondent stated that they were not fully comfortable using the program software. Additionally, multiple trade allies stated that program requirements changed after training and were not communicated to them.
- Trade ally descriptions of the participation process were consistent with the program design. Interviewees appeared to understand the program process and documentation requirements, and few issues were noted with the program software tool. Trade allies also indicated that proposals were approved in a reasonable period of time.
- Interviewed trade allies stated that the measures offered through the program met the needs of the small businesses they work with. The primary barrier to participation identified by trade allies was skepticism about the legitimacy of program offerings. Additionally, measure costs are a factor. Trade allies indicated that the reason for customers not pursuing a project is the cost of the project.
- Most surveyed program participants were satisfied with the energy assessment and the proposal provided by the trade ally. All participants were satisfied with the quality of the installation. 17% were dissatisfied with the amount of time between completion of the audit and the installation of the equipment.

#### **6.4.7.2 Program Marketing and Outreach**

- The program is designed to have trade allies perform the majority of direct customer outreach. Interviewed trade allies indicated that they were performing direct outreach to customers.
- Program staff recruited trade allies through direct outreach and referrals from staff operating similar programs in the region. Although staff indicated that the

number of trade allies participating is generally sufficient, staff also stated that the program was seeking to recruit additional trade allies.

- The program provides a tri-fold brochure and a fact sheet to help trade allies promote the program. Additionally, materials that include the Entergy Solutions logo are provided that include a space for trade allies to provide their business information. However, only two trade allies reported receiving program marketing materials for use with potential customers.
- Participants most frequently reported learning of the program from a trade ally (39%), friends or colleagues (18%), or a vendor (18%).

#### **6.4.7.3 Quality Control and Verification Processes**

- The program has sufficient verification procedures in place. The first five projects completed by a new trade ally receive pre and post verification. Interviewed staff indicated that 20% to 25% of subsequent projects are verified. However, the program manual indicates that 10% of subsequent projects are verified. This discrepancy is not critical to program operations because interviewed staff are notified which sites to inspect and are not performing the site selection.
- Projects are identified for pre- and post-inspection by central CLEAResult staff located in Austin, TX. CLEAResult employs two regional program consultants who perform pre- and post-inspections.
- Inspection procedures include review of documentation, verification of building type (which determines operating hours), photographs of baseline conditions and efficient equipment, and verification that lamps installed are DesignLights Consortium (DLC) or ENERGY STAR® qualified.
- Trade allies determine that a site meets program qualifications using the program software tool. However, two trade allies reported having projects not approved by program staff because the customer did not meet the peak demand requirement.

#### **6.4.7.4 Customer and Trade Ally Satisfaction**

- Trade allies were generally satisfied with the program including the participation process, the incentives, measures offered, and support from program staff. There was greater dissatisfaction with the wait time to receive the rebates, with one-third of trade allies reporting that they were dissatisfied with this aspect of the program.
- Most participants were satisfied with their experience with the program overall. One respondent indicated dissatisfaction with the program overall and 18% of respondents reported dissatisfaction with the length of time between the audit and the installation of the equipment.

### **6.4.8 Recommendations**

The Evaluators' recommendations for the Small Business Program are as follows:

- **Correct the OPEN Tool calculator to account for EISA baseline wattages.** When installing screw-in LEDs and CFLs, ex ante calculations used listed wattage (40W, 60W, 75W, and 100W) as the baseline. The baseline values need to account for the Energy Independence and Security Act (EISA) baseline values (29W, 43W, 53W, 72W), as the remaining useful life of incandescent lighting is too short to use as the baseline for the life cycle savings of a lighting retrofit.
- **Recruit a refrigeration trade ally and refer them to grocery and restaurant facilities that completed lighting retrofits.** This group of participants would likely be receptive to opportunities for improving the efficiency of their refrigeration system. The ELL trade allies are exclusively lighting trade allies, and as such these facilities still have potential opportunity for high-return refrigeration projects.
- **Use “Public Order and Safety” hours for fire department retrofits.** Fire stations comprise a mix of volunteer and non-volunteer stations, with sharply differing hours of use. Rather than attempting to assign another facility type to each of these two subgroups, Public Order and Safety should be used for all as a reasonable average value.
- **Use “Warehouse: Non-Refrigerated” hours for auto repair facilities.** Program staff had used “Manufacturing” for auto repair facilities, which is a significant overstatement of hours of operation. Unfortunately, very the Arkansas TRM does not include deemed savings specific to this facility type. One example where it is included, however, is in Illinois. The Illinois TRM includes a commercial “Garage” facility type with hours of use of 3,540<sup>16</sup>. The “Warehouse: Non-Refrigerated” facility type from the Arkansas TRM lists 3,501 hours. This closely aligns in both hours of use from the “Garage” citation as well as thematically aligning with the operations of the facility. For larger chain operations that also comprise retail auto parts sales, use of “Retail: Other” or “Retail: Strip Mall” may be appropriate as well.
- **Provide regular updates to trade allies on program requirements.** Staff should consider an email communications to keep trade allies informed of program updates.
- **Communicate to trade allies the availability of program marketing collateral and provide it as requested.** This material is important for promoting the program and may help reduce customer skepticism about the legitimacy of the program.
- **Consider adding examples of projects in additional business types.** The program website currently provides examples of what typical small office and

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<sup>16</sup> *Illinois Statewide Technical Reference Manual for Energy Efficiency Version 3.0*, pg. 285. 2014

church projects look like. Staff should consider adding examples for grocery or retail sites, as these facility types comprise a significant share of program activity. Additionally, by including grocery sites, staff can also provide examples of typical refrigeration project savings in addition to lighting project savings.

- **Staff should consider augmenting the website with downloadable forms such as the tri-fold and fact sheet.** Providing printable materials is considered good program website design practice.
- **Promote non-energy benefits on the program website.** The website currently focuses on energy savings and energy cost reduction. Although reduced costs are likely to be the primary focus for many businesses, there is an opportunity to promote non-energy benefits as well.
- **Update the quality assurance protocols in the program manual to reflect current practice.** Program materials and program staff provided differing information on the number of the share of projects that receive verification visits. This should be clarified and the program manual should be updated accordingly.
- **Improve communication about the time required to receive the rebate to manage trade ally expectations.**
- **Consider providing regular status updates to trade allies on availability of program funds.** Given the relatively small budget for the program, this will assist trade allies in planning their marketing efforts.
- **Generally increase communications with participating trade allies.** During interviews, trade allies raised multiple concerns that related to communication issues with program staff. Regular email newsletters or email blasts that contain information on program updates, status, and contact information for program staff may improve this aspect of trade allies experience with the program.

## 7. Large Commercial & Industrial Solutions Program

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### 7.1 Program Description

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The Large Commercial & Industrial Solutions Program (Large C&I Program) is a commercial DSM program that provides rebates for a range of prescriptive and custom measures, including:

- Lighting;
- HVAC;
- Motors;
- Refrigeration; and
- Process improvements.

In PY1, the Large C&I Program had savings goals of 4,987,003 kWh and 952 kW. Total verified savings for the Large C&I Program are:

- 5,381,724 kWh – 107.9% of goal; and
- 762.49 kW – 80.1% of goal.

### 7.2 M&V Methodology

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The M&V methodology for the Large C&I Program is the same as-described for the Small Business Program in Section 6.2.

### 7.3 Impact Findings

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Energy savings was estimated using proven techniques, including engineering calculations using industry standards to determine energy savings. Table 7-1 summarizes the total participation in the PY1 Large C&I Program.

*Table 7-1 PY1 Large C&I Program Participation Summary*

<b># Applicants</b>	<b># Projects</b>	<b>Expected kWh</b>	<b>Expected kW</b>
26	35	5,641,801	743.66

Data provided by CLEAResult showed that during PY1, there were 35 projects by 26 applicants, which were initially expected to provide energy savings of 5,641,801 kWh. Two projects were identified as duplicate entries. These projects totaled 122,899 kWh and 20.80 kW. After filtering these projects out, there were a total of 35 projects from which the Evaluators drew an M&V sample. The resulting overall sample is presented in Table 7-2.

*Table 7-2 Large C&I Program Sample Summary*

<b># Sites in Population</b>	<b>Site Visit Sample Size</b>	<b># Interviews</b>
35	11	12

Table 7-3 summarizes expected savings estimates by measure category for the Large C&I Program.

*Table 7-3 Large C&I Program Savings by Measure Category*

<b>Measure Category</b>	<b>kWh Savings</b>	<b>kW Savings</b>
Lighting	5,404,632	699.29
HVAC	114,270	23.57
Duplicates	122,899	20.80
Total	5,641,801	743.66

### **7.3.1 Large C&I Program Savings Estimates**

Sampling for evaluation of ELL’s Large C&I Program was developed using the Stratified Random Sampling procedure detailed in Section 2.4.2. This procedure provides 90% confidence and  $\pm 10\%$  precision with a significantly reduced sample than random sampling would require, by selecting the highest saving facilities with certainty, thereby minimizing the variance that non-sampled sites can contribute to the overall results.

#### **7.3.1.1 Large C&I Program Sample Design**

The participant population for the Large C&I Program was divided into four strata. Table 7-4 summarizes the strata boundaries and sample frames for the program.

*Table 7-4 Large C&I Program Sample Design*

	<b>Stratum 1</b>	<b>Stratum 2</b>	<b>Stratum3</b>	<b>Stratum 4</b>	<b>Filtered Duplicates</b>	<b>Totals</b>
Strata boundaries (kWh)	<60,000	60,000 – 175,000	175,000 – 350,000	>350,000	NA	
Number of sites	9	12	10	2	2	35
Total kWh savings	293,660	1,411,854	2,598,147	1,215,241	122,899	5,641,801
Average kWh	32,629	117,655	259,815	607,621	61,450	161,194
Standard deviation of kWh savings	16,518	31,120	38,373	29,199	4,587	144,936
Coefficient of variation	.51	.26	.15	.05	.07	.90
Final sample	2	3	4	2	NA	11

#### **7.3.1.2 Large C&I Program Site-Level Realization**

Sites chosen within each stratum are visited to verify installation of rebated measures and to collect data needed for calculation of ex post verified savings. The realization

rates for sites within each stratum are then applied to the non-sampled sites within their respective stratum. Table 7-5 presents realization at the stratum level, with Table 7-6 presenting results at the site level.

*Table 7-5 Summary of kWh Savings for Large C&I Program by Sample Stratum*

<b>Stratum</b>	<b>Expected kWh Savings</b>	<b>Realized kWh Savings</b>	<b>Realization Rate</b>
Duplicates	122,899	0	0%
4	1,215,241	940,388	77.4%
3	1,037,682	1,045,587	100.8%
2	351,080	377,794	107.6%
1	40,175	41,605	103.6%

*Table 7-6 Expected and Realized Savings by Project*

<b>Project ID(s)</b>	<b>City</b>	<b>Facility Type</b>	<b>Expected kWh Savings</b>	<b>Realized kWh Savings</b>	<b>Realization Rate</b>
PRJ-308524	Metairie	Parking Structure	628,267	628,267	100.0%
PRJ-367945	Chalmette	Manufacturing	586,974	312,121	53.2%
PRJ-336729	Metairie	Retail	333,922	333,922	100.0%
PRJ-428502	Bastrop	Medical	278,252	286,157	102.8%
PRJ-309497	Metairie	Parking Structure	228,461	228,461	100.0%
PRJ-309518	Metairie	Parking Structure	197,047	197,047	100.0%
PRJ-290644	Gray	Manufacturing	146,083	174,654	119.6%
PRJ-333019	Gretna	Hospitality	141,304	131,714	93.2%
PRJ-327614	West Monroe	School/K-12	64,693	71,426	110.4%
PRJ-290457	Harvey	Fitness Center	29,396	30,133	102.5%
PRJ-290514	Harahan	Industrial	10,779	11,472	106.4%

**7.3.1.3 Large C&I Program-Level Realization**

Using the realization rates presented in *Table 7-5*, the Evaluators extrapolated results from sampled sites to non-sampled sites in developing program-level savings estimates. *Table 7-7* presents results by stratum.

*Table 7-7 Large C&I Program-Level Realization by Stratum*

<b>Stratum</b>	<b># Sites</b>	<b>Expected kWh Savings</b>	<b>Realized kWh Savings</b>	<b>kWh Realization Rate</b>	<b>Expected kW Savings</b>	<b>Realized kW Savings</b>	<b>kW Realization Rate</b>
Duplicates	2	122,899	0	0%	20.80	0	0%
4	2	1,215,241	940,388	77.4%	142.93	142.93	100.0%
3	10	2,598,147	2,617,940	100.7%	346.22	345.38	99.8%
2	12	1,411,854	1,519,283	107.6%	197.08	238.63	121.1%
1	9	293,660	304,113	103.6%	36.63	35.55	97.1%
Total	35	5,641,801	5,381,724	95.4%	743.66	762.49	102.5%

**1.1.1.1 Large C&I – Causes of Low Realization**

Table 7-8 summarizes the causes of savings shortfalls for Large C&I Program projects with low realization.

*Table 7-8 Large C&I Program – Causes of Low Realization*

<b>Project ID(s)</b>	<b>Expected kWh Savings</b>	<b>Realized kWh Savings</b>	<b>Realization Rate</b>	<b>Causes of Low Realization</b>
PRJ-367945	586,974	312,121	53.2%	The project is a manufacturing facility which received a lighting retrofit. There was a custom input in the warehouse section of this facility which had 24/7 hours of operation. Based on interviews with facility staff, the Evaluators confirmed that this section of the facility operates 12 hours a day.
PRJ-333019	141,304	131,714	93.2%	This project is a hotel with a lighting retrofit. The trade ally used an erroneous calculator which applied 3,050 hours per year for common areas and 5,750 hours per year for guest rooms. This was corrected to 6,030 for common areas and 3,055 for guest rooms.

**7.4 Process Findings**

This chapter presents the results of the process evaluation of the Large C&I Program. The process evaluation focuses on aspects of program policies and organization, as well as the program delivery framework.

**7.4.1 Data Collection Activities**

The process of evaluation of the Large C&I Program included the following data collection activities:

*Table 7-9 Large C&I Program Process Evaluation – Summary of Data Collection*

<b>Activity</b>	<b>Sample Size</b>
Entergy Staff	6
CLEAResult Staff	2
Participant Survey	12
Trade Ally Interviews	3

**7.4.2 Program Overview**

The Large C&I Program provides financial incentives and technical services to encourage nonresidential customers with greater than 100 kW peak demand to implement energy saving measures. The Large C&I Program is designed to help this



customer segment overcome barriers to energy improvement, such as higher first-cost of efficiency equipment and a lack of technical knowledge or resources.

In addition to encouraging the adoption of energy efficiency measures, the program also intends to transform the energy efficiency market in Entergy’s service area through training, education, and program implementation.

The program offers incentives for efficiency measures as well as technical assistance to help customer identify and develop energy efficiency projects.

Industrial customers with combined aggregate demand of 5,000 kW or more with 200 kW of peak load in ELL’s service area are eligible to opt out from Quick Start Energy Efficiency programs<sup>17</sup>.

Financial incentives are based on expected savings for the measure implemented and vary by end–use. The targeted incentive amounts for different end-uses are summarized in Table 7-10.

*Table 7-10 Incentive Amount by End-Use for the Large C&I Program*

<b>End-Use</b>	<b>Incentive Amount</b>
Lighting	\$0.09 / kWh Saved
HVAC, Refrigeration, ENERGY STAR Appliances and Cooking Equipment	\$0.15 / kWh saved
Air compressors and other custom projects	\$0.06 / kWh saved

The incentive amounts may be based on one of three calculation methodologies described below.

- **Deemed or Stipulated Savings:** This approach is the most typical and utilized for projects for which savings can be reasonably estimated using previously collected data on operating hours and energy consumption of pre-existing equipment. This approach does not require the participant to perform any measurement and verification (M&V) activities.
- **Simplified Measurement and Verification:** This approach is for projects which require short-term metering and utilizes this data in simple engineering calculations to estimate energy savings. Participants are required to submit an M&V plan before beginning the project.
- **Full Measurement and Verification:** Projects requiring full M&V estimate savings utilizing procedures based on the International Performance Measurement and Verification Protocol and may utilize metering, statistical analysis of billing data,

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<sup>17</sup> Louisiana Public Service Commission General Order (R-31106) Section VIII

or energy modeling. Participants are required to submit an M&V plan before beginning the project.

### 7.4.3 Detailed Findings

#### 7.4.3.1 Tracking Data

Program data submitted at the end of the year was missing several data fields:

- Project energy savings and peak demand reductions;
- Name and contact information of trade allies that completed projects;
- Measure type;
- Building type;
- A unique project identifier; and
- Addresses appeared to be participant contact addresses rather than site addresses. One project address was located in New York.

#### 7.4.3.2 Analysis of Participation Data

The Large C&I Program had 33 projects in PY1, after accounting for removal of duplicate entries. Figure 7-1 summarizes percent of savings occurring by parish.

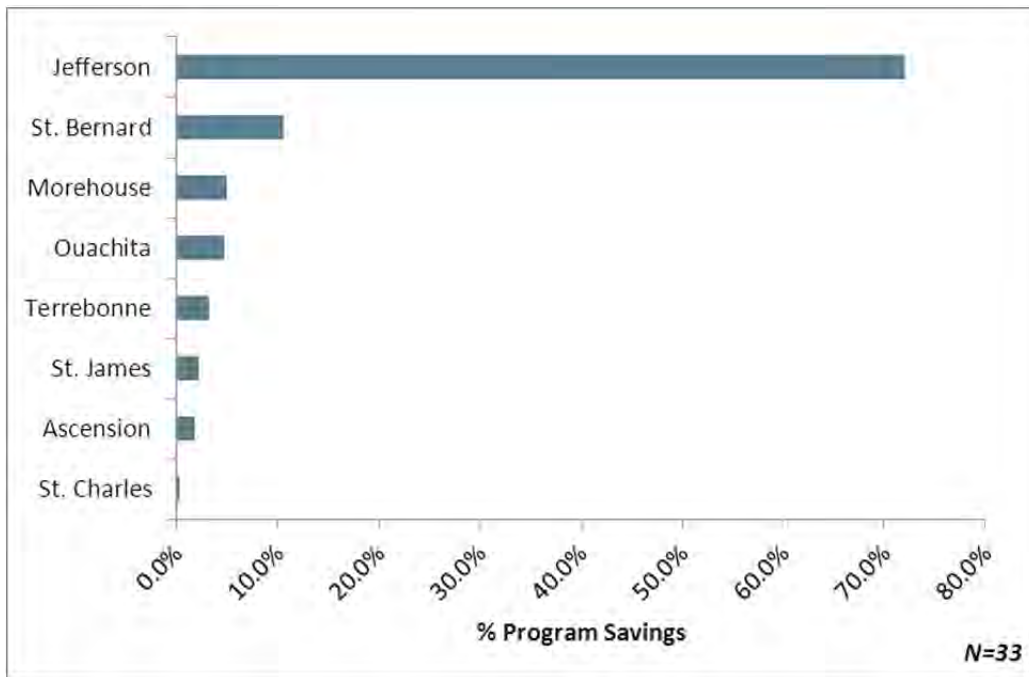
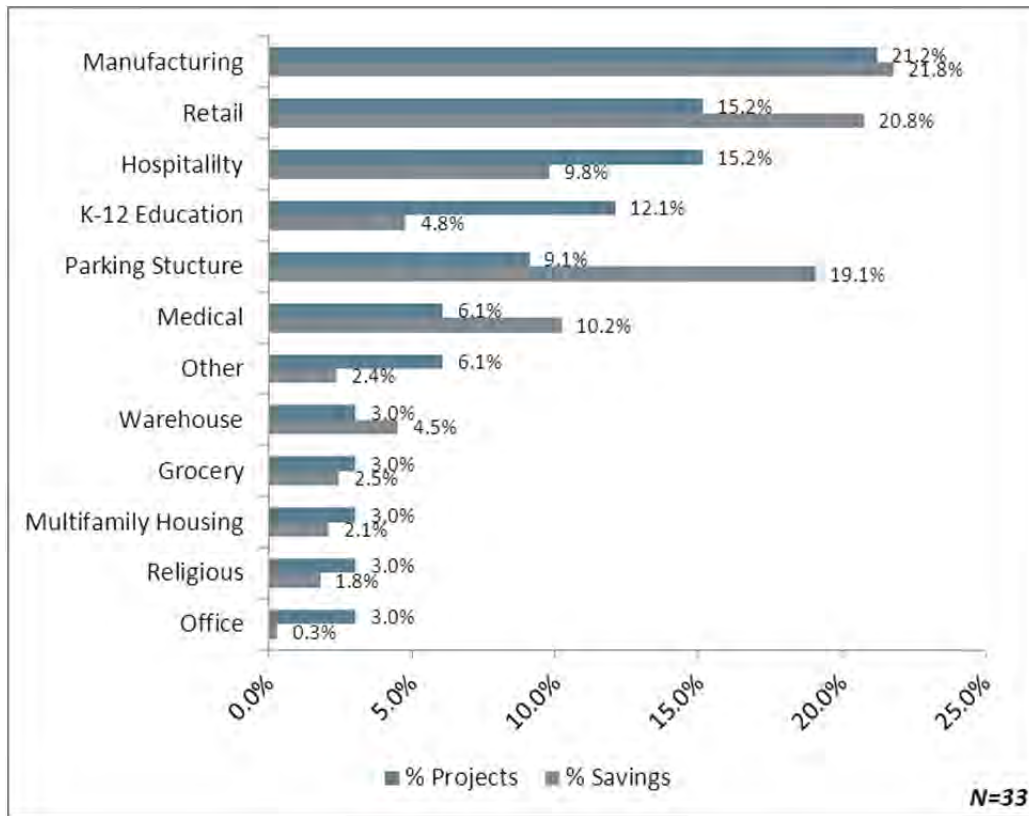


Figure 7-1 Percent of Program Savings by Parish

Figure 7-2 summarizes participation and savings by facility type.



*Figure 7-2 Participation & Savings by Facility Type*

Of the 15.2% of participants classified as Retail, 80% were automobile dealerships.

**7.4.3.3 Program Design, Operations, and Activities**

The following sections describe program design, operations, and activities and were developed from reviews of program documentation and interviews with program staff.

**7.4.3.4 Program Objectives**

The primary program objective is to assist large non-residential customers in achieving electric energy savings and peak demand reductions through provision of technical support and financial incentives. The savings goal for the first year of program operations was 4,987,003 kWh. The peak demand reduction goal was 952.00 kW. To meet the energy saving and peak demand reduction goals, the program has ancillary objectives to mitigate barriers to energy efficiency such as lack of knowledge of energy efficient technologies and lack of awareness of energy saving opportunities in facilities. Additionally, through the incentives and services provided, the program intends to transform the market for energy efficiency in the targeted sector.

The program met its energy saving goal during its first year of operations.

#### **7.4.3.5 Program Participation Process**

The first step is to submit a signed Letter of Intent (LOI). The LOI is a non-binding agreement that allows the program to verify the customer's eligibility.

Customers that have submitted a LOI may request that CLEAResult staff complete a facility walk-through to identify energy saving opportunities at the customer's location. Generally, the program consultants complete the facility assessments, but engineering staff may be involved if the project is potentially more complex. The facility assessment may be targeted towards a specific project (e.g. a lighting retrofit) or a full facility assessment. Staff noted that they look for other energy saving opportunities during the assessments in cases where the customer has a specific project in mind. One staff member noted that if the customer is interested in a project, a more in-depth analysis will be performed. Staff indicated that most customers are interested in completing the assessment and that these have been an important means of generating incentive projects. The energy assessments results in the generation of an analysis that provides information on the expected savings, incentive amounts, and other financial metrics.

Once a project is identified through an assessment performed by CLEAResult, by the customer, or by a trade ally employed by the customer, the participant submits a program application. Program staff reviews the application and completes a pre-installation inspection. Upon approval of the pre-application, the customer then has 90 days to complete lighting projects or 120 days for other end-uses. Staff reported that these periods can be extended on a case-by-case basis and noted that the period was extended in one instance where a customer ordered a specialty LED fixture.

Once the project is completed, the customer submits the notice of completion along with supporting documentation such as specification sheets, facility drawings, and invoicing or purchase orders. CLEAResult then reviews the documentation and completes a post-installation inspection. Once approved, an incentive payment is made to the customer or another party designated by the customer.

#### **7.4.3.6 Roles and Responsibilities**

CLEAResult is responsible for the primary program implementation tasks, namely:

- Perform onsite pre- and post-installation inspections and other quality control and quality assurance activities;
- Verifying customer eligibility;
- Trade ally education and outreach;
- Customer education and identification of projects;
- Review and approval of proposed projects;
- Payment of incentives; and
- Oversight and training of the program trade allies.

CLEARResult staffs the program with two program consultants, an energy engineer, and a program coordinator. These staff members also provide support to the Small Business Program.

Entergy is responsible for authorization and issuing payments to CLEARResult for reimbursement of incentives paid. Entergy is also responsible for general oversight of the CLEARResult. Entergy also provides quality control related to program communications including review of customer facing materials.

#### **7.4.3.7 Program Communications**

CLEARResult holds brief daily meetings with staff supporting all of the residential and non-residential Entergy programs. During these meetings, staff discusses daily plans and any current issues faced. Additionally, biweekly staff meetings are held during which program status is reviewed. The purpose of this meeting and primary topics have changed throughout the program year as the program transitioned from initial launch to ongoing maintenance of the program.

The program manager also attends a weekly meeting with Entergy management because of the proximity of the two utilities' service territories. The purpose is to cover any issues affecting both programs, such as trade ally performance.

The program manager also meets on a biweekly basis with Entergy program staff. The primary objectives of this meeting are to review program status and to discuss any recommendations CLEARResult may have. During this meeting, a program status report generated by CLEARResult is reviewed.

The two program consultants also report being in regular contact to ensure coordination of operations across the Entergy Louisiana and Entergy Gulf States service territories.

Entergy and CLEARResult meet biweekly. This meeting is attended by program managers and the larger implementation team. The purpose of the meeting is to review program status in relation to energy saving goals and the program budget, discuss any issues that the program is facing, any proposed changes in implementation or outreach, and any issues with program trade allies or customers. Additionally, Entergy staff meets with one of the CLEARResult program managers on a weekly basis for similar purposes. Entergy and CLEARResult report that communications and coordination between the utility and the implementer have been effective.

#### **7.4.3.8 Program Marketing and Outreach**

Staff noted that there has been a relatively small marketing effort for the program operating in the Entergy Louisiana service area because customers and local trade allies were both aware that the program was going to be offered. However, some direct outreach has been performed.

Program information has also been presented to Entergy account managers so that they can promote the program with their key accounts. Both program consultants noted that Entergy staff has referred customers interested in projects to them.

The program also relies upon trade allies to promote the program with their customer base. A large number of trade allies were recruited by CLEARResult staff who had worked with them while implementing a similar program in another service area.

Some marketing collateral has been developed to help staff and trade allies promote the program, namely a two-sided, tri-fold brochure. The brochure uses a variety of messaging strategies to appeal to the customer. Key aspects of the messaging include:

- Informational material on energy use in non-residential buildings;
- A statement about the financial benefits of saving energy;
- A description of non-energy benefits that can result from energy efficiency improvements such as a reduced carbon footprint and economic benefits through job creation;
- Information on services and assistance provided through the program;
- Customer-centric language such as “The Entergy Solutions program allows customers like you...”; and
- Messaging on the business investment opportunity that energy efficiency improvements offer.

#### **7.4.3.9 Quality Control and Verification Processes**

Quality control procedures are similar to those described for the Small Business Program in Section 6.4.4.5.

#### **7.4.4 Participant Survey Results**

Participants of the Large C&I Program were surveyed to provide insight into the participants experience with the program. A total of 12 program participants responded to the survey. 25% of respondents were the owner or proprietor of the business, 25% the president or CEO, 25% a facilities or maintenance manager, and the rest in another management role (25%).

All respondents reported being billed directly for their electricity use.

Figure 7-3 summarizes the business types surveyed and compares this share to the population of ELL Large C&I Program participants.

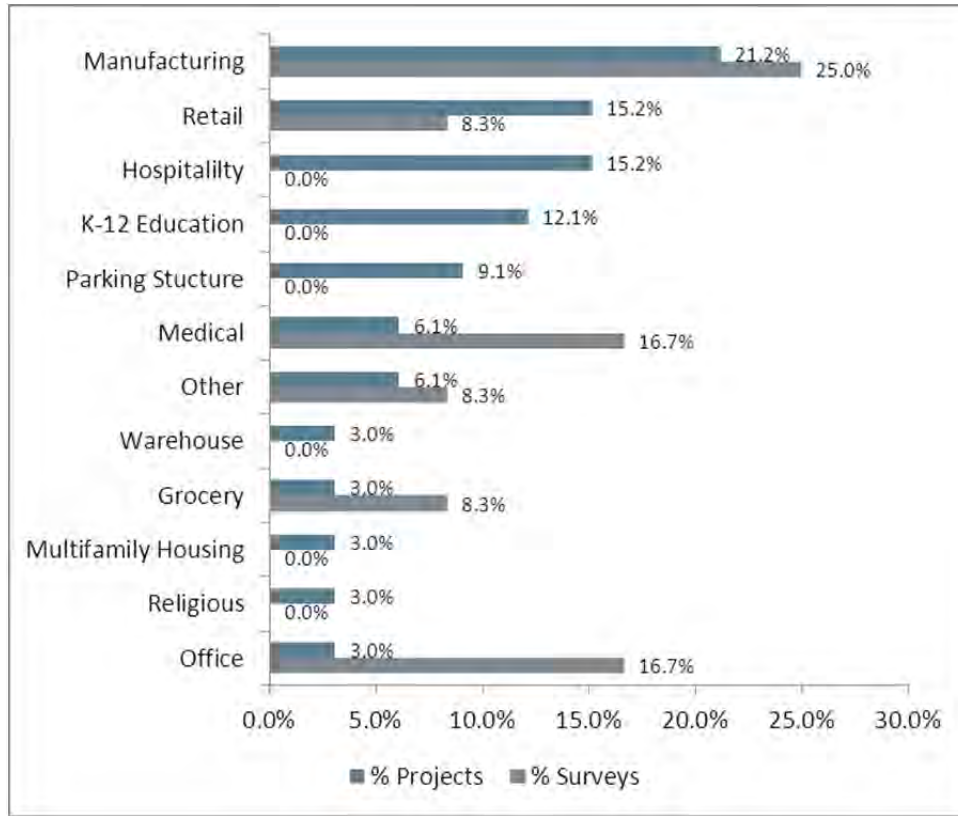


Figure 7-3 Comparison of Survey Sample and Population Firmographics

Of facilities surveyed, 25% were of a company’s headquarters, 25% were of a company with several other locations, and 50% were of a company’s sole location. 54% of businesses owned and occupied the facility of interest, while 25% rented, and 25% owned and rented to someone else.

**7.4.4.1 Preferred Outreach and Sources of Awareness**

The majority of participants learned about the program incentives through an internet search (50%), a trade ally (25%), or via friends and colleagues (17%).

Table 7-11 How Participants Learned of the Program

<i>How did you learn about the utility's program incentives for efficient equipment or upgrades?</i>	<i>Percent of Respondents (n = 12)</i>
Through an internet search (e.g., Google)	50%
Trade Ally	25%
Friends or colleagues	17%
Program Representative	8%
Social media post (e.g., Facebook, Twitter, Flickr)	8%

42% of respondents think that visits from trade allies or program staff is the best way to reach companies like them, followed by, outreach from a trade or professional organization (17%), and bill inserts (8%).

*Table 7-12 Best Forms of Outreach*

<b><i>What are the best ways to reach companies like yours with information about incentives for energy savings opportunities?</i></b>	<b><i>Percent of Respondents (n = 12)</i></b>
Visits from trade allies or program staff	42%
Trade/Professional Organization	17%
Bill inserts	8%
Email	8%
Direct mail	8%
Website	8%
In-person	8%
Other	8%

**7.4.4.2 Decisions to Participate**

Survey respondents were motivated to participate in the program by several factors as shown in Table 7-13. All or most participants were motivated by the ease of participation, saving money on their energy bills, and the financial incentives.

*Table 7-13 Reasons for Participating in the Program*

<b><i>Which of the following factors helped you decide to participate in the program?</i></b>	<b><i>Percent of Respondents (n = 12)</i></b>
Participation was very easy	100%
Saving money on energy bills	92%
Financial incentive	92%
Saving energy	83%
Protecting the environment	83%
Replacing broken equipment	75%
Recommendation from a trade ally	58%
Recommendation from program staff	50%
Recommendation from vendor	25%

Four survey respondents indicated that the efficiency improvement was recommended by a program staff member. 75% of respondents stated that they probably would not have installed the measure without the recommendation from the program representative. However, one respondent indicated that the recommendation did not influence their decision.



*Table 7-14 Likelihood of Installation without the Recommendation*

<b><i>If the program representative had not recommended the measure, how likely is it that you would have installed it anyway?</i></b>	<b><i>Percent of Respondents (n = 4)</i></b>
Definitely would have installed	25%
Probably would have installed	0%
Probably would not have installed	75%
Definitely would not have installed	0%

In addition, 58% of participants probably would have installed without the financial incentive, while 25% probably would not have.

*Table 7-15 Likelihood of Installation without Financial Incentive*

<b><i>If the financial incentive or discount from the program had not been available, how likely is it that you would have installed the measure?</i></b>	<b><i>Percent of Respondents (n = 12)</i></b>
Definitely would have installed	8%
Probably would have installed	58%
Probably would not have installed	25%
Definitely would not have installed	8%

25% of respondents had some initial concerns about participating in the program. Those with concerns were unsure of the cost (33%), the realization of savings (33%), and the program legitimacy (33%). Respondents decided to participate despite their concerns when they were reassured the program was provided by the utility company, or when they heard success stories from vendors.

#### **7.4.4.3 Project Implementation**

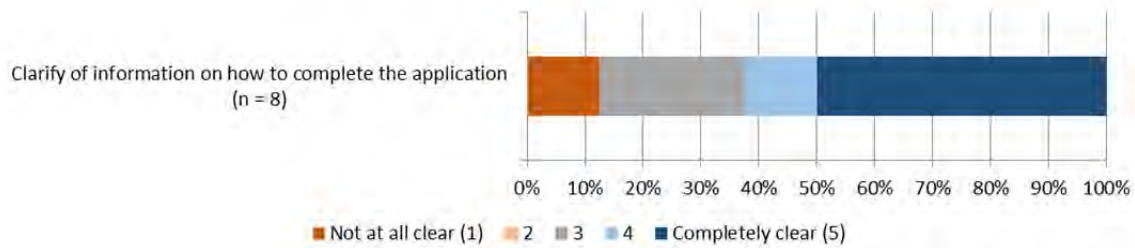
The most common persons who worked on completing the program application included the survey respondent (92%), a trade ally (83%), or an equipment vendor (50%).

*Table 7-16 People who Worked on Completing Program Application*

<b><i>Which of the following people worked on completing your application for program incentives (including gathering required documentation)?</i></b>	<b><i>Percent of Respondents (n = 12)</i></b>
Yourself	92%
A trade ally	83%
An equipment vendor	67%
Another member of your company	50%
A designer or architect	17%
Someone else	8%

50% of the respondents thought the program application was completely clear and 13% thought it was mostly clear. Another 15% thought it was not at all clear.

*Figure 7-4 Clarity of Information on How to Complete the Application*

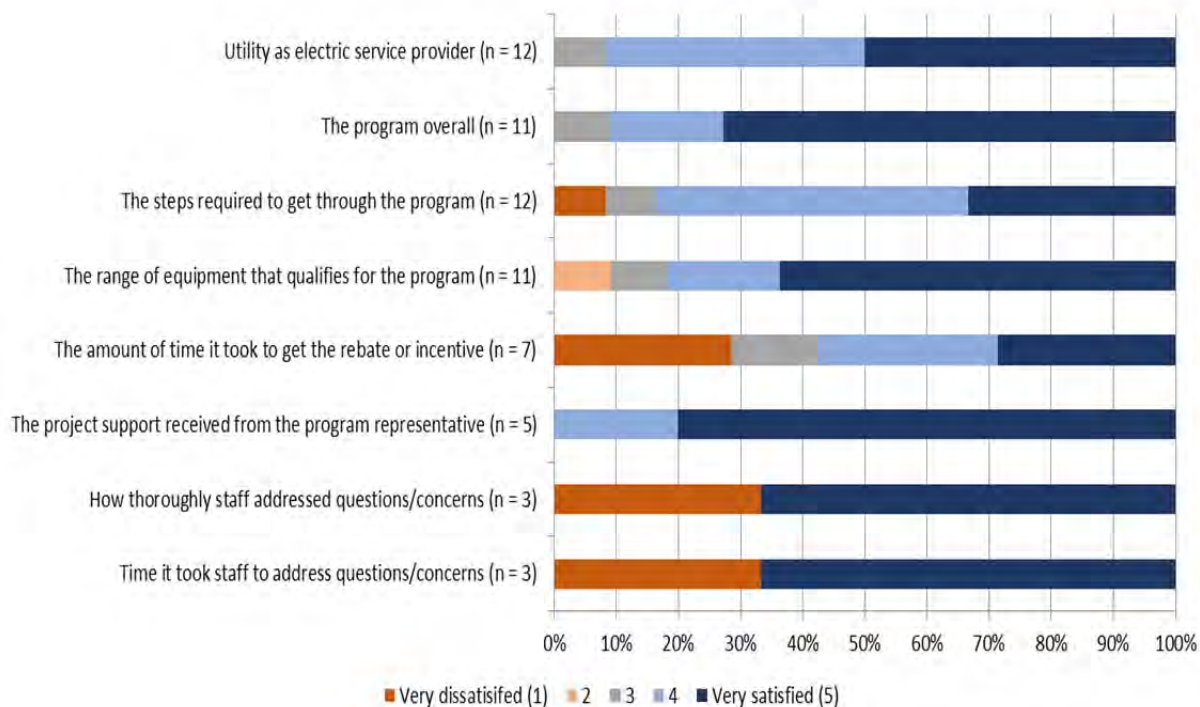


73% of respondents had a clear sense of whom to go to for assistance with the program application process, while 9% did not, and 18% did not know.

**7.4.4.4 Participant Satisfaction**

Figure 7-5 displays participant satisfaction ratings. Overall program satisfaction is high. Participants were most satisfied with the program overall and the project support received from the program representative. Though respondents reported high satisfaction with all program elements, slightly lower satisfaction scores were reported for the amount of time it took to get the rebate or incentive.

*Figure 7-5 Large C&I Program Participant Satisfaction Scores*



Customers who reported dissatisfaction with the program were asked to elaborate on their reasons for dissatisfaction. One respondent stated that they were dissatisfied with the equipment allowed through the program and noted that their trade ally had difficulty

getting the lighting equipment. The other respondent stated that CLEAResult was slow to complete the final verification and that it took six or seven months to get the rebate.

75% of surveyed said participating in the program increased their satisfaction with Entergy, while 25% reported no change in satisfaction.

*Table 7-17 Effect of Program Participation on Satisfaction with Utility*

<b><i>Effect of participation in the Utility's Program</i></b>	<b><i>Percent of Respondents (n = 12)</i></b>
Greatly increased your satisfaction with the Utility	17%
Somewhat increased your satisfaction with the Utility	58%
Did not affect your satisfaction with the Utility	25%
Somewhat decreased your satisfaction with the Utility	0%
Greatly decreased your satisfaction with the Utility	0%

### **7.4.5 Participating Trade Ally Interview Results**

Five attempts were made to contact eleven trade allies that completed projects through the Entergy Louisiana and Entergy Gulf States Large C&I Programs. In total, three trade allies responded to the interview request. Two of the three trade allies interviewed worked for businesses that specialized in LED lighting, and one trade ally worked for a company that provided general contracting services. All trade allies stated that their business did not specialize in providing services to any specific business type, although one trade ally stated that a sizable portion of their clients are grocery stores.

#### ***7.4.5.1 Trade Ally Feedback - Motivations for Participating***

Two trade allies reported becoming aware of the Large C&I Program was through efforts to have Entergy offer the program to customers in the Entergy Louisiana and Gulf States service territories. These trade allies also stated that working with similar programs across the country influenced their decision to participate in the program, and to push Entergy to adopt the program. One trade ally stated that they found out about the program from CLEAResult staff.

#### ***7.4.5.2 Trade Ally Feedback - Customer Awareness and Program Marketing***

All trade allies indicated that few customers were aware of the program before they discussed it with them and that they are more likely to bring up the program opportunity than for the customer to approach them about participating in the program.

All of the interviewed trade allies reported that they promote the program with their existing customer base and potential new customers. Most of the promotion done is through one-on-one discussions with customers about specific opportunities for their facility. No trade allies reported actively promoting the program beyond one-on-one interactions with potential customers, and only one trade ally reported receiving

marketing materials for use in promoting the program. This trade ally reported using the materials “every day”, and had no recommendations for improving the materials.

Although trade allies did not report marketing the program, two respondents reported that they had received guidelines on how to use Entergy’s name and the program name on their marketing materials, and both stated that the guidelines were clear.

When asked if there was anything the program could do to help them promote the program more effectively, one trade ally stated that Entergy “could be more aggressive in advertising (the program)” because many customers think the program is too good to be true.

#### ***7.4.5.3 Trade Ally Feedback - Customer Awareness and Barriers to Participation***

Two trade allies stated that the main concern potential customers raised about program were that they had not heard of the program before and skepticism about the offer. The third trade ally stated that their customers were concerned about how long it would take to receive the rebate, but had no other concerns once the timeframe was explained to them.

The main reason trade allies reported that customers do not follow through with a project is because the incentive does not cover enough of the costs for them to participate. One trade ally also stated that they had several customers turn down the program because it seemed too good to be true.

All of the interviewed trade allies stated that they thought the measures offered through the program met their large business customer’s needs, although one trade ally stated that they would like to see program measures expanded with additional mechanical system measures in particular. However, it should be noted that the program requirements do not generally limit measures that generate energy savings and any project may be considered on a case-by-case basis.

When asked about the financial incentives, two trade allies stated that they financial incentives were sufficient, and one trade ally stated that they would like them to be higher.

#### ***7.4.5.4 Trade Ally Feedback - Participation Process***

Trade allies provided responses to a series of questions about the participation process. The key documentation and information that trade allies collect and provide are equipment counts for baseline and proposed equipment, photographs of the equipment, specification sheets, calculators used to estimate energy savings. Overall, their responses suggest that trade allies are aware of the program requirements.

All three trade allies stated that they fill out the application forms for their customers.

When asked if they had any recommendations on how to improve the application process, one trade ally stated that having written guidelines would be helpful.

#### **7.4.5.5 Trade Ally Feedback - Training and Staff Support**

All three trade allies reported attending program provided trainings. The trade allies stated that the trainings were comprehensive, and did not have any suggestions for improvement.

Two of the three trade allies reported receiving written documents that explained the program procedures and requirements. Both trade allies that received the materials stated that they met their needs for understanding the program, and had no suggestions for improving them.

The trade ally that had not received written documentation on the program explained that the lack of written documentation has caused issues for their business because changes to the program have occurred without any written explanations from Entergy, and without clear guidelines on the program. One of the trade allies that had received written documentation also stated that mid-year changes in the program were difficult for their company.

All three of the trade allies stated that they had contacted program staff with questions or concerns and all stated that staff has been readily available and helpful.

#### **7.4.5.6 Trade Ally Feedback - Program Influence on Business**

All three trade allies reported increasing staffing as a result of the efficiency programs. One trade ally reported a significant increase in staffing and that they opened a second office.

Two of three trade allies stated that they had made changes to the products or services they offer as a result of participating in Entergy's programs. One trade ally noted that all of their lighting products are now ENERGY STAR® or DesignLights Consortium qualified. One trade ally stated that their business had increased significantly as a direct result of the program.

#### **7.4.5.7 Trade Ally Feedback - Overall Satisfaction**

Interview respondents were asked to rate their satisfaction with various aspects of the program using a 0 to 10 scale, where zero meant very dissatisfied, and ten meant very satisfied.

Trade allies were generally satisfied with the overall program and all gave it a rating of seven or higher. Trade allies had mixed satisfaction levels with the different elements of the program.

The satisfaction levels for the wait time to receive the rebate were mixed, with two trade allies indicating that they were satisfied with this aspect. One, trade ally was dissatisfied

with the wait time and stated that it took four months to receive payment for the first project completed.

Two trade allies indicated satisfaction with the incentive levels. One trade ally provided a lower score and stated, "I would love to see [the program] expanded [with] additional cash benefits".

All trade allies were generally satisfied with the range of measures offered through the program and service from utility staff.

Two of the interview respondents were satisfied with the application process, while one trade ally was neither particularly satisfied nor dissatisfied. This trade ally stated that the "amount of documentation exceeds other programs they work in". They also stated that the paperwork was heavy when beginning a project, when other programs only require the documentation at the end of the project process.

## **7.4.6 Conclusions**

### **7.4.6.1 Program Design and Participation Process**

- The program provides financial incentives and technical assistance to non-residential customers with greater than 100 kW peak demand.
- Incentives are based on energy savings. The program appropriately offers higher incentives HVAC, refrigeration, and efficient cooking equipment of \$0.15 per kWh that are less often implemented through efficiency programs. Lighting incentives are \$0.09 kWh and incentives for air compressor and custom projects are \$0.06 per kWh saved.
- Two of the three interviewed trade allies reported that they did not have any suggestions for improving the application process. One trade ally stated that they had not received written guidelines for the program and that this had created difficulty for them.
- None of the trade allies identified program design characteristics that would prevent certain customer types from participating. The primary barriers to participation identified were lack of awareness and skepticism about the offer. One trade ally noted that some customers have concerns about the length of time to receive the rebate but that this concern can be reduced through discussions with the customer.
- Only one of the survey respondents reported that the application process was unclear and the majority (73%) indicated that it was clear who they should contact for additional assistance.
- 83% of survey respondents did not indicate any dissatisfaction with the program participation process and all but one indicated that they were satisfied with the program overall. One customer reported dissatisfaction with the participation steps and one reported dissatisfaction with the range of equipment that qualifies

for the program. Additionally, of the three customers that had interactions with program staff, one reported that they were dissatisfied with those interactions.

- Most participants (92%) reported that the incentive amount was what they expected and all who knew how long it took to receive the incentive indicated that they had received it in 6 weeks or less.

#### **7.4.6.2 Program Marketing and Outreach**

- Program marketing efforts were minimal during the year. Staff reported that there was a relatively high level of awareness among trade allies and customers that the program would be introduced. The steps taken to promote the program included:
  - Educating Entergy account managers so that they could promote the program with customers;
  - Providing information on the program website;
  - Limited direct outreach to customers;
  - Outreach to trade allies;
  - Trade ally customer outreach; and
  - Development of a tri-fold brochure.
- 50% of participants reported that they learned of the program through an internet search. This suggests that a sizable share of program activity is initiated by customers. Additionally, 25% reported that they first learned of the program from a trade ally.
- Two of the interviewed trade allies reported that they were involved in the process of introducing the program to the Entergy Louisiana and Gulf States territories and aware of it at the time of launch. The trade ally was recruited by CLEAResult staff.
- All three trade allies reported that they are actively promoting the program with current and new customers. This promotion involves one-on-one discussions with customers. Only one trade ally reported receiving marketing materials to promote the program. Two of the three trade allies reported receiving guidelines on the use of Entergy's and the program's name in their marketing materials.

#### **7.4.6.3 Quality Control and Verification Processes**

- The program has robust quality control and verification procedures in places. These include pre- and post-installation site visits for all projects, and engineering review of all projects.

#### **7.4.6.4 Trade Ally and Participant Satisfaction**

- Trade allies reported that staff is readily available to provide assistance and have generally been satisfied with the support they received. Trade allies also reported that they were satisfied with the program overall.

- None of the program participants were dissatisfied with the program overall and 75% reported that participation in the program increased their satisfaction with the utility.

#### 7.4.7 Recommendations

The Evaluators' recommendations for the Large C&I Program are as follows:

- **Provide links to the program manual and other program documentation on the program website.** Increased availability of these materials may improve customer and trade ally understanding of the program process and requirements.
- **Consider adding a simple single page flow-chart with the program participation steps and outlining customer and trade ally requirements for each step.** Although no survey respondents reported any difficulty with the participation process, such a document will provide clear information to future participants about the required steps.
- **Increase awareness of the program marketing materials available to trade allies. Consider linking the materials to the program website.**
- **Future enhancements to the program marketing materials could include brief case studies of customers that saved energy through the program.** These may be effective with businesses that are skeptical of the program offerings.



## 8. Appendix A: Cost-Benefit Testing

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This appendix provides an overview of each program's participation, verified reduction in peak load, verified kWh savings, annual admin costs, total program costs, as well as a summary of the cost-effectiveness analysis.

### Cost-effectiveness Summary

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This appendix covers all verified electricity and peak demand savings, and associated program costs incurred in the implementation of ELL's PY1 Quick Start portfolio from November 1, 2014 through October 31, 2015.

The cost-effectiveness of ELL's PY1 programs was calculated based on reported total spending, verified energy savings, and verified demand reduction for each of the energy efficiency and demand response programs. All spending estimates were provided by ELL. The methods used to calculate cost-effectiveness are informed by the California Standard Practice Manual.<sup>18</sup>

The demand reduction (kW) and energy savings (kWh) presented throughout this appendix represent savings at the generator by adjusting for line losses. Verified savings estimates at the meter were adjusted to account for line losses using a line loss adjustment factor of 1.045.

To calculate the cost-effectiveness of each program, measure lives were assigned on a measure-by-measure basis. When available, measure life values came from the Arkansas Technical Reference Manual 3.0 (TRM)<sup>19</sup>. Additionally, assumptions regarding incremental/full measure costs were necessary. Often, these costs were taken directly from the program filing documents.

Avoided energy, capacity, and transmission/distribution costs used to calculate cost-effectiveness were provided by ELL. Residential and non-residential rates used to estimate certain cost-effectiveness tests were also provided by ELL.

The table below lists each program included in this analysis, along with the final verified savings estimates, total expenditures, Utility Cost Test (UCT)<sup>20</sup> results, and Total Resource Cost Test (TRC) results.

In addition to UCT and TRC results, results from the Participant Cost Test (PCT) are included in the body of this appendix.

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<sup>18</sup>California Standard Practice Manual: Economic Analysis of Demand Side Management Programs, October 2001. Available at: [http://www.cpuc.ca.gov/NR/rdonlyres/004ABF9D-027C-4BE1-9AE1-CE56ADF8DADC/0/CPUC\\_STANDARD\\_PRACTICE\\_MANUAL.pdf](http://www.cpuc.ca.gov/NR/rdonlyres/004ABF9D-027C-4BE1-9AE1-CE56ADF8DADC/0/CPUC_STANDARD_PRACTICE_MANUAL.pdf)

<sup>19</sup><http://www.apscservices.info/EEInfo/TRM.pdf>

<sup>20</sup> The UCT is also referred to as the Program Administrator Cost Test (PACT).

Based on verified program impacts and spending during PY1, ELL's overall portfolio is cost-effective based on both the UCT and TRC.

*Cost-Effectiveness by Program, PY1*

<b>Program</b>	<b>Verified Peak Demand Reduction (kW)</b>	<b>Verified Annual Energy Savings (kWh)</b>	<b>Total Program Expenditures</b>	<b>TRC (b/c ratio)</b>	<b>UCT (b/c ratio)</b>
Residential Solutions	691.54	3,398,741	\$783,134.00	1.84	3.18
Income Qualified	95.67	623,201	\$318,036.90	1.41	1.37
CoolSaver	488.39	1,526,575	\$328,340.50	2.39	3.12
Lighting & Appliances	668.55	3,023,121	\$442,591.00	1.36	2.22
Small Business Direct Install	283.09	1,667,792	\$467,078.08	1.94	2.03
Large C&I	762.49	5,381,724	\$962,804.00	2.32	3.05
Residential Market Development	-	-	\$164,994.00	.00	.00
Commercial Market Development	-	-	\$90,842.00	.00	.00
<b>Total</b>	<b>2,989.73</b>	<b>15,621,154</b>	<b>\$3,557,820.48</b>	<b>1.93</b>	<b>2.67</b>

**Energy Efficiency Program Results**

ELL's energy efficiency portfolio in PY1 consisted of six programs with a verified peak demand reduction of 2,989.73 kW and verified annual energy savings of 15,621,154 kWh. Total spending in PY1 equaled \$3,557,820. The tables below provide a summary of program participation, verified impacts, and program costs by program.

*Energy Efficiency Programs – Verified Impacts*

<i>Program</i>	<i>Number of Participants in PY1</i>	<i>Verified Peak Demand Reduction (kW)</i>	<i>Verified Annual Energy Savings (kWh)</i>
Residential Solutions	1,514	691.54	3,398,741
Income Qualified	117	95.67	623,201
CoolSaver	1,176	488.39	1,526,575
Lighting & Appliances	45,785	668.55	3,023,121
Small Business Direct Install	62	283.09	1,667,792
Large C&I	33	762.49	5,381,724
<b>Total</b>	<b>48,5998</b>	<b>2,989.73</b>	<b>15,621,154</b>

*Energy Efficiency Programs – Reported Costs*

<i>Program</i>	<i>Annual Non-EM&amp;V Admin Costs (\$) <sup>21</sup></i>	<i>Annual EM&amp;V Admin Costs (\$)</i>	<i>Annual Cash Inducement Costs (\$) <sup>22</sup></i>	<i>Annual Non-Cash Inducement Costs (\$) <sup>23</sup></i>
Residential Solutions	\$3,756.00	\$27,498.00	\$425,192.00	\$326,688.00
Income Qualified	\$689.00	\$11,071.00	\$123,604.90	\$182,672.00
CoolSaver	\$1,687.00	\$11,357.00	\$180,378.50	\$134,918.00
Lighting & Appliances	\$3,341.00	\$16,499.00	\$226,738.00	\$196,013.00
Small Business Direct Install	\$1,843.00	\$14,786.00	\$283,856.08	\$166,593.00
Large C&I	\$5,947.00	\$36,345.00	\$448,575.00	\$471,937.00
Residential Market Development	\$0.00	\$0.00	\$0.00	\$164,994.00
Commercial Market Development	\$0.00	\$0.00	\$0.00	\$90,842.00
<b>Total</b>	<b>\$17,263.00</b>	<b>\$117,556.00</b>	<b>\$1,688,344.48</b>	<b>\$1,734,657.00</b>

In the tables that follow, total costs and benefits, and cost-effectiveness test results are provided for each energy efficiency program in the PY1 portfolio.

<sup>21</sup> Non-EM&V Admin Costs include ELL staff costs and overhead costs.

<sup>22</sup> Cash inducement costs refer to customer rebate costs.

<sup>23</sup> Non-cash inducement costs include third party implementation costs and advertising costs.

*Residential Solutions Benefit/Cost Tests*

<b>Metric</b>	<b>Utility Cost Test</b>	<b>Total Resource Cost Test</b>	<b>Participant Cost Test</b>
<b>Benefit/Cost Ratio</b>	3.14	1.84	2.41
Total Benefits	\$2,491,983.96	\$2,491,983.96	\$2,380,828.46
Total Costs	\$783,135.00	\$1,351,942.05	\$993,999.05

*Income Qualified Benefit/Cost Tests*

<b>Metric</b>	<b>Utility Cost Test</b>	<b>Total Resource Cost Test</b>	<b>Participant Cost Test</b>
<b>Benefit/Cost Ratio</b>	1.37	1.41	4.26
Total Benefits	\$435,037.28	\$435,037.28	\$488,055.29
Total Costs	\$318,036.90	\$309,130.75	\$114,698.75

*CoolSaver Benefit/Cost Tests*

<b>Metric</b>	<b>Utility Cost Test</b>	<b>Total Resource Cost Test</b>	<b>Participant Cost Test</b>
<b>Benefit/Cost Ratio</b>	3.12	2.39	3.45
Total Benefits	\$1,024,635.19	\$1,024,635.19	\$949,966.52
Total Costs	\$328,339.50	\$428,857.00	\$280,896.00

*Lighting & Appliances Benefit/Cost Tests*

<b>Metric</b>	<b>Utility Cost Test</b>	<b>Total Resource Cost Test</b>	<b>Participant Cost Test</b>
<b>Benefit/Cost Ratio</b>	2.22	1.36	2.52
Total Benefits	\$984,536.96	\$984,536.96	\$1,283,171.40
Total Costs	\$442,591.00	\$724,283.00	\$508,430.00

*Small Business Solutions Benefit/Cost Tests*

<b>Metric</b>	<b>Utility Cost Test</b>	<b>Total Resource Cost Test</b>	<b>Participant Cost Test</b>
<b>Benefit/Cost Ratio</b>	2.03	1.94	3.64
Total Benefits	\$949,695.63	\$949,695.63	\$1,120,914.08
Total Costs	\$467,078.08	\$490,758.38	\$307,536.38

*Large Commercial & Industrial Solutions Benefit/Cost Test*

<b>Metric</b>	<b>Utility Cost Test</b>	<b>Total Resource Cost Test</b>	<b>Participant Cost Test</b>
<b>Benefit/Cost Ratio</b>	3.05	2.32	4.20
Total Benefits	\$2,934,476.84	\$2,934,476.84	\$3,149,640.33
Total Costs	\$962,804.00	\$1,263,349.00	\$749,120.00

The table below summarizes portfolio-level cost-effectiveness. This incorporates program-level data as well as cross-cutting costs.

*Overall Portfolio Benefit/Cost Test*

<b>Metric</b>	<b>Utility Cost Test</b>	<b>Total Resource Cost Test</b>	<b>Participant Cost Test</b>
<b>Benefit/Cost Ratio</b>	2.67	1.93	3.17
Total Benefits	\$8,820,365.86	\$8,820,365.86	\$9,372,576.08
Total Costs	\$3,301,984.48	\$4,568,320.18	\$2,954,680.18

## 9. Appendix B: Site Reports

### 9.1 Small Business

**Project Number** PRJ-288361  
**Program** Small Business

### Project Background

The participant is a parking lot that received incentives from ELL for implementing energy efficient lighting. On-site, the Evaluators verified the participant had installed:

- (3) 120W LED fixtures, replacing 400W metal halide fixtures.

### M&V Methodology

The Evaluators confirmed installation of all fixtures listed in the project application. Savings for the lighting measures were calculated using Louisiana stipulated deemed values by space type for hours of use, along with a stipulated peak Coincident Factor (CF), Interactive effects factor for energy ( $IEF_E$ ) and Interactive effects factor for demand ( $IEF_D$ ) determined using local weather data and ELL peak parameters. The deemed values used in calculating savings are presented in the table below.

*Deemed Savings Parameters*

<b>Building Type</b>	<b>Heating Type</b>	<b>Annual Hours</b>	<b><math>IEF_E</math></b>	<b><math>IEF_D</math></b>	<b>CF</b>
Outdoor	None	3,996	1.000	1.000	0.00

### Savings Calculations

Using deemed values from the table above, the Evaluators calculated lighting savings as follows:

$$\text{Annual kWh Savings} = (kW_{base} * AOH_{base} - kW_{post} * AOH_{post}) * IEF_E$$

*Parameters for kWh Savings Calculation of Lighting Retrofit Measures*

$kW_{base}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{post}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
$AOH_{base}$	Annual Operating Hours of Baseline Fixtures
$AOH_{post}$	Annual Operating Hours of Installed Fixtures
$IEF_E$	Heating/Cooling Energy Interactive Effects Factor

Peak kW savings are calculated as:

$$\text{Peak kW Savings} = (kW_{\text{base}} - kW_{\text{post}}) * CF * IEF_D$$

*Parameters for Peak Demand (kW) Savings Calculation of Lighting Retrofit Measures*

$kW_{\text{base}}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{\text{post}}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
CF	Peak Demand Coincident Factor, % Time During the Peak Period in Which Lighting is Operating
$IEF_D$	Heating/Cooling Demand Interactive Effects Factor

*Lighting Retrofit kWh Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		AOH		Expected kWh Savings	Realized kWh Savings	$IEF_E$	Realization Rate
	Base	Post	Base	Post	Base	Post				
400W MH to 120W LED - Non-Int. Ballast	3	3	453	120	3,996	3,996	3,992	3,992	1.000	100.0%
<b>Total</b>							<b>3,992</b>	<b>3,992</b>		<b>100.0%</b>

*Lighting Retrofit kW Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		CF		Expected kW Savings	Realized kW Savings	$IEF_D$	Realization Rate
	Base	Post	Base	Post	Base	Post				
400W MH to 120W LED - Non-Int. Ballast	3	3	453	120	0.00	0.00	0.61	0.00	1.200	0.0%
<b>Total</b>							<b>0.61</b>	<b>0.00</b>		<b>0.0%</b>

## Results

The kWh realization rate for PRJ-288361 is 100% and the kW realization rate is 0%. The project erroneously claimed peak kW savings for exterior lighting, when this end-use only operates at night and has a peak coincidence factor of 0.0.

*Verified Gross Savings & Realization Rates*

Measure	Verified			
	kWh Savings	kW Savings	kWh Realization Rate	kW Realization Rate
400W MH to 120W LED - Non-Int. Ballast	3,992	0.00	100.0%	0.0%
<b>Total</b>	<b>3,992</b>	<b>0.00</b>	<b>100.0%</b>	<b>0.0%</b>

**Project Number** PRJ-289266  
**Program** Small Business

## Project Background

The participant is a parking lot that received incentives from ELL for implementing energy efficient lighting. On-site, the Evaluators verified the participant had installed:

- (25) 260W LED fixtures, replacing 1000W metal halide fixtures; and
- (5) 260W LED fixtures, replacing 400W metal halide fixtures.

## M&V Methodology

The Evaluators confirmed installation of all fixtures listed in the project application. Savings for the lighting measures were calculated using Louisiana stipulated deemed values by space type for hours of use, along with a stipulated peak Coincident Factor (CF), Interactive effects factor for energy ( $IEF_E$ ) and Interactive effects factor for demand ( $IEF_D$ ) determined using local weather data and ELL peak parameters. The deemed values used in calculating savings are presented in the table below.

*Deemed Savings Parameters*

<b>Building Type</b>	<b>Heating Type</b>	<b>Annual Hours</b>	<b><math>IEF_E</math></b>	<b><math>IEF_D</math></b>	<b>CF</b>
Outdoor	None	3,996	1.000	1.000	0.00

## Savings Calculations

Using deemed values from the table above, the Evaluators calculated lighting savings as follows:

$$\text{Annual kWh Savings} = (kW_{base} * AOH_{base} - kW_{post} * AOH_{post}) * IEF_E$$

*Parameters for kWh Savings Calculation of Lighting Retrofit Measures*

$kW_{base}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{post}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
$AOH_{base}$	Annual Operating Hours of Baseline Fixtures
$AOH_{post}$	Annual Operating Hours of Installed Fixtures
$IEF_E$	Heating/Cooling Energy Interactive Effects Factor

Peak kW savings are calculated as:

$$\text{Peak kW Savings} = (kW_{base} - kW_{post}) * CF * IEF_D$$



*Parameters for Peak Demand (kW) Savings Calculation of Lighting Retrofit Measures*

$kW_{base}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{post}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
CF	Peak Demand Coincident Factor, % Time During the Peak Period in Which Lighting is Operating
IEF <sub>D</sub>	Heating/Cooling Demand Interactive Effects Factor

*Lighting Retrofit kWh Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		AOH		Expected kWh Savings	Realized kWh Savings	IEF <sub>E</sub>	Realization Rate
	Base	Post	Base	Post	Base	Post				
1000W MH to 260W LED - Non-Int. Ballast	25	25	1,078	260	3,996	3,996	81,718	81,718	1.000	100.0%
400W MH to 260W LED - Non-Int. Ballast	5	5	453	260	3,996	3,996	3,856	3,856	1.000	100.0%
<b>Total</b>							<b>85,574</b>	<b>85,574</b>		<b>100.0%</b>

*Lighting Retrofit kW Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		CF		Expected kW Savings	Realized kW Savings	IEF <sub>D</sub>	Realization Rate
	Base	Post	Base	Post	Base	Post				
1000W MH to 260W LED - Non-Int. Ballast	25	25	1,078	260	0.00	0.00	12.47	0.00	1.200	0.0%
400W MH to 260W LED - Non-Int. Ballast	5	5	453	260	0.00	0.00	0.59	0.00	1.200	0.0%
<b>Total</b>							<b>13.06</b>	<b>0.00</b>		<b>0.0%</b>

**Results**

The kWh realization rate for PRJ-288361 is 100% and the kW realization rate is 0%. The project erroneously claimed peak kW savings for exterior lighting, when this end-use only operates at night and has a peak coincidence factor of 0.0.

*Verified Gross Savings & Realization Rates*

Measure	Verified			
	kWh Savings	kW Savings	kWh Realization Rate	kW Realization Rate
1000W MH to 260W LED - Non-Int. Ballast	81,718	0.00	100.0%	0.0%
400W MH to 260W LED - Non-Int. Ballast	3,856	0.00	100.0%	0.0%
<b>Total</b>	<b>85,574</b>	<b>0.00</b>	<b>100.0%</b>	<b>0.0%</b>

**Project Number** PRJ-289780  
**Program** Small Business

## Project Background

The participant is a retail facility that received incentives from ELL for implementing energy efficient lighting. On-site, the Evaluators verified the participant had installed:

- (3) 6W LED lamps, replacing 50W halogen lamps;
- (51) 16W LED lamps, replacing 90W halogen lamps;
- (7) 2' 1-lamp T8 fixtures, replacing 2' 1-lamp T12 fixtures;
- (5) 18W LED fixtures, replacing 4' 1-lamp T12 fixtures;
- (7) 36W LED fixtures, replacing 4' 2-lamp T12 fixtures;
- (10) 13W LED lamps, replacing 75W halogen lamps;
- (2) 38W LED fixtures, replacing 8' 1-lamp T12 fixtures; and
- (1) 3' 1-lamp T8 fixture, replacing 3' 1-lamp T12 fixtures.

On-site, the Evaluators did not verify the participant had installed (2) 6W LED lamps.

## M&V Methodology

The Evaluators found some lighting fixture counts deviated from those listed in the project application. Verified fixture counts were used in ex post savings calculations. Savings for the lighting measures were calculated using Louisiana stipulated deemed values by space type for hours of use, along with a stipulated peak Coincident Factor (CF), Interactive effects factor for energy ( $IEF_E$ ) and Interactive effects factor for demand ( $IEF_D$ ) determined using local weather data and ELL Power peak parameters. The deemed values used in calculating savings are presented in the table below.

*Deemed Savings Parameters*

<b>Building Type</b>	<b>Heating Type</b>	<b>Annual Hours</b>	<b><math>IEF_E</math></b>	<b><math>IEF_D</math></b>	<b>CF</b>
Retail: Strip Shopping & Non-enclosed Mall	Electric Resistance	3,965	0.870	1.200	0.90

## Savings Calculations

Using deemed values from the table above, the Evaluators calculated lighting savings as follows:

$$\text{Annual kWh Savings} = (kW_{base} * AOH_{base} - kW_{post} * AOH_{post}) * IEF_E$$

*Parameters for kWh Savings Calculation of Lighting Retrofit Measures*

$kW_{base}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{post}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
$AOH_{base}$	Annual Operating Hours of Baseline Fixtures
$AOH_{post}$	Annual Operating Hours of Installed Fixtures
$IEF_E$	Heating/Cooling Energy Interactive Effects Factor

Peak kW savings are calculated as:

$$Peak\ kW\ Savings = (kW_{base} - kW_{post}) * CF * IEF_D$$

*Parameters for Peak Demand (kW) Savings Calculation of Lighting Retrofit Measures*

$kW_{base}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{post}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
CF	Peak Demand Coincident Factor, % Time During the Peak Period in Which Lighting is Operating
$IEF_D$	Heating/Cooling Demand Interactive Effects Factor

*Lighting Retrofit kWh Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		AOH	Expected kWh Savings	Realized kWh Savings	$IEF_E$	Realization Rate
	Base	Post	Base	Post					
50W 1L Halogen to 6W LED - Int. Ballast	3	3	50	6	3,965	855	455	0.870	53.2%
90W 1L Halogen to 16W LED - Int. Ballast	51	51	90	16	3,965	14,665	13,019	0.870	88.8%
2' 1L T12 20W to 2' 1L T8	7	7	25	17	3,965	218	193	0.870	88.5%
4' 1L T12ES to 18W LED - Non-Int. Ballast	5	5	43	18	3,965	486	431	0.870	88.7%
4' 2L T12ES to 36W LED - Non-Int. Ballast	7	7	72	36	3,965	979	869	0.870	88.8%
75W 1L Halogen to 13W LED - Int. Ballast	10	10	75	13	3,965	2,409	2,139	0.870	88.8%
8' 1L T12 to 38W LED - Non-Int. Ballast	2	2	91	38	3,965	408	362	0.870	88.7%
3' 1L T12 to 3' 1L T8	1	1	46	23	3,965	89	79	0.870	88.8%
<b>Total</b>						<b>20,109</b>	<b>17,547</b>		<b>87.3%</b>

*Lighting Retrofit kW Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		CF	Expected kW Savings	Realized kW Savings	IEF <sub>D</sub>	Realization Rate
	Base	Post	Base	Post					
50W 1L Halogen to 6W LED - Int. Ballast	3	3	50	6	0.90	0.24	0.14	1.200	58.3%
90W 1L Halogen to 16W LED - Int. Ballast	51	51	90	16	0.90	4.08	4.08	1.200	100.0%
2' 1L T12 20W to 2' 1L T8	7	7	25	17	0.90	0.06	0.06	1.200	100.0%
4' 1L T12ES to 18W LED - Non-Int. Ballast	5	5	43	18	0.90	0.14	0.14	1.200	100.0%
4' 2L T12ES to 36W LED - Non-Int. Ballast	7	7	72	36	0.90	0.27	0.27	1.200	100.0%
75W 1L Halogen to 13W LED - Int. Ballast	10	10	75	13	0.90	0.67	0.67	1.200	100.0%
8' 1L T12 to 38W LED - Non-Int. Ballast	2	2	91	38	0.90	0.11	0.11	1.200	100.0%
3' 1L T12 to 3' 1L T8	1	1	46	23	0.90	0.02	0.02	1.200	100.0%
<b>Total</b>						<b>5.59</b>	<b>5.49</b>		<b>98.2%</b>

## Results

The kWh realization rate for PRJ-289780 is 87.3% and the kW realization rate is 98.2%.

kWh savings are lower than listed in ex ante calculations for two reasons:

- 1) On site, the Evaluators verified that the facility uses electric resistance heating, which has an IEF<sub>E</sub> of 0.87. Ex ante calculations listed heating system as “Undetermined”, which has an IEF<sub>E</sub> of 0.98. This change reduced project savings by 2,258 kWh (11.2%)
- 2) (2) 6W LEDs were unaccounted for and could not be found on site. Failed verification of two fixtures resulted in a reduction of project savings by 342 kWh (1.7%).

The decrease in kW savings is due the difference between ex post verified lamps and the number of lamps ex ante claimed. Failed verification of two fixtures resulted in a reduction of project savings by 0.10 kW (1.8%).

*Verified Gross Savings & Realization Rates*

<i>Measure</i>	<i>Verified</i>			
	<i>kWh Savings</i>	<i>kW Savings</i>	<i>kWh Realization Rate</i>	<i>kW Realization Rate</i>
50W 1L Halogen to 6W LED - Int. Ballast	455	0.14	53.2%	58.3%
90W 1L Halogen to 16W LED - Int. Ballast	13,019	4.08	88.8%	100.0%
2' 1L T12 20W to 2' 1L T8	193	0.06	88.5%	100.0%
4' 1L T12ES to 18W LED - Non-Int. Ballast	431	0.14	88.7%	100.0%
4' 2L T12ES to 36W LED - Non-Int. Ballast	869	0.27	88.8%	100.0%
75W 1L Halogen to 13W LED - Int. Ballast	2,139	0.67	88.8%	100.0%
8' 1L T12 to 38W LED - Non-Int. Ballast	362	0.11	88.7%	100.0%
3' 1L T12 to 3' 1L T8	79	0.02	88.8%	100.0%
<b>Total</b>	<b>17,547</b>	<b>5.49</b>	<b>87.3%</b>	<b>98.2%</b>

**Project Number** PRJ-291709  
**Program** Small Business

## Project Background

The participant is a retail facility that received incentives from ELL for implementing energy efficient lighting. On-site, the Evaluators verified the participant had installed:

- (21) 12 LED lamps, replacing 65W halogen lamps;
- (6) 2W LED lamps, replacing 25W incandescent lamps;
- (10) 13W LED lamps, replacing 65W halogen lamps;
- (1) 21W LED fixtures, replacing 4' 2-lamp T12 fixtures;
- (38) 16W LED lamps, replacing 90W halogen lamps;
- (6) 8W LED lamps, replacing 50W halogen lamps; and
- (8) 8W LED lamps, replacing 100W halogen lamps.

The Evaluators were not able to verify the following:

- (12) 2W LED lamps;
- (4) 13W LED lamps; and
- (2) 21W LED fixtures.

## M&V Methodology

The Evaluators found some lighting fixture counts deviated from those listed in the project application. Verified fixture counts were used in ex post savings calculations. Savings for the lighting measures were calculated using Louisiana stipulated deemed values by space type for hours of use, along with a stipulated peak Coincident Factor (CF), Interactive effects factor for energy ( $IEF_E$ ) and Interactive effects factor for demand ( $IEF_D$ ) determined using local weather data and ELL peak parameters. The deemed values used in calculating savings are presented in the table below.

*Deemed Savings Parameters*

<b>Building Type</b>	<b>Heating Type</b>	<b>Annual Hours</b>	<b><math>IEF_E</math></b>	<b><math>IEF_D</math></b>	<b>CF</b>
Retail: Strip Shopping & Non-enclosed Mall	Electric Resistance	3,965	1.09	1.20	0.90

## Savings Calculations

Using deemed values from the table above, the Evaluators calculated lighting savings as follows:

$$\text{Annual kWh Savings} = (kW_{base} * AOH_{base} - kW_{post} * AOH_{post}) * IEF_E$$

*Parameters for kWh Savings Calculation of Lighting Retrofit Measures*

$kW_{base}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{post}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
$AOH_{base}$	Annual Operating Hours of Baseline Fixtures
$AOH_{post}$	Annual Operating Hours of Installed Fixtures
$IEF_E$	Heating/Cooling Energy Interactive Effects Factor

Peak kW savings are calculated as:

$$Peak\ kW\ Savings = (kW_{base} - kW_{post}) * CF * IEF_D$$

*Parameters for Peak Demand (kW) Savings Calculation of Lighting Retrofit Measures*

$kW_{base}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{post}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
CF	Peak Demand Coincident Factor, % Time During the Peak Period in Which Lighting is Operating
$IEF_D$	Heating/Cooling Demand Interactive Effects Factor

*Lighting Retrofit kWh Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		AOH		Expected kWh Savings	Realized kWh Savings	$IEF_E$	Realization Rate
	Base	Post	Base	Post	Base	Post				
65W 1L Halogen to 12W LED - Int. Ballast	21	21	65	12	3,965	3,965	4,325	3,839	0.870	88.8%
25W Inc. to 2W LED - Int. Ballast	6	6	25	2	3,965	3,965	1,609	476	0.870	29.6%
65W 1L Halogen to 13W LED - Int. Ballast	17	17	65	13	3,965	3,965	4,243	3,049	0.870	71.9%
4' 2L T12ES to 21W LED - Non-Int. Ballast	1	1	72	21	3,965	3,965	315	176	0.870	55.9%
90W 1L Halogen to 16W LED - Int. Ballast	31	31	90	16	3,965	3,965	8,914	7,913	0.870	88.8%
50W 1L Halogen to 8W LED - Int. Ballast	6	6	50	8	3,965	3,965	979	869	0.870	88.8%
100W 1L Halogen to 8W LED - Int. Ballast	8	8	100	8	3,965	3,965	2,860	2,539	0.870	88.8%
<b>Total</b>							<b>23,245</b>	<b>18,861</b>		<b>81.1%</b>

*Lighting Retrofit kW Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		CF		Expected kW Savings	Realized kW Savings	IEF <sub>D</sub>	Realization Rate
	Base	Post	Base	Post	Base	Post				
65W 1L Halogen to 12W LED - Int. Ballast	21	21	65	12	0.90	0.90	1.20	1.20	1.200	100.0%
25W Inc. to 2W LED - Int. Ballast	6	6	25	2	0.90	0.90	0.45	0.15	1.200	33.3%
65W 1L Halogen to 13W LED - Int. Ballast	17	17	65	13	0.90	0.90	1.18	0.95	1.200	80.5%
4' 2L T12ES to 21W LED - Non-Int. Ballast	1	1	72	21	0.90	0.90	0.09	0.06	1.200	66.7%
90W 1L Halogen to 16W LED - Int. Ballast	31	31	90	16	0.90	0.90	2.48	2.48	1.200	100.0%
50W 1L Halogen to 8W LED - Int. Ballast	6	6	50	8	0.90	0.90	0.27	0.27	1.200	100.0%
100W 1L Halogen to 8W LED - Int. Ballast	8	8	100	8	0.90	0.90	0.79	0.79	1.200	100.0%
<b>Total</b>							<b>6.46</b>	<b>5.90</b>		<b>91.3%</b>

## Results

The kWh realization rate for PRJ-291709 is 81.1% and the kW realization rate is 91.3%.

kWh savings are lower than listed in ex ante calculations for two reasons:

- 3) On site, the Evaluators verified that the facility uses electric resistance heating, which has an IEF<sub>E</sub> of 0.87. Ex ante calculations listed heating system as “Undetermined”, which has an IEF<sub>E</sub> of .98. Correcting this error accounted reduced project savings by 2,611 kWh (11.2%).
- 4) 18 fixtures failed verification: accounting for this shortfall reduced project savings by 1,773 kWh (7.7%).
  - a. The project included (18) 2W LEDs: (12) of these were installed in chandeliers which were on display (six each in two separate chandeliers); one of these display units was sold. The remaining 2W LEDs were in storage and unused.
  - b. (4) 13W LEDs and (2) 21W LEDs were unaccounted for and could not be found on site.

The decrease in kW savings is due the difference between ex post verified lamps and the number of lamps ex ante claimed. Failed verification of 18 fixtures resulted in a reduction of project savings by 0.56 kW (8.7%).



*Verified Gross Savings & Realization Rates*

<i>Measure</i>	<i>Verified</i>			
	<i>kWh Savings</i>	<i>kW Savings</i>	<i>kWh Realization Rate</i>	<i>kW Realization Rate</i>
65W 1L Halogen to 12W LED - Int. Ballast	3,839	1.20	88.8%	100.0%
25W Inc. to 2W LED - Int. Ballast	476	0.15	29.6%	33.3%
65W 1L Halogen to 13W LED - Int. Ballast	3,049	0.95	71.9%	80.5%
4' 2L T12ES to 21W LED - Non-Int. Ballast	176	0.06	55.9%	66.7%
90W 1L Halogen to 16W LED - Int. Ballast	7,913	2.48	88.8%	100.0%
50W 1L Halogen to 8W LED - Int. Ballast	869	0.27	88.8%	100.0%
100W 1L Halogen to 8W LED - Int. Ballast	2,539	0.79	88.8%	100.0%
<b>Total</b>	<b>18,861</b>	<b>5.90</b>	<b>81.1%</b>	<b>91.3%</b>

**Project Number** PRJ-293692  
**Program** Small Business

## Project Background

The participant is a retail facility that received incentives from ELL for implementing energy efficient lighting. On-site, the Evaluators verified the participant had installed:

- (112) 18W LED fixtures, replacing (56) 173W 8' 2-lamp T12HO fixtures

## M&V Methodology

The Evaluators confirmed installation of all fixtures listed in the project application. Savings for the lighting measures were calculated using Louisiana stipulated deemed values by space type for hours of use, along with a stipulated peak Coincident Factor (CF), Interactive effects factor for energy ( $IEF_E$ ) and Interactive effects factor for demand ( $IEF_D$ ) determined using local weather data and ELL peak parameters. The deemed values used in calculating savings are presented in the table below.

*Deemed Savings Parameters*

<b>Building Type</b>	<b>Heating Type</b>	<b>Annual Hours</b>	<b><math>IEF_E</math></b>	<b><math>IEF_D</math></b>	<b>CF</b>
Retail: Excluding Malls & Strip Centers	Gas	3,668	1.090	1.200	0.90

## Savings Calculations

Using deemed values from the table above, the Evaluators calculated lighting savings as follows:

$$\text{Annual kWh Savings} = (kW_{base} * AOH_{base} - kW_{post} * AOH_{post}) * IEF_E$$

*Parameters for kWh Savings Calculation of Lighting Retrofit Measures*

$kW_{base}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{post}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
$AOH_{base}$	Annual Operating Hours of Baseline Fixtures
$AOH_{post}$	Annual Operating Hours of Installed Fixtures
$IEF_E$	Heating/Cooling Energy Interactive Effects Factor

Peak kW savings are calculated as:

$$\text{Peak kW Savings} = (kW_{base} - kW_{post}) * CF * IEF_D$$

*Parameters for Peak Demand (kW) Savings Calculation of Lighting Retrofit Measures*

$kW_{base}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{post}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
CF	Peak Demand Coincident Factor, % Time During the Peak Period in Which Lighting is Operating
IEF <sub>D</sub>	Heating/Cooling Demand Interactive Effects Factor

*Lighting Retrofit kWh Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		AOH	Expected kWh Savings	Realized kWh Savings	IEF <sub>E</sub>	Realization Rate
	Base	Post	Base	Post					
8' 2L T12HO to 18W LED - Int. Ballast	56	112	207	18	3,668	32,636	38,286	1.090	117.3%
<b>Total</b>						<b>32,636</b>	<b>38,286</b>		<b>117.3%</b>

*Lighting Retrofit kW Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		CF	Expected kW Savings	Realized kW Savings	IEF <sub>D</sub>	Realization Rate
	Base	Post	Base	Post					
8' 2L T12HO to 18W LED - Int. Ballast	56	112	207	18	0.90	9.81	10.34	1.200	105.4%
<b>Total</b>						<b>9.81</b>	<b>10.34</b>		<b>105.4%</b>

**Results**

The kWh realization rate for PRJ-293692 is 117.3% and the kW realization rate is 105.4%. On-site the Evaluators verified the gas heating type. This change in heating type changed the IEF<sub>E</sub> values from 0.98 to 1.090 and increasing overall kWh savings.

*Verified Gross Savings & Realization Rates*

Measure	Verified			
	kWh Savings	kW Savings	kWh Realization Rate	kW Realization Rate
8' 2L T12HO to 18W LED - Int. Ballast	38,286	10.34	117.3%	105.4%
<b>Total</b>	<b>38,286</b>	<b>10.34</b>	<b>117.3%</b>	<b>105.4%</b>

**Project Number** PRJ-293705  
**Program** Small Business

## Project Background

The participant is a retail facility that received incentives from ELL for implementing energy efficient lighting. On-site, the Evaluators verified the participant had installed:

- (5) 18W LED fixtures, replacing (10) 173W 8' 2-lamp T12ES HO fixtures; and
- (60) 18W LED fixtures, replacing (30) 146W 4' 4-lamp T8 VHLO fixtures

## M&V Methodology

The Evaluators confirmed installation of all fixtures listed in the project application. Savings for the lighting measures were calculated using Louisiana stipulated deemed values by space type for hours of use, along with a stipulated peak Coincident Factor (CF), Interactive effects factor for energy ( $IEF_E$ ) and Interactive effects factor for demand ( $IEF_D$ ) determined using local weather data and ELL peak parameters. The deemed values used in calculating savings are presented in the table below.

*Deemed Savings Parameters*

<b>Building Type</b>	<b>Heating Type</b>	<b>Annual Hours</b>	<b><math>IEF_E</math></b>	<b><math>IEF_D</math></b>	<b>CF</b>
Retail: Excluding Malls & Strip Centers	Gas	3,668	1.090	1.200	0.90

## Savings Calculations

Using deemed values from the table above, the Evaluators calculated lighting savings as follows:

$$\text{Annual kWh Savings} = (kW_{base} * AOH_{base} - kW_{post} * AOH_{post}) * IEF_E$$

*Parameters for kWh Savings Calculation of Lighting Retrofit Measures*

$kW_{base}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{post}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
$AOH_{base}$	Annual Operating Hours of Baseline Fixtures
$AOH_{post}$	Annual Operating Hours of Installed Fixtures
$IEF_E$	Heating/Cooling Energy Interactive Effects Factor

Peak kW savings are calculated as:

$$\text{Peak kW Savings} = (kW_{base} - kW_{post}) * CF * IEF_D$$

*Parameters for Peak Demand (kW) Savings Calculation of Lighting Retrofit Measures*

$kW_{base}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{post}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
CF	Peak Demand Coincident Factor, % Time During the Peak Period in Which Lighting is Operating
IEF <sub>D</sub>	Heating/Cooling Demand Interactive Effects Factor

*Lighting Retrofit kWh Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		AOH	Expected kWh Savings	Realized kWh Savings	IEF <sub>E</sub>	Realization Rate
	Base	Post	Base	Post					
8' 2L T12ES HO to 18W LED - Int. Ballast	5	10	173	18	3,668	2,347	2,739	1.090	116.7%
4' 4L T8 VHLO to 18W LED - Int. Ballast	30	60	146	18	3,668	11,627	13,194	1.090	113.5%
<b>Total</b>						<b>13,974</b>	<b>15,933</b>		<b>114.0%</b>

*Lighting Retrofit kW Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		CF	Expected kW Savings	Realized kW Savings	IEF <sub>D</sub>	Realization Rate
	Base	Post	Base	Post					
8' 2L T12ES HO to 18W LED - Int. Ballast	5	10	173	18	0.90	0.71	0.74	1.200	104.1%
4' 4L T8 VHLO to 18W LED - Int. Ballast	30	60	146	18	0.90	3.52	3.56	1.200	101.3%
<b>Total</b>						<b>4.23</b>	<b>4.30</b>		<b>101.7%</b>

**Results**

The kWh realization rate for PRJ-293705 is 114.0% and the kW realization rate is 101.7%.

On-site the Evaluators verified the gas heating type. This change in heating type changed the IEF<sub>E</sub> values from 0.98 to 1.090 and increasing overall kWh savings.

*Verified Gross Savings & Realization Rates*

Measure	Verified			
	kWh Savings	kW Savings	kWh Realization Rate	kW Realization Rate
8' 2L T12ES HO to 18W LED - Int. Ballast	2,739	0.74	116.7%	104.1%
4' 4L T8 VHLO to 18W LED - Int. Ballast	13,194	3.56	113.5%	101.3%
<b>Total</b>	<b>15,933</b>	<b>4.30</b>	<b>114.0%</b>	<b>101.7%</b>

**Project Number** PRJ-314702  
**Program** Small Business

## Project Background

The participant is a retail facility that received incentives from ELL for implementing energy efficient exterior lighting. On-site, the Evaluators verified the participant had installed:

- (18) 128W LED fixtures, replacing 400W metal halide fixtures

## M&V Methodology

The Evaluators confirmed installation of all fixtures listed in the project application. Savings for the lighting measures were calculated using Louisiana stipulated deemed values by space type for hours of use, along with a stipulated peak Coincident Factor (CF), Interactive effects factor for energy ( $IEF_E$ ) and Interactive effects factor for demand ( $IEF_D$ ) determined using local weather data and ELL peak parameters. The deemed values used in calculating savings are presented in the table below.

*Deemed Savings Parameters*

<b>Building Type</b>	<b>Heating Type</b>	<b>Annual Hours</b>	<b><math>IEF_E</math></b>	<b><math>IEF_D</math></b>	<b>CF</b>
Exterior	None	3,996	1.000	1.000	0.00

## Savings Calculations

Using deemed values from the table above, the Evaluators calculated lighting savings as follows:

$$\text{Annual kWh Savings} = (kW_{\text{base}} * AOH_{\text{base}} - kW_{\text{post}} * AOH_{\text{post}}) * IEF_E$$

*Parameters for kWh Savings Calculation of Lighting Retrofit Measures*

$kW_{\text{base}}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{\text{post}}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
$AOH_{\text{base}}$	Annual Operating Hours of Baseline Fixtures
$AOH_{\text{post}}$	Annual Operating Hours of Installed Fixtures
$IEF_E$	Heating/Cooling Energy Interactive Effects Factor

Peak kW savings are calculated as:

$$\text{Peak kW Savings} = (kW_{\text{base}} - kW_{\text{post}}) * CF * IEF_D$$

*Parameters for Peak Demand (kW) Savings Calculation of Lighting Retrofit Measures*

$kW_{\text{base}}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{\text{post}}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
CF	Peak Demand Coincident Factor, % Time During the Peak Period in Which Lighting is Operating
$IEF_D$	Heating/Cooling Demand Interactive Effects Factor

*Lighting Retrofit kWh Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		AOH	Expected kWh Savings	Realized kWh Savings	$IEF_E$	Realization Rate
	Base	Post	Base	Post					
400W MH to 128W LED - Non-Int. Ballast	18	18	453	128	3,996	23,377	23,377	1.000	100.0%
<b>Total</b>						<b>23,377</b>	<b>23,377</b>		<b>100.0%</b>

*Lighting Retrofit kW Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		CF	Expected kW Savings	Realized kW Savings	$IEF_D$	Realization Rate
	Base	Post	Base	Post					
400W MH to 128W LED - Non-Int. Ballast	18	18	453	128	0.00	0.00	0.00	1.000	N/A
<b>Total</b>						<b>0.00</b>	<b>0.00</b>		<b>N/A</b>

## Results

The kWh realization rate for PRJ-314702 is 100%.

*Verified Gross Savings & Realization Rates*

Measure	Verified			
	kWh Savings	kW Savings	kWh Realization Rate	kW Realization Rate
400W MH to 128W LED - Non-Int. Ballast	23,377	0.00	100.0%	N/A
<b>Total</b>	<b>23,377</b>	<b>0.00</b>	<b>100.0%</b>	<b>N/A</b>

**Project Number** PRJ-325672  
**Program** Small Business

## Project Background

The participant is an office building that received incentives from ELL for implementing energy efficient lighting. On-site, the Evaluators verified the participant had installed:

- (16) 32W LED lamps, replacing 4' 2-lamp T12 ES fixtures;
- (47) 50W LED lamps, replacing 4' 3-lamp T12 ES fixtures; and
- (117) 32W LED lamps, replacing 4' 3-lamp T12 ES fixtures.

## M&V Methodology

The Evaluators confirmed installation of all fixtures listed in the project application. Savings for the lighting measures were calculated using Louisiana stipulated deemed values by space type for hours of use, along with a stipulated peak Coincident Factor (CF), Interactive effects factor for energy ( $IEF_E$ ) and Interactive effects factor for demand ( $IEF_D$ ) determined using local weather data and ELL peak parameters. The deemed values used in calculating savings are presented in the table below.

*Deemed Savings Parameters*

<b>Building Type</b>	<b>Heating Type</b>	<b>Annual Hours</b>	<b><math>IEF_E</math></b>	<b><math>IEF_D</math></b>	<b>CF</b>
Office	Electric Resistance	3,737	0.980	1.200	0.77

## Savings Calculations

Using deemed values from the table above, the Evaluators calculated lighting savings as follows:

$$\text{Annual kWh Savings} = (kW_{base} * AOH_{base} - kW_{post} * AOH_{post}) * IEF_E$$

*Parameters for kWh Savings Calculation of Lighting Retrofit Measures*

$kW_{base}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{post}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
$AOH_{base}$	Annual Operating Hours of Baseline Fixtures
$AOH_{post}$	Annual Operating Hours of Installed Fixtures
$IEF_E$	Heating/Cooling Energy Interactive Effects Factor

Peak kW savings are calculated as:



$$\text{Peak kW Savings} = (kW_{\text{base}} - kW_{\text{post}}) * CF * IEF_D$$

*Parameters for Peak Demand (kW) Savings Calculation of Lighting Retrofit Measures*

$kW_{\text{base}}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{\text{post}}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
CF	Peak Demand Coincident Factor, % Time During the Peak Period in Which Lighting is Operating
$IEF_D$	Heating/Cooling Demand Interactive Effects Factor

*Lighting Retrofit kWh Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		AOH	Expected kWh Savings	Realized kWh Savings	$IEF_E$	Realization Rate
	Base	Post	Base	Post					
4' 2L T12ES to 32W LED - Non-Int. Ballast	16	16	72	32	3,737	2,344	2,081	0.870	88.8%
4' 3L T12ES to 50W LED - Non-Int. Ballast	47	47	144	50	3,737	16,180	14,364	0.870	88.8%
4' 3L T12ES to 32W LED - Non-Int. Ballast	117	117	144	32	3,737	47,990	42,604	0.870	88.8%
<b>Total</b>						<b>48,392</b>	<b>48,392</b>		<b>100.0%</b>

*Lighting Retrofit kW Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		CF	Expected kW Savings	Realized kW Savings	$IEF_D$	Realization Rate
	Base	Post	Base	Post					
4' 2L T12ES to 32W LED - Non-Int. Ballast	16	16	72	32	0.77	0.59	0.59	1.200	100.0%
4' 3L T12ES to 50W LED - Non-Int. Ballast	47	47	144	50	0.77	4.08	4.08	1.200	100.0%
4' 3L T12ES to 32W LED - Non-Int. Ballast	117	117	144	32	0.77	12.11	12.11	1.200	100.0%
<b>Total</b>						<b>16.78</b>	<b>16.78</b>		<b>100.0%</b>

## Results

The kWh realization rate for PRJ-337560 is 88.8% and the kW realization rate is 100.0%.

On-site, Evaluators confirmed the heating type is electric resistance heating. The ex ante calculations used undetermined heating type with  $IEF_E$  of 0.98, the ex post calculations used  $IEF_E$  values of 0.87.

*Verified Gross Savings & Realization Rates*

<i>Measure</i>	<i>Verified</i>			
	<i>kWh Savings</i>	<i>kW Savings</i>	<i>kWh Realization Rate</i>	<i>kW Realization Rate</i>
4' 2L T12ES to 32W LED - Non-Int. Ballast	2,081	0.59	88.8%	100.0%
4' 3L T12ES to 50W LED - Non-Int. Ballast	14,364	4.08	88.8%	100.0%
4' 3L T12ES to 32W LED - Non-Int. Ballast	42,604	12.11	88.8%	100.0%
<b>Total</b>	<b>59,049</b>	<b>16.78</b>	<b>88.8%</b>	<b>100.0%</b>

**Project Number** PRJ-327280  
**Program** Small Business

## Project Background

The participant is a retail facility that received incentives from ELL for implementing energy efficient lighting. On-site, the Evaluators verified the participant had installed:

- (54) 18W LED fixtures, replacing (27) 8' 2-lamp T12 fixtures;
- (90) 18W LED fixtures, replacing (45) 8' 2-lamp T12 fixtures; and
- (4) 18W LED fixtures, replacing (2) 4' 3-lamp T12ES fixtures

## M&V Methodology

The Evaluators confirmed installation of all fixtures listed in the project application. Savings for the lighting measures were calculated using Louisiana stipulated deemed values by space type for hours of use, along with a stipulated peak Coincident Factor (CF), Interactive effects factor for energy ( $IEF_E$ ) and Interactive effects factor for demand ( $IEF_D$ ) determined using local weather data and ELL Power peak parameters. The deemed values used in calculating savings are presented in the table below.

*Deemed Savings Parameters*

<b>Building Type</b>	<b>Heating Type</b>	<b>Annual Hours</b>	<b><math>IEF_E</math></b>	<b><math>IEF_D</math></b>	<b>CF</b>
Outdoor	None	3,996	1.000	1.000	0.00
Retail: Strip Shopping & Non-enclosed Mall	Electric Resistance	3,965	0.870	1.200	0.90

## Savings Calculations

Using deemed values from the table above, the Evaluators calculated lighting savings as follows:

$$\text{Annual kWh Savings} = (kW_{base} * AOH_{base} - kW_{post} * AOH_{post}) * IEF_E$$

*Parameters for kWh Savings Calculation of Lighting Retrofit Measures*

$kW_{base}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{post}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
$AOH_{base}$	Annual Operating Hours of Baseline Fixtures
$AOH_{post}$	Annual Operating Hours of Installed Fixtures
$IEF_E$	Heating/Cooling Energy Interactive Effects Factor

Peak kW savings are calculated as:

$$\text{Peak kW Savings} = (kW_{\text{base}} - kW_{\text{post}}) * CF * IEF_D$$

*Parameters for Peak Demand (kW) Savings Calculation of Lighting Retrofit Measures*

$kW_{\text{base}}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{\text{post}}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
CF	Peak Demand Coincident Factor, % Time During the Peak Period in Which Lighting is Operating
$IEF_D$	Heating/Cooling Demand Interactive Effects Factor

*Lighting Retrofit kWh Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		AOH		Expected kWh Savings	Realized kWh Savings	$IEF_E$	Realization Rate
	Base	Post	Base	Post	Base	Post				
8' 2L T12 to 18W LED - Int. Ballast	27	54	173	18	3,996	3,996	14,781	14,781	1.000	100.0%
8' 2L T12 to 18W LED - Int. Ballast	45	90	173	18	3,965	3,965	21,266	21,266	0.870	100.0%
4' 3L T12ES to 18W LED - Int. Ballast	2	4	144	18	3,965	3,965	745	745	0.870	100.0%
<b>Total</b>							<b>36,793</b>	<b>36,793</b>		<b>100.0%</b>

*Lighting Retrofit kW Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		CF	Expected kW Savings	Realized kW Savings	$IEF_D$	Realization Rate
	Base	Post	Base	Post					
8' 2L T12 to 18W LED - Int. Ballast	27	54	173	18	0.00	0.00	0.00	1.000	N/A
8' 2L T12 to 18W LED - Int. Ballast	45	90	173	18	0.90	6.66	6.66	1.200	100.0%
4' 3L T12ES to 18W LED - Int. Ballast	2	4	144	18	0.90	0.23	0.23	1.200	100.0%
<b>Total</b>						<b>6.89</b>	<b>6.89</b>		<b>100.0%</b>

## Results

The kWh and kW realization rates for PRJ-327280 are 100% and the kW realization rate is 100.0%.

*Verified Gross Savings & Realization Rates*

<i>Measure</i>	<i>Verified</i>			
	<i>kWh Savings</i>	<i>kW Savings</i>	<i>kWh Realization Rate</i>	<i>kW Realization Rate</i>
8' 2L T12 to 18W LED - Int. Ballast	14,781	0.00	100.0%	N/A
8' 2L T12 to 18W LED - Int. Ballast	21,266	6.66	100.0%	100.0%
4' 3L T12ES to 18W LED - Int. Ballast	745	0.23	100.0%	100.0%
<b>Total</b>	<b>36,793</b>	<b>6.89</b>	<b>100.0%</b>	<b>100.0%</b>

**Project Number** PRJ-351985  
**Program** Small Business

## Project Background

The participant is a religious facility that received incentives from ELL for implementing energy efficient lighting. On-site, the Evaluators verified the participant had installed:

- (12) 6W LED lamps, replacing 60W incandescent lamps;
- (42) 18W LED lamps, replacing 100W incandescent lamps; and
- (8) 8W LED lamps, replacing 40W incandescent lamps.

## M&V Methodology

The Evaluators confirmed installation of all fixtures listed in the project application. Savings for the lighting measures were calculated using Louisiana stipulated deemed values by space type for hours of use, along with a stipulated peak Coincident Factor (CF), Interactive effects factor for energy ( $IEF_E$ ) and Interactive effects factor for demand ( $IEF_D$ ) determined using local weather data and ELL peak parameters. The deemed values used in calculating savings are presented in the table below.

*Deemed Savings Parameters*

<b>Building Type</b>	<b>Heating Type</b>	<b>Annual Hours</b>	<b><math>IEF_E</math></b>	<b><math>IEF_D</math></b>	<b>CF</b>
Education: k-12, w/o Summer Session	Electric Resistance	2,777	0.87	1.200	0.47

## Savings Calculations

Using deemed values from the table above, the Evaluators calculated lighting savings as follows:

$$\text{Annual kWh Savings} = (kW_{base} * AOH_{base} - kW_{post} * AOH_{post}) * IEF_E$$

*Parameters for kWh Savings Calculation of Lighting Retrofit Measures*

$kW_{base}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{post}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
$AOH_{base}$	Annual Operating Hours of Baseline Fixtures
$AOH_{post}$	Annual Operating Hours of Installed Fixtures
$IEF_E$	Heating/Cooling Energy Interactive Effects Factor

Peak kW savings are calculated as:

$$\text{Peak kW Savings} = (kW_{\text{base}} - kW_{\text{post}}) * CF * IEF_D$$

*Parameters for Peak Demand (kW) Savings Calculation of Lighting Retrofit Measures*

kW <sub>base</sub>	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
kW <sub>post</sub>	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
CF	Peak Demand Coincident Factor, % Time During the Peak Period in Which Lighting is Operating
IEF <sub>D</sub>	Heating/Cooling Demand Interactive Effects Factor

*Lighting Retrofit kWh Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		AOH	Expected kWh Savings	Realized kWh Savings	IEF <sub>E</sub>	Realization Rate
	Base	Post	Base	Post					
60W Inc. to 6W LED - Int. Ballast	12	12	43	6	2,777	1,336	1,073	0.870	80.3%
100W Inc. to 18W LED - Int. Ballast	42	42	72	18	2,777	7,099	5,479	0.870	77.2%
40W Inc. to 8W LED - Int. Ballast	8	8	29	8	2,777	528	406	0.870	76.9%
<b>Total</b>						<b>8,963</b>	<b>6,958</b>		<b>77.6%</b>

*Lighting Retrofit kW Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		CF	Expected kW Savings	Realized kW Savings	IEF <sub>D</sub>	Realization Rate
	Base	Post	Base	Post					
60W Inc. to 6W LED - Int. Ballast	12	12	43	6	0.47	0.36	0.25	1.200	70.2%
100W Inc. to 18W LED - Int. Ballast	42	42	72	18	0.47	1.89	1.28	1.200	67.6%
40W Inc. to 8W LED - Int. Ballast	8	8	29	8	0.47	0.14	0.09	1.200	64.0%
<b>Total</b>						<b>2.39</b>	<b>1.62</b>		<b>67.8%</b>

## Results

The kWh realization rate for PRJ-351985 is 77.6% and the kW realization rate is 67.8%.

kWh savings are lower than listed in ex ante calculations for the following reason:

- 1) On site, the Evaluators verified that the facility uses electric resistance heating, which has an IEF<sub>E</sub> of 0.87. Ex ante calculations listed the heating system as gas, which as an IEF<sub>E</sub> of 1.09.

The decrease in kW savings is due the following reason:

- 1) Ex ante calculations used coincidence factor for religious building type (0.53), the ex post calculations used coincidence factor for Education: k-12, w/o summer session building type (0.47).

*Verified Gross Savings & Realization Rates*

<i>Measure</i>	<i>Verified</i>			
	<i>kWh Savings</i>	<i>kW Savings</i>	<i>kWh Realization Rate</i>	<i>kW Realization Rate</i>
60W Inc. to 6W LED - Int. Ballast	1,073	0.25	80.3%	70.2%
100W Inc. to 18W LED - Int. Ballast	5,479	1.28	77.2%	67.6%
40W Inc. to 8W LED - Int. Ballast	406	0.09	76.9%	64.0%
<b>Total</b>	<b>6,958</b>	<b>1.62</b>	<b>77.6%</b>	<b>67.8%</b>



**Project Number** PRJ-340037  
**Program** Small Business

## Project Background

The participant is an office facility that received incentives from ELL for implementing energy efficient lighting. On-site, the Evaluators verified the participant had installed:

- (19) 50W LED fixtures, replacing 4' 3-lamp T12 fixtures;
- (1) 10W LED lamp, replacing 60W incandescent lamp;
- (3) 15W LED fixtures, replacing 4' 2-lamp T12 fixtures;
- (1) 10W LED lamp, replacing 100W incandescent lamp;
- (1) 15W LED fixture, replacing 8' 2-lamp T12 fixtures;
- (13) 150W LED fixtures, replacing 400W metal halide fixtures;
- (1) 15W LED fixture, (2) replacing 4' 3-lamp T12 fixture;
- (3) 50W LED fixtures, (4) replacing 4' 3-lamp T12 fixtures;

On-site, the Evaluators also verified the participant removed:

- (20) 8' 2-lamp T12 fixtures.

## M&V Methodology

The Evaluators confirmed installation of all fixtures listed in the project application. Savings for the lighting measures were calculated using Louisiana stipulated deemed values by space type for hours of use, along with a stipulated peak Coincident Factor (CF), Interactive effects factor for energy ( $IEF_E$ ) and Interactive effects factor for demand ( $IEF_D$ ) determined using local weather data and ELL peak parameters. The deemed values used in calculating savings are presented in the table below.

*Deemed Savings Parameters*

<b>Building Type</b>	<b>Heating Type</b>	<b>Annual Hours</b>	<b><math>IEF_E</math></b>	<b><math>IEF_D</math></b>	<b>CF</b>
Warehouse: Non-Refrigerated	Gas	3,501	1.090	1.200	0.77

## Savings Calculations

Using deemed values from the table above, the Evaluators calculated lighting savings as follows:

$$\text{Annual kWh Savings} = (kW_{base} * AOH_{base} - kW_{post} * AOH_{post}) * IEF_E$$

*Parameters for kWh Savings Calculation of Lighting Retrofit Measures*

$kW_{base}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{post}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
$AOH_{base}$	Annual Operating Hours of Baseline Fixtures
$AOH_{post}$	Annual Operating Hours of Installed Fixtures
$IEF_E$	Heating/Cooling Energy Interactive Effects Factor

Peak kW savings are calculated as:

$$Peak\ kW\ Savings = (kW_{base} - kW_{post}) * CF * IEF_D$$

*Parameters for Peak Demand (kW) Savings Calculation of Lighting Retrofit Measures*

$kW_{base}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{post}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
CF	Peak Demand Coincident Factor, % Time During the Peak Period in Which Lighting is Operating
$IEF_D$	Heating/Cooling Demand Interactive Effects Factor

*Lighting Retrofit kWh Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		AOH		Expected kWh Savings	Realized kWh Savings	$IEF_E$	Realization Rate
	Base	Post	Base	Post	Base	Post				
4' 3L T12ES to 50W LED - Non-Int. Ballast	19	19	144	50	3,501	3,501	11,423	6,816	1.090	59.7%
60W Inc. to 10W LED - Int. Ballast	1	1	43	10	3,501	3,501	211	126	1.090	59.7%
4' 2L T12ES to 15W LED - Non-Int. Ballast	3	3	72	15	3,501	3,501	691	653	1.090	94.5%
100W Inc. to 10W LED - Int. Ballast	1	1	72	10	3,501	3,501	397	237	1.090	59.8%
8' 2L T12 to 15W LED - Non-Int. Ballast	1	1	173	15	3,501	3,501	876	603	1.090	68.8%
400W MH to 150W LED - Non-Int. Ballast	13	13	453	150	3,501	3,501	25,193	15,032	1.090	59.7%
4' 3L T12ES to 15W LED - Non-Int. Ballast	2	1	115	15	3,501	3,501	1,011	820	1.090	81.1%
4' 3L T12ES to 50W LED - Non-Int. Ballast	4	3	144	50	3,501	3,501	2,405	1,626	1.090	67.6%
Delamped 8' 2L T12	20	0	173	-	3,501	0	17,524	13,204	1.090	75.3%
<b>Total</b>							<b>59,730</b>	<b>39,117</b>		<b>65.5%</b>

*Lighting Retrofit kW Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		CF		Expected kW Savings	Realized kW Savings	IEF <sub>D</sub>	Realization Rate
	Base	Post	Base	Post	Base	Post				
4' 3L T12ES to 50W LED - Non-Int. Ballast	19	19	144	50	0.77	0.77	1.68	1.65	1.200	98.4%
60W Inc. to 10W LED - Int. Ballast	1	1	43	10	0.77	0.77	0.03	0.03	1.200	96.8%
4' 2L T12ES to 15W LED - Non-Int. Ballast	3	3	72	15	0.77	0.77	0.10	0.16	1.200	157.8%
100W Inc. to 10W LED - Int. Ballast	1	1	72	10	0.77	0.77	0.06	0.06	1.200	103.1%
8' 2L T12 to 15W LED - Non-Int. Ballast	1	1	173	15	0.77	0.77	0.13	0.15	1.200	116.6%
400W MH to 150W LED - Non-Int. Ballast	13	13	453	150	0.77	0.77	3.70	3.64	1.200	98.4%
4' 3L T12ES to 15W LED - Non-Int. Ballast	2	1	115	15	0.77	0.77	0.15	0.20	1.200	134.8%
4' 3L T12ES to 50W LED - Non-Int. Ballast	4	3	144	50	0.77	0.77	0.35	0.39	1.200	110.5%
Delamped 8' 2L T12	20	0	173	-	0.77	0.77	2.57	3.20	1.200	124.4%
<b>Total</b>							<b>8.77</b>	<b>9.48</b>		<b>108.1%</b>

## Results

The kWh realization rate for PRJ-340037 is 65.5% and the kW realization rate is 108.1%.

The low kWh savings is due to the ex post calculations used verified hours of operations. On-site, the evaluator confirmed that all fixtures followed the Warehouse: Non-refrigerated building type hours.

The high kWh savings is due to the removal of (20) 8' 2L T12 fixtures instead of (19) fixtures.

*Verified Gross Savings & Realization Rates*

<i>Measure</i>	<i>Verified</i>			
	<i>kWh Savings</i>	<i>kW Savings</i>	<i>kWh Realization Rate</i>	<i>kW Realization Rate</i>
4' 3L T12ES to 50W LED - Non-Int. Ballast	6,816	1.65	59.7%	98.4%
60W Inc. to 10W LED - Int. Ballast	126	0.03	59.7%	96.8%
4' 2L T12ES to 15W LED - Non-Int. Ballast	653	0.16	94.5%	157.8%
100W Inc. to 10W LED - Int. Ballast	237	0.06	59.8%	103.1%
8' 2L T12 to 15W LED - Non-Int. Ballast	603	0.15	68.8%	116.6%
400W MH to 150W LED - Non-Int. Ballast	15,032	3.64	59.7%	98.4%
4' 3L T12ES to 15W LED - Non-Int. Ballast	820	0.20	81.1%	134.8%
4' 3L T12ES to 50W LED - Non-Int. Ballast	1,626	0.39	67.6%	110.5%
Delamped 8' 2L T12	13,204	3.20	75.3%	124.4%
<b>Total</b>	<b>39,117</b>	<b>9.48</b>	<b>65.5%</b>	<b>108.1%</b>

**Project Number** PRJ-351962  
**Program** Small Business

## Project Background

The participant is a retail facility that received incentives from ELL for implementing energy efficient exterior lighting. On-site, the Evaluators verified the participant had installed:

- (16) 300W LED fixtures, replacing 1000W metal halide fixtures.

## M&V Methodology

The Evaluators confirmed installation of all fixtures listed in the project application. Savings for the lighting measures were calculated using Louisiana stipulated deemed values by space type for hours of use, along with a stipulated peak Coincident Factor (CF), Interactive effects factor for energy ( $IEF_E$ ) and Interactive effects factor for demand ( $IEF_D$ ) determined using local weather data and ELL peak parameters. The deemed values used in calculating savings are presented in the table below.

*Deemed Savings Parameters*

<b>Building Type</b>	<b>Heating Type</b>	<b>Annual Hours</b>	<b><math>IEF_E</math></b>	<b><math>IEF_D</math></b>	<b>CF</b>
Exterior	None	3,996	1.000	1.000	0.00

## Savings Calculations

Using deemed values from the table above, the Evaluators calculated lighting savings as follows:

$$\text{Annual kWh Savings} = (kW_{\text{base}} * AOH_{\text{base}} - kW_{\text{post}} * AOH_{\text{post}}) * IEF_E$$

*Parameters for kWh Savings Calculation of Lighting Retrofit Measures*

$kW_{\text{base}}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{\text{post}}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
$AOH_{\text{base}}$	Annual Operating Hours of Baseline Fixtures
$AOH_{\text{post}}$	Annual Operating Hours of Installed Fixtures
$IEF_E$	Heating/Cooling Energy Interactive Effects Factor

Peak kW savings are calculated as:

$$\text{Peak kW Savings} = (kW_{\text{base}} - kW_{\text{post}}) * CF * IEF_D$$

*Parameters for Peak Demand (kW) Savings Calculation of Lighting Retrofit Measures*

$kW_{\text{base}}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{\text{post}}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
CF	Peak Demand Coincident Factor, % Time During the Peak Period in Which Lighting is Operating
$IEF_D$	Heating/Cooling Demand Interactive Effects Factor

*Lighting Retrofit kWh Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		AOH	Expected kWh Savings	Realized kWh Savings	$IEF_E$	Realization Rate
	Base	Post	Base	Post					
1000W MH to 300W LED - Non-Int. Ballast	16	16	1,078	300	3,996	49,742	49,742	1.000	100.0%
<b>Total</b>						<b>49,742</b>	<b>49,742</b>		<b>100.0%</b>

*Lighting Retrofit kW Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		CF	Expected kW Savings	Realized kW Savings	$IEF_D$	Realization Rate
	Base	Post	Base	Post					
1000W MH to 300W LED - Non-Int. Ballast	16	16	1,078	300	0.00	0.00	0.00	1.000	N/A
<b>Total</b>						<b>0.00</b>	<b>0.00</b>		<b>N/A</b>

## Results

The kWh realization rate for PRJ-341962 is 100%.

*Verified Gross Savings & Realization Rates*

Measure	Verified			
	kWh Savings	kW Savings	kWh Realization Rate	kW Realization Rate
1000W MH to 300W LED - Non-Int. Ballast	49,742	0.00	100.0%	N/A
<b>Total</b>	<b>49,742</b>	<b>0.00</b>	<b>100.0%</b>	<b>N/A</b>

**Project Number** PRJ-351982  
**Program** Small Business

## Project Background

The participant is a public order and safety facility that received incentives from ELL for implementing energy efficient lighting. On-site, the Evaluators verified the participant had installed:

- (8) 56W LED fixtures, replacing 4' 4-lamp T8 fixtures;
- (28) 50W LED fixtures, replacing 4' 3-lamp fixtures;
- (2) 64W LED fixtures, replacing (4) 4' 4-lamp T8 fixtures;
- (4) 40W LED fixtures, replacing (3) 4' 4-lamp T12 fixtures;
- (1) 36W LED fixture, replacing 4' 2-lamp T8 fixtures;
- (3) 40W LED fixtures, replacing 4' 2-lamp T12 fixtures;
- (50) 64W LED fixtures, (47) replacing 4' 4-lamp T12 fixtures;
- (4) 50W LED fixtures, replacing (3) 4' 6-lamp T12 fixtures;
- (1) 56W LED fixture, replacing (2) 4' 2-lamp T8 fixtures;
- (3) 36W LED fixtures, replacing 4' 2-lamp T12 fixtures;
- (6) 56W LED fixtures, replacing 4' 4-lamp T12 fixtures; and
- (1) 9W LED lamp, replacing 75W incandescent lamps.

## M&V Methodology

The Evaluators confirmed installation of all fixtures listed in the project application. Savings for the lighting measures were calculated using Louisiana stipulated deemed values by space type for hours of use, along with a stipulated peak Coincident Factor (CF), Interactive effects factor for energy ( $IEF_E$ ) and Interactive effects factor for demand ( $IEF_D$ ) determined using local weather data and ELL peak parameters. The deemed values used in calculating savings are presented in the table below.

*Deemed Savings Parameters*

<b>Building Type</b>	<b>Heating Type</b>	<b>Annual Hours</b>	<b><math>IEF_E</math></b>	<b><math>IEF_D</math></b>	<b>CF</b>
Public Order and Safety	Electric Resistance	3,472	0.870	1.200	0.75

## Savings Calculations

Using deemed values from the table above, the Evaluators calculated lighting savings as follows:

$$\text{Annual kWh Savings} = (kW_{base} * AOH_{base} - kW_{post} * AOH_{post}) * IEF_E$$

*Parameters for kWh Savings Calculation of Lighting Retrofit Measures*

$kW_{base}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{post}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
$AOH_{base}$	Annual Operating Hours of Baseline Fixtures
$AOH_{post}$	Annual Operating Hours of Installed Fixtures
$IEF_E$	Heating/Cooling Energy Interactive Effects Factor

Peak kW savings are calculated as:

$$Peak\ kW\ Savings = (kW_{base} - kW_{post}) * CF * IEF_D$$

*Parameters for Peak Demand (kW) Savings Calculation of Lighting Retrofit Measures*

$kW_{base}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{post}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
CF	Peak Demand Coincident Factor, % Time During the Peak Period in Which Lighting is Operating
$IEF_D$	Heating/Cooling Demand Interactive Effects Factor

*Lighting Retrofit kWh Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		AOH	Expected kWh Savings	Realized kWh Savings	$IEF_E$	Realization Rate
	Base	Post	Base	Post					
4' 4L T8 to 56W LED - Non-Int. Ballast	8	8	112	56	3,472	2,689	1,353	0.870	50.3%
4' 4L T12ES to 50W LED - Non-Int. Ballast	28	28	144	50	3,472	15,800	7,950	0.870	50.3%
4' 4L T8 to 64W LED - Non-Int. Ballast	4	2	112	64	3,472	1,921	967	0.870	50.3%
4' 4L T12ES to 40W LED - Non-Int. Ballast	3	4	144	40	3,472	1,633	822	0.870	50.3%
4' 2L T8 to 36W LED - Non-Int. Ballast	1	1	58	36	3,472	132	66	0.870	50.0%
4' 2L T12ES to 40W LED - Non-Int. Ballast	3	3	72	40	3,472	576	290	0.870	50.3%
4' 4L T12ES to 64W LED - Non-Int. Ballast	47	50	144	64	3,472	21,419	10,778	0.870	50.3%
4' 6L T12ES to 50W LED - Non-Int. Ballast	3	4	216	50	3,472	2,689	1,353	0.870	50.3%
4' 2L T8 to 56W LED - Non-Int. Ballast	2	1	58	56	3,472	360	181	0.870	50.3%
4' 2L T12ES to 36W LED - Non-Int. Ballast	3	3	72	36	3,472	648	326	0.870	50.3%
4' 4L T12ES to 56W LED - Non-Int. Ballast	6	6	144	56	3,472	3,170	1,595	0.870	50.3%
75W Inc. to 9W LED - Non-Int. Ballast	1	1	53	9	3,472	264	133	0.870	50.4%
<b>Total</b>						<b>44,170</b>	<b>22,226</b>		<b>50.3%</b>



*Lighting Retrofit kW Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		CF	Expected kW Savings	Realized kW Savings	IEF <sub>D</sub>	Realization Rate
	Base	Post	Base	Post					
4' 4L T8 to 56W LED - Non-Int. Ballast	8	8	112	56	0.75	0.51	0.40	1.200	78.4%
4' 4L T12ES to 50W LED - Non-Int. Ballast	28	28	144	50	0.75	3.00	2.37	1.200	79.0%
4' 4L T8 to 64W LED - Non-Int. Ballast	4	2	112	64	0.75	0.36	0.29	1.200	80.6%
4' 4L T12ES to 40W LED - Non-Int. Ballast	3	4	144	40	0.75	0.31	0.24	1.200	77.4%
4' 2L T8 to 36W LED - Non-Int. Ballast	1	1	58	36	0.75	0.03	0.02	1.200	66.7%
4' 2L T12ES to 40W LED - Non-Int. Ballast	3	3	72	40	0.75	0.11	0.09	1.200	81.8%
4' 4L T12ES to 64W LED - Non-Int. Ballast	47	50	144	64	0.75	4.07	3.21	1.200	78.9%
4' 6L T12ES to 50W LED - Non-Int. Ballast	3	4	216	50	0.75	0.51	0.40	1.200	78.4%
4' 2L T8 to 56W LED - Non-Int. Ballast	2	1	58	56	0.75	0.07	0.05	1.200	71.4%
4' 2L T12ES to 36W LED - Non-Int. Ballast	3	3	72	36	0.75	0.12	0.10	1.200	83.3%
4' 4L T12ES to 56W LED - Non-Int. Ballast	6	6	144	56	0.75	0.60	0.48	1.200	80.0%
75W Inc. to 9W LED - Non-Int. Ballast	1	1	53	9	0.75	0.05	0.04	1.200	80.0%
<b>Total</b>						<b>8.90</b>	<b>7.02</b>		<b>78.9%</b>

## Results

The kWh realization rate for PRJ-351982 is 50.3% and the kW realization rate is 78.9%.

The decrease in kWh savings is due the ex post calculations using hours of operation of (3,472), which are for Public Order and Safety building type. The ex ante calculations used (6,900) hours, which are for Food Sales: 24-hr Supermarket/Retail building type.

The decrease in kW savings is due to ex post calculations using coincidence factor of 0.75, which is for Public Order and Safety building type. The ex ante calculations used 0.95, which is for Food Sales: 24-hr Supermarket/Retail building type.

*Verified Gross Savings & Realization Rates*

<i>Measure</i>	<i>Verified</i>			
	<i>kWh Savings</i>	<i>kW Savings</i>	<i>kWh Realization Rate</i>	<i>kW Realization Rate</i>
4' 4L T8 to 56W LED - Non-Int. Ballast	1,353	0.40	50.3%	78.4%
4' 4L T12ES to 50W LED - Non-Int. Ballast	7,950	2.37	50.3%	79.0%
4' 4L T8 to 64W LED - Non-Int. Ballast	967	0.29	50.3%	80.6%
4' 4L T12ES to 40W LED - Non-Int. Ballast	822	0.24	50.3%	77.4%
4' 2L T8 to 36W LED - Non-Int. Ballast	66	0.02	50.0%	66.7%
4' 2L T12ES to 40W LED - Non-Int. Ballast	290	0.09	50.3%	81.8%
4' 4L T12ES to 64W LED - Non-Int. Ballast	10,778	3.21	50.3%	78.9%
4' 6L T12ES to 50W LED - Non-Int. Ballast	1,353	0.40	50.3%	78.4%
4' 2L T8 to 56W LED - Non-Int. Ballast	181	0.05	50.3%	71.4%
4' 2L T12ES to 36W LED - Non-Int. Ballast	326	0.10	50.3%	83.3%
4' 4L T12ES to 56W LED - Non-Int. Ballast	1,595	0.48	50.3%	80.0%
75W Inc. to 9W LED - Non-Int. Ballast	133	0.04	50.4%	80.0%
<b>Total</b>	<b>23,579</b>	<b>7.02</b>	<b>50.3%</b>	<b>78.9%</b>

**Project Number** PRJ-359702  
**Program** Small Business

## Project Background

The participant is an assembly facility that received incentives from ELL for implementing energy efficient lighting. On-site, the Evaluators verified the participant had installed:

- (1) 30W LED fixture, replacing 500W halogen fixture;
- (6) 17W LED lamps, replacing 90W halogen lamps;
- (6) 10W LED lamps, replacing 100W halogen lamps; and
- (1) 17W LED lamp, replacing 26W compact florescent lamp.

On-site, the Evaluators did not verify the participant had installed (2) 10W LEDs failed verification

## M&V Methodology

The Evaluators found some lighting fixture counts deviated from those listed in the project application. Verified fixture counts were used in ex post savings calculations. Savings for the lighting measures were calculated using Louisiana stipulated deemed values by space type for hours of use, along with a stipulated peak Coincident Factor (CF), Interactive effects factor for energy ( $IEF_E$ ) and Interactive effects factor for demand ( $IEF_D$ ) determined using local weather data and ELL peak parameters. The deemed values used in calculating savings are presented in the table below.

*Deemed Savings Parameters*

<b>Building Type</b>	<b>Heating Type</b>	<b>Annual Hours</b>	<b><math>IEF_E</math></b>	<b><math>IEF_D</math></b>	<b>CF</b>
Outdoor	None	3,996	1.000	1.000	0.00

## Savings Calculations

Using deemed values from the table above, the Evaluators calculated lighting savings as follows:

$$\text{Annual kWh Savings} = (kW_{base} * AOH_{base} - kW_{post} * AOH_{post}) * IEF_E$$

*Parameters for kWh Savings Calculation of Lighting Retrofit Measures*

$kW_{base}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{post}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
$AOH_{base}$	Annual Operating Hours of Baseline Fixtures
$AOH_{post}$	Annual Operating Hours of Installed Fixtures
$IEF_E$	Heating/Cooling Energy Interactive Effects Factor

Peak kW savings are calculated as:

$$\text{Peak kW Savings} = (kW_{\text{base}} - kW_{\text{post}}) * CF * IEF_D$$

*Parameters for Peak Demand (kW) Savings Calculation of Lighting Retrofit Measures*

$kW_{\text{base}}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{\text{post}}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
CF	Peak Demand Coincident Factor, % Time During the Peak Period in Which Lighting is Operating
$IEF_D$	Heating/Cooling Demand Interactive Effects Factor

*Lighting Retrofit kWh Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		AOH		Expected kWh Savings	Realized kWh Savings	$IEF_E$	Realization Rate
	Base	Post	Base	Post	Base	Post				
500W 1L Halogen to 30W LED - Non-Int. Ballast	1	1	500	30	3,996	3,996	1,878	1,878	1.000	100.0%
90W 1L Halogen to 17W LED - Int. Ballast	6	6	90	17	3,996	3,996	1,750	1,750	1.000	100.0%
100W 1L Halogen to 10W LED - Int. Ballast	6	6	100	10	3,996	3,996	2,158	2,158	1.000	100.0%
15W Inc. to 10W LED - Int. Ballast	0	0	15	10	3,996	3,996	100	0	1.000	0.0%
26W CFL to 17W LED - Int. Ballast	1	1	26	17	3,996	3,996	36	36	1.000	100.1%
<b>Total</b>							<b>5,922</b>	<b>5,822</b>		<b>98.3%</b>

*Lighting Retrofit kW Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		CF		Expected kW Savings	Realized kW Savings	$IEF_D$	Realization Rate
	Base	Post	Base	Post	Base	Post				
500W 1L Halogen to 30W LED - Non-Int. Ballast	1	1	500	30	0.00	0.00	0.29	0.00	1.000	0.0%
90W 1L Halogen to 17W LED - Int. Ballast	6	6	90	17	0.00	0.00	0.27	0.00	1.000	0.0%
100W 1L Halogen to 10W LED - Int. Ballast	6	6	100	10	0.00	0.00	0.34	0.00	1.000	0.0%
15W Inc. to 10W LED - Int. Ballast	0	0	15	10	0.00	0.00	0.01	0.00	1.000	0.0%
26W CFL to 17W LED - Int. Ballast	1	1	26	17	0.00	0.00	0.01	0.00	1.000	0.0%
<b>Total</b>							<b>0.92</b>	<b>0.00</b>		<b>0.0%</b>

## Results

The kWh realization rate for PRJ-359702 is 98.3% and the kW realization rate is 0%. The decrease in kWh savings is due (2) unverified 10W LED lamps. These lamps were listed as being installed in an exterior chandelier. This chandelier was inspected and the evaluator found in it was non-qualifying. There are no kW savings because the lamps and fixtures operate during off-peak hours.

### *Verified Gross Savings & Realization Rates*

<i>Measure</i>	<i>Verified</i>			
	<i>kWh Savings</i>	<i>kW Savings</i>	<i>kWh Realization Rate</i>	<i>kW Realization Rate</i>
500W 1L Halogen to 30W LED - Non-Int. Ballast	1,878	0.00	100.0%	0.0%
90W 1L Halogen to 17W LED - Int. Ballast	1,750	0.00	100.0%	0.0%
100W 1L Halogen to 10W LED - Int. Ballast	2,158	0.00	100.0%	0.0%
15W Inc. to 10W LED - Int. Ballast	0	0.00	0.0%	0.0%
26W CFL to 17W LED - Int. Ballast	36	0.00	100.1%	0.0%
<b>Total</b>	<b>5,822</b>	<b>0.00</b>	<b>98.3%</b>	<b>0.0%</b>

## 9.2 Large Commercial & Industrial

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**Project Number** PRJ-290457  
**Program** Large Commercial and Industrial

## Project Background

The participant is a fitness center that received incentives from ELL for implementing energy efficient lighting. On-site, the Evaluators verified the participant had installed:

- (120) 10W LED lamps, replacing 50W incandescent lamps;
- (20) 7W LED lamps, replacing 15W CFLs; and
- (6) 8W LED lamps, replacing 50W halogen lamps.

## M&V Methodology

The Evaluators found some lighting fixture counts deviated from those listed in the project application. Verified fixture counts were used in ex post savings calculations. Savings for the lighting measures were calculated using Louisiana stipulated deemed values by space type for hours of use, along with a stipulated peak Coincident Factor (CF), Interactive effects factor for energy ( $IEF_E$ ) and Interactive effects factor for demand ( $IEF_D$ ) determined using local weather data and ELL peak parameters. The deemed values used in calculating savings are presented in the table below.

*Deemed Savings Parameters*

<b>Building Type</b>	<b>Heating Type</b>	<b>Annual Hours</b>	<b><math>IEF_E</math></b>	<b><math>IEF_D</math></b>	<b>CF</b>
Custom	Gas	5,876	1.090	1.200	0.78

## Savings Calculations

Using deemed values from the table above, the Evaluators calculated lighting savings as follows:

$$\text{Annual kWh Savings} = (kW_{base} * AOH_{base} - kW_{post} * AOH_{post}) * IEF_E$$

*Parameters for kWh Savings Calculation of Lighting Retrofit Measures*

$kW_{base}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{post}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
$AOH_{base}$	Annual Operating Hours of Baseline Fixtures
$AOH_{post}$	Annual Operating Hours of Installed Fixtures
$IEF_E$	Heating/Cooling Energy Interactive Effects Factor

Peak kW savings are calculated as:

$$\text{Peak kW Savings} = (kW_{\text{base}} - kW_{\text{post}}) * CF * IEF_D$$

*Parameters for Peak Demand (kW) Savings Calculation of Lighting Retrofit Measures*

$kW_{\text{base}}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{\text{post}}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
CF	Peak Demand Coincident Factor, % Time During the Peak Period in Which Lighting is Operating
$IEF_D$	Heating/Cooling Demand Interactive Effects Factor

*Lighting Retrofit kWh Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		AOH		Expected kWh Savings	Realized kWh Savings	$IEF_E$	Realization Rate
	Base	Post	Base	Post	Base	Post				
50W Inc. to 10W LED - Int. Ballast	120	120	50	10	5,304	5,304	26,907	27,751	1.090	103.1%
15W CFL to 7W LED - Int. Ballast	20	20	15	7	5,304	5,304	1,076	925	1.090	85.9%
50W 1L Halogen to 8W LED - Int. Ballast	6	6	50	8	5,304	5,304	1,413	1,457	1.090	103.1%
<b>Total</b>							<b>29,396</b>	<b>33,638</b>		<b>114.4%</b>

*Lighting Retrofit kW Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		CF		Expected kW Savings	Realized kW Savings	$IEF_D$	Realization Rate
	Base	Post	Base	Post	Base	Post				
50W Inc. to 10W LED - Int. Ballast	121	121	50	10	0.78	0.78	4.49	4.49	1.200	99.9%
15W CFL to 7W LED - Int. Ballast	20	20	15	7	0.78	0.78	0.18	0.15	1.200	83.5%
50W 1L Halogen to 8W LED - Int. Ballast	6	6	50	8	0.78	0.78	0.24	0.24	1.200	101.8%
<b>Total</b>							<b>4.91</b>	<b>4.88</b>		<b>99.4%</b>

## Results

The kWh realization rate for PRJ-290457 is 102.5% and the kW realization rate is 99.4%.

kWh savings was impacted by the following revisions:

- (4) 7W LEDs were not installed and were onsite as spare lighting. This reduces savings by 179 kWh (-.6%);
- Hours of use were revised from 5,720 down to 5,304 based on interviews with facility staff to obtain the lighting schedule. This reduced savings by 2,304 kWh (-7.8%);



- The HVAC system type was entered as “Undetermined”, with an interactive factor of .87. This was corrected to reflect an equipment configuration comprising gas space heating and electric cooling that was verified on-site. This increased savings by 3,041 kWh (+10.3%);
- These conflicting effects had an aggregate result of 102.5% kWh realization.

kW savings was reduced by .03 kW (-.6%) due to the (4) 7W LEDs which were not installed.

*Verified Gross Savings & Realization Rates*

<i>Measure</i>	<i>Verified</i>			
	<i>kWh Savings</i>	<i>kW Savings</i>	<i>kWh Realization Rate</i>	<i>kW Realization Rate</i>
50W Inc. to 10W LED - Int. Ballast	27,751	4.49	103.1%	99.9%
15W CFL to 7W LED - Int. Ballast	925	0.15	85.9%	83.5%
50W 1L Halogen to 8W LED - Int. Ballast	1,457	0.24	103.1%	101.8%
<b>Total</b>	<b>30,133</b>	<b>4.88</b>	<b>102.5%</b>	<b>99.4%</b>

**Project Number** PRJ-290514  
**Program** Large C&I

## Project Background

The participant is a manufacturing facility that received incentives from ELL for implementing energy efficient lighting in their parking lot. On-site, the Evaluators verified the participant had installed:

- (4) 204W LED fixtures, replacing 400W metal halide fixtures;
- (7) 27W LED fixtures, replacing 250W high pressure sodium fixtures;
- (4) 79W LED fixtures, replacing 250W high pressure sodium fixtures;
- (4) 18W LED fixtures, replacing 60W incandescent fixtures.

## M&V Methodology

The Evaluators confirmed installation of all fixtures listed in the project application. Savings for the lighting measures were calculated using Louisiana stipulated deemed values by space type for hours of use, along with a stipulated peak Coincident Factor (CF), Interactive effects factor for energy ( $IEF_E$ ) and Interactive effects factor for demand ( $IEF_D$ ) determined using local weather data and ELL peak parameters. The deemed values used in calculating savings are presented in the table below.

*Deemed Savings Parameters*

<b>Building Type</b>	<b>Heating Type</b>	<b>Cooling Type</b>	<b>Annual Hours</b>	$IEF_E$	$IEF_D$	<b>CF</b>
Outdoor	None	None	3,996	1.000	1.000	0.00
Manufacturing	None	None	5,740	1.090	1.200	0.73

## Savings Calculations

Using deemed values from the table above, the Evaluators calculated lighting savings as follows:

$$\text{Annual kWh Savings} = (kW_{base} * AOH_{base} - kW_{post} * AOH_{post}) * IEF_E$$

*Parameters for kWh Savings Calculation of Lighting Retrofit Measures*

$kW_{base}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{post}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
$AOH_{base}$	Annual Operating Hours of Baseline Fixtures
$AOH_{post}$	Annual Operating Hours of Installed Fixtures
$IEF_E$	Heating/Cooling Energy Interactive Effects Factor

Peak kW savings are calculated as:

$$\text{Peak kW Savings} = (kW_{\text{base}} - kW_{\text{post}}) * CF * IEF_D$$

*Parameters for Peak Demand (kW) Savings Calculation of Lighting Retrofit Measures*

kW <sub>base</sub>	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
kW <sub>post</sub>	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
CF	Peak Demand Coincident Factor, % Time During the Peak Period in Which Lighting is Operating
IEF <sub>D</sub>	Heating/Cooling Demand Interactive Effects Factor

*Lighting Retrofit kWh Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		AOH	Expected kWh Savings	Realized kWh Savings	IEF <sub>E</sub>	Realization Rate
	Base	Post	Base	Post					
400W MH to 204W LED - Non-Int. Ballast	4	4	453	204	5,740	4,753	6,232	1.090	131.1%
70W HPS to 27W LED - Non-Int. Ballast	7	7	95	27	3,996	1,902	1,902	1.000	100.0%
250W HPS to 79W LED - Non-Int. Ballast	4	4	295	79	3,996	3,453	3,453	1.000	100.0%
60W Inc. to 18W LED - Non-Int. Ballast	4	4	43	18	3,996	671	400	1.000	59.6%
<b>Total</b>						<b>10,779</b>	<b>11,987</b>		<b>111.2%</b>

*Lighting Retrofit kW Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		CF	Expected kW Savings	Realized kW Savings	IEF <sub>D</sub>	Realization Rate
	Base	Post	Base	Post					
400W MH to 204W LED - Non-Int. Ballast	4	4	453	204	0.73	0.87	0.87	1.200	100.0%
70W HPS to 27W LED - Non-Int. Ballast	7	7	95	27	0.00	0.00	0.00	1.000	N/A
250W HPS to 79W LED - Non-Int. Ballast	4	4	295	79	0.00	0.00	0.00	1.000	N/A
60W Inc. to 18W LED - Non-Int. Ballast	4	4	43	18	0.00	0.00	0.00	1.000	N/A
<b>Total</b>						<b>0.87</b>	<b>0.87</b>		<b>100.0%</b>

## Results

The kWh realization rate for PRJ-290514 is 111.2% and the kW realization rate is 100%.

The increase in kWh savings is due to the ex post calculations using greater hours of operation (5,740) than the ex ante calculations (4,772). The ex ante calculations used an outdated value for manufacturing hours of use on an old form of the lighting calculator. The increase in energy interactive factors for manufacturing building from 1.000 to 1.090, also contributed to the kWh savings. Savings was decreased slightly for the 18W LEDs replacing 60W incandescent lamps, as these calculations did not take EISA standards.

The increase in demand interactive factors and decrease in coincidence factor in the ex post calculations did not change the kW savings.

*Verified Gross Savings & Realization Rates*

<i>Measure</i>	<i>Verified</i>			
	<i>kWh Savings</i>	<i>kW Savings</i>	<i>kWh Realization Rate</i>	<i>kW Realization Rate</i>
400W MH to 204W LED - Non-Int. Ballast	6,232	0.87	131.1%	100.0%
70W HPS to 27W LED - Non-Int. Ballast	1,902	0.00	100.0%	N/A
250W HPS to 79W LED - Non-Int. Ballast	3,453	0.00	100.0%	N/A
60W Inc. to 18W LED - Non-Int. Ballast	400	0.00	59.6%	N/A
<b>Total</b>	<b>11,987</b>	<b>0.87</b>	<b>111.2%</b>	<b>100.0%</b>

**Project Number** PRJ-290644  
**Program** Large Commercial and Industrial

## Project Background

The participant is a manufacturing facility that received incentives from ELL for implementing energy efficient lighting. On-site, the Evaluators verified the participant had installed:

- (6) 190W LED fixtures with outdoor daylighting controls, replacing 400W metal halide fixtures;
- (23) 4' 8-lamp T5HO fixtures, replacing (12) 1000W metal halide fixtures;
- (2) 4' 4-lamp T8 fixtures, replacing 400W metal halide fixtures; and
- (6) 85W LED fixtures, replacing 250W metal halide fixtures.

On-site, the Evaluators also verified the participant had removed:

- (19) 1000W metal halide fixtures; and
- (12) 400W metal halide fixtures.

## M&V Methodology

The Evaluators found some lighting fixture counts deviated from those listed in the project application. Verified fixture counts were used in ex post savings calculations. Savings for the lighting measures were calculated using Louisiana stipulated deemed values by space type for hours of use, along with a stipulated peak Coincident Factor (CF), Interactive effects factor for energy ( $IEF_E$ ) and Interactive effects factor for demand ( $IEF_D$ ) determined using local weather data and ELL Power peak parameters. The deemed values used in calculating savings are presented in the table below.

*Deemed Savings Parameters*

<b>Building Type</b>	<b>Heating Type</b>	<b>Annual Hours</b>	<b><math>IEF_E</math></b>	<b><math>IEF_D</math></b>	<b>CF</b>
Manufacturing	None	5,740	1.000	1.000	0.73
Outdoor	None	3,996	1.000	1.000	0.00

## Savings Calculations

Using deemed values from the table above, the Evaluators calculated lighting savings as follows:

$$\text{Annual kWh Savings} = (kW_{base} * AOH_{base} - kW_{post} * AOH_{post}) * IEF_E$$

*Parameters for kWh Savings Calculation of Lighting Retrofit Measures*

$kW_{base}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{post}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
$AOH_{base}$	Annual Operating Hours of Baseline Fixtures
$AOH_{post}$	Annual Operating Hours of Installed Fixtures
$IEF_E$	Heating/Cooling Energy Interactive Effects Factor

Peak kW savings are calculated as:

$$Peak\ kW\ Savings = (kW_{base} - kW_{post}) * CF * IEF_D$$

*Parameters for Peak Demand (kW) Savings Calculation of Lighting Retrofit Measures*

$kW_{base}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{post}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
CF	Peak Demand Coincident Factor, % Time During the Peak Period in Which Lighting is Operating
$IEF_D$	Heating/Cooling Demand Interactive Effects Factor

*Lighting Retrofit kWh Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		AOH	Expected kWh Savings	Realized kWh Savings	$IEF_E$	Realization Rate
	Base	Post	Base	Post					
Delamped 1000W MH	19	0	1,067	-	5,740	94,548	116,367	1.000	123.1%
Delamped 400W MH	12	0	429	-	5,740	24,566	29,550	1.000	120.3%
400W MH to 190W LED - Non-Int. Ballast	6	6	429	190	3,996	6,843	5,730	1.000	83.7%
1000W MH to 4' 8L T5HO	12	23	1,067	460	5,740	10,613	12,766	1.000	120.3%
400W MH to 4' 4L T8	2	2	429	107	5,740	3,073	3,697	1.000	120.3%
<b>Total</b>						<b>139,643</b>	<b>168,110</b>		<b>120.4%</b>

*Lighting Retrofit kW Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		CF	Expected kW Savings	Realized kW Savings	$IEF_D$	Realization Rate
	Base	Post	Base	Post					
Delamped 1000W MH	19	0	1,067	-	0.73	17.24	14.80	1.000	85.8%
Delamped 400W MH	12	0	429	-	0.73	4.48	3.76	1.000	83.9%
400W MH to 190W LED - Non-Int. Ballast	6	6	429	190	0.00	1.25	0.00	1.000	0.0%
1000W MH to 4' 8L T5HO	12	23	1,067	460	0.73	1.93	1.62	1.000	83.9%
400W MH to 4' 4L T8	2	2	429	107	0.73	0.56	0.47	1.000	83.9%
<b>Total</b>						<b>26.45</b>	<b>21.48</b>		<b>81.2%</b>

## Results

The kWh realization rate for PRJ-290644 is 120.4% and the kW realization rate is 81.2%.

The increase in kWh savings is due to two reasons:

- 1) The ex post calculations using the deemed manufacturing AOH of 5,740 hours. The ex ante calculations used 4,772 hours as the manufacturing AOH.
- 2) On-site the Evaluators verified that (19) 1000W metal halide fixtures were removed instead of the (2) 4' 4-lamp T5HO fixtures replacing (19) 1000W metal halide fixtures.

The decrease in kW savings is due to two reasons:

- 1) The ex post calculations using the deemed manufacturing CF of 0.73. The ex ante calculations used 0.87 as the manufacturing CF.
- 2) On-site, the Evaluators verified that (6) 190W LED fixtures were outdoor fixtures. Outdoor fixtures have a CF of 0.00 since they are not used during peak hours.

### *Verified Gross Savings & Realization Rates*

<i>Measure</i>	<i>Verified</i>			
	<i>kWh Savings</i>	<i>kW Savings</i>	<i>kWh Realization Rate</i>	<i>kW Realization Rate</i>
Delamped 1000W MH	116,367	14.80	123.1%	85.8%
Delamped 400W MH	29,550	3.76	120.3%	83.9%
400W MH to 190W LED - Non-Int. Ballast	5,730	0.00	83.7%	0.0%
1000W MH to 4' 8L T5HO	12,766	1.62	120.3%	83.9%
400W MH to 4' 4L T8	3,697	0.47	120.3%	83.9%
250W MH to 85W LED - Non-Int. Ballast	6,544	0.83	120.3%	83.8%
<b>Total</b>	<b>174,654</b>	<b>21.48</b>	<b>120.4%</b>	<b>81.2%</b>

**Project Number** PRJ-309518  
**Program** Large Commercial and Industrial

## Project Background

The participant is a parking structure that received incentives from ELL for implementing energy efficient lighting. On-site, the Evaluators verified the participant had installed:

- (138) 45W LED-Non-Int. Ballast lamps, replacing (138) 175W metal halide lamps.

## M&V Methodology

The Evaluators confirmed installation of all fixtures listed in the project application. Savings for the lighting measures were calculated using Louisiana stipulated deemed values by space type for hours of use, along with a stipulated peak Coincident Factor (CF), Interactive effects factor for energy ( $IEF_E$ ) and Interactive effects factor for demand ( $IEF_D$ ) determined using local weather data and ELL peak parameters. The deemed values used in calculating savings are presented in the table below.

*Deemed Savings Parameters*

<b>Building Type</b>	<b>Heating Type</b>	<b>Cooling Type</b>	<b>Annual Hours</b>	<b><math>IEF_E</math></b>	<b><math>IEF_D</math></b>	<b>CF</b>
Parking structure	None	None	8,760	1.000	1.000	1.000

## Savings Calculations

Using deemed values from the table above, the Evaluators calculated lighting savings as follows:

$$\text{Annual kWh Savings} = (kW_{base} * AOH_{base} - kW_{post} * AOH_{post}) * IEF_E$$

*Parameters for kWh Savings Calculation of Lighting Retrofit Measures*

$kW_{base}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{post}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
$AOH_{base}$	Annual Operating Hours of Baseline Fixtures
$AOH_{post}$	Annual Operating Hours of Installed Fixtures
$IEF_E$	Heating/Cooling Energy Interactive Effects Factor

Peak kW savings are calculated as:

$$\text{Peak kW Savings} = (kW_{base} - kW_{post}) * CF * IEF_D$$



*Parameters for Peak Demand (kW) Savings Calculation of Lighting Retrofit Measures*

$kW_{base}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{post}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
CF	Peak Demand Coincident Factor, % Time During the Peak Period in Which Lighting is Operating
IEF <sub>D</sub>	Heating/Cooling Demand Interactive Effects Factor

*Lighting Retrofit kWh Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		AOH		Expected kWh Savings	Realized kWh Savings	IEF <sub>E</sub>	Realization Rate
	Base	Post	Base	Post	Base	Post				
175W MH to 45W LED - Non-Int. Ballast	138	138	208	45	8,760	8,760	197,047	197,047	1.000	100.00%
<b>Total</b>							<b>197,047</b>	<b>197,047</b>		<b>100.00%</b>

*Lighting Retrofit kW Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		CF		Expected kW Savings	Realized kW Savings	IEF <sub>D</sub>	Realization Rate
	Base	Post	Base	Post	Base	Post				
175W MH to 45W LED - Non-Int. Ballast	138	138	208	45	1.00	1.00	22.49	22.49	1.000	100.0%
<b>Total</b>							<b>22.49</b>	<b>22.49</b>		<b>100.0%</b>

## Results

The kWh and kW realization rate for PRJ-309518 is 100%.

*Verified Gross Savings & Realization Rates*

Measure	Verified			
	kWh Savings	kW Savings	kWh Realization Rate	kW Realization Rate
175W MH to 45W LED - Non-Int. Ballast	197,047	22.49	100.0%	100.0%
<b>Total:</b>	<b>197,047</b>	<b>22.49</b>	<b>100.0%</b>	<b>100.0%</b>

**Project Number** PRJ-309497  
**Program** Large C&I Direct Install

## Project Background

The participant is a parking structure that received incentives from ELL for implementing energy efficient lighting. On-site, the Evaluators verified the participant had installed:

- (160) 45W LED-Non-Int. Ballast fixture, replacing 175W metal halide lamps.

## M&V Methodology

The Evaluators confirmed installation of all fixtures listed in the project application. Savings for the lighting measures were calculated using Louisiana stipulated deemed values by space type for hours of use, along with a stipulated peak Coincident Factor (CF), Interactive effects factor for energy ( $IEF_E$ ) and Interactive effects factor for demand ( $IEF_D$ ) determined using local weather data and ELL peak parameters. The deemed values used in calculating savings are presented in the table below.

*Deemed Savings Parameters*

<b>Building Type</b>	<b>Heating Type</b>	<b>Cooling Type</b>	<b>Annual Hours</b>	<b><math>IEF_E</math></b>	<b><math>IEF_D</math></b>	<b>CF</b>
Parking structure	None	None	8,760	1.000	1.000	1.000

## Savings Calculations

Using deemed values from the table above, the Evaluators calculated lighting savings as follows:

$$\text{Annual kWh Savings} = (kW_{base} * AOH_{base} - kW_{post} * AOH_{post}) * IEF_E$$

*Parameters for kWh Savings Calculation of Lighting Retrofit Measures*

$kW_{base}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{post}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
$AOH_{base}$	Annual Operating Hours of Baseline Fixtures
$AOH_{post}$	Annual Operating Hours of Installed Fixtures
$IEF_E$	Heating/Cooling Energy Interactive Effects Factor

Peak kW savings are calculated as:

$$\text{Peak kW Savings} = (kW_{\text{base}} - kW_{\text{post}}) * CF * IEF_D$$

*Parameters for Peak Demand (kW) Savings Calculation of Lighting Retrofit Measures*

$kW_{\text{base}}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{\text{post}}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
CF	Peak Demand Coincident Factor, % Time During the Peak Period in Which Lighting is Operating
$IEF_D$	Heating/Cooling Demand Interactive Effects Factor

*Lighting Retrofit kWh Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		AOH Base	Expected kWh Savings	Realized kWh Savings	$IEF_E$	Realization Rate
	Base	Post	Base	Post					
175W MH to 45W LED - Non-Int. Ballast	160	160	208	45	8,760	228,461	228,461	1.000	100.00%
<b>Total</b>						<b>228,461</b>	<b>228,461</b>		<b>100.00%</b>

*Lighting Retrofit kW Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		CF	Expected kW Savings	Realized kW Savings	$IEF_D$	Realization Rate
	Base	Post	Base	Post					
175W MH to 45W LED - Non-Int. Ballast	160	160	208	45	1.00	26.08	26.08	1.000	100.0%
<b>Total</b>						<b>26.08</b>	<b>26.08</b>		<b>100.0%</b>

## Results

The kWh and kW realization rates for are 100%.

*Verified Gross Savings & Realization Rates*

Measure	Verified			
	kWh Savings	kW Savings	kWh Realization Rate	kW Realization Rate
175W MH to 45W LED - Non-Int. Ballast	228,461	26.08	100.0%	100.0%
<b>Total</b>	<b>228,461</b>	<b>26.08</b>	<b>100.0%</b>	<b>100.0%</b>

**Project Number** PRJ-308524  
**Program** Large Commercial & Industrial

## Project Background

The participant is a parking structure that received incentives from ELL for implementing energy efficient lighting. On-site, the Evaluators verified the participant had installed:

- (68) 45W LED fixtures, replacing 175W metal halide fixtures; and
- (652) 45W LED fixtures, replacing 100W high pressure sodium fixtures.

## M&V Methodology

The Evaluators confirmed installation of all fixtures listed in the project application. Savings for the lighting measures were calculated using Louisiana stipulated deemed values by space type for hours of use, along with a stipulated peak Coincident Factor (CF), Interactive effects factor for energy ( $IEF_E$ ) and Interactive effects factor for demand ( $IEF_D$ ) determined using local weather data and ELL peak parameters. The deemed values used in calculating savings are presented in the table below.

*Deemed Savings Parameters*

<b>Building Type</b>	<b>Heating Type</b>	<b>Cooling Type</b>	<b>Annual Hours</b>	<b><math>IEF_E</math></b>	<b><math>IEF_D</math></b>	<b>CF</b>
Parking structure	None	None	8,760	1.000	1.000	1.000

## Savings Calculations

Using deemed values from the table above, the Evaluators calculated lighting savings as follows:

$$\text{Annual kWh Savings} = (kW_{base} * AOH_{base} - kW_{post} * AOH_{post}) * IEF_E$$

*Parameters for kWh Savings Calculation of Lighting Retrofit Measures*

$kW_{base}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{post}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
$AOH_{base}$	Annual Operating Hours of Baseline Fixtures
$AOH_{post}$	Annual Operating Hours of Installed Fixtures
$IEF_E$	Heating/Cooling Energy Interactive Effects Factor

Peak kW savings are calculated as:

$$\text{Peak kW Savings} = (kW_{base} - kW_{post}) * CF * IEF_D$$

*Parameters for Peak Demand (kW) Savings Calculation of Lighting Retrofit Measures*

$kW_{base}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{post}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
CF	Peak Demand Coincident Factor, % Time During the Peak Period in Which Lighting is Operating
IEF <sub>D</sub>	Heating/Cooling Demand Interactive Effects Factor

*Lighting Retrofit kWh Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		AOH	Expected kWh Savings	Realized kWh Savings	IEF <sub>E</sub>	Realization Rate
	Base	Post	Base	Post					
175W MH to 45W LED - Non-Int. Ballast	68	68	208	45	8,760	97,096	97,096	1.000	100.0%
100W HPS to 45W LED - Non-Int. Ballast	652	652	138	45	8,760	531,171	531,171	1.000	100.0%
<b>Total</b>						<b>628,267</b>	<b>628,267</b>		<b>100.0%</b>

*Lighting Retrofit kW Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		CF	Expected kW Savings	Realized kW Savings	IEF <sub>D</sub>	Realization Rate
	Base	Post	Base	Post					
175W MH to 45W LED - Non-Int. Ballast	68	68	208	45	1.00	11.08	11.08	1.00	100.0%
100W HPS to 45W LED - Non-Int. Ballast	652	652	138	45	1.00	60.64	60.64	1.00	100.0%
<b>Total</b>						<b>71.72</b>	<b>71.72</b>		<b>100.0%</b>

**Results**

The kWh and kW realization rate for PRJ-308524 are both 100%.

*Verified Gross Savings & Realization Rates*

Measure	Verified			
	kWh Savings	kW Savings	kWh Realization Rate	kW Realization Rate
175W MH to 45W LED - Non-Int. Ballast	97,096	11.08	100.0%	100.0%
100W HPS to 45W LED - Non-Int. Ballast	531,171	60.64	100.0%	100.0%
<b>Total</b>	<b>628,267</b>	<b>71.72</b>	<b>100.0%</b>	<b>100.0%</b>

**Project Number** PRJ-327614  
**Program** Large Commercial and Industrial

## Project Background

The participant is a school that received incentives from ELL for implementing energy efficient lighting. On-site, the Evaluators verified the participant had installed:

- (121) 43W LED fixtures, replacing (400) 72W fluorescent fixtures;

## M&V Methodology

The Evaluators found some lighting fixture counts deviated from those listed in the project application. Verified fixture counts were used in ex post savings calculations. Savings for the lighting measures were calculated using Louisiana stipulated deemed values by space type for hours of use, along with a stipulated peak Coincident Factor (CF), Interactive effects factor for energy ( $IEF_E$ ) and Interactive effects factor for demand ( $IEF_D$ ) determined using local weather data and ELL Power peak parameters. The deemed values used in calculating savings are presented in the table below.

*Deemed Savings Parameters*

<b>Building Type</b>	<b>Heating Type</b>	<b>Annual Hours</b>	<b><math>IEF_E</math></b>	<b><math>IEF_D</math></b>	<b>CF</b>
Education; k-12, without summer session	Gas	2,777	1.090	1.200	0.47

## Savings Calculations

Using deemed values from the table above, the Evaluators calculated lighting savings as follows:

$$\text{Annual kWh Savings} = (kW_{base} * AOH_{base} - kW_{post} * AOH_{post}) * IEF_E$$

*Parameters for kWh Savings Calculation of Lighting Retrofit Measures*

$kW_{base}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{post}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
$AOH_{base}$	Annual Operating Hours of Baseline Fixtures
$AOH_{post}$	Annual Operating Hours of Installed Fixtures
$IEF_E$	Heating/Cooling Energy Interactive Effects Factor

Peak kW savings are calculated as:

$$\text{Peak kW Savings} = (kW_{\text{base}} - kW_{\text{post}}) * CF * IEF_D$$

*Parameters for Peak Demand (kW) Savings Calculation of Lighting Retrofit Measures*

$kW_{\text{base}}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{\text{post}}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
CF	Peak Demand Coincident Factor, % Time During the Peak Period in Which Lighting is Operating
$IEF_D$	Heating/Cooling Demand Interactive Effects Factor

*Lighting Retrofit kWh Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		AOH	Expected kWh Savings	Realized kWh Savings	$IEF_E$	Realization Rate
	Base	Post	Base	Post					
4' 2L T12ES to 43W LED – Non-Int. Ballast	400	121	72	43	2,777	64,693	71,426	1.090	110.4%
<b>Total</b>						<b>64,693</b>	<b>71,426</b>		<b>110.4%</b>

*Lighting Retrofit kW Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		CF	Expected kW Savings	Realized kW Savings	$IEF_D$	Realization Rate
	Base	Post	Base	Post					
4' 2L T12ES to 43W LED – Non-Int. Ballast	400	121	72	43	0.47	10.95	13.31	1.200	121.6%
<b>Total</b>						<b>10.95</b>	<b>13.31</b>		<b>121.6%</b>

## Results

The kWh realization rate for PRJ-327614 is 110.4% and the kW realization rate is 121.6%.

The increase in kWh and kW savings are attributable to two changes:

- 3) The ex post calculations used gas, the verified heating type, to determine CIF factors for energy and demand (1.090 and 1.200, respectively). The ex ante calculations used a heating type of “None,” which is associated with CIF factors of energy and demand of 1. This change is responsible for an increase of 5,822 kWh savings and 2.19 kW savings. This change is responsible for 86% of the discrepancy between ex ante and ex post kWh savings and 93% of the discrepancy between ex ante and ex post kW savings.
- 4) On-site the Evaluators verified that (121) 43W LED fixtures were installed instead of the 128 used to perform ex ante calculation. This change is responsible for an

additional 863 kWh savings and .14 kW. This change is responsible for 13% of the difference between ex ante and ex post kWh savings and 6% of the difference between ex ante and ex post kW savings.

*Verified Gross Savings & Realization Rates*

<i>Measure</i>	<i>Verified</i>			
	<i>kWh Savings</i>	<i>kW Savings</i>	<i>kWh Realization Rate</i>	<i>kW Realization Rate</i>
4' 2L T12ES to 43W LED – Non-Int. Ballast	71,426	13.31	110.4%	121.6%
<b>Total</b>	<b>71,426</b>	<b>13.31</b>	<b>110.4%</b>	<b>121.6%</b>



**Project Number** PRJ-333019  
**Program** Large Commercial and Industrial

## Project Background

The participant is a hotel and restaurant that received incentives from ELL for implementing energy efficient lighting. On-site, the Evaluators verified the participant had installed:

- (6) 5W LED lamps with daylighting controls, replacing 50W incandescent lamps;
- (20) 13W LED lamps with daylighting controls, replacing 65W halogen lamps;
- (15) 13W LED lamps with daylighting controls, replacing 50W halogen lamps;
- (12) 13W LED lamps with daylighting controls, replacing 90W halogen lamps;
- (4) 13W LED lamps with daylighting controls, replacing 25W CFLs;
- (5) 13W LED lamps with daylighting controls, replacing 65W halogen lamps;
- (1) 10 LED fixture with daylighting controls, replacing 25W CFLs;
- (20) 17W LED lamps with daylighting controls, replacing 90W halogen lamps;
- (48) 13W LED lamps with daylighting controls, replacing 25W CFLs;
- (12) 7W LED lamps with daylighting controls, replacing 45W -lamp halogen lamps;
- (2) 10W LED lamps with daylighting controls, replacing 25W CFLs;
- (3) 5W LED lamps with daylighting controls, replacing (2) 50W halogen lamps;
- (8) 13W LED lamps with daylighting controls, replacing 50W halogen lamps;
- (6) 13W LED lamps with daylighting controls, replacing 65W halogen lamps;
- (5) 13W LED lamps, replacing 25W CFLs;
- (5) 13W LED lamps, replacing 65W halogen lamps;
- (1) 13W LED lamp, replacing 50W halogen lamp;
- (96) 8W LED lamps, replacing 50W 1Lamp halogen lamps;
- (58) 8W LED lamps, replacing 25W CFL lamps;
- (11) 8W LED lamps, replacing 20W CFL lamps;
- (15) 8W LED lamps, replacing 13W CFL lamps;
- (22) 13W LED lamps with daylighting controls, replacing 65W halogen lamps;
- (48) 18W LED fixtures, replacing (16) 4' 4-lamp T8 fixtures;
- (10) 13W LED lamps with daylighting controls, replacing 50W halogen lamps;
- (4) 13W LED lamps with daylighting controls, replacing 25W CFLs;
- (36) 18W LED fixtures with daylighting controls, replacing (18) 4' 2-lamp T8 HLO fixtures;
- (10) 13W LED lamps with daylighting controls, replacing (10) 42W CFLs;
- (16) 13W LED lamps with daylighting controls, replacing 50W halogen lamps;
- (20) 10W LED lamps, replacing 25W CFLs;
- (12) 10W LED lamps, replacing 25W CFLs; and

## M&V Methodology

Savings for the lighting measures were calculated using Louisiana stipulated deemed values by space type for hours of use, along with a stipulated peak Coincident Factor (CF), Interactive effects factor for energy (IEFE) and Interactive effects factor for demand (IEFD) determined using local weather data and ELL peak parameters. The deemed values used in calculating savings are presented in the table below. On-site, the Evaluators also confirmed customs parameters used for this project.

*Deemed Savings Parameters*

<b>Building Type</b>	<b>Heating Type</b>	<b>Cooling Type</b>	<b>Annual Hours</b>	<b>IEF<sub>E</sub></b>	<b>IEF<sub>D</sub></b>	<b>CF</b>
Office	Gas	Electric refrigerated	3,737	1.090	1.200	0.77
Food Service: Sit down restaurant	Gas	Electric refrigerated	4,368	1.090	1.200	0.81
Lodging (Hotel/Motel/Dorms): Room	Gas	Electric refrigerated	3,055	1.090	1.200	0.25
Lodging (Hotel/Motel/Dorms): Common Area	Gas	Electric refrigerated	6,630	1.090	1.200	0.82
Custom: Hotel Common Area	Gas	Electric refrigerated	8,760	1.090	1.200	1.00
Custom: Outside 24 hour lighting	-	-	8,760	1.000	1.200	1.00

## Savings Calculations

Using deemed values from the table above, the Evaluators calculated lighting savings as follows:

$$\text{Annual kWh Savings} = (kW_{\text{base}} * AOH_{\text{base}} - kW_{\text{post}} * AOH_{\text{post}}) * IEF_E$$

### *Parameters for kWh Savings Calculation of Lighting Retrofit Measures*

$kW_{\text{base}}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{\text{post}}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
$AOH_{\text{base}}$	Annual Operating Hours of Baseline Fixtures
$AOH_{\text{post}}$	Annual Operating Hours of Installed Fixtures
$IEF_E$	Heating/Cooling Energy Interactive Effects Factor

Peak kW savings are calculated as:

$$\text{Peak kW Savings} = (kW_{\text{base}} - kW_{\text{post}}) * CF * IEF_D$$

*Parameters for Peak Demand (kW) Savings Calculation of Lighting Retrofit Measures*

$kW_{\text{base}}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{\text{post}}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
CF	Peak Demand Coincident Factor, % Time During the Peak Period in Which Lighting is Operating
$IEF_D$	Heating/Cooling Demand Interactive Effects Factor

*Lighting Retrofit kWh Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		Hours	Expected kWh Savings	Realized kWh Savings	$IEF_E$	Realization Rate
	Base	Post	Base	Post					
50W Inc. to 5W LED - Int. Ballast	6	6	50	5	4,368	1,328	1,328	1.090	100.0%
65W 1L Halogen to 13W LED - Int. Ballast	20	20	65	13	4,368	5,323	5,323	1.090	100.0%
90W 1L Halogen to 13W LED - Int. Ballast	12	12	90	13	4,368	2,531	4,641	1.090	183.3%
50W 1L Halogen to 13W LED - Int. Ballast	13	13	50	13	4,368	4,622	2,513	1.090	54.4%
50W 1L Halogen to 13W LED - Int. Ballast	2	2	50	13	4,368	389	389	1.090	100.0%
25W CFL to 13W LED - Int. Ballast	4	4	25	13	4,368	253	253	1.090	100.0%
65W 1L Halogen to 13W LED - Int. Ballast	5	5	65	13	4,368	1,015	1,269	1.090	125.0%
100W 1L Halogen to 10W LED - Non-Int. Ballast	0	0	100	10	4,368	3,099	0	1.090	0.0%
25W CFL to 10W LED - Int. Ballast	1	1	25	10	4,368	86	86	1.090	100.0%
90W 1L Halogen to 17W LED - Int. Ballast	20	20	90	17	8,760	13,683	13,683	1.000	100.0%
25W CFL to 13W LED - Int. Ballast	48	48	25	13	8,760	7,287	7,287	1.090	100.0%
45W 1L Halogen to 7W LED - Int. Ballast	12	12	45	7	8,760	4,434	4,434	1.090	100.0%
25W CFL to 10W LED - Int. Ballast	2	2	25	10	8,760	306	306	1.090	100.0%
50W 1L Halogen to 5W LED - Int. Ballast	3	2	50	5	8,760	1,332	1,380	1.090	103.6%
50W 1L Halogen to 13W LED - Int. Ballast	8	8	50	13	8,760	2,866	2,866	1.000	100.0%

65W 1L Halogen to 13W LED - Int. Ballast	6	6	65	13	8,760	3,203	2,938	1.000	91.7%
25W CFL to 13W LED - Int. Ballast	2	2	25	13	8,760	229	229	1.090	100.0%
65W 1L Halogen to 13W LED - Int. Ballast	3	3	65	13	8,760	497	1,490	1.090	300.0%
50W 1L Halogen to 13W LED - Int. Ballast	1	1	50	13	8,760	353	353	1.090	100.0%
25W CFL to 13W LED - Int. Ballast	3	3	25	13	8,760	344	344	1.090	100.0%
65W 1L Halogen to 13W LED - Int. Ballast	2	2	65	13	8,760	497	993	1.090	200.0%
50W 1L Halogen to 8W LED - Int. Ballast	96	96	50	8	8,760	43,273	38,499	1.090	89.0%
25W CFL to 8W LED - Int. Ballast	58	58	25	8	8,760	9,415	9,415	1.090	100.0%
20W CFL to 8W LED - Int. Ballast	11	11	20	8	8,760	1,260	1,260	1.090	100.0%
13W CFL to 8W LED - Int. Ballast	15	15	13	8	8,760	716	716	1.090	100.0%
65W 1L Halogen to 13W LED - Int. Ballast	22	22	65	13	3,055	7,694	4,095	1.090	53.2%
4' 4L T8 to 18W LED - Non-Int. Ballast	16	48	112	18	8,760	8,307	8,861	1.090	106.7%
50W 1L Halogen to 13W LED - Int. Ballast	10	10	50	13	3,737	1,499	1,666	1.090	111.1%
25W CFL to 13W LED - Int. Ballast	4	4	25	13	3,737	259	259	1.090	100.0%
4' 2L T8 HLO to 18W LED - Non-Int. Ballast	4	8	66	18	8,760	1,146	1,215	1.090	106.0%
4' 2L T8 HLO to 18W LED - Non-Int. Ballast	14	28	66	18	8,760	4,492	4,251	1.090	94.6%
42W CFL to 13W LED - Int. Ballast	10	10	42	13	8,760	2,769	2,540	1.000	91.7%
50W 1L Halogen to 13W LED - Int. Ballast	16	16	50	13	3,737	3,332	2,666	1.090	80.0%
25W CFL to 10W LED - Int. Ballast	12	12	25	10	8,760	1,719	1,719	1.090	100.0%
25W CFL to 10W LED - Int. Ballast	12	12	25	10	6,630	599	1,301	1.090	217.0%
25W CFL to 10W LED - Int. Ballast	8	8	25	10	8,760	1,146	1,146	1.090	100.0%
<b>Total</b>						<b>141,305</b>	<b>131,714</b>		<b>93.2%</b>

*Lighting Retrofit kW Savings Calculations*

<i>Measure</i>	<i>Quantity (Fixtures)</i>		<i>Wattage</i>		<i>CF</i>	<i>Expected kW Savings</i>	<i>Realized kW Savings</i>	<i>IEF<sub>D</sub></i>	<i>Realization Rate</i>
50W Inc. to 5W LED - Int. Ballast	6	6	50	5	0.81	0.27	0.27	1.200	100.0%
65W 1L Halogen to 13W LED - Int. Ballast	20	20	65	13	0.81	1.09	1.09	1.200	100.0%
90W 1L Halogen to 13W LED - Int. Ballast	12	12	90	13	0.81	0.94	0.95	1.200	100.4%
50W 1L Halogen to 13W LED - Int. Ballast	13	13	50	13	0.81	0.52	0.51	1.200	99.3%
50W 1L Halogen to 13W LED - Int. Ballast	2	2	50	13	0.81	0.08	0.08	1.200	100.0%
25W CFL to 13W LED - Int. Ballast	4	4	25	13	0.81	0.05	0.05	1.200	100.0%
65W 1L Halogen to 13W LED - Int. Ballast	5	5	65	13	0.81	0.21	0.26	1.200	125.0%
100W 1L Halogen to 10W LED - Non-Int. Ballast	0	0	100	10	0.81	0.63	0.00	1.200	0.0%
25W CFL to 10W LED - Int. Ballast	1	1	25	10	0.81	0.02	0.02	1.200	100.0%
90W 1L Halogen to 17W LED - Int. Ballast	20	20	90	17	1.00	0.00	1.56	1.000	N/A
25W CFL to 13W LED - Int. Ballast	48	48	25	13	1.00	0.00	0.92	1.200	N/A
45W 1L Halogen to 7W LED - Int. Ballast	12	12	45	7	1.00	0.00	0.56	1.200	N/A
25W CFL to 10W LED - Int. Ballast	2	2	25	10	1.00	0.00	0.04	1.200	N/A
50W 1L Halogen to 5W LED - Int. Ballast	3	2	50	5	1.00	0.00	0.17	1.200	N/A
50W 1L Halogen to 13W LED - Int. Ballast	8	8	50	13	1.00	0.00	0.33	1.000	N/A
65W 1L Halogen to 13W LED - Int. Ballast	6	6	65	13	1.00	0.00	0.34	1.000	N/A
25W CFL to 13W LED - Int. Ballast	2	2	25	13	1.00	0.00	0.03	1.200	N/A
65W 1L Halogen to 13W LED - Int. Ballast	3	3	65	13	1.00	0.00	0.19	1.200	N/A
50W 1L Halogen to 13W LED - Int. Ballast	1	1	50	13	1.00	0.00	0.04	1.200	N/A
25W CFL to 13W LED - Int. Ballast	3	3	25	13	1.00	0.00	0.04	1.200	N/A
65W 1L Halogen to 13W LED - Int. Ballast	2	2	65	13	1.00	0.00	0.12	1.200	N/A
50W 1L Halogen to 8W LED - Int. Ballast	96	96	50	8	1.00	0.00	4.84	1.200	N/A

25W CFL to 8W LED - Int. Ballast	58	58	25	8	1.00	0.00	1.18	1.200	N/A
20W CFL to 8W LED - Int. Ballast	11	11	20	8	1.00	0.00	0.16	1.200	N/A
13W CFL to 8W LED - Int. Ballast	15	15	13	8	1.00	0.00	0.09	1.200	N/A
65W 1L Halogen to 13W LED - Int. Ballast	22	22	65	13	0.25	1.08	0.37	1.200	34.2%
4' 4L T8 to 18W LED - Non-Int. Ballast	16	48	112	18	1.00	0.00	1.11	1.200	N/A
50W 1L Halogen to 13W LED - Int. Ballast	10	10	50	13	0.77	0.34	0.38	1.200	111.1%
25W CFL to 13W LED - Int. Ballast	4	4	25	13	0.77	0.06	0.06	1.200	100.0%
4' 2L T8 HLO to 18W LED - Non-Int. Ballast	4	8	66	18	1.00	0.00	0.15	1.200	N/A
4' 2L T8 HLO to 18W LED - Non-Int. Ballast	14	28	66	18	1.00	0.00	0.53	1.200	N/A
42W CFL to 13W LED - Int. Ballast	10	10	42	13	1.00	0.00	0.29	1.000	N/A
50W 1L Halogen to 13W LED - Int. Ballast	16	16	50	13	0.77	0.76	0.60	1.200	80.0%
25W CFL to 10W LED - Int. Ballast	12	12	25	10	1.00	0.00	0.22	1.200	N/A
25W CFL to 10W LED - Int. Ballast	12	12	25	10	0.82	0.05	0.18	1.200	328.0%
25W CFL to 10W LED - Int. Ballast	8	8	25	10	1.00	0.00	0.14	1.200	N/A
<b>Total</b>						<b>6.09</b>	<b>17.87</b>		<b>293.3%</b>

## Results

The kWh realization rate for this project is 93.2% and the kW realization rate is 293.3%.

The low kWh savings is due errors in the project calculator, in which hours of use of 3,055 were applied for common areas and 5,750 was applied for guest rooms. This was corrected to 6,030 for common areas and 3,055 for guest rooms.

The high kW savings is due to the ex post coincidence factor for custom space types is 1.00 for 8,760 operating hours while the ex ante used 0.00 for 8,760 operating hours.

*Verified Gross Savings & Realization Rates*

<i>Measure</i>	<i>Verified</i>			
	<i>kWh Savings</i>	<i>kW Savings</i>	<i>kWh Realization Rate</i>	<i>kW Realization Rate</i>
50W Inc. to 5W LED - Int. Ballast	1,328	0.27	100.0%	100.0%
65W 1L Halogen to 13W LED - Int. Ballast	5,323	1.09	100.0%	100.0%
90W 1L Halogen to 13W LED - Int. Ballast	4,641	0.95	183.3%	100.4%
50W 1L Halogen to 13W LED - Int. Ballast	2,513	0.51	54.4%	99.3%
50W 1L Halogen to 13W LED - Int. Ballast	389	0.08	100.0%	100.0%
25W CFL to 13W LED - Int. Ballast	253	0.05	100.0%	100.0%
65W 1L Halogen to 13W LED - Int. Ballast	1,269	0.26	125.0%	125.0%
100W 1L Halogen to 10W LED - Non-Int. Ballast	0	0.00	0.0%	0.0%
25W CFL to 10W LED - Int. Ballast	86	0.02	100.0%	100.0%
90W 1L Halogen to 17W LED - Int. Ballast	13,683	1.56	100.0%	N/A
25W CFL to 13W LED - Int. Ballast	7,287	0.92	100.0%	N/A
45W 1L Halogen to 7W LED - Int. Ballast	4,434	0.56	100.0%	N/A
25W CFL to 10W LED - Int. Ballast	306	0.04	100.0%	N/A
50W 1L Halogen to 5W LED - Int. Ballast	1,380	0.17	103.6%	N/A
50W 1L Halogen to 13W LED - Int. Ballast	2,866	0.33	100.0%	N/A
65W 1L Halogen to 13W LED - Int. Ballast	2,938	0.34	91.7%	N/A
25W CFL to 13W LED - Int. Ballast	229	0.03	100.0%	N/A
65W 1L Halogen to 13W LED - Int. Ballast	1,490	0.19	300.0%	N/A
50W 1L Halogen to 13W LED - Int. Ballast	353	0.04	100.0%	N/A
25W CFL to 13W LED - Int. Ballast	344	0.04	100.0%	N/A
65W 1L Halogen to 13W LED - Int. Ballast	993	0.12	200.0%	N/A
50W 1L Halogen to 8W LED - Int. Ballast	38,499	4.84	89.0%	N/A
25W CFL to 8W LED - Int. Ballast	9,415	1.18	100.0%	N/A

20W CFL to 8W LED - Int. Ballast	1,260	0.16	100.0%	N/A
13W CFL to 8W LED - Int. Ballast	716	0.09	100.0%	N/A
65W 1L Halogen to 13W LED - Int. Ballast	4,095	0.37	53.2%	34.2%
4' 4L T8 to 18W LED - Non-Int. Ballast	8,861	1.11	106.7%	N/A
50W 1L Halogen to 13W LED - Int. Ballast	1,666	0.38	111.1%	111.1%
25W CFL to 13W LED - Int. Ballast	259	0.06	100.0%	100.0%
4' 2L T8 HLO to 18W LED - Non-Int. Ballast	1,215	0.15	106.0%	N/A
4' 2L T8 HLO to 18W LED - Non-Int. Ballast	4,251	0.53	94.6%	N/A
42W CFL to 13W LED - Int. Ballast	2,540	0.29	91.7%	N/A
50W 1L Halogen to 13W LED - Int. Ballast	2,666	0.60	80.0%	80.0%
25W CFL to 10W LED - Int. Ballast	1,719	0.22	100.0%	N/A
25W CFL to 10W LED - Int. Ballast	1,301	0.18	217.0%	328.0%
25W CFL to 10W LED - Int. Ballast	1,146	0.14	100.0%	N/A
<b>Total</b>	<b>131,714</b>	<b>17.87</b>	<b>93.2%</b>	<b>293.3%</b>



**Project Number** PRJ-333019  
**Program** Large Commercial and Industrial

## Project Background

The participant is a retail facility that received incentives from ELL for implementing energy efficient lighting in their parking lot. On-site, the Evaluators verified the participant had installed:

- (50) 418W LED fixtures, replacing (76) 1000W metal halide fixtures; and
- (24) 139W LED fixtures, replacing (24) 1000W metal halide fixtures.

## M&V Methodology

The Evaluators confirmed installation of all fixtures listed in the project application. Savings for the lighting measures were calculated using Louisiana stipulated deemed values by space type for hours of use, along with a stipulated peak Coincident Factor (CF), Interactive effects factor for energy ( $IEF_E$ ) and Interactive effects factor for demand ( $IEF_D$ ) determined using local weather data and ELL peak parameters. The deemed values used in calculating savings are presented in the table below.

*Deemed Savings Parameters*

<b>Building Type</b>	<b>Heating Type</b>	<b>Annual Hours</b>	<b><math>IEF_E</math></b>	<b><math>IEF_D</math></b>	<b>CF</b>
Outdoor	None	3,996	1.000	1.000	0.00

## Savings Calculations

Using deemed values from the table above, the Evaluators calculated lighting savings as follows:

$$\text{Annual kWh Savings} = (kW_{base} * AOH_{base} - kW_{post} * AOH_{post}) * IEF_E$$

*Parameters for kWh Savings Calculation of Lighting Retrofit Measures*

$kW_{base}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{post}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
$AOH_{base}$	Annual Operating Hours of Baseline Fixtures
$AOH_{post}$	Annual Operating Hours of Installed Fixtures
$IEF_E$	Heating/Cooling Energy Interactive Effects Factor

Peak kW savings are calculated as:

$$\text{Peak kW Savings} = (kW_{\text{base}} - kW_{\text{post}}) * CF * IEF_D$$

*Parameters for Peak Demand (kW) Savings Calculation of Lighting Retrofit Measures*

$kW_{\text{base}}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{\text{post}}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
CF	Peak Demand Coincident Factor, % Time During the Peak Period in Which Lighting is Operating
$IEF_D$	Heating/Cooling Demand Interactive Effects Factor

*Lighting Retrofit kWh Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		AOH	Expected kWh Savings	Realized kWh Savings	$IEF_E$	Realization Rate
	Base	Post	Base	Post					
1000W MH to 418W LED - Non-Int. Ballast	76	50	1,078	418	3,996	243,868	243,868	1.000	100.0%
1000W MH to 139W LED - Non-Int. Ballast	24	24	1,078	139	3,996	90,054	90,054	1.000	100.0%
<b>Total:</b>						<b>333,922</b>	<b>333,922</b>		<b>100.0%</b>

*Lighting Retrofit kW Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		CF	Expected kW Savings	Realized kW Savings	$IEF_D$	Realization Rate
	Base	Post	Base	Post					
1000W MH to 418W LED - Non-Int. Ballast	76	50	1,078	418	0.00	0.00	0.00	1.000	N/A
1000W MH to 139W LED - Non-Int. Ballast	24	24	1,078	139	0.00	0.00	0.00	1.000	N/A
<b>Total:</b>						<b>0.00</b>	<b>0.00</b>		<b>N/A</b>

## Results

The kWh realization rate for PRJ-336729 is 100%.

*Verified Gross Savings & Realization Rates*

Measure	Verified			
	kWh Savings	kW Savings	kWh Realization Rate	kW Realization Rate
1000W MH to 418W LED - Non-Int. Ballast	243,868	0	100.00%	N/A
1000W MH to 139W LED - Non-Int. Ballast	90,054	0	100.00%	N/A
<b>Total:</b>	<b>333,922</b>	<b>0</b>	<b>100.00%</b>	<b>N/A</b>

**Project Number** PRJ-367945  
**Program** Large Commercial & Industrial

## Project Background

The participant is an office and manufacturing building that received incentives from ELL for implementing energy efficient lighting. On-site, the Evaluators verified the participant had installed:

- (762) 18W LED fixtures, replacing (254) 4' 3-lamp T8 fixtures;
- (100) 18W LED fixtures, replacing (25) 8' 2-lamp T12 fixtures;
- (74) 230W LED fixtures, replacing 1000W metal halide fixtures.

## M&V Methodology

The Evaluators verified the installed fixtures listed in the project application. Savings for the lighting measures were calculated using Louisiana stipulated deemed values by space type for hours of use, along with a stipulated peak Coincident Factor (CF), Interactive effects factor for energy (IEF<sub>E</sub>) and Interactive effects factor for demand (IEF<sub>D</sub>) determined using local weather data and ELL Power peak parameters. These parameters are also verified and adjusted according to interviews during the evaluator's site visits.

*Savings Parameters*

Building Type	Heating Type	Annual Hours	IEF <sub>E</sub>	IEF <sub>D</sub>	CF
Office	Gas	3,737	1.090	1.200	0.77
Custom	None	4,380	1.000	1.000	1.00

## Savings Calculations

Using deemed values from the table above, the Evaluators calculated lighting savings as follows:

$$\text{Annual kWh Savings} = (kW_{\text{base}} * AOH_{\text{base}} - kW_{\text{post}} * AOH_{\text{post}}) * IEF_E$$

*Parameters for kWh Savings Calculation of Lighting Retrofit Measures*

kW <sub>base</sub>	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
kW <sub>post</sub>	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
AOH <sub>base</sub>	Annual Operating Hours of Baseline Fixtures
AOH <sub>post</sub>	Annual Operating Hours of Installed Fixtures
IEF <sub>E</sub>	Heating/Cooling Energy Interactive Effects Factor

Peak kW savings are calculated as:

$$\text{Peak kW Savings} = (kW_{\text{base}} - kW_{\text{post}}) * CF * IEF_D$$

*Parameters for Peak Demand (kW) Savings Calculation of Lighting Retrofit Measures*

$kW_{\text{base}}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{\text{post}}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
CF	Peak Demand Coincident Factor, % Time During the Peak Period in Which Lighting is Operating
$IEF_D$	Heating/Cooling Demand Interactive Effects Factor

*Lighting Retrofit kWh Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		AOH	Expected kWh Savings	Realized kWh Savings	$IEF_E$	Realization Rate
	Base	Post	Base	Post					
4' 3L T8 to 18W LED - Non-Int. Ballast	254	762	85	18	3,737	32,073	32,073	1.090	100.0%
8' 2L T12ES to 18W LED - Non-Int. Ballast	25	100	123	18	3,737	5,193	5,193	1.090	100.0%
1000W MH to 230W LED - Non-Int. Ballast	74	74	1,078	230	4,380	549,708	274,854	1.000	50.0%
<b>Total</b>						<b>586,974</b>	<b>312,121</b>		<b>53.2%</b>

*Lighting Retrofit kW Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		CF	Expected kW Savings	Realized kW Savings	$IEF_D$	Realization Rate
	Base	Post	Base	Post					
4' 3L T8 to 18W LED - Non-Int. Ballast	254	762	85	18	0.77	7.28	7.28	1.200	100.0%
8' 2L T12ES to 18W LED - Non-Int. Ballast	25	100	123	18	0.77	1.18	1.18	1.200	100.0%
1000W MH to 230W LED - Non-Int. Ballast	74	74	1,078	230	1.00	62.75	62.75	1.000	100.0%
<b>Total</b>						<b>71.21</b>	<b>71.21</b>		<b>100.0%</b>

## Results

The kWh realization rate for PRJ-367945 is 53.2% and the kW realization rate is 100%.

The ex ante calculations used 24/7 operation for the Warehouse space in this facility. The Evaluators found that this area had lighting operating 12 hours a day on average based on interviews with facility staff.

*Verified Gross Savings & Realization Rates*

<i>Measure</i>	<i>Verified</i>			
	<i>kWh Savings</i>	<i>kW Savings</i>	<i>kWh Realization Rate</i>	<i>kW Realization Rate</i>
4' 3L T8 to 18W LED - Non-Int. Ballast	32,073	7.28	100.0%	100.0%
8' 2L T12ES to 18W LED - Non-Int. Ballast	5,193	1.18	100.0%	100.0%
1000W MH to 230W LED - Non-Int. Ballast	274,854	62.75	50.0%	100.0%
<b>Total</b>	<b>312,121</b>	<b>71.21</b>	<b>53.2%</b>	<b>100.0%</b>

**Project Number** PRJ-428502  
**Program** Large Commercial and Industrial

## Project Background

The participant is a Hospital that received incentives from ELL for implementing energy efficient lighting. On-site, the Evaluators verified the participant had installed:

- (330) 36W LED fixtures, replacing (330) 4ft 2 Lamp T12 fixtures;
- (400) 33W LED fixtures, replacing (394) 4ft 2 Lamp T12 fixtures;
- (8) 33W LED fixtures, replacing (8) 4ft 3 lamp T12 fixtures;
- (58) 33W LED fixtures, replacing (578) 4ft 2 lamp T8 fixtures;
- (29) 36W LED fixtures, replacing (29) 4ft 2 lamp T8 fixtures;
- (56) 18W LED lamps, replacing (56) 150W Incandescent lamps;
- (17) 18W LED lamps, replacing 65W Incandescent lamps;
- (26) 18W LED lamps, replacing 100W Incandescent lamps;
- (6) 18W LED lamps, replacing 75W Incandescent lamps;
- (46) 33W LED lamps, replacing (46) 20W 2ft 2lamp T12 fixtures;
- (56) 1 lamp 3W LED Exit Sign, replacing (56) 1 lamp 20W Incandescent Exit Sign fixtures;
- (40) 1 lamp 3W LED Exit Sign, replacing (40) 2 lamp 20W Incandescent Exit Sign fixtures;
- (28) 1 lamp 3W LED Exit Sign, replacing (28) 1 lamp 15W incandescent Exit Sign fixtures.

## M&V Methodology

The Evaluators found some lighting fixture counts deviated from those listed in the project application. Verified fixture counts were used in ex post savings calculations. Savings for the lighting measures were calculated using Louisiana stipulated deemed values by space type for hours of use, along with a stipulated peak Coincident Factor (CF), Interactive effects factor for energy ( $IEF_E$ ) and Interactive effects factor for demand ( $IEF_D$ ) determined using local weather data and ELL Power peak parameters. The deemed values used in calculating savings are presented in the table below.

*Deemed Savings Parameters*

<b>Building Type</b>	<b>Heating Type</b>	<b>Annual Hours</b>	<b><math>IEF_E</math></b>	<b><math>IEF_D</math></b>	<b>CF</b>
Health Care: In patient	Gas	5,730	1.090	1.200	0.78
Health Care: In patient	Gas	8,760	1.090	1.200	1.00

## Savings Calculations

Using deemed values from the table above, the Evaluators calculated lighting savings as follows:

$$\text{Annual kWh Savings} = (kW_{\text{base}} * AOH_{\text{base}} - kW_{\text{post}} * AOH_{\text{post}}) * IEF_E$$

*Parameters for kWh Savings Calculation of Lighting Retrofit Measures*

$kW_{\text{base}}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{\text{post}}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
$AOH_{\text{base}}$	Annual Operating Hours of Baseline Fixtures
$AOH_{\text{post}}$	Annual Operating Hours of Installed Fixtures
$IEF_E$	Heating/Cooling Energy Interactive Effects Factor

Peak kW savings are calculated as:

$$\text{Peak kW Savings} = (kW_{\text{base}} - kW_{\text{post}}) * CF * IEF_D$$

*Parameters for Peak Demand (kW) Savings Calculation of Lighting Retrofit Measures*

$kW_{\text{base}}$	Total Baseline fixtures x W/Fixture <sub>base</sub> / 1000 W/kW
$kW_{\text{post}}$	Total Installed fixtures x W/Fixture <sub>post</sub> / 1000 W/kW
CF	Peak Demand Coincident Factor, % Time During the Peak Period in Which Lighting is Operating
$IEF_D$	Heating/Cooling Demand Interactive Effects Factor

*Lighting Retrofit kWh Savings Calculations*

Measure	Quantity (Fixtures)		Wattage		AOH	Expected kWh Savings	Realized kWh Savings	$IEF_E$	Realization Rate
	Base	Post	Base	Post					
4' 2L T12ES to 36W LED - Non-Int. Ballast	3	3	72	36	5,730	675	675	1.090	100.0%
4' 2L T12ES to 36W LED - Non-Int. Ballast	14	14	72	36	5,730	3,148	3,148	1.090	100.0%
4' 2L T12ES to 33W LED - Non-Int. Ballast	20	26	72	33	5,730	4,872	3,635	1.090	74.6%
4' 2L T12ES to 36W LED - Non-Int. Ballast	4	4	72	36	5,730	899	899	1.090	100.0%
4' 2L T12ES to 36W LED - Non-Int. Ballast	7	7	72	36	5,730	1,574	1,574	1.090	100.0%
4' 2L T12ES to 36W LED - Non-Int. Ballast	17	17	72	36	5,730	3,822	3,822	1.090	100.0%
4' 2L T12ES to 33W LED - Non-Int. Ballast	19	19	72	33	5,730	4,628	4,628	1.090	100.0%

4' 2L T12ES to 33W LED - Non-Int. Ballast	13	13	72	33	5,730	3,167	3,167	1.090	100.0%
4' 2L T12ES to 36W LED - Non-Int. Ballast	4	4	72	36	5,730	899	899	1.090	100.0%
4' 2L T12ES to 36W LED - Non-Int. Ballast	4	4	72	36	5,730	899	899	1.090	100.0%
4' 2L T12ES to 33W LED - Non-Int. Ballast	11	11	72	33	5,730	2,679	2,679	1.090	100.0%
4' 2L T12ES to 36W LED - Non-Int. Ballast	3	3	72	36	5,730	675	675	1.090	100.0%
4' 2L T12ES to 36W LED - Non-Int. Ballast	2	2	72	36	5,730	450	450	1.090	100.0%
4' 2L T12ES to 33W LED - Non-Int. Ballast	13	13	72	33	5,730	3,167	3,167	1.090	100.0%
4' 2L T12ES to 36W LED - Non-Int. Ballast	2	2	72	36	5,730	450	450	1.090	100.0%
4' 2L T12ES to 36W LED - Non-Int. Ballast	5	5	72	36	5,730	1,124	1,124	1.090	100.0%
4' 2L T12ES to 36W LED - Non-Int. Ballast	4	4	72	36	5,730	899	899	1.090	100.0%
4' 2L T12ES to 33W LED - Non-Int. Ballast	12	12	72	33	5,730	2,923	2,923	1.090	100.0%
4' 2L T12ES to 33W LED - Non-Int. Ballast	43	43	72	33	5,730	10,474	10,474	1.090	100.0%
4' 2L T12ES to 36W LED - Non-Int. Ballast	6	6	72	36	5,730	1,349	1,349	1.090	100.0%
4' 2L T12ES to 36W LED - Non-Int. Ballast	2	2	72	36	5,730	450	450	1.090	100.0%
4' 2L T12ES to 33W LED - Non-Int. Ballast	10	10	72	33	5,730	2,436	2,436	1.090	100.0%
4' 2L T12ES to 33W LED - Non-Int. Ballast	42	42	72	33	5,730	10,230	10,230	1.090	100.0%
4' 2L T12ES to 33W LED - Non-Int. Ballast	25	25	72	33	5,730	6,090	6,090	1.090	100.0%
4' 2L T12ES to 36W LED - Non-Int. Ballast	7	7	72	36	5,730	1,574	1,574	1.090	100.0%
4' 2L T12ES to 36W LED - Non-Int. Ballast	4	4	72	36	5,730	899	899	1.090	100.0%
4' 2L T12ES to 33W LED - Non-Int. Ballast	19	19	72	33	5,730	4,628	4,628	1.090	100.0%
4' 2L T12ES to 33W LED - Non-Int. Ballast	15	15	72	33	5,730	3,654	3,654	1.090	100.0%
4' 2L T12ES to 36W LED - Non-Int. Ballast	9	9	72	36	5,730	2,024	2,024	1.090	100.0%
4' 2L T12ES to 36W LED - Non-Int. Ballast	11	11	72	36	5,730	2,473	2,473	1.090	100.0%
4' 2L T12ES to 36W LED - Non-Int. Ballast	1	1	72	36	5,730	225	225	1.090	100.0%
4' 2L T12ES to 36W LED - Non-Int. Ballast	1	1	72	36	5,730	225	225	1.090	100.0%



4' 2L T12ES to 33W LED - Non-Int. Ballast	14	14	72	33	5,730	3,410	3,410	1.090	100.0%
4' 2L T12ES to 36W LED - Non-Int. Ballast	53	53	72	36	5,730	11,917	11,917	1.090	100.0%
4' 2L T12ES to 36W LED - Non-Int. Ballast	73	73	72	36	5,730	16,414	16,414	1.090	100.0%
4' 2L T12ES to 36W LED - Non-Int. Ballast	5	5	72	36	5,730	1,124	1,124	1.090	100.0%
4' 2L T12ES to 36W LED - Non-Int. Ballast	2	2	72	36	5,730	450	450	1.090	100.0%
4' 2L T12ES to 36W LED - Non-Int. Ballast	29	29	72	36	5,730	6,521	6,521	1.090	100.0%
4' 2L T12ES to 36W LED - Non-Int. Ballast	46	46	72	36	5,730	10,343	10,343	1.090	100.0%
4' 2L T12ES to 33W LED - Non-Int. Ballast	22	22	72	33	5,730	5,359	5,359	1.090	100.0%
4' 2L T12ES to 33W LED - Non-Int. Ballast	5	5	72	33	5,730	1,218	1,218	1.090	100.0%
4' 2L T12ES to 33W LED - Non-Int. Ballast	6	6	72	33	5,730	1,461	1,461	1.090	100.0%
4' 2L T12ES to 33W LED - Non-Int. Ballast	8	8	72	33	5,730	1,949	1,949	1.090	100.0%
4' 2L T12ES to 33W LED - Non-Int. Ballast	4	4	72	33	5,730	974	974	1.090	100.0%
4' 2L T12ES to 33W LED - Non-Int. Ballast	1	1	72	33	5,730	244	244	1.090	100.0%
4' 2L T12ES to 33W LED - Non-Int. Ballast	8	8	72	33	5,730	1,949	1,949	1.090	100.0%
4' 2L T12ES to 33W LED - Non-Int. Ballast	10	10	72	33	5,730	2,436	2,436	1.090	100.0%
4' 2L T12ES to 33W LED - Non-Int. Ballast	13	13	72	33	5,730	3,167	3,167	1.090	100.0%
4' 2L T12ES to 33W LED - Non-Int. Ballast	22	22	72	33	5,730	5,359	5,359	1.090	100.0%
4' 2L T12ES to 33W LED - Non-Int. Ballast	8	8	72	33	5,730	1,949	1,949	1.090	100.0%
4' 2L T12ES to 33W LED - Non-Int. Ballast	31	31	72	33	5,730	7,551	7,551	1.090	100.0%
4' 3L T12ES to 33W LED - Non-Int. Ballast	8	8	144	33	5,730	5,546	5,546	1.090	100.0%
4' 2L T8 to 33W LED - Non-Int. Ballast	58	58	58	33	5,730	9,056	9,056	1.090	100.0%
4' 2L T8 to 36W LED - Non-Int. Ballast	29	29	58	36	5,730	3,985	3,985	1.090	100.0%
4' 2L T12ES to 36W LED - Non-Int. Ballast	6	6	72	36	5,730	1,349	1,349	1.090	100.0%
150W Inc. to 18W LED - Int. Ballast	10	10	150	18	5,730	8,244	8,244	1.090	100.0%
150W Inc. to 18W LED - Int. Ballast	18	18	150	18	5,730	14,840	14,840	1.090	100.0%

65W Inc. to 18W LED - Int. Ballast	17	17	65	18	5,730	4,990	4,990	1.090	100.0%
100W Inc. to 18W LED - Int. Ballast	7	7	72	18	5,730	3,585	2,361	1.090	65.9%
75W Inc. to 18W LED - Int. Ballast	6	6	53	18	5,730	2,136	1,312	1.090	61.4%
150W Inc. to 18W LED - Int. Ballast	9	9	150	18	5,730	7,420	7,420	1.090	100.0%
150W MH to 18W LED - Int. Ballast	10	10	183	18	5,730	10,305	10,305	1.090	100.0%
100W Inc. to 18W LED - Int. Ballast	9	9	72	18	5,730	4,609	3,035	1.090	65.9%
100W Inc. to 18W LED - Int. Ballast	10	10	72	18	5,730	5,121	3,373	1.090	65.9%
150W Inc. to 18W LED - Int. Ballast	9	9	150	18	5,730	7,420	7,420	1.090	100.0%
2' 2L T12 20W to 33W LED - Non-Int. Ballast	30	30	50	33	5,730	3,185	3,185	1.090	100.0%
2' 2L T12 20W to 33W LED - Non-Int. Ballast	3	3	50	33	5,730	319	319	1.090	100.0%
2' 2L T12 20W to 33W LED - Non-Int. Ballast	1	1	50	33	5,730	106	106	1.090	100.0%
2' 2L T12 20W to 33W LED - Non-Int. Ballast	7	7	50	33	5,730	743	743	1.090	100.0%
2' 2L T12 20W to 33W LED - Non-Int. Ballast	5	5	50	33	5,730	531	531	1.090	100.0%
1L 20W Inc. Exit to 1L 3W LED Exit	35	35	20	3	8,760	3,716	5,681	1.090	152.9%
2L 20W Inc. Exit to 1L 3W LED Exit	28	28	40	3	8,760	6,471	9,892	1.090	152.9%
1L 15W Inc. Exit to 1L 3W LED Exit	18	18	15	3	8,760	1,349	2,062	1.090	152.9%
1L 20W Inc. Exit to 1L 3W LED Exit	21	21	20	3	8,760	2,230	3,409	1.090	152.9%
2L 20W Inc. Exit to 1L 3W LED Exit	12	12	40	3	8,760	2,773	4,239	1.090	152.9%
1L 15W Inc. Exit to 1L 3W LED Exit	10	10	15	3	8,760	749	1,146	1.090	152.9%
<b>Total</b>						<b>278,252</b>	<b>280,786</b>		<b>100.9%</b>

### Lighting Retrofit kW Savings Calculations

Measure	Quantity (Fixtures)		Wattage		CF	Expected kW Savings	Realized kW Savings	IEF <sub>D</sub>	Realization Rate
	Base	Post	Base	Post					
4' 2L T12ES to 36W LED - Non-Int. Ballast	3	3	72	36	0.78	0.10	0.10	1.200	98.9%
4' 2L T12ES to 36W LED - Non-Int. Ballast	14	14	72	36	0.78	0.47	0.47	1.200	99.6%

4' 2L T12ES to 33W LED - Non-Int. Ballast	20	26	72	33	0.78	0.73	0.54	1.200	74.0%
4' 2L T12ES to 36W LED - Non-Int. Ballast	4	4	72	36	0.78	0.13	0.13	1.200	96.5%
4' 2L T12ES to 36W LED - Non-Int. Ballast	7	7	72	36	0.78	0.24	0.24	1.200	101.8%
4' 2L T12ES to 36W LED - Non-Int. Ballast	17	17	72	36	0.78	0.57	0.57	1.200	99.5%
4' 2L T12ES to 33W LED - Non-Int. Ballast	19	19	72	33	0.78	0.69	0.69	1.200	99.5%
4' 2L T12ES to 33W LED - Non-Int. Ballast	13	13	72	33	0.78	0.47	0.47	1.200	99.0%
4' 2L T12ES to 36W LED - Non-Int. Ballast	4	4	72	36	0.78	0.13	0.13	1.200	96.5%
4' 2L T12ES to 36W LED - Non-Int. Ballast	4	4	72	36	0.78	0.13	0.13	1.200	96.5%
4' 2L T12ES to 33W LED - Non-Int. Ballast	11	11	72	33	0.78	0.40	0.40	1.200	99.6%
4' 2L T12ES to 36W LED - Non-Int. Ballast	3	3	72	36	0.78	0.10	0.10	1.200	98.9%
4' 2L T12ES to 36W LED - Non-Int. Ballast	2	2	72	36	0.78	0.07	0.07	1.200	103.9%
4' 2L T12ES to 33W LED - Non-Int. Ballast	13	13	72	33	0.78	0.47	0.47	1.200	99.0%
4' 2L T12ES to 36W LED - Non-Int. Ballast	2	2	72	36	0.78	0.07	0.07	1.200	103.9%
4' 2L T12ES to 36W LED - Non-Int. Ballast	5	5	72	36	0.78	0.17	0.17	1.200	100.9%
4' 2L T12ES to 36W LED - Non-Int. Ballast	4	4	72	36	0.78	0.13	0.13	1.200	96.5%
4' 2L T12ES to 33W LED - Non-Int. Ballast	12	12	72	33	0.78	0.44	0.44	1.200	100.4%
4' 2L T12ES to 33W LED - Non-Int. Ballast	43	43	72	33	0.78	1.57	1.57	1.200	100.0%
4' 2L T12ES to 36W LED - Non-Int. Ballast	6	6	72	36	0.78	0.20	0.20	1.200	98.9%
4' 2L T12ES to 36W LED - Non-Int. Ballast	2	2	72	36	0.78	0.07	0.07	1.200	103.9%
4' 2L T12ES to 33W LED - Non-Int. Ballast	10	10	72	33	0.78	0.37	0.37	1.200	101.4%
4' 2L T12ES to 33W LED - Non-Int. Ballast	42	42	72	33	0.78	1.53	1.53	1.200	99.8%
4' 2L T12ES to 33W LED - Non-Int. Ballast	25	25	72	33	0.78	0.91	0.91	1.200	99.7%
4' 2L T12ES to 36W LED - Non-Int. Ballast	7	7	72	36	0.78	0.24	0.24	1.200	101.8%

4' 2L T12ES to 36W LED - Non-Int. Ballast	4	4	72	36	0.78	0.13	0.13	1.200	96.5%
4' 2L T12ES to 33W LED - Non-Int. Ballast	19	19	72	33	0.78	0.69	0.69	1.200	99.5%
4' 2L T12ES to 33W LED - Non-Int. Ballast	15	15	72	33	0.78	0.55	0.55	1.200	100.4%
4' 2L T12ES to 36W LED - Non-Int. Ballast	9	9	72	36	0.78	0.30	0.30	1.200	98.9%
4' 2L T12ES to 36W LED - Non-Int. Ballast	11	11	72	36	0.78	0.37	0.37	1.200	99.8%
4' 2L T12ES to 36W LED - Non-Int. Ballast	1	1	72	36	0.78	0.03	0.03	1.200	89.0%
4' 2L T12ES to 36W LED - Non-Int. Ballast	1	1	72	36	0.78	0.03	0.03	1.200	89.0%
4' 2L T12ES to 33W LED - Non-Int. Ballast	14	14	72	33	0.78	0.51	0.51	1.200	99.8%
4' 2L T12ES to 36W LED - Non-Int. Ballast	53	53	72	36	0.78	1.79	1.79	1.200	100.2%
4' 2L T12ES to 36W LED - Non-Int. Ballast	73	73	72	36	0.78	2.46	2.46	1.200	100.0%
4' 2L T12ES to 36W LED - Non-Int. Ballast	5	5	72	36	0.78	0.17	0.17	1.200	100.9%
4' 2L T12ES to 36W LED - Non-Int. Ballast	2	2	72	36	0.78	0.07	0.07	1.200	103.9%
4' 2L T12ES to 36W LED - Non-Int. Ballast	29	29	72	36	0.78	0.98	0.98	1.200	100.3%
4' 2L T12ES to 36W LED - Non-Int. Ballast	46	46	72	36	0.78	1.55	1.55	1.200	100.0%
4' 2L T12ES to 33W LED - Non-Int. Ballast	22	22	72	33	0.78	0.80	0.80	1.200	99.6%
4' 2L T12ES to 33W LED - Non-Int. Ballast	5	5	72	33	0.78	0.18	0.18	1.200	98.6%
4' 2L T12ES to 33W LED - Non-Int. Ballast	6	6	72	33	0.78	0.22	0.22	1.200	100.4%
4' 2L T12ES to 33W LED - Non-Int. Ballast	8	8	72	33	0.78	0.29	0.29	1.200	99.3%
4' 2L T12ES to 33W LED - Non-Int. Ballast	4	4	72	33	0.78	0.15	0.15	1.200	102.7%
4' 2L T12ES to 33W LED - Non-Int. Ballast	1	1	72	33	0.78	0.04	0.04	1.200	109.6%
4' 2L T12ES to 33W LED - Non-Int. Ballast	8	8	72	33	0.78	0.29	0.29	1.200	99.3%
4' 2L T12ES to 33W LED - Non-Int. Ballast	10	10	72	33	0.78	0.37	0.37	1.200	101.4%
4' 2L T12ES to 33W LED - Non-Int. Ballast	13	13	72	33	0.78	0.47	0.47	1.200	99.0%

4' 2L T12ES to 33W LED - Non-Int. Ballast	22	22	72	33	0.78	0.80	0.80	1.200	99.6%
4' 2L T12ES to 33W LED - Non-Int. Ballast	8	8	72	33	0.78	0.29	0.29	1.200	99.3%
4' 2L T12ES to 33W LED - Non-Int. Ballast	31	31	72	33	0.78	1.13	1.13	1.200	99.9%
4' 3L T12ES to 33W LED - Non-Int. Ballast	8	8	144	33	0.78	0.83	0.83	1.200	99.9%
4' 2L T8 to 33W LED - Non-Int. Ballast	58	58	58	33	0.78	1.36	1.36	1.200	100.2%
4' 2L T8 to 36W LED - Non-Int. Ballast	29	29	58	36	0.78	0.60	0.60	1.200	100.5%
4' 2L T12ES to 36W LED - Non-Int. Ballast	6	6	72	36	0.78	0.20	0.20	1.200	98.9%
150W Inc. to 18W LED - Int. Ballast	10	10	150	18	0.78	1.24	1.24	1.200	100.4%
150W Inc. to 18W LED - Int. Ballast	18	18	150	18	0.78	2.22	2.22	1.200	99.8%
65W Inc. to 18W LED - Int. Ballast	17	17	65	18	0.78	0.75	0.75	1.200	100.3%
100W Inc. to 18W LED - Int. Ballast	7	7	72	18	0.78	0.54	0.35	1.200	65.1%
75W Inc. to 18W LED - Int. Ballast	6	6	53	18	0.78	0.32	0.20	1.200	62.5%
150W Inc. to 18W LED - Int. Ballast	9	9	150	18	0.78	1.11	1.11	1.200	99.8%
150W MH to 18W LED - Int. Ballast	10	10	183	18	0.78	1.54	1.54	1.200	99.7%
100W Inc. to 18W LED - Int. Ballast	9	9	72	18	0.78	0.69	0.45	1.200	65.1%
100W Inc. to 18W LED - Int. Ballast	10	10	72	18	0.78	0.77	0.51	1.200	66.4%
150W Inc. to 18W LED - Int. Ballast	9	9	150	18	0.78	1.11	1.11	1.200	99.8%
2' 2L T12 20W to 33W LED - Non-Int. Ballast	30	30	50	33	0.78	0.48	0.48	1.200	100.6%
2' 2L T12 20W to 33W LED - Non-Int. Ballast	3	3	50	33	0.78	0.05	0.05	1.200	104.7%
2' 2L T12 20W to 33W LED - Non-Int. Ballast	1	1	50	33	0.78	0.02	0.02	1.200	125.7%
2' 2L T12 20W to 33W LED - Non-Int. Ballast	7	7	50	33	0.78	0.11	0.11	1.200	98.8%
2' 2L T12 20W to 33W LED - Non-Int. Ballast	5	5	50	33	0.78	0.08	0.08	1.200	100.6%
1L 20W Inc. Exit to 1L 3W LED Exit	35	35	20	3	1.00	0.56	0.71	1.200	127.5%

2L 20W Inc. Exit to 1L 3W LED Exit	28	28	40	3	1.00	0.97	1.24	1.200	127.9%
1L 15W Inc. Exit to 1L 3W LED Exit	18	18	15	3	1.00	0.20	0.26	1.200	128.6%
1L 20W Inc. Exit to 1L 3W LED Exit	21	21	20	3	1.00	0.33	0.43	1.200	128.7%
2L 20W Inc. Exit to 1L 3W LED Exit	12	12	40	3	1.00	0.42	0.53	1.200	127.5%
1L 15W Inc. Exit to 1L 3W LED Exit	10	10	15	3	1.00	0.11	0.14	1.200	124.6%
<b>Total</b>						<b>41.70</b>	<b>41.39</b>		<b>99.3%</b>

## Results

The kWh realization rate for PRJ-428502 is 102.8% and the kW realization rate is 101.2%.

The high kWh savings is due to two reasons:

- 1) On-site, the evaluator verified 6 additional fixtures.
- 2) Ex post calculations used 8,760 hours for exit signs annual operating hours. The ex ante calculations used 5,730 hours.

The low kW savings is due the ex post calculations followed EISA standard wattage for 40W, 60W 75W and 100W incandescent lamps. The ex ante calculations did not follow EISA standards.

### *Verified Gross Savings & Realization Rates*

<i>Measure</i>	<i>Verified</i>			
	<i>kWh Savings</i>	<i>kW Savings</i>	<i>kWh Realization Rate</i>	<i>kW Realization Rate</i>
4' 2L T12ES to 36W LED - Non-Int. Ballast	675	0.10	100.0%	98.9%
4' 2L T12ES to 36W LED - Non-Int. Ballast	3,148	0.47	100.0%	99.6%
4' 2L T12ES to 33W LED - Non-Int. Ballast	3,635	0.54	74.6%	74.0%
4' 2L T12ES to 36W LED - Non-Int. Ballast	899	0.13	100.0%	96.5%
4' 2L T12ES to 36W LED - Non-Int. Ballast	1,574	0.24	100.0%	101.8%
4' 2L T12ES to 36W LED - Non-Int. Ballast	3,822	0.57	100.0%	99.5%
4' 2L T12ES to 33W LED - Non-Int. Ballast	4,628	0.69	100.0%	99.5%
4' 2L T12ES to 33W LED - Non-Int. Ballast	3,167	0.47	100.0%	99.0%
4' 2L T12ES to 36W LED -	899	0.13	100.0%	96.5%

Non-Int. Ballast				
4' 2L T12ES to 36W LED - Non-Int. Ballast	899	0.13	100.0%	96.5%
4' 2L T12ES to 33W LED - Non-Int. Ballast	2,679	0.40	100.0%	99.6%
4' 2L T12ES to 36W LED - Non-Int. Ballast	675	0.10	100.0%	98.9%
4' 2L T12ES to 36W LED - Non-Int. Ballast	450	0.07	100.0%	103.9%
4' 2L T12ES to 33W LED - Non-Int. Ballast	3,167	0.47	100.0%	99.0%
4' 2L T12ES to 36W LED - Non-Int. Ballast	450	0.07	100.0%	103.9%
4' 2L T12ES to 36W LED - Non-Int. Ballast	1,124	0.17	100.0%	100.9%
4' 2L T12ES to 36W LED - Non-Int. Ballast	899	0.13	100.0%	96.5%
4' 2L T12ES to 33W LED - Non-Int. Ballast	2,923	0.44	100.0%	100.4%
4' 2L T12ES to 33W LED - Non-Int. Ballast	10,474	1.57	100.0%	100.0%
4' 2L T12ES to 36W LED - Non-Int. Ballast	1,349	0.20	100.0%	98.9%
4' 2L T12ES to 36W LED - Non-Int. Ballast	450	0.07	100.0%	103.9%
4' 2L T12ES to 33W LED - Non-Int. Ballast	2,436	0.37	100.0%	101.4%
4' 2L T12ES to 33W LED - Non-Int. Ballast	10,230	1.53	100.0%	99.8%
4' 2L T12ES to 33W LED - Non-Int. Ballast	6,090	0.91	100.0%	99.7%
4' 2L T12ES to 36W LED - Non-Int. Ballast	1,574	0.24	100.0%	101.8%
4' 2L T12ES to 36W LED - Non-Int. Ballast	899	0.13	100.0%	96.5%
4' 2L T12ES to 33W LED - Non-Int. Ballast	4,628	0.69	100.0%	99.5%
4' 2L T12ES to 33W LED - Non-Int. Ballast	3,654	0.55	100.0%	100.4%
4' 2L T12ES to 36W LED - Non-Int. Ballast	2,024	0.30	100.0%	98.9%
4' 2L T12ES to 36W LED - Non-Int. Ballast	2,473	0.37	100.0%	99.8%
4' 2L T12ES to 36W LED - Non-Int. Ballast	225	0.03	100.0%	89.0%
4' 2L T12ES to 36W LED - Non-Int. Ballast	225	0.03	100.0%	89.0%
4' 2L T12ES to 33W LED - Non-Int. Ballast	3,410	0.51	100.0%	99.8%
4' 2L T12ES to 36W LED - Non-Int. Ballast	11,917	1.79	100.0%	100.2%

4' 2L T12ES to 36W LED - Non-Int. Ballast	16,414	2.46	100.0%	100.0%
4' 2L T12ES to 36W LED - Non-Int. Ballast	1,124	0.17	100.0%	100.9%
4' 2L T12ES to 36W LED - Non-Int. Ballast	450	0.07	100.0%	103.9%
4' 2L T12ES to 36W LED - Non-Int. Ballast	6,521	0.98	100.0%	100.3%
4' 2L T12ES to 36W LED - Non-Int. Ballast	10,343	1.55	100.0%	100.0%
4' 2L T12ES to 33W LED - Non-Int. Ballast	5,359	0.80	100.0%	99.6%
4' 2L T12ES to 33W LED - Non-Int. Ballast	1,218	0.18	100.0%	98.6%
4' 2L T12ES to 33W LED - Non-Int. Ballast	1,461	0.22	100.0%	100.4%
4' 2L T12ES to 33W LED - Non-Int. Ballast	1,949	0.29	100.0%	99.3%
4' 2L T12ES to 33W LED - Non-Int. Ballast	974	0.15	100.0%	102.7%
4' 2L T12ES to 33W LED - Non-Int. Ballast	244	0.04	100.0%	109.6%
4' 2L T12ES to 33W LED - Non-Int. Ballast	1,949	0.29	100.0%	99.3%
4' 2L T12ES to 33W LED - Non-Int. Ballast	2,436	0.37	100.0%	101.4%
4' 2L T12ES to 33W LED - Non-Int. Ballast	3,167	0.47	100.0%	99.0%
4' 2L T12ES to 33W LED - Non-Int. Ballast	5,359	0.80	100.0%	99.6%
4' 2L T12ES to 33W LED - Non-Int. Ballast	1,949	0.29	100.0%	99.3%
4' 2L T12ES to 33W LED - Non-Int. Ballast	7,551	1.13	100.0%	99.9%
4' 3L T12ES to 33W LED - Non-Int. Ballast	5,546	0.83	100.0%	99.9%
4' 2L T8 to 33W LED - Non-Int. Ballast	9,056	1.36	100.0%	100.2%
4' 2L T8 to 36W LED - Non-Int. Ballast	3,985	0.60	100.0%	100.5%
4' 2L T12ES to 36W LED - Non-Int. Ballast	1,349	0.20	100.0%	98.9%
150W Inc. to 18W LED - Int. Ballast	8,244	1.24	100.0%	100.4%
150W Inc. to 18W LED - Int. Ballast	14,840	2.22	100.0%	99.8%
65W Inc. to 18W LED - Int. Ballast	4,990	0.75	100.0%	100.3%
100W Inc. to 18W LED - Int. Ballast	2,361	0.35	65.9%	65.1%
75W Inc. to 18W LED -	1,312	0.20	61.4%	62.5%



Int. Ballast				
150W Inc. to 18W LED - Int. Ballast	7,420	1.11	100.0%	99.8%
150W MH to 18W LED - Int. Ballast	10,305	1.54	100.0%	99.7%
100W Inc. to 18W LED - Int. Ballast	3,035	0.45	65.9%	65.1%
100W Inc. to 18W LED - Int. Ballast	3,373	0.51	65.9%	66.4%
150W Inc. to 18W LED - Int. Ballast	7,420	1.11	100.0%	99.8%
2' 2L T12 20W to 33W LED - Non-Int. Ballast	3,185	0.48	100.0%	100.6%
2' 2L T12 20W to 33W LED - Non-Int. Ballast	319	0.05	100.0%	104.7%
2' 2L T12 20W to 33W LED - Non-Int. Ballast	106	0.02	100.0%	125.7%
2' 2L T12 20W to 33W LED - Non-Int. Ballast	743	0.11	100.0%	98.8%
2' 2L T12 20W to 33W LED - Non-Int. Ballast	531	0.08	100.0%	100.6%
1L 20W Inc. Exit to 1L 3W LED Exit	5,681	0.71	152.9%	127.5%
2L 20W Inc. Exit to 1L 3W LED Exit	9,892	1.24	152.9%	127.9%
1L 15W Inc. Exit to 1L 3W LED Exit	2,062	0.26	152.9%	128.6%
1L 20W Inc. Exit to 1L 3W LED Exit	3,409	0.43	152.9%	128.7%
2L 20W Inc. Exit to 1L 3W LED Exit	4,239	0.53	152.9%	127.5%
1L 15W Inc. Exit to 1L 3W LED Exit	1,146	0.14	152.9%	124.6%
<b>Total</b>	<b>280,786</b>	<b>41.39</b>	<b>100.9%</b>	<b>99.3%</b>



# Arkansas Public Service Commission

*Standardized Annual Reporting Workbook* v3.0 September 2013

General	Energy Efficiency Portfolio Data and Information	
<p><a href="#">Instructions</a></p> <p><a href="#">Glossary</a></p>	<a href="#">2014 EE Portfolio Information</a>	<a href="#">2014 Program Year Evaluation</a>

Annual Report Tables					Reports			Data	
EE Portfolio Summary	EE Portfolio Cost by Program	EE Portfolio Summary by Cost Type	Company Statistics	Program Budget, Energy Savings & Participants	Portfolio Results Detail by Program	Portfolio Results Detail by Sector	Not used	Program Year Data	Next Annual Report Load Data
<a href="#">View</a>	<a href="#">View</a>	<a href="#">View</a>	<a href="#">View</a>	<a href="#">View</a>	<a href="#">View</a>	<a href="#">View</a>		<a href="#">View</a>	<a href="#">View</a>

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## Instructions

This workbook is designed to be used by the Investor Owned Utilities in Arkansas to track and report savings and cost related to its Energy Efficiency Portfolios.

The workbook is organized so that all the worksheets work from left to right in order of completion. For ease of use each section is accessible by the use of an action button.

There are three main sections to the workbook:

**-General:** Contains Instructions and Glossary.

**-Energy Efficiency Portfolio Data and Information:** Contains all input requirements.

**-Tables/Reports/Data:** Contains the tables that are required for the narrative report. Also contains additional reports and data summaries.

The 'Energy Efficiency Portfolio Data and Information contains three actions buttons:

**-EE Portfolio Information:** Here the user can provide information such as Program Descriptions and the Plan Budgets and Savings.

**-Current Program Year Evaluation:** Here the user can provide information such as the actual Program Year Expenses and Savings.

**-Prior Program Year Data:** Here the user can provide actual information from the prior two Program Years. This data is available in the prior years annual report workbook.

Each tab in the workbook uses a menu bar at the top that has action buttons that the user can use to navigate through the various options. The 'yellow' shaded cells are cells that require data from the user. All other cells contain formulas and are locked to prevent the user from overwriting the formulas. You can only enter data in the yellow cells. Input the requested units as indicated by the workbook, for example if the request is kWh provide the data in kWh or if it is MWh provide the data in MWh's.

### Unprotecting

If for some reason you need to unlock the spreadsheet the password is "APSC". Once you make the correction, lock the workbook back to protect any errors from occurring.

### Dropdown List

Some of the required inputs are selected from dropdown list. You can view those list from here:

[List](#)

### Cost Categories

There are six 'Cost Categories' used for tracking EE cost. They are divided into the following:

- **Planning / Design**

- **Marketing & Delivery**

- **Incentives / Direct Install Costs**

- **EM&V**

- **Administration**

- **Regulatory**

A complete list for each Cost Category can be viewed here:

[Cost](#)

[Main Menu](#)

## Glossary

Term	Definition
<b>Abudget (Approved Budget)</b>	This is the budget most recently approved by the Commission.
<b>Annual Energy Savings</b>	Energy savings realized for a full year. (8,760 hours)
<b>Benefit Cost Ratio</b>	The ratio of the total benefits of the program to the total costs over the life of the measure discounted as appropriate.
<b>Customer Savings</b>	Savings that are derived from custom measures where deemed savings are not addressed in the currently approved TRM.
<b>Deemed Savings</b>	A "book" estimate of the gross energy savings (kWh or therms) or gross demand savings (kW or therms) for a single unit of an installed EE measure that (a) has been developed from data sources and analytical methods that are widely considered acceptable for the measure and purpose and (b) is applicable to the set of measures undergoing evaluation. This information is found in the TRM on the APSC website and is subject to updates effective for estimation of EE savings associated with measures installed since the beginning of the year in which the updated version is approved. See Volume 2, Section 1.6.
<b>Demand</b>	The time rate of energy flow. Demand usually refers to electric power measured in kW but can also refer to natural gas, usually as Btu/hr or therms/day, etc.. The level at which electricity or natural gas is delivered to users at a given point in time.
<b>Demand Savings</b>	Demand that did not occur due to the installation of an EE measure. (non-coincident peak)
<b>Energy Sales</b>	Energy sold by the utility in the calendar year.
<b>Energy Savings</b>	Energy use that did not occur due to the installation of an EE measure.
<b>Gross Savings</b>	The change in energy consumption and/or demand that results directly from program-related actions taken by participants in an efficiency program, regardless of why they participated.
<b>kW</b>	A Kilowatt is a measure of electric demand - 1000 watts.
<b>kWh</b>	The basic unit of electric energy usage over time. One kWh is equal to one kW of power supplied to a circuit for a period of one hour.
<b>LCFC Energy Savings</b>	For the current Program Year, the sum of eligible net energy savings from (1) measures installed in prior Program Years (8,760 hours) and (2) measures installed in current Program Year as adjusted for time of installation, weather, etc. (less than 8,760 hours). Clarification of item (1) above: The savings reported in the current year should only reflect the current year impact of measures installed in prior years but should not include the savings claimed and reported in prior years.
<b>Lifetime</b>	The expected useful life, in years, that an installed measure will be in service and producing savings.
<b>Lifetime Energy Savings</b>	The sum of the energy savings through the measure's useful life.
<b>Measures</b>	Specific technology or practice that produces energy and/or demand savings as a result of a ratepayer's participation in a Utility/TPA EE Program.
<b>Net Benefits</b>	The program benefits minus the program costs discounted at the appropriate rate.
<b>Net Savings</b>	The total change in load (energy or demand) that is attributable to an EE Program. This change in load may include, implicitly or explicitly, the effects of free drivers, free riders, EE standards, changes in the level of energy service, and other causes of changes in energy consumption or demand.
<b>Net-to-Gross Ratio (NTGR)</b>	A factor representing net program savings divided by gross program savings that is applied to gross program impacts, converting them into net program load impacts.
<b>Other Savings</b>	Savings for which no deemed savings exist and no custom M&V was performed.
<b>Participant Cost Test (PCT)</b>	A cost-effectiveness test that measures the economic impact to the participating customer of adopting an EE measure.

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## Glossary

Term	Definition
<b>Participant</b>	A consumer that received a service offered through the subject efficiency program, in a given Program Year. The term "service" is used in this definition to suggest that the service can be a wide variety of services, including financial rebates, technical assistance, product installations, training, EE information or other services, items, or conditions. Each evaluation plan should define "participant" as it applies to the specific evaluation and in accordance with the C&EE Rules and/or State law.
<b>Plan Savings</b>	Annual energy savings budgeted by the utility for the Program Year.
<b>Portfolio</b>	Either (a) a collection of similar programs addressing the same market (e.g., a portfolio of residential programs), technology (e.g., motor-efficiency programs), or mechanisms (e.g., loan programs) or (b) the set of all programs conducted by one organization, such as a utility (and which could include programs that cover multiple markets, technologies, etc.).
<b>Program Administrator Cost (PAC) Test</b>	The Program Administrator Cost Test measures the net costs of a demand-side management program as a resource option based on the costs incurred by the program administrator (including incentives costs) and excluding any net costs incurred by the participant.
<b>Program Year</b>	The Year in which programs are administered and delivered, for the purposes of planning and reporting, a Program Year shall be considered a calendar year, January 1 - December 31.
<b>Program</b>	A group of projects, with similar characteristics and installed in similar applications. Examples could include a utility program to install energy-efficiency lighting in commercial buildings, a developer's program to build a subdivision of homes that have photovoltaic systems, or a state residential EE code program.
<b>Ratepayer Impact Measure (RIM) Test</b>	The Ratepayer Impact Measure test measures what happens to customer bills or rates due to changes in utility revenues and operating costs caused by the program.
<b>RBudget (Revised Budget)</b>	This is the Budget the utility used for the Program Year. This budget may be different from the Approved Budget (ABudget), if the Commission has granted the utility the flexibility to modify its program budgets.
<b>Sales as Adjusted for SD Exemptions</b>	The utility's 2010 Annual Energy Sales minus the 2010 Annual Energy Sales of the customers granted self-direct exemptions by Commission Order.
<b>Total Resource Cost (TRC) Test</b>	The Total Resource Cost Test measures the net costs of a demand-side management program as a resource option based on the total costs of the program, including both the participants' and the utility's costs.

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**Instructions:** Fill in all cells. Select Company's Utility Type from the dropdown menu.

### Utility Information

1. Utility Full Name
2. Utility Abbreviated Name
3. Program Year
4. Docket
5. Date Filed
6. Name of Contact
7. Email Address
8. Telephone Number

Entergy Gulf States Louisiana, L.L.C.
EGSL
2014
Heather LeBlanc
hgabler@entergy.com
225.763.5128

### Utility Type

Electric

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**Instructions:** List Program names and the other required detail. Provide additional detail for each program by clicking on the "View Program Detail" button.

Definitions

View Program Detail

	Program Name	Target Sector	Program Type	Delivery Channel
1.	Residential Solutions	Residential	Whole Home	Trade Ally
2.	Lighting and Appliances	Residential	Consumer Product Rebate	Retail Outlets
3.	Income Qualified	Residential	Whole Home	Trade Ally
4.	AC Tune Up and HVAC	Residential	Prescriptive/Standard Offer	Trade Ally
5.	Small Business	Commercial & Industrial	Prescriptive/Standard Offer	Trade Ally
6.	Large C&I	Commercial & Industrial	Prescriptive/Standard Offer	Trade Ally
7.	Residential Market Development	Residential	Other	Implementing Contractor
8.	Commercial Market Development	Commercial & Industrial	Other	Implementing Contractor

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## Program-Type Definitions

Term	Definition
<b>Audit - C&amp;I</b>	Programs in which an energy assessment is performed on one or more participant commercial or industrial facilities to identify sources of potential energy waste and measures to reduce that waste.
<b>Behavior/Education</b>	Residential programs designed around directly influencing household habits and decision-making on energy consumption through numerical or graphical feedback on consumption, sometimes accompanied by tips on saving energy. These programs include behavioral feedback programs (in which energy usage reports compare a consumer's household energy usage with those of similar consumers); online audits that are completed by the consumer; and in-home displays that help consumers assess their usage in real time. These programs do not include on-site energy assessments or audits.
<b>Consumer Product Rebate</b>	Programs that incentivize the sale, purchase and installation of energy efficient measures/equipment and or devices (e.g., refrigerators, dishwashers, clothes washers, dryers, electronics, lighting, lighting fixtures, lighting controls, etc.) that are more efficient than those meeting minimum energy performance standards. All rebate/incentive delivery channels are included (Coupon, upstream retail, upstream manufacturing, web based, point of sale, etc.). Further, these programs typically do not include the local participating contractor (HVAC, Insulation, Auditing, etc.) for installation or incentives/rebates.
<b>Custom</b>	Programs designed around the delivery of site-specific projects typically characterized by an extensive onsite energy assessment and identification and installation of multiple measures unique to that facility. These measures are likely to vary significantly from site to site
<b>Demand Response</b>	Demand response programs
<b>Financing</b>	<p>Residential - Financing programs for residential projects. As with other programs, costs here are utility costs, including the costs of any inducements for lenders, e.g., loan loss reserves, interest rate buy downs, etc.</p> <p>C&amp;I - Projects designed to increase loan financing for C&amp;I energy efficiency projects. As with other programs, program costs here are any costs paid by the PA out of utility-customer funds, including, e.g., loan loss reserves or other credit enhancements, interest rate buy downs, etc., - but not including rebates. Where participant costs are available for collection, these ideally will include the total customer share, i.e., both principal (the participant payment to purchase and install measures) and interest on that debt. Most of these programs will be directed toward enhancing credit or financing for commercial structures.</p>
<b>Market Specific/Hard to Reach</b>	Multi-family and mobile homes programs are designed to encourage the installation of energy efficient measures in common areas, units or both for residential structures of more than four units. These programs may be aimed at building owners/managers, tenants or both. This program may include rebate, direct install and auditing incentives/services.
<b>New Construction</b>	<p>Residential - Programs that provide incentives and possibly technical services to ensure new homes are built or manufactured to energy performance standards higher than applicable code, e.g., ENERGY STAR Homes. These programs include new multi-family and new/replacement mobile homes.</p> <p>C&amp;I - Programs that incentivize owners or builders of new commercial or industrial facilities to design and build beyond current code or to a certain certification level, e.g., ENERGY STAR or LEED.</p>



<span style="border: 1px solid black; padding: 2px 5px; margin-right: 10px;">Back</span> <b>Program-Type Definitions</b>	
Term	Definition
<b>Other</b>	Programs not captured by any of the specific Residential, Industrial or Commercial categories but are sufficiently detailed or distinct to not be treated as a "general" program. Example: An EE program aimed specifically at the commercial subsector but is not clearly prescriptive or custom in nature might be classified as C&I: Other.
<b>Prescriptive/Standard Offer</b>	Prescriptive programs that encourage the purchase and installation of some or all of a specified set of pre-approved measures.
<b>Measure/Technology Focus</b>	Residential Programs that focus on specific a technology or a limited technology that require additional verification, quality control and/or includes specific design engineering prior to installation. Such programs can include water heating programs, pool pumps, HVAC "right sizing" replace on burn out or retrofit. Like the Consumer Product rebate program the Measure/Technology focus program must exceed standards in Arkansas. Unlike the Consumer Product programs these programs will usually require the recruitment and training of installation contractors and reporting from installation contractors followed by quality control practices.
<b>Whole Home</b>	Whole-home energy upgrade or retrofit programs combine a comprehensive energy assessment or audit that identifies energy savings opportunities with house-wide improvements in air sealing, insulation and, often, HVAC systems and other end uses. The HVAC improvements may range from duct sealing to a tune up to full replacement of the HVAC systems. Whole-home programs are designed to address a wide variety of individual measures and building systems, including but not limited to: HVAC equipment, thermostats, furnaces, boilers, heat pumps, water heaters, fans, air sealing, insulation (attic, wall, and basement), windows, doors, skylights, lighting, and appliances. As a result, whole- home programs generally involve one or more rebates for multiple measures. Whole-home programs generally come in two types: comprehensive programs that are broad in scope and less comprehensive, prescriptive programs sometimes referred to as "bundled efficiency" programs. This category addresses all of the former and most of the latter, but it excludes direct-install programs that are accounted for separately and completed outside this program.

**Program Detail**

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[Definitions - Residential](#)

[Definitions - C&I](#)

[Definitions - Cross Sector](#)

**Instructions:** Select all that apply.

**Program Name**

1. Residential Solutions
2. Lighting and Appliances
3. Income Qualified
4. AC Tune Up and HVAC
5. Small Business
6. Large C&I
7. Residential Market Development
8. Commercial Market Development

Residential																				
N/A	Behavioral/Education	CPR - Appliances	CPR - Electronics	CPR - Lighting	CPR - Appliance Recycling	DR - Load Control	DR - Price/Time Base	Financing	Manufactured Homes	M/TF - HVAC/Furnace	M/TF - Insulation	M/TF - Pool Pumps	M/TF - Water Heater	M/TF - Windows	Multi-family	Other	WH - Audits	WH - Direct Install	WH - Retrofit	
											X				X					X
		X		X								X								
											X				X					X
										X										

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Definitions - Residential

Definitions - C&I

Definitions - Cross Sector

Instructions: Select all that apply.

**Program Name**

1. Residential Solutions
2. Lighting and Appliances
3. Income Qualified
4. AC Tune Up and HVAC
5. Small Business
6. Large C&I
7. Residential Market Development
8. Commercial Market Development

Commercial & Industrial (Small Business, Commercial, Industrial, and Agriculture)																		
Audit	Custom	Custom/Agriculture	Custom/Data Centers	Custom/Industrial Processes	Custom/Refrigerator Warehouses	DR - Load Control	DR - Price/Time Base	Financing	Govt/Nonprofit/MUSH	Other	Prescriptive/Grocery	Prescriptive/HVAC	Prescriptive/IT or Office	Prescriptive/Industrial	Prescriptive/Lighting	Prescriptive/Motors	Prescriptive/Small Commercial	Street Lighting
	X										X	X	X		X	X	X	
	X										X	X	X	X	X	X		

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Definitions - Residential

Definitions - C&I

Definitions - Cross Sector

**Instructions:** Select all that apply.

**Program Name**

1. Residential Solutions
2. Lighting and Appliances
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8. Commercial Market Development

Cross-Sector								
Codes & Standards	Market Transformation	Marketing, Education, Outreach	Multi-Sector Rebates	Other	Research	Shading/Cool Roofs	Voltage Reduction	Workforce Development

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## Program Definitions - Residential

Term	Definition
<b>Behavior/Education</b>	Residential programs designed around directly influencing household habits and decision-making on energy consumption through numerical or graphical feedback on consumption, sometimes accompanied by tips on saving energy. These programs include behavioral feedback programs (in which energy usage reports compare a consumer's household energy usage with those of similar consumers); online audits that are completed by the consumer; and in-home displays that help consumers assess their usage in real time. These programs do not include on-site energy assessments or audits.
<b>Consumer Product Rebate/Appliances</b>	Programs that incentivize the sale, purchase and installation of appliances (e.g., refrigerators, dishwashers, clothes washers and dryers) that are more efficient than those meeting minimum energy performance standards. Appliance recycling and the sale/purchase/installation of HVAC equipment, water heaters and consumer electronics are accounted for separately.
<b>Consumer Product Rebate/Electronics</b>	Programs that encourage the availability and purchase/lease of more efficient personal and household electronic devices, including but not limited to televisions, set-top boxes, game consoles, advanced power strips, cordless telephones, PCs and peripherals <u>specifically for home use, chargers for phones/smart phones/tablets.</u>
<b>Consumer Product Rebate/Lighting</b>	Programs aimed specifically at encouraging the sale/purchase and installation of more efficient lighting in the home. These programs range widely from point-of-sale rebates to CFL mailings or giveaways. Measures tend to be CFLs, fluorescent fixtures, LED lamps, LED fixtures, LED holiday lights and lighting controls, including occupancy monitors/switches.
<b>Consumer Product Rebate/Appliance Recycling</b>	Programs designed to remove less efficient appliances (typically refrigerators and freezers) from households.
<b>Demand Response - Load Control</b>	A demand response activity by which the program sponsor or program administrator remotely shuts down or cycles a customer's electrical equipment (e.g., air conditioner, water heater) on short notice. Direct load control programs are primarily offered to <u>residential or small commercial customers. Also known as direct control load management.</u>
<b>Demand Response - Price/Time Base</b>	<p>A) Interruptible Load: A demand response program where electric consumption is subject to curtailment or interruption under tariffs contracts that provide a rate discount or bill credit for agreeing to reduce load during system contingencies. In some instances, the demand reduction may be effected by action of the System Operator (remote tripping) after notice to the customer in accordance with contractual provisions.</p> <p>b) Time of Use Pricing: Demand-side management that uses a retail rate or Tariff in which customers are charged different prices for using electricity at different times during the day. Examples are time-of-use rates, real time pricing, hourly pricing, and critical peak pricing. Time-based rates do not include seasonal rates, inverted block, or declining block rates.</p>
<b>Financing</b>	Financing programs for residential projects. Costs here are utility costs, including the costs of any inducements for lenders, e.g., loan loss reserves, interest rate buy downs, etc.
<b>Manufactured Homes</b>	Manufactured programs are designed to encourage the installation of energy efficient measures in manufactured homes.
<b>Measure/Technology Focus - HVAC/Furnace</b>	Programs designed to encourage the distribution, sale/purchase, proper sizing and installation of HVAC systems that are more efficient than current standards. Programs tend to support activities that focus on central air conditioners, air source heat pumps, ground source heat pumps, and ductless systems that are more efficient than current energy performance standards, as well as climate controls and the promotion of quality installation and quality maintenance.

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## Program Definitions - Residential

Term	Definition
<b>Measure/Technology Focus - Insulation</b>	Programs designed to encourage the sale/purchase and installation of insulation in residential structures, often through per-square-foot incentives for insulation of specific R- values versus existing baseline. Programs may be point-of-sale rebates or rebates to insulation installation contractors.
<b>Measure/Technology Focus - Pool Pumps</b>	Programs that incentivize the installation of higher efficiency or variable speed pumps and controls, such as timers, for swimming pools.
<b>Measure/Technology Focus - Water Heater</b>	Programs designed to encourage the distribution, sale/purchase and installation of electric and gas water-heating systems that are more efficient than current standards, including high efficiency water storage tank and tankless systems.
<b>Measure/Technology Focus - Windows</b>	Programs designed to encourage the sale/purchase and installation of efficient windows in residential structures.
<b>Multi-Family</b>	Multi-family programs are designed to encourage the installation of energy efficient measures in common areas, units or both for residential structures of more than four units. These programs may be aimed at building owners/managers, tenants or both.
<b>Other</b>	All residential programs not specifically captured in the other residential program categorizations.
<b>Whole Home/Audits</b>	Residential audit programs provide a comprehensive, standalone assessment of a home's energy consumption and identification of opportunities to save energy. The scope of the audit includes the whole home although the thoroughness and completeness of the audit may vary widely from a modest examination and simple engineering-based modeling of the physical structure to a highly detailed inspection of all spaces, testing for air leakage/exchange rates, testing for HVAC duct leakage and highly resolved modeling of the physical structure with benchmarking to customer utility bills.
<b>Whole Home/Direct Install</b>	Direct-install programs provide a set of pre-approved measures that may be installed at the time of a visit to the customer premises or provided as a kit to the consumer, usually at modest or no cost to the consumer and sometimes accompanied by a rebate. Typical measures include CFLs, low-flow showerheads, faucet aerators, water-heater wrap and weather stripping. Such programs also may include a basic, walk-through energy assessment or audit, but the savings are principally derived from the installation of the provided measures.
<b>Whole Home/Retrofit</b>	Whole-home energy upgrade or retrofit programs combine a comprehensive energy assessment or audit that identifies energy savings opportunities with house-wide improvements in air sealing, insulation and, often, HVAC systems and other end uses. The HVAC improvements may range from duct sealing to a tune up to full replacement of the HVAC systems. Whole-home programs are designed to address a wide variety of individual measures and building systems, including but not limited to: HVAC equipment, thermostats, furnaces, boilers, heat pumps, water heaters, fans, air sealing, insulation (attic, wall, and basement), windows, doors, skylights, lighting, and appliances. As a result, whole- home programs generally involve one or more rebates for multiple measures. Whole-home programs generally come in two types: comprehensive programs that are broad in scope and less comprehensive, prescriptive programs sometimes referred to as "bundled efficiency" programs. This category addresses all of the former and most of the latter, but it excludes direct-install programs that are accounted for separately.

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## Program Definitions - Commercial & Industrial

Term	Definition
<b>Audit</b>	Programs in which an energy assessment is performed on one or more participant commercial or industrial facilities to identify sources of potential energy waste and measures to reduce that waste.
<b>Custom</b>	Programs designed around delivery of site-specific projects typically characterized by an extensive onsite energy assessment and identification and installation of multiple measures unique to that facility. These measures may vary significantly from site to site. This category is intended to capture "whole-building" approaches to commercial sector efficiency opportunities for a wide range of building types and markets (e.g., office, retail) and wide range of measures.
<b>Custom/Agriculture</b>	Farm- and orchard-based agricultural programs that primarily involve irrigation pumping and do not include agricultural refrigeration or processing at scale.
<b>Custom/Data Centers</b>	Data center programs are custom-designed around large-scale server floors or farms that often serve high-tech, banking or academia. Projects tend to be site-specific and involve some combination of lighting, servers, networking devices, cooling/chillers, and energy management systems/software. Several of these may be of experimental or proprietary design.
<b>Custom/Industrial Processes</b>	Industrial programs deliver custom-designed projects that are characterized by an onsite energy and process efficiency assessment and a site-specific measure set that may include, for example, substantial changes in a manufacturing line. This category includes all EE program work at industrial sites that is not otherwise covered by the single-measure prescriptive programs below, e.g., lighting, HVAC, water heaters. This category therefore includes, but is not limited to, all industrial and agricultural process efficiency, all non-single measure efficiency activities inside and on industrial buildings.
<b>Custom/Refrigerator Warehouses</b>	Warehouse programs are aimed at large-scale refrigerated storage. Typical end uses are lighting, climate controls and refrigeration systems.
<b>Demand Response - Load Control</b>	<p>a) Direct Load Control: A demand response activity by which the program sponsor or program administrator remotely shuts down or cycles a customer's electrical equipment (e.g., air conditioner, water heater) on short notice. Direct load control programs are primarily offered to residential or small commercial customers. Also known as direct control load management.</p> <p>b) Demand Response Program: A demand response program that provides incentive payments to customers for load reductions achieved during an Emergency Demand Response Event.</p> <p>c) Interruptible Load: A demand response program where electric consumption is subject to curtailment or interruption under tariffs contracts that provide a rate discount or bill credit for agreeing to reduce load during system contingencies. In some instances, the demand reduction may be effected by action of the System Operator (remote tripping) after notice to the customer in accordance with contractual provisions.</p>

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## Program Definitions - Commercial & Industrial

Term	Definition
<b>Demand Response - Price/Time Base Response</b>	<p>a) Critical Peak Pricing: Demand-side management that combines direct load control with a pre-specified high price for use during designated critical peak periods, triggered by system contingencies or high wholesale market prices.</p> <p>b) Critical Peak Pricing with Load Control: Demand-side management that combines direct load control with a pre-specified high price for use during designated critical peak periods, triggered by system contingencies or high wholesale market prices.</p> <p>c) Peak Time Rebate: Peak time rebates allow customers to earn a rebate by reducing energy use from a baseline during a specified number of hours on critical peak days. Like Critical Peak Pricing, the number of critical peak days is usually capped for a calendar year and is linked to conditions such as system reliability concerns or very high supply prices.</p> <p>d) Real time pricing: Demand-side management that uses rate and price structure in which the retail price for electricity typically fluctuates hourly or more often, to reflect changes in the wholesale price of electricity on either a day-ahead or hour-ahead basis.</p> <p>e) Time of Use Pricing: Demand-side management that uses a retail rate or Tariff in which customers are charged different prices for using electricity at different times during the day. Examples are time-of-use rates, real time pricing, hourly pricing, and critical peak pricing. Time-based rates do not include seasonal rates, inverted block, or declining block rates.</p>
<b>Financing</b>	<p>Programs designed to increase loan financing for C&amp;I energy efficiency projects. As with other programs, program costs here are any costs paid by the PA out of utility-customer funds, including, e.g., loan loss reserves or other credit enhancements, interest rate buy downs, etc.,- but not including rebates. Where participant costs are available for collection, these ideally will include the total customer share, i.e., both principal (the participant payment to purchase and install measures) and interest on that debt. Most of these programs will be directed toward enhancing credit or financing for commercial structures.</p>
<b>Govt/Nonprofit/MUSH</b>	<p>MUSH (Municipal, University, School &amp; Hospital) and government and non-profit programs cover a broad swath of program types generally aimed at public and institutional facilities. Examples include incentives and/or technical assistance to promote energy efficiency upgrades for elementary schools, recreation halls and homeless shelters. Street lighting is accounted for separately.</p>
<b>Other</b>	<p>Programs not captured by any of the specific C&amp;I categories but are sufficiently detailed or distinct to not be treated as a "general" program. Ex ample: An EE program aimed specifically at the C&amp;I subsector but is not clearly prescriptive or custom in nature might be classified as C&amp;I: Other.</p>
<b>Prescriptive/Grocery</b>	<p>Grocery programs are prescriptive programs aimed at supermarkets and are designed around indoor and outdoor lighting and refrigerated display cases.</p>
<b>Prescriptive/HVAC</b>	<p>C&amp;I HVAC programs encourage the sale/purchase and installation of heating, cooling and chiller systems at higher efficiency than current energy performance standards, across a broad range of unit sizes and configurations. Most of these programs will be directed toward commercial structures.</p>
<b>Prescriptive/IT or Office</b>	<p>Programs aimed at improving the efficiency of office equipment, chiefly commercially available PCs, printers, monitors, networking devices and mainframes not rising to the scale of a server farm or floor.</p>



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## Program Definitions - Commercial & Industrial

Term	Definition
<b>Prescriptive/Industrial</b>	Prescriptive programs that encourage the purchase and installation of some or all of a specified set of pre-approved industrial measures besides those covered in other measure-specific prescriptive programs.
<b>Prescriptive/Lighting</b>	C&I lighting programs incentivize the installation of higher efficiency lighting and controls, compared to the existing baseline. Most of these programs will be directed toward commercial structures. Typical measures might include T-8/T-5 fluorescent lamps and fixtures; CFLs and fixtures; LEDs for lighting, displays, signs and refrigerated lighting; metal halide and ceramic lamps and fixtures; occupancy controls; daylight dimming; and timers.
<b>Prescriptive/Motors</b>	Motors programs usually offer a prescribed set of approved higher efficiency motors, with industrial motors programs typically getting the largest savings from larger, high powered motors (>200 hp).
<b>Prescriptive/Small Commercial</b>	Prescriptive programs applied to small commercial facilities. (See definition of prescriptive programs for additional detail.) Such programs may range from a walk-through audit and direct installation of a few pre-approved measures to a fuller audit and a fuller package of measures.
<b>Street Lighting</b>	Street lighting programs include incentives and/or technical support for the installation of higher efficiency street lighting and traffic lights than current baseline.

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## Program Definitions - Cross Sector

Term	Definition
<b>Codes &amp; Standards</b>	In C&S programs, the PA may engage in a variety of activities designed to advance the adoption, application or compliance level of building codes and end-use energy performance standards. Examples might include advocacy at the state or federal level for higher standards for HVAC equipment; training of architects, engineers and builder/developers on compliance; and training of building inspectors in ensuring the codes are met.
<b>Market Transformation</b>	Market transformation programs include programs aimed primarily at reducing market barriers to the adoption of more efficient goods and services rather than acquiring energy savings, per se. MT programs are gauged by their market effects, e.g., increased awareness of energy efficient technologies among customers and suppliers; reduced prices for more efficient models; increased availability of more efficient models; and ultimately, increased market share for energy efficient goods, services and design practices. Example programs might include upstream incentives to manufacturers to make more efficient goods more commercially available; and point-of-sale or installation incentives for emerging technologies that are not yet cost effective. Workforce training and development programs are covered by a separate category. Upstream incentives for commercially available goods are sorted into the program categories for those goods, e.g., consumer electronics or HVAC.
<b>Marketing, Education, Outreach</b>	ME&O programs include most standalone marketing, education and outreach programs, e.g., development and delivery of in-school energy and water efficiency curricula; and statewide marketing, outreach and brand development.
<b>Multi-Sector Rebates</b>	Multi-sector rebate programs include providing incentives for commercially available end-use goods for multiple sectors, e.g., PCs, HVAC.
<b>Other</b>	This category is intended to capture all programs that cannot be allocated to a specific sector (or are multi-sectoral) and cannot be allocated to a specific program type.
<b>Research</b>	These programs are aimed generally at helping the PA identify new opportunities for energy savings, e.g., research on emerging technologies or conservation strategies. Research conducted on new program types or the inclusion of new, commercially available measures in an existing program are accounted for separately under cross-cutting program support.
<b>Shading/Cool Roofs</b>	Shading/reflective programs include programs designed to lessen heating and cooling loads through generally changes to the exterior of a structure, e.g., tree plantings to shade walls and windows ,window screens and cool/reflective roofs. These programs are not necessarily specific to a sector.
<b>Voltage Reduction</b>	Programs that support investments in pre-meter system savings, typically by the program administrator. The most common form of these programs are voltage regulation programs that reduce voltage (within reliability parameters) during select time periods. Other measures may include purchase of higher efficiency transformers.
<b>Workforce Development</b>	Workforce training and development programs are a distinct category of market transformation program designed to provide the underlying skills and labor base for deployment of energy-efficiency measures.

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**Instructions:** Provide RBudget amount for each cost category, including Regulatory at bottom. Provide budget reconciliation by clicking on the "Budget Reconciliation" button.

Program Name	Promotion/Advertising		Customer	Delivery &		Total
	Admin/Planning		Incentives	EM&V	Vendors	
1. Residential Solutions	\$ 40,727	\$ 4,791	\$ 244,855	\$ 16,329	\$ 193,992	\$ 500,694
2. Lighting and Appliances	\$ 24,426	\$ 2,874	\$ 146,805	\$ 9,797	\$ 116,395	\$ 300,297
3. Income Qualified	\$ 17,017	\$ 2,002	\$ 75,140	\$ 6,574	\$ 108,473	\$ 209,206
4. AC Tune Up and HVAC	\$ 16,818	\$ 1,978	\$ 101,100	\$ 6,744	\$ 80,116	\$ 206,756
5. Small Business	\$ 29,187	\$ 3,434	\$ 199,472	\$ 10,286	\$ 116,453	\$ 358,832
6. Large C&I	\$ 60,260	\$ 7,089	\$ 319,896	\$ 25,284	\$ 328,313	\$ 740,842
7. Residential Market Development	\$ 8,766	\$ 1,031	\$ -	\$ -	\$ 97,976	\$ 107,773
8. Commercial Market Development	\$ 5,654	\$ 665	\$ -	\$ -	\$ 63,196	\$ 69,515
<b>Total:</b>	<b>\$ 202,855</b>	<b>\$ 23,864</b>	<b>\$ 1,087,268</b>	<b>\$ 75,014</b>	<b>\$ 1,104,914</b>	<b>\$ 2,493,915</b>
					<b>Total Portfolio Budget:</b>	<b>\$ 2,493,915</b>

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### Savings & Participants

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**Instructions:** Provide net demand savings, net energy savings, number of participants and the participant definition for each program.

Program Name	Demand Savings (kW)	Energy Savings (kWh)	Participants	Participant Definition
1. Residential Solutions	358	1,284,377	317	Customer
2. Lighting and Appliances	399	1,621,771	24,076	Customer
3. Income Qualified	57	271,561	46	Customer
4. AC Tune Up and HVAC	312	862,786	306	Customer
5. Small Business	243	1,275,097	60	Customer
6. Large C&I	733	3,355,991	25	Customer
7. Residential Market Development	0	0	0	Customer
8. Commercial Market Development	0	0	0	Customer
<b>Total:</b>	<b>2,102</b>	<b>8,671,583</b>	<b>24,830</b>	

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**Instructions:** Provide details for both External and Internal Training by clicking the "Details" button. Provide the Cost associated with the training.

	<u>Sessions</u>	<u>Attendees</u>	<u>Man Hours</u>	<u>Certificates</u>	<u>Cost</u>
<b>External Training</b>	115	878	4,163	47	\$ 167,290

Details

	<u>Sessions</u>	<u>Attendees</u>	<u>Man Hours</u>	<u>Certificates</u>	<u>Cost</u>
<b>Internal Training</b>	4	28	48	0	\$ -

Details

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**External Training (contractors, trade allies, consumer groups, ect.)**

Event No.	Start Date	Class	Class Description	Training Location	Sponsor	No. of Attendees (A)	Length of Session (B)	Training Session Man-Hours (A x B)	Any Certificates Awarded? (Y or N)	# of Certificates Awarded
1.	11/1/14	Entergy Solutions Quick Start Kick-Off	Contractor Meeting to discuss all aspects of the Entergy Solutions Quick Start Program	Crowne Plaza Executive Center - Baton Rouge	EGSL/CLEAResult	90	3	270	N	N/A
2.	11/7/14	Entergy/City Parish of East Baton Rouge: Weatherization Day	Volunteer Event co-sponsored by Entergy; Weatherized about 12 homes in this neighborhood	Belaire High School in Baton Rouge	EGSL/CLEAResult	2	4	8	N	N/A
3.	12/8/14	BPI Building Analyst	Building Performance Institute national certification training on building systems, thermal boundaries, air flow, and many other topics; Written & Field Tests	Louisiana Housing Corp - Weatherization Training Center in Baton Rouge	EGSL/CLEAResult	10	40	400	Y	9
4.	1/12/15	BPI Building Analyst	Building Performance Institute national certification training on building systems, thermal boundaries, air flow, and many other topics; Written & Field Tests	Louisiana Housing Corp - Weatherization Training Center in Baton Rouge	EGSL/CLEAResult	16	48	768	Y	14
5.	5 through 8/	Retailer Trainings	Provide program & product training to store associates and management at participating retailers - (Average training time is 15 minutes per person)	Multiple - Statewide	EGSL/CLEAResult	94	0	24	N	N/A
6.	2/3/15	CoolSaver & HVAC Replacements	Butcher Distributors Sales Event	Butcher Dist. - Baton Rouge	EGSL/CLEAResult	3	6	18	N	N/A

7.	2/19/15	Louisiana Heat Pump Association Annual Training & Convention	Seminar Presentation to Association members on CoolSaver Tune-Ups & HVAC Replacements	Ramada Lafayette Conference Center - Lafayette, LA	EGSL/CLEAResult	50	2	75	N	N/A
8.	3/10/15	Louisiana Heat Pump Association Local Chapter Meeting	Seminar Presentation to chapter members on CoolSaver Tune-Ups & HVAC Replacements	Ramada Inn - Baton Rouge, LA	EGSL/CLEAResult	40	1	20	N	N/A
9.	3/28/15	CoolSaver	CoolSaver Kick-Off meeting - Provided technical training to contractors on use of tools required by program	South Central Louisiana Technical College in Reserve, LA	EGSL/CLEAResult	9	7	63	N	N/A
10.	4/20/15	BPI Building Analyst	Building Performance Institute national certification training on building systems, thermal boundaries, air flow, and many other topics; Written & Field Tests	Louisiana Housing Corp - Weatherization Training Center in Baton Rouge	EGSL/CLEAResult	6	40	240	Y	6
11.	5/6/15	CoolSaver	Classroom training on the introduction of iManifold, its implementation & Quickbase reporting	Baton Rouge	EGSL/CLEAResult	7	7	49	N	N/A
12.	5/8/15	CoolSaver	Instrument Field training for airflow, multi-meters & iManifold	Baton Rouge	EGSL/CLEAResult	7	6	42	N	N/A
13.	6/10/15	Trade Orientation	Introduce CoolSaver & A/C Replacement to local HVAC Supply Houses - Johnstone Supply; Coburn's and Carrier Enterprise	Baton Rouge	EGSL/CLEAResult	8	1	8	N	N/A
14.	6/25/15	CoolSaver	Instrument Field training for airflow, multi-meters & iManifold	Denham Springs	EGSL/CLEAResult	4	5	20	N	N/A
15.	6/26/15	CoolSaver	Instrument Field training for airflow, multi-meters & iManifold	Hammond	EGSL/CLEAResult	2	4	8	N	N/A

16.	8/18/15	CoolSaver	Instrument Field training for airflow, multi-meters & iManifold	Baton Rouge	EGSL/CLEARResult	2	4	8	N	N/A
17.	9/4/15	CoolSaver	Instrument Field training for airflow, multi-meters & iManifold	Baton Rouge	EGSL/CLEARResult	2	5	10	N	N/A
18.	9/21/15	CoolSaver	Instrument Field training for airflow, multi-meters & iManifold	Baton Rouge	EGSL/CLEARResult	3	5	15	N	N/A
19.	9/30/15	Air Sealing, Duct Sealing & Insulation	Webinar training covered Air Sealing , Duct Sealing and Insulation techniques; Illustrated	Webinar	EGSL/CLEARResult	32	2	64	N	N/A
20.	10/1/15	CoolSaver	Instrument Field training for airflow, multi-meters & iManifold	Baton Rouge	EGSL/CLEARResult	1	5	5	N	N/A
21.	10/12/15	BPI IDL	Building Performance Institute national certification training on the proper use of blower door and duct blaster; Field Test requirement	Louisiana Housing Corp - Weatherization Training Center in Baton Rouge	EGSL/CLEARResult	7	16	112	Y	6
22.	10/13/15	Entergy/City Parish of East Baton Rouge: Weatherization Day	Volunteer Event co-sponsored by Entergy; Weatherized 8 homes in this neighborhood	Valley Park neighborhood in Baton Rouge	EGSL/CLEARResult	2	5	10	N	N/A
23.	10/19/15	BPI Building Analyst	Building Performance Institute national certification training on building systems, thermal boundaries, air flow, and many other topics; Written & Field Tests	Louisiana Housing Corp - Weatherization Training Center in Baton Rouge	EGSL/CLEARResult	10	40	400	Y	8
24.	10/1/14	Commerical & Industrial Contractor Development	Program, Policies and Procedures	Remote by Phone and email	CLEARResult/EGSL	20	1	20	N	N/A
25.	10/1/14	Commerical & Industrial Participant Eduction	Program, Policies and Procedures	Remote by Phone and email	CLEARResult/EGSL	15	1	15	N	N/A



26.	11/24/14	OPEN Field Tool Training	Training contractors on OPEN Program and Field Tool	Webinar	CLEAResult/EGSL	2	2	3	N	N/A
27.	11/24/14	OPEN Field Tool Training	Training contractors on OPEN Program and Field Tool	Webinar	CLEAResult/EGSL	2	2	3	N	N/A
28.	11/26/14	OPEN Field Tool Training	Training contractors on OPEN Program and Field Tool	Webinar	CLEAResult/EGSL	3	2	5	N	N/A
29.	11/26/14	OPEN Field Tool Training	Training contractors on OPEN Program and Field Tool	Webinar	CLEAResult/EGSL	3	2	5	N	N/A
30.	12/2/14	OPEN Field Tool Training	Training Contractors/Participants on how the program works.	Webinar	CLEAResult/EGSL	3	1	3	N	N/A
31.	12/4/14	OPEN Field Tool Training	Training contractor on OPEN Program and Field Tool	In Person	CLEAResult/EGSL	5	1	5	N	N/A
32.	12/4/14	OPEN Field Tool Training	Training Lighting Rep on use of the Calculator	In Person	CLEAResult/EGSL	2	1	2	N	N/A
33.	12/5/14	OPEN Field Tool Training	Training contractor on OPEN Program and Field Tool	In Person	CLEAResult/EGSL	2	1	2	N	N/A
34.	12/8/14	OPEN Field Tool Training	Training contractor on OPEN Program and Field Tool	Webinar	CLEAResult/EGSL	3	1	3	N	N/A
35.	12/8/14	OPEN Field Tool Training	Training contractor on OPEN Program and Field Tool	Webinar	CLEAResult/EGSL	6	2	9	N	N/A
36.	12/9/14	OPEN Field Tool Training	Training contractor on OPEN Program and Field Tool	In Person	CLEAResult/EGSL	2	1	2	N	N/A
37.	12/10/14	OPEN Field Tool Training	Training contractor on OPEN Program and Field Tool	Webinar	CLEAResult/EGSL	2	1	2	N	N/A
38.	12/15/14	OPEN Field Tool Training	Training Contractors/Participants on how the program works.	In Person	CLEAResult/EGSL	7	1	7	N	N/A
39.	12/19/14	OPEN Field Tool Training	Training contractors on OPEN Program and Field Tool	Webinar	CLEAResult/EGSL	3	2	5	N	N/A

40.	12/19/14	OPEN Field Tool Training	Training contractors on OPEN Program and Field Tool	In Person	CLEARResult/EGSL	2	1	2	N	N/A
41.	1/2/15	OPEN Field Tool Training	Training contractors on OPEN Program and Field Tool	Webinar	CLEARResult/EGSL	2	1	2	N	N/A
42.	1/13/15	OPEN Field Tool Training	Training Contractors/Participants on how the program works.	In Person	CLEARResult/EGSL	3	1	3	N	N/A
43.	1/14/15	OPEN Field Tool Training	Training contractors on OPEN Program and Field Tool	Webinar	CLEARResult/EGSL	2	1	2	N	N/A
44.	1/15/15	OPEN Field Tool Training	Training Contractors/Participants on how the program works.	In Person	CLEARResult/EGSL	4	1	4	N	N/A
45.	1/27/15	OPEN Field Tool Training	Training contractors on OPEN Program and Field Tool	Webinar	CLEARResult/EGSL	2	1	2	N	N/A
46.	2/1/15	Commerical & Industrial Contractor Development	Program, Policies and Procedures	Remote by Phone and email	CLEARResult/EGSL	15	1	15	N	N/A
47.	2/1/15	Commerical & Industrial Participant Eduction	Program, Policies and Procedures	Remote by Phone and email	CLEARResult/EGSL	10	1	10	N	N/A
48.	2/13/15	OPEN Field Tool Training	Training contractor on OPEN Program and Field Tool	Webinar	CLEARResult/EGSL	3	2	5	N	N/A
49.	3/27/15	OPEN Field Tool Training	Training contractors on OPEN Program and Field Tool	Webinar	CLEARResult/EGSL	2	1	2	N	N/A
50.	3/27/15	OPEN Field Tool Training	Training contractors on OPEN Program and Field Tool	Webinar	CLEARResult/EGSL	2	1	2	N	N/A
51.	5/1/15	Commerical & Industrial Contractor Development	Program, Policies and Procedures	Remote by Phone and email	CLEARResult/EGSL	10	1	10	N	N/A

52.	5/1/15	Commerical & Industrial Participant Eduction	Program, Policies and Procedures	Remote by Phone and email	CLEARResult/EGSL	5	1	5	N	N/A
53.	5/8/15	Program Outreach	Training Contractors/Participants on how the program works.	In Person	CLEARResult/EGSL	6	1	6	N	N/A
54.	6/2/15	Program Outreach	Training Contractors/Participants on how the program works.	In Person	CLEARResult/EGSL	3	1	3	N	N/A
55.	7/23/15	Program Outreach	Training Contractors/Participants on how the program works.	In Person	CLEARResult/EGSL	5	1	5	N	N/A
56.	7/23/15	Program Outreach	Training Contractors/Participants on how the program works.	In Person	CLEARResult/EGSL	2	1	2	N	N/A
57.	8/1/15	Commerical & Industrial Contractor Development	Program, Policies and Procedures	Remote by Phone and email	CLEARResult/EGSL	15	1	15	N	N/A
58.	8/1/15	Commerical & Industrial Participant Eduction	Program, Policies and Procedures	Remote by Phone and email	CLEARResult/EGSL	10	1	10	N	N/A
59.	8/5/15	Program Outreach	Training Contractors/Participants on how the program works.	In Person	CLEARResult/EGSL	5	1	5	N	N/A
60.	8/7/15	Program Outreach	Training Contractors/Participants on how the program works.	In Person	CLEARResult/EGSL	3	1	3	N	N/A
61.	8/18/15	Entergy Meeting	Explained program to the Customer Service team at Entergy Lake Charles, LA	In Person	CLEARResult/EGSL	8	1	8	N	N/A
62.	8/25/15	C&I Program Review	Training on C&I program, procedures and policies	WebEx Webinar	CLEARResult/EGSL	43	1	43	N	N/A

63.	11/2/15	Training	Training contractors on OPEN Program and Field Tool	Webinar	CLEARResult/EGSL	2	1	2	N	N/A
64.	2/5/16	OPEN Field Tool Training	Training Contractors/Participants on how the program works.	In Person	CLEARResult/EGSL	3	1	3	N	N/A
65.	10/27/16	OPEN Field Tool Training	Open Tool Training of Trainers	CLEARResult Office	CLEARResult/EGSL	5	1	5	N	N/A
66.	11/6/14	Multi-Family	Tutorial on processing multi-family rebates	Remote by Phone	CLEARResult/EGSL	2	1	2	N	N/A
67.	11/18/14	OPEN field tool training	Webinar to teach contractors the OPEN tool	Webinar	CLEARResult/EGSL	15	1	15	N	N/A
68.	12/4/14	School Kits	Tutorial on processing School Kit invoices	CLEARResult - New Orleans Office	CLEARResult/EGSL	2	1	2	N	N/A
69.	12/4/14	BPI Training	Matt Killen of BPI - Proctoring Exam	Louisiana Housing Corp - Weatherization Training Center in Baton Rouge	CLEARResult/EGSL	1	1	1	Y	1
70.	12/11/14	Contractor Training	Proctoring BPI exams	Louisiana Housing Corp - Weatherization Training Center in Baton Rouge	CLEARResult/EGSL	10	8	80	N	N/A
71.	12/16/14	Entergy Gulf States - Mgmt Meeting for Entergy Solutions overview	Provided Entergy Managers with detailed overview of energy efficiency program	Entergy Office in Baton Rouge	CLEARResult/EGSL	2	3	6	N	N/A
72.	12/20/14	BPI - IDL	Building Performance Institute national certification training on the proper use of blower door and duct blaster; Field Test requirement	Louisiana Housing Corp - Weatherization Training Center in Baton Rouge	CLEARResult/EGSL	1	2	2	Y	1

73.	1/15/15	Contractor Training	Proctoring BPI exams	Louisiana Housing Corp - Weatherization Training Center in Baton Rouge	CLEARResult/EGSL	3	8	24	N	N/A
74.	1/30/15	Income Qualified	Tutorial on processing Income-Qualified rebates	CLEARResult - New Orleans Office	CLEARResult/EGSL	2	1	2	N	N/A
75.	2/11/15	Diversified Rebate Process	Discussed rebate issues and details of Entergy Solutions program	CLEARResult - New Orleans Office	CLEARResult/EGSL	1	30	30	N	N/A
76.	2/13/15	QuickBase Training	General Program Training	CLEARResult - New Orleans Office	CLEARResult/EGSL	2	1	2	N	N/A
77.	3/2/15	South Coast Solar Rebate Process	Discussed rebate issues and details of Entergy Solutions program	Metairie, LA	CLEARResult/EGSL	1	1	1	N	N/A
78.	3/5/15	WillServ Rebate Process	Discussed rebate issues and new program	Covington, LA	CLEARResult/EGSL	10	1	10	N	N/A
79.	3/6/15	Big Star - Contractor Training	Discussion with Big Star about program, process, requirements and expectations.	CLEARResult - New Orleans Office	CLEARResult/EGSL	4	1	4	N	N/A
80.	3/6/15	Haley's Home Consulting - Contractor Training	Discussion with Haley's Home Consulting about program, process, requirements and expectations.	CLEARResult - New Orleans Office	CLEARResult/EGSL	3	1	2	N	N/A
81.	3/6/15	CoolSaver Training	CoolSaver Field/Equipment Training with Robert Robertson	CLEARResult Office - Gulfport, MS	CLEARResult/EGSL	1	50	50	N	N/A
82.	3/10/15	Met with IDI Wholesale	Met with IDI Sales & 2 insulation contractors about Entergy Solutions	Baton Rouge, LA	CLEARResult/EGSL	3	1	3	N	N/A
83.	3/12/15	National Air Meeting	Discussed rebate issues and new program	Marrero, LA	CLEARResult/EGSL	7	1	7	N	N/A
84.	3/18/15	Contractor Training - Eco Energy Solutions	Field training about duct sealing, process and requirements.	Marrero, LA	CLEARResult/EGSL	7	1	7	N	N/A
85.	3/20/15	CoolSaver Training	CoolSaver Field/Equipment Training with David Rubalcava	CLEARResult Office - Houston, TX	CLEARResult/EGSL	1	40	40	N	N/A

86.	3/28/15	CoolSaver Training	CoolSaver Kick-Off meeting - Provided technical training to contractors on use of tools required by program	South Central Louisiana Technical College in Reserve, LA	CLEAResult/EGSL	9	7	63	N	N/A
87.	3/30/15	QuickBase Training	CoolSaver QB 2015 updates & refresher training	GoToMeeting /internal training	CLEAResult/EGSL	3	1	3	N	N/A
88.	3/31/15	Catalyst	General Program Training	CLEAResult - New Orleans Office	CLEAResult/EGSL	20	7	130	N	N/A
89.	4/1/15	QuickBase Training	QB Intro Training for New Programs	GoToMeeting	CLEAResult/EGSL	15	1	15	N	N/A
90.	4/8/15	CLEAResult Manager Meeting	VP-Sponsored meeting to cross train throughout South Region; Discussed HR related issues & Program high/low points	CLEAResult Corporate Office in Austin, TX	CLEAResult/EGSL	3	24	72	N	N/A
91.	4/23/15	Contractor Training	Proctoring BPI exams	Louisiana Housing Corp - Weatherization Training Center in Baton Rouge	CLEAResult/EGSL	6	24	144	N	N/A
92.	4/24/15	QuickBase Training	General Program Training	GoToMeeting	CLEAResult/EGSL	1	2	2	N	N/A
93.	5/4/15	Affordable Comfort Institute/Home Performance Annual Conference	ACI/HP is a continuing education service provider; sessions provide CEUs and professional training	New Orleans - Hyatt Regency	CLEAResult/EGSL	4	4	16	N	N/A
94.	5/6/15	CoolSaver	Classroom Training on nuances of CoolSaver Tune-Up and iManifold	Louisiana Housing Corp - Weatherization Training Center in Baton Rouge	CLEAResult/EGSL	7	7	49	N	NA
95.	5/8/15	CoolSaver	Field Training at various customer residences - Real-life scenarios with iManifold	Baton Rouge, LA	CLEAResult/EGSL	7	6	42	N	NA

96.	5/20/15	Contractor Training	Program training with David Sims Insulation	Louisiana Housing Corp - Weatherization Training Center in Baton Rouge	CLEARResult/EGSL	3	3	9	N	N/A
97.	6/1/15	QuickBase Training	Processing rebates through QuickBase software	CLEARResult - New Orleans Office	CLEARResult/EGSL	2	1	2	N	N/A
98.	6/3/15	DOE/BPI	Home Energy Score Assessor	Louisiana Housing Corp - Weatherization Training Center in Baton Rouge	CLEARResult/EGSL	1	6	6	Y	1
99.	6/15/15	BPI CEU webinars	BPI Best Practices EE	Remote on Laptop	CLEARResult/EGSL	1	2	2	N	N/A
100.	6/26/15	CoolSaver	Contractor participation overview	CLEARResult - New Orleans Office	CLEARResult/EGSL	7	2	14	N	N/A
101.	6/30/15	Diversified Rebate Process	Discussed rebate issues and payment expectations	CLEARResult - New Orleans Office	CLEARResult/EGSL	2	1	2	N	N/A
102.	7/7/15	TV Interview	Interview on Lunchtime News; discussed energy efficiency; how to access program	Fox29 in Lake Charles	CLEARResult/EGSL	1	0	0	N	N/A
103.	7/29/15	TV Interview	Interview on Morning News; discussed energy efficiency; how to access program	KTVE/KARD - TV in Monroe	CLEARResult/EGSL	1	1	1	N	N/A
104.	7/29/15	TV Interview	Interview on Lunchtime News; discussed energy efficiency; how to access program	KNOE - TV in Monroe	CLEARResult/EGSL	1	1	1	N	N/A
105.	7/30/15	Met with Insulation Wholesaler - Applegate Insulation	Discussed Entergy Solutions with Plant Manager	Applegate plant in Monroe	CLEARResult/EGSL	1	1	1	N	N/A
106.	8/12/15	QuickBase Training	General Program Training	Comfort Engineering Systems Office	CLEARResult/EGSL	2	2	3	N	N/A

107.	8/13/15	QuickBase Training	General Program Training	CLEAResult - New Orleans Office	CLEAResult/EGSL	3	1	3	N	N/A
108.	8/18/15	Entergy Lake Charles Customer Service monthly meeting	Presented to Entergy's Customer Service Reps in Lake Charles about Entergy Solutions	Entergy office - Lake Charles	CLEAResult/EGSL	2	2	4	N	N/A
109.	9/1/15	QuickBase Training	General Program Training	AFJ Mechanical	CLEAResult/EGSL	2	1	2	N	N/A
110.	9/1/15	Contractor Meeting with WilServ	Discussed rebate issues and payment expectations	WebEx	CLEAResult/EGSL	4	1	2	N	N/A
111.	9/24/15	TYPE universal EPA cert	Testing for EPA Certification	CLEAResult - New Orleans Office	CLEAResult/EGSL	1	3	3	N	N/A
112.	10/7/15	CLEAResult Staff Retreat	Discussed all programs, Presented to staff full synopsis of each program component; made plans for next Program Year	New Orleans & Manchac Wildlife Management Area Headquarters Galva Canal	CLEAResult/EGSL	18	16	288	N	N/A
113.	10/12/15	BPI Training	Infiltration and duct leakage	Louisiana Housing Corp - Weatherization Training Center in Baton Rouge	CLEAResult/EGSL	1	8	8	Y	1
114.	10/22/15	Contractor Training	Proctoring BPI exams	Louisiana Housing Corp - Weatherization Training Center in Baton Rouge	CLEAResult/EGSL	11	8	88	N	N/A
115.	10/29/15	One on One with Mechanical consultants	Discussed rebate process and new program	CLEAResult - New Orleans Office	CLEAResult/EGSL	2	1	1	N	N/A
<b>Totals:</b>	<b>Events:</b>	<b>115</b>				<b>878</b>		<b>4,163</b>		<b>47</b>



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### Internal Training (Utility or Administrator Staff)

Event No.	Start Date	Class	Class Description	Training Location	Sponsor	No. of Attendees (A)	Length of Session (B)	Training Session Man-Hours (A x B)	Any Certificates Awarded? (Y or N)	# of Certificates Awarded
1.	9/18/14	Entergy Internal Training	ELL & EGSL Energy Efficiency Training for Residential, Commercial, and Industrial Accounts	Baton Rouge & WebEx	Entergy	20	2	40	N	0
2.	8/26/15	Entergy Internal Training	C&I Program Training for Major Accounts	Baton Rouge	Entergy	8	1	8	N	0
3.								0		
4.		<b>Note: Class participants split equally between ELL &amp; EGSL programs</b>						0		
<b>Totals:</b>		<b>Events:</b>	<b>4</b>			<b>28</b>		<b>48</b>		<b>0</b>

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## EGSL - 2014 Program Year Evaluation

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**Instructions:** Provide all required data. **Note** - Report program year data, when available. This should not report forecasted data.

### Revenue and Expenses

Year	Total Revenue (1) (a) (\$000's)	Portfolio Budget (b) (\$000's)	Budget as % of Revenue (%=b/a)	Actual Expenses (c) (\$000's)	Expenses as % of Revenue (%=c/a)
	2014	\$ 732,043,368	\$ 2,493,917	0.34%	\$ 2,259,962

### Energy

Year	Total Energy Sales (d) (MWh)	Planned Energy Savings (e) (MWh)	Planned Savings as % of Sales (%=e/d)	Evaluated Energy Savings (f) (MWh)	Evaluated Savings as % of Sales (%=f/d)
	2014	14,882,100	8,672	0.06%	10,190

## Notes:

- (1) Total Revenue is 2012 Retail Revenues excluding opt outs and \$75 cap.  
 (2) The Incentive Tab is designed to represent the amount of incentives ELL would receive for exceeding kWh savings. Utility incentives are not currently authorized by the LPSC and therefore, this tab was not used in this filing.

**EGSL - 2014 Program Year Evaluation**

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**Instructions:** Provide actual PY expenses, including Regulatory at bottom.

Program Name	Admin/Planning	Promotion/Advertising	Customer Incentives	EM&V	Delivery & Vendors	Total
<b>1. Residential Solutions</b>	\$ 1,822	\$ 7,919	\$ 224,561	\$ 16,329	\$ 186,076	\$ 436,706
Utility	\$ 1,822		\$ 224,561			\$ 226,383
3rd Party		\$ 7,919		\$ 16,329	\$ 186,076	\$ 210,324
<b>2. Lighting and Appliances</b>	\$ 2,022	\$ 2,873	\$ 144,112	\$ 9,797	\$ 113,522	\$ 272,326
Utility	\$ 2,022		\$ 144,112			\$ 146,134
3rd Party		\$ 2,873		\$ 9,797	\$ 113,522	\$ 126,192
<b>3. Income Qualified</b>	\$ 354	\$ 1,059	\$ 71,921	\$ 6,574	\$ 107,414	\$ 187,322
Utility	\$ 354		\$ 71,921			\$ 72,275
3rd Party		\$ 1,059		\$ 6,574	\$ 107,414	\$ 115,047
<b>4. AC Tune Up and HVAC</b>	\$ 1,159	\$ 7,236	\$ 115,057	\$ 6,744	\$ 72,880	\$ 203,076
Utility	\$ 1,159		\$ 115,057			\$ 116,216
3rd Party		\$ 7,236		\$ 6,744	\$ 72,880	\$ 86,860
<b>5. Small Business</b>	\$ 1,231	\$ 1,023	\$ 197,558	\$ 10,286	\$ 113,615	\$ 323,714
Utility	\$ 1,231		\$ 197,558			\$ 198,789
3rd Party		\$ 1,023		\$ 10,286	\$ 113,615	\$ 124,925
<b>6. Large C&amp;I</b>	\$ 3,799	\$ 503	\$ 318,268	\$ 25,284	\$ 327,810	\$ 675,664
Utility	\$ 3,799		\$ 318,268			\$ 322,067
3rd Party		\$ 503		\$ 25,284	\$ 327,810	\$ 353,597
<b>7. Residential Market Development</b>	\$ -	\$ 1,347	\$ -	\$ -	\$ 96,629	\$ 97,976
Utility						\$ -
3rd Party		\$ 1,347	\$ -	\$ -	\$ 96,629	\$ 97,976
<b>8. Commercial Market Development</b>	\$ -	\$ 664	\$ -	\$ -	\$ 62,532	\$ 63,196
Utility						\$ -
3rd Party		\$ 664	\$ -	\$ -	\$ 62,532	\$ 63,196
<b>Portfolio Total</b>						
Utility	\$ 10,387	\$ -	\$ 1,071,477	\$ -	\$ -	\$ 1,081,864
3rd Party	\$ -	\$ 22,625	\$ -	\$ 75,014	\$ 1,080,478	\$ 1,178,117
<b>Total:</b>	<b>\$ 10,387</b>	<b>\$ 22,625</b>	<b>\$ 1,071,477</b>	<b>\$ 75,014</b>	<b>\$ 1,080,478</b>	<b>\$ 2,259,981</b>

Note:

The Incentive Tab is designed to represent the amount of incentives ELL would receive for exceeding kWh savings. Utility incentives are not currently authorized by the LPSC and therefore, this tab was not used in this filing.

Company Statistics

Actual Expenses

Evaluated Savings

Cost-Benefits

LCFC

Incentives

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## EGSL - 2014 Program Year Evaluation

### Evaluated Savings

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**Instructions:** Provide evaluated net savings and participant results. Provide the methodology for energy savings by clicking the "Methodology for Energy Savings" button.

[Methodology for Energy Savings](#)

Program Name	Demand Savings (kW)	Energy Savings (kWh)	Participants
1. Residential Solutions	418	1,787,015	441
2. Lighting and Appliances	432	1,983,361	29,444
3. Income Qualified	59	347,126	59
4. AC Tune Up and HVAC	302	1,137,316	403
5. Small Business	209	1,208,021	57
6. Large C&I	551	3,726,767	28
7. Residential Market Development	0	0	0
8. Commercial Market Development	0	0	0
<b>Total:</b>	<b>1,970</b>	<b>10,189,606</b>	<b>30,432</b>

**Notes:**

- (1) Programs savings reported are net savings and do not include adjustments for leakage.
- (2) The Incentive Tab is designed to represent the amount of incentives ELL would receive for exceeding kWh savings. Utility incentives are not currently authorized by the LPSC and therefore, this tab was not used in this filing.

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## Methodology for Calculating Net Energy Savings

Program Name	Deemed Savings (kWh)	Custom Savings (kWh)	Other Savings (kWh)	Total Savings (kWh)
1. Residential Solutions	1,787,015			1,787,015
2. Lighting and Appliances	1,983,361			1,983,361
3. Income Qualified	347,126			347,126
4. AC Tune Up and HVAC	1,137,316			1,137,316
5. Small Business	1,208,021			1,208,021
6. Large C&I	3,726,767			3,726,767
7. Residential Market Development				0
8. Commercial Market Development				0
<b>Total Portfolio:</b>	<b>10,189,606</b>	<b>0</b>	<b>0</b>	<b>10,189,606</b>

**Instructions:** Provide the required TRC components. Provide "Key Assumptions" and "Other Cost-Benefit Test" by clicking on the action buttons.

**Other Cost-Benefit Test**

**Program Name**

1. Residential Solutions
2. Lighting and Appliances
3. Income Qualified
4. AC Tune Up and HVAC
5. Small Business
6. Large C&I
7. Residential Market Development
8. Commercial Market Development

Net Energy Savings			Total Resource Cost Test (TRC)			
Annualized Energy Saved (kWh)	Effective NTGR Ratio	Lifetime Energy Savings (MWh)	Total Cost (\$000's)	Total Benefits (\$000's)	Total Net Benefits (\$000's)	TRC Ratio
1,787,015	100.00	32,350	\$ 1,083	\$ 1,485	\$ 402	1.37
1,983,361	100.00	16,022	\$ 462	\$ 647	\$ 185	1.40
347,126	100.00	6,197	\$ 192	\$ 257	\$ 65	1.34
1,137,316	100.00	14,026	\$ 319	\$ 764	\$ 445	2.39
1,208,021	100.00	14,882	\$ 339	\$ 660	\$ 322	1.95
3,726,767	100.00	50,673	\$ 889	\$ 2,000	\$ 1,111	2.25
0					\$ -	n/a
0					\$ -	n/a
<b>Total:</b>	<b>10,189,606</b>	<b>134,150</b>	<b>\$ 3,283</b>	<b>\$ 5,813</b>	<b>\$ 2,530</b>	<b>1.77</b>

**Regulatory Cost:** \$ -

Programs savings reported are net savings and do not include adjustments for leakage.

**Notes:**

- (1) The methods used to calculate cost-effectiveness are informed by the California Standard Practice Manual
- (2) The Incentive Tab is designed to represent the amount of incentives ELL would receive for exceeding kWh savings. Utility incentives are not currently authorized by the LPSC and therefore, this tab was not used in this filing.

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## Cost-Effectiveness Test

**Program Name**

- 1. Residential Solutions
- 2. Lighting and Appliances
- 3. Income Qualified
- 4. AC Tune Up and HVAC
- 5. Small Business
- 6. Large C&I
- 7. Residential Market Development
- 8. Commercial Market Development

**Total:**

Utility Cost Test (UCT)	
Net Benefits (\$000's)	Ratio
\$ 1,485	3.32
\$ 647	2.37
\$ 257	1.37
\$ 764	3.76
\$ 660	2.04
\$ 2,000	2.96
\$ 5,813	2.77

**Instructions:** Provide the LCFC Energy Savings and Cost Recovery for the PY's . The LCFC Cost Recovery should be directly related to the LCFC Energy Savings.

Program Name	LCFC Energy Savings (MWh)	LCFC Cost Recovery (\$)
	2014	2014
1. Residential Solutions	1,787	\$ 91,710
2. Lighting and Appliances	1,983	\$ 101,786
3. Income Qualified	347	\$ 17,815
4. AC Tune Up and HVAC	1,137	\$ 58,367
5. Small Business	1,208	\$ 37,292
6. Large C&I	3,728	\$ 115,045
7. Residential Market Development		
8. Commercial Market Development		
<b>Total:</b>	<b>10,191</b>	<b>\$ 422,014</b>
<b>Total LCFC Recovery for Program Year 2014:</b>		<b>\$ 422,014</b>

Notes:

- (1) Programs savings reported are net savings and include adjustments for leakage.
- (2) The Incentive Tab is designed to represent the amount of incentives ELL would receive for exceeding kWh savings. Utility incentives are not currently authorized by the LPSC and therefore, this tab was not used in this filing.



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## Target Sectors and Program-Type Names

Target Sector	Program Type	Delivery Channel
N/A	Audit - C&I	Coupon Redemption
*****Single-Class*****	Behavior/Education	Direct Install
Residential	Consumer Product Rebate	Implementing Contractor
Small Business	Custom	Retail Outlets
Commercial & Industrial	Demand Response	Self-Install
Municipalities/Schools	Financing	Statewide Administrator
Agriculture	Market Specific/Hard to Reach	Trade Ally
Other	New Construction	Utility Outreach (email/direct mail)
*****Multi-Class*****	Other	Website
Res/Small Business	Prescriptive/Standard Offer	
Res/C&I	Measure/Technology Focus	
Small Business/C&I	Whole Home	
All Classes		

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## Program Cost Type

### Planning / Design

Program planning cost  
 Program design cost  
 Research and development cost  
 Request for proposal preparation and evaluation  
 Consultants used for program design and planning  
 Company employee costs relating to program design, planning and research and development

### Incentives / Direct Install Costs

Rebates  
 Water conservation kits  
 Interruptible credits or payments  
 Payments to CADC (AWP) for weatherization of homes  
 Payments to contractors for weatherization services  
 Direct install costs for all programs with direct install provisions  
 Coupons and upstream program incentives  
 Residential energy audits

### Administration

Utility company personnel training costs  
 Utility company EE personnel salary and benefits not charged elsewhere  
 Overhead costs (office space, vehicles, etc.)

### Marketing & Delivery

Advertising costs including, but not limited to, educational/promotional materials, website development and updates  
 TV/Radio ads  
 Payment to AEO for EEA program  
 Commercial and Industrial energy audits  
 Personnel costs for performing marketing and delivery functions  
 Costs of processing rebates  
 Database development/update costs  
 Trade ally training events  
 Costs to support other EE related events and organizations  
 Measurement and Verification costs as related to direct program/project/measure costs to validate savings within the utility program (i.e. customer projects) and outside of independent EM&V

### EM&V

Payments to consultants for preparation/update of Deemed Savings and Technical Reference Manual  
 Consultants costs for IEM and independent third party evaluations

### Regulatory

Outside counsel legal fees for EE dockets  
 Travel costs related to EE dockets  
 Costs for preparing annual reports and EECR filings, including costs related to performing the required cost effectiveness tests  
 Costs related to regulatory specific collaborative meetings and events

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**Table 1**
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**2014 Portfolio Summary**

Net Energy Savings		Cost			Cost-Benefits	
Demand MW	Energy MWh	Actual Expenses	LCFC	Performance Incentives	TRC Net Benefits	TRC Ratio
2	10,190	\$ 2,259,981	\$ 422,014	\$0	\$ 2,530,021	1.77

## Note:

Utility Performance Incentives are not currently authorized by the LPSC.

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Table 2

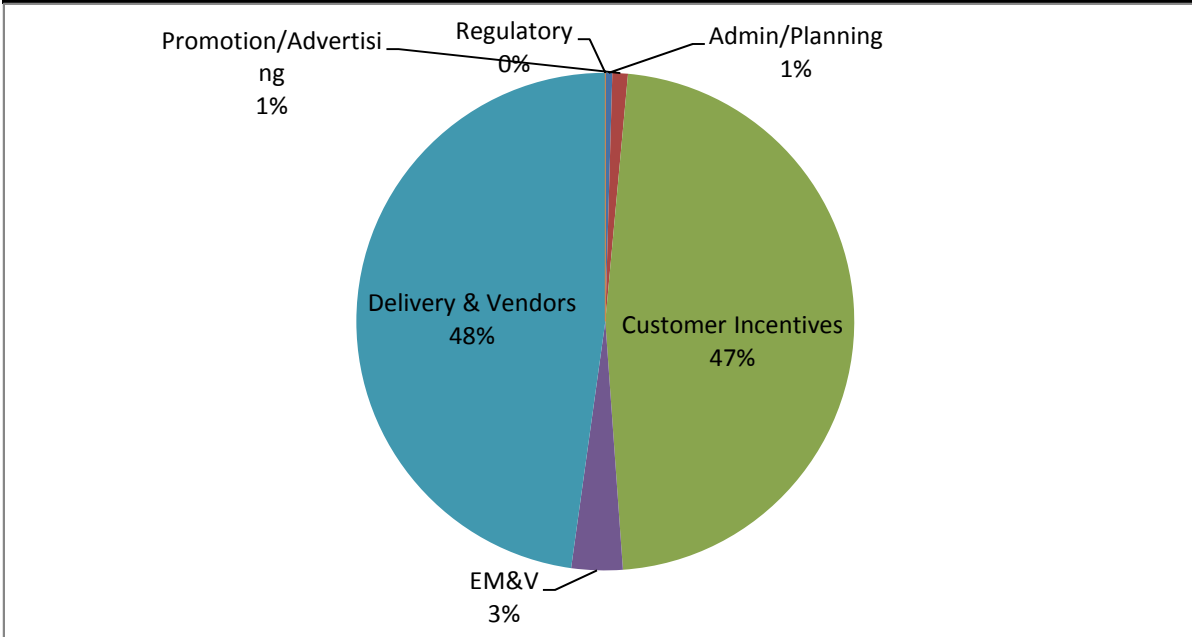
Next &gt;&gt;

## EE Portfolio Cost by Program

Program Name	Target Sector	Program Type	2014		% of Budget
			Budget (\$)	Actual (\$)	
AC Tune Up and HVAC	Residential	Prescriptive/Standard Offer	206,756	203,076	98%
Income Qualified	Residential	Whole Home	209,206	187,322	90%
Lighting and Appliances	Residential	Consumer Product Rebate	300,297	272,326	91%
Residential Market Development	Residential	Other	107,773	97,976	91%
Residential Solutions	Residential	Whole Home	500,694	436,706	87%
Commercial Market Development	Commercial & Industrial	Other	69,515	63,196	91%
Large C&I	Commercial & Industrial	Prescriptive/Standard Offer	740,842	675,664	91%
Small Business	Commercial & Industrial	Prescriptive/Standard Offer	358,832	323,714	90%
Regulatory	-	-	-	-	-
		<b>Total</b>	<b>2,493,915</b>	<b>2,259,981</b>	<b>91%</b>

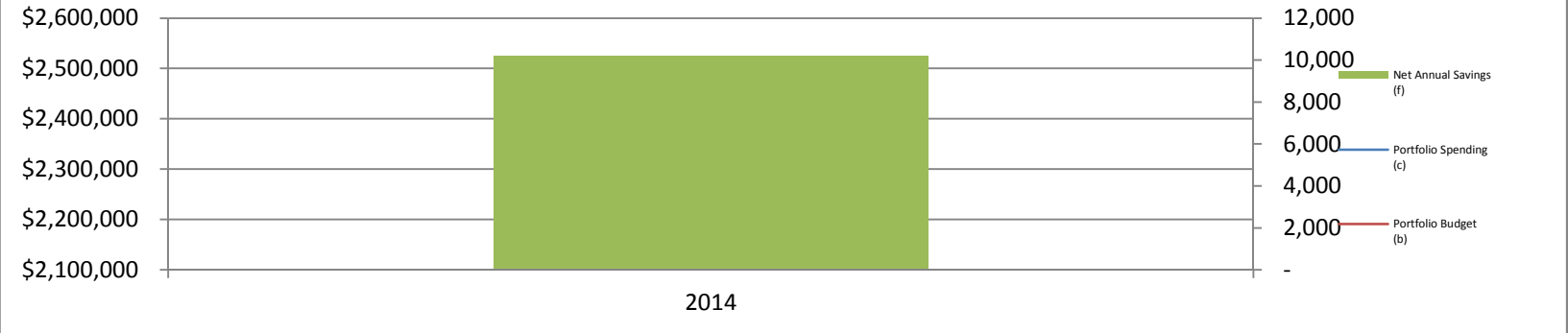
## EE Portfolio Summary by Cost Type

EE Program Cost Summary	2014 Total Cost			
Cost Type	% of Total	Budget (\$)	Actual (\$)	% of Total
Admin/Planning	8%	202,855	10,387	0%
Promotion/Advertising	1%	23,864	22,625	1%
Customer Incentives	44%	1,087,268	1,071,477	47%
EM&V	3%	75,014	75,014	3%
Delivery & Vendors	44%	1,104,914	1,080,478	48%
Regulatory	0%	-	-	0%
	<b>100%</b>	<b>2,493,915</b>	<b>2,259,981</b>	<b>100%</b>



## Company Statistics

Program Year	Revenue and Expenses					Energy				
	Total Revenue (a) (\$000's)	Budget		Actual		Total Annual Energy Sales (d) (MWh)	Plan		Evaluated	
		Portfolio Budget (b) (\$000's)	% of Revenue (%=b/a)	Portfolio Spending (c) (\$000's)	% of Revenue (%=b/a)		Net Annual Savings (e) (MWh)	% of Energy Sales (%=b/a)	Net Annual Savings (f) (MWh)	% of Energy Sales (%=b/a)
2014	\$732,043,368	\$ 2,493,917	0.3%	\$ 2,259,962	0.3%	14,882,100	8,672	0.1%	10,190	0.1%



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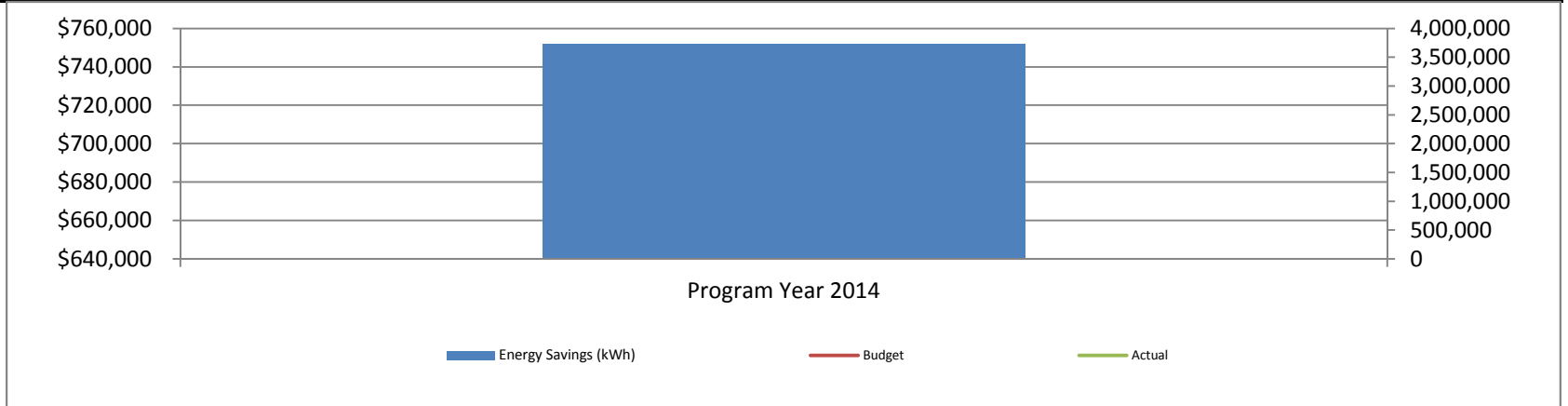
Table 5

Large C&I

Select program from dropdown menu to view details.

Large C&I

Program	Cost			Energy Savings (kWh)			Demand Savings (kW)			Participants		
	Budget	Actual	%	Plan	Evaluated	%	Plan	Evaluated	%	Plan	Actual	%
Program Year 2014	\$ 740,842	\$ 675,664	91%	3,355,991	3,726,767	111%	733	551	75%	25	28	112%



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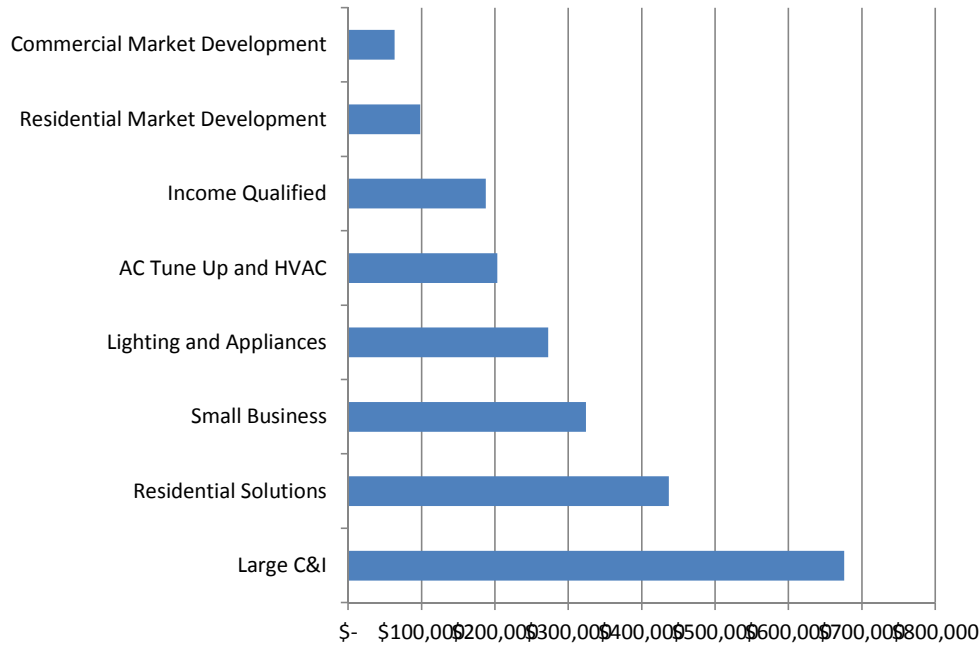
Report 1

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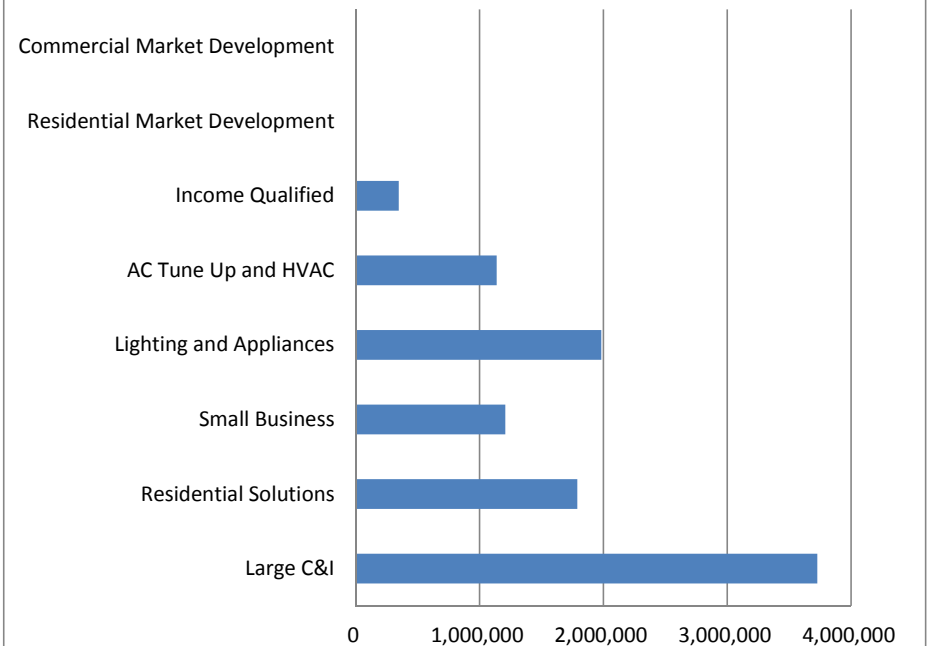
2014 Portfolio Results Detail

Program Name	Target Sector	Cost			Savings (kWh)			Participants			TRC Ratio
		Budget	Actual	%	Plan	Evaluated	%	Plan	Actual	%	
AC Tune Up and HVAC	Residential	\$ 206,756	\$ 203,076	98%	862,786	1,137,316	132%	306	403	132%	2.39
Income Qualified	Residential	\$ 209,206	\$ 187,322	90%	271,561	347,126	128%	46	59	128%	1.34
Lighting and Appliances	Residential	\$ 300,297	\$ 272,326	91%	1,621,771	1,983,361	122%	24,076	29,444	122%	1.40
Residential Market Development	Residential	\$ 107,773	\$ 97,976	91%	0	0	-	0	0	-	n/a
Residential Solutions	Residential	\$ 500,694	\$ 436,706	87%	1,284,377	1,787,015	139%	317	441	139%	1.37
Commercial Market Development	Commercial & Industrial	\$ 69,515	\$ 63,196	91%	0	0	-	0	0	-	n/a
Large C&I	Commercial & Industrial	\$ 740,842	\$ 675,664	91%	3,355,991	3,726,767	111%	25	28	112%	2.25
Small Business	Commercial & Industrial	\$ 358,832	\$ 323,714	90%	1,275,097	1,208,021	95%	60	57	95%	1.95
<b>TOTAL:</b>		<b>\$ 2,493,915</b>	<b>\$ 2,259,981</b>	<b>91%</b>	<b>8,671,583</b>	<b>10,189,606</b>	<b>118%</b>	<b>24,830</b>	<b>30,432</b>	<b>123%</b>	<b>1.77</b>

Cost



Savings (kWh)





**Report 2**

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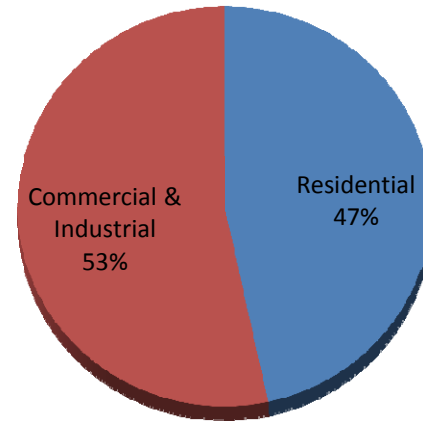
## 2014 Portfolio Results Detail by Target Sector

Target Sector	Cost			Savings (kWh)			Participants			TRC Ratio
	Budget	Actual	%	Plan	Evaluated	%	Plan	Actual	%	
Residential	\$ 1,324,726	\$ 1,197,407	90%	4,040,495	5,254,818	130%	24,745	30,347	123%	1.53
Commercial & Industrial	\$ 1,169,189	\$ 1,062,574	91%	4,631,088	4,934,788	107%	85	85	100%	2.17
<b>TOTAL</b>	<b>\$ 2,493,915</b>	<b>\$ 2,259,981</b>	<b>91%</b>	<b>8,671,583</b>	<b>10,189,606</b>	<b>118%</b>	<b>24,830</b>	<b>30,432</b>	<b>123%</b>	<b>1.77</b>

Select the Data to be Displayed in Chart

Savings (kWh)

### Savings (kWh)



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## Report 4 - Data

Program Name	Target Sector	Program Type	Delivery Channel
Residential Solutions	Residential	Whole Home	Trade Ally
Lighting and Appliances	Residential	Consumer Product Rebate	Retail Outlets
Income Qualified	Residential	Whole Home	Trade Ally
AC Tune Up and HVAC	Residential	Prescriptive/Standard Offer	Trade Ally
Small Business	Commercial & Industrial	Prescriptive/Standard Offer	Trade Ally
Large C&I	Commercial & Industrial	Prescriptive/Standard Offer	Trade Ally
Residential Market Development	Residential	Other	Implementing Contractor
Commercial Market Development	Commercial & Industrial	Other	Implementing Contractor

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## 2014 Portfolio Data

Program Name	Expenses		Energy Savings (kWh)		Demand Savings (kW)		Participants	
	Budget	Actual	Plan	Evaluated	Plan	Evaluated	Plan	Actual
Residential Solutions	\$ 500,694	\$ 436,706	1,284,377	1,787,015	358	418	317	441
Lighting and Appliances	\$ 300,297	\$ 272,326	1,621,771	1,983,361	399	432	24,076	29,444
Income Qualified	\$ 209,206	\$ 187,322	271,561	347,126	57	59	46	59
AC Tune Up and HVAC	\$ 206,756	\$ 203,076	862,786	1,137,316	312	302	306	403
Small Business	\$ 358,832	\$ 323,714	1,275,097	1,208,021	243	209	60	57
Large C&I	\$ 740,842	\$ 675,664	3,355,991	3,726,767	733	551	25	28
Residential Market Development	\$ 107,773	\$ 97,976	0	0	0	0	0	0
Commercial Market Development	\$ 69,515	\$ 63,196	0	0	0	0	0	0

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Program Name	TRC					
	Lifetime Savings (MWh)	Total Cost	Total Benefits	Net Benefits	Ratio	Levelized cost
Residential Solutions	32,350	\$ 1,083	\$ 1,485	\$ 402	1.4	#REF!
Lighting and Appliances	16,022	\$ 462	\$ 647	\$ 185	1.4	#REF!
Income Qualified	6,197	\$ 192	\$ 257	\$ 65	1.3	#REF!
AC Tune Up and HVAC	14,026	\$ 319	\$ 764	\$ 445	2.4	#REF!
Small Business	14,882	\$ 339	\$ 660	\$ 322	1.9	#REF!
Large C&I	50,673	\$ 889	\$ 2,000	\$ 1,111	2.3	#REF!
Residential Market Development	0	\$ -	\$ -	\$ -	n/a	#REF!
Commercial Market Development	0	\$ -	\$ -	\$ -	n/a	#REF!

## Historical Data (Next Annual Report)

## Annual Budget &amp; Actual Cost

1. Residential Solutions
2. Lighting and Appliances
3. Income Qualified
4. AC Tune Up and HVAC
5. Small Business
6. Large C&I
7. Residential Market Development
8. Commercial Market Development  
Regulatory

2014	
Budget	Actual
\$ 500,694	\$ 436,706
\$ 300,297	\$ 272,326
\$ 209,206	\$ 187,322
\$ 206,756	\$ 203,076
\$ 358,832	\$ 323,714
\$ 740,842	\$ 675,664
\$ 107,773	\$ 97,976
\$ 69,515	\$ 63,196
\$ -	\$ -
<b>Total \$ 2,493,915</b>	<b>\$ 2,259,981</b>

## Annual Net Energy Savings (kWh)

1. Residential Solutions
2. Lighting and Appliances
3. Income Qualified
4. AC Tune Up and HVAC
5. Small Business
6. Large C&I
7. Residential Market Development
8. Commercial Market Development

2014	
Plan	Evaluated
1,284,377	1,787,015
1,621,771	1,983,361
271,561	347,126
862,786	1,137,316
1,275,097	1,208,021
3,355,991	3,726,767
0	0
0	0
<b>Total 8,671,583</b>	<b>10,189,606</b>

## Annual Net Demand Savings (kW)

1. Residential Solutions
2. Lighting and Appliances
3. Income Qualified
4. AC Tune Up and HVAC
5. Small Business
6. Large C&I
7. Residential Market Development
8. Commercial Market Development

2014	
Plan	Evaluated
358	418
399	432
57	59
312	302
243	209
733	551
0	0
0	0
<b>Total 2,102</b>	<b>1,970</b>

## Number of Participants

1. Residential Solutions
2. Lighting and Appliances
3. Income Qualified
4. AC Tune Up and HVAC
5. Small Business
6. Large C&I
7. Residential Market Development
8. Commercial Market Development

2014	
Plan	Evaluated
317	441
24,076	29,444
46	59
306	403
60	57
25	28
0	0
0	0
<b>Total 24,830</b>	<b>30,432</b>



# Arkansas Public Service Commission

*Standardized Annual Reporting Workbook* v3.0 September 2013

General	Energy Efficiency Portfolio Data and Information	
<p><a href="#">Instructions</a></p> <p><a href="#">Glossary</a></p>	<p><a href="#">2014 EE Portfolio Information</a></p>	<p><a href="#">2014 Program Year Evaluation</a></p>

Annual Report Tables					Reports			Data	
EE Portfolio Summary	EE Portfolio Cost by Program	EE Portfolio Summary by Cost Type	Company Statistics	Program Budget, Energy Savings & Participants	Portfolio Results Detail by Program	Portfolio Results Detail by Sector	Not used	Program Year Data	Next Annual Report Load Data
<a href="#">View</a>	<a href="#">View</a>	<a href="#">View</a>	<a href="#">View</a>	<a href="#">View</a>	<a href="#">View</a>	<a href="#">View</a>		<a href="#">View</a>	<a href="#">View</a>

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## Instructions

This workbook is designed to be used by the Investor Owned Utilities in Arkansas to track and report savings and cost related to its Energy Efficiency Portfolios.

The workbook is organized so that all the worksheets work from left to right in order of completion. For ease of use each section is accessible by the use of an action button.

There are three main sections to the workbook:

- General:** Contains Instructions and Glossary.
- Energy Efficiency Portfolio Data and Information:** Contains all input requirements.
- Tables/Reports/Data:** Contains the tables that are required for the narrative report. Also contains additional reports and data summaries.

The 'Energy Efficiency Portfolio Data and Information contains three actions buttons:

- EE Portfolio Information:** Here the user can provide information such as Program Descriptions and the Plan Budgets and Savings.
- Current Program Year Evaluation:** Here the user can provide information such as the actual Program Year Expenses and Savings.
- Prior Program Year Data:** Here the user can provide actual information from the prior two Program Years. This data is available in the prior years annual report workbook.

Each tab in the workbook uses a menu bar at the top that has action buttons that the user can use to navigate through the various options. The 'yellow' shaded cells are cells that require data from the user. All other cells contain formulas and are locked to prevent the user from overwriting the formulas. You can only enter data in the yellow cells. Input the requested units as indicated by the workbook, for example if the request is kWh provide the data in kWh or if it is MWh provide the data in MWh's.

### Unprotecting

If for some reason you need to unlock the spreadsheet the password is "APSC". Once you make the correction, lock the workbook back to protect any errors from occurring.

### Dropdown List

Some of the required inputs are selected from dropdown list. You can view those list from here:

[List](#)

### Cost Categories

There are six 'Cost Categories' used for tracking EE cost. They are divided into the following:

- **Planning / Design**
- **Marketing & Delivery**
- **Incentives / Direct Install Costs**
- **EM&V**
- **Administration**
- **Regulatory**

A complete list for each Cost Category can be viewed here:

[Cost](#)

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## Glossary

Term	Definition
<b>Abudget (Approved Budget)</b>	This is the budget most recently approved by the Commission.
<b>Annual Energy Savings</b>	Energy savings realized for a full year. (8,760 hours)
<b>Benefit Cost Ratio</b>	The ratio of the total benefits of the program to the total costs over the life of the measure discounted as appropriate.
<b>Customer Savings</b>	Savings that are derived from custom measures where deemed savings are not addressed in the currently approved TRM.
<b>Deemed Savings</b>	A "book" estimate of the gross energy savings (kWh or therms) or gross demand savings (kW or therms) for a single unit of an installed EE measure that (a) has been developed from data sources and analytical methods that are widely considered acceptable for the measure and purpose and (b) is applicable to the set of measures undergoing evaluation. This information is found in the TRM on the APSC website and is subject to updates effective for estimation of EE savings associated with measures installed since the beginning of the year in which the updated version is approved. See Volume 2, Section 1.6.
<b>Demand</b>	The time rate of energy flow. Demand usually refers to electric power measured in kW but can also refer to natural gas, usually as Btu/hr or therms/day, etc.. The level at which electricity or natural gas is delivered to users at a given point in time.
<b>Demand Savings</b>	Demand that did not occur due to the installation of an EE measure. (non-coincident peak)
<b>Energy Sales</b>	Energy sold by the utility in the calendar year.
<b>Energy Savings</b>	Energy use that did not occur due to the installation of an EE measure.
<b>Gross Savings</b>	The change in energy consumption and/or demand that results directly from program-related actions taken by participants in an efficiency program, regardless of why they participated.
<b>kW</b>	A Kilowatt is a measure of electric demand - 1000 watts.
<b>kWh</b>	The basic unit of electric energy usage over time. One kWh is equal to one kW of power supplied to a circuit for a period of one hour.
<b>LCFC Energy Savings</b>	For the current Program Year, the sum of eligible net energy savings from (1) measures installed in prior Program Years (8,760 hours) and (2) measures installed in current Program Year as adjusted for time of installation, weather, etc. (less than 8,760 hours). Clarification of item (1) above: The savings reported in the current year should only reflect the current year impact of measures installed in prior years but, should not include the savings claimed and reported in prior years.
<b>Lifetime</b>	The expected useful life, in years, that an installed measure will be in service and producing savings.
<b>Lifetime Energy Savings</b>	The sum of the energy savings through the measure's useful life.
<b>Measures</b>	Specific technology or practice that produces energy and/or demand savings as a result of a ratepayer's participation in a Utility/TPA EE Program.
<b>Net Benefits</b>	The program benefits minus the program costs discounted at the appropriate rate.
<b>Net Savings</b>	The total change in load (energy or demand) that is attributable to an EE Program. This change in load may include, implicitly or explicitly, the effects of free drivers, free riders, EE standards, changes in the level of energy service, and other causes of changes in energy consumption or demand.
<b>Net-to-Gross Ratio (NTGR)</b>	A factor representing net program savings divided by gross program savings that is applied to gross program impacts, converting them into net program load impacts.
<b>Other Savings</b>	Savings for which no deemed savings exist and no custom M&V was performed.
<b>Participant Cost Test (PCT)</b>	A cost-effectiveness test that measures the economic impact to the participating customer of adopting an EE measure.



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## Glossary

Term	Definition
<b>Participant</b>	A consumer that received a service offered through the subject efficiency program, in a given Program Year. The term "service" is used in this definition to suggest that the service can be a wide variety of services, including financial rebates, technical assistance, product installations, training, EE information or other services, items, or conditions. Each evaluation plan should define "participant" as it applies to the specific evaluation and in accordance with the C&EE Rules and/or State law.
<b>Plan Savings</b>	Annual energy savings budgeted by the utility for the Program Year.
<b>Portfolio</b>	Either (a) a collection of similar programs addressing the same market (e.g., a portfolio of residential programs), technology (e.g., motor-efficiency programs), or mechanisms (e.g., loan programs) or (b) the set of all programs conducted by one organization, such as a utility (and which could include programs that cover multiple markets, technologies, etc.).
<b>Program Administrator Cost (PAC) Test</b>	The Program Administrator Cost Test measures the net costs of a demand-side management program as a resource option based on the costs incurred by the program administrator (including incentives costs) and excluding any net costs incurred by the participant.
<b>Program Year</b>	The Year in which programs are administered and delivered, for the purposes of planning and reporting, a Program Year shall be considered a calendar year, January 1 - December 31.
<b>Program</b>	A group of projects, with similar characteristics and installed in similar applications. Examples could include a utility program to install energy-efficiency lighting in commercial buildings, a developer's program to build a subdivision of homes that have photovoltaic systems, or a state residential EE code program.
<b>Ratepayer Impact Measure (RIM) Test</b>	The Ratepayer Impact Measure test measures what happens to customer bills or rates due to changes in utility revenues and operating costs caused by the program.
<b>RBudget (Revised Budget)</b>	This is the Budget the utility used for the Program Year. This budget may be different from the Approved Budget (ABudget), if the Commission has granted the utility the flexibility to modify its program budgets.
<b>Sales as Adjusted for SD Exemptions</b>	The utility's 2010 Annual Energy Sales minus the 2010 Annual Energy Sales of the customers granted self-direct exemptions by Commission Order.
<b>Total Resource Cost (TRC) Test</b>	The Total Resource Cost Test measures the net costs of a demand-side management program as a resource option based on the total costs of the program, including both the participants' and the utility's costs.

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**Instructions:** Fill in all cells. Select Company's Utility Type from the dropdown menu.

#### Utility Information

1. Utility Full Name
2. Utility Abbreviated Name
3. Program Year
4. Docket
5. Date Filed
6. Name of Contact
7. Email Address
8. Telephone Number

Entergy Louisiana, LLC
ELL
2014
Heather LeBlanc
hgabler@entergy.com
225.763.5128

#### Utility Type

Electric

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**Instructions:** List Program names and the other required detail. Provide additional detail for each program by clicking on the "View Program Detail" button.

Definitions

View Program Detail

Program Name	Target Sector	Program Type	Delivery Channel
1. Residential Solutions	Residential	Whole Home	Trade Ally
2. Lighting and Appliances	Residential	Consumer Product Rebate	Retail Outlets
3. Income Qualified	Residential	Whole Home	Trade Ally
4. AC Tune Up and HVAC	Residential	Prescriptive/Standard Offer	Trade Ally
5. Small Business	Commercial & Industrial	Prescriptive/Standard Offer	Trade Ally
6. Large C&I	Commercial & Industrial	Prescriptive/Standard Offer	Trade Ally
7. Residential Market Development	Residential	Other	Implementing Contractor
8. Commercial Market Development	Commercial & Industrial	Other	Implementing Contractor

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## Program-Type Definitions

Term	Definition
<b>Audit - C&amp;I</b>	Programs in which an energy assessment is performed on one or more participant commercial or industrial facilities to identify sources of potential energy waste and measures to reduce that waste.
<b>Behavior/Education</b>	Residential programs designed around directly influencing household habits and decision-making on energy consumption through numerical or graphical feedback on consumption, sometimes accompanied by tips on saving energy. These programs include behavioral feedback programs (in which energy usage reports compare a consumer's household energy usage with those of similar consumers); online audits that are completed by the consumer; and in-home displays that help consumers assess their usage in real time. These programs do not include on-site energy assessments or audits.
<b>Consumer Product Rebate</b>	Programs that incentivize the sale, purchase and installation of energy efficient measures/equipment and or devices (e.g., refrigerators, dishwashers, clothes washers, dryers, electronics, lighting, lighting fixtures, lighting controls, etc.) that are more efficient than those meeting minimum energy performance standards. All rebate/incentive delivery channels are included (Coupon, upstream retail, upstream manufacturing, web based, point of sale, etc.). Further, these programs typically do not include the local participating contractor (HVAC, Insulation, Auditing, etc.) for installation or incentives/rebates.
<b>Custom</b>	Programs designed around the delivery of site-specific projects typically characterized by an extensive onsite energy assessment and identification and installation of multiple measures unique to that facility. These measures are likely to vary significantly from site to site
<b>Demand Response</b>	Demand response programs
<b>Financing</b>	<p>Residential - Financing programs for residential projects. As with other programs, costs here are utility costs, including the costs of any inducements for lenders, e.g., loan loss reserves, interest rate buy downs, etc.</p> <p>C&amp;I - Projects designed to increase loan financing for C&amp;I energy efficiency projects. As with other programs, program costs here are any costs paid by the PA out of utility-customer funds, including, e.g., loan loss reserves or other credit enhancements, interest rate buy downs, etc., - but not including rebates. Where participant costs are available for collection, these ideally will include the total customer share, i.e., both principal (the participant payment to purchase and install measures) and interest on that debt. Most of these programs will be directed toward enhancing credit or financing for commercial structures.</p>
<b>Market Specific/Hard to Reach</b>	Multi-family and mobile homes programs are designed to encourage the installation of energy efficient measures in common areas, units or both for residential structures of more than four units. These programs may be aimed at building owners/managers, tenants or both. This program may include rebate, direct install and auditing incentives/services.
<b>New Construction</b>	<p>Residential - Programs that provide incentives and possibly technical services to ensure new homes are built or manufactured to energy performance standards higher than applicable code, e.g., ENERGY STAR Homes. These programs include new multi-family and new/replacement mobile homes.</p> <p>C&amp;I - Programs that incentivize owners or builders of new commercial or industrial facilities to design and build beyond current code or to a certain certification level, e.g., ENERGY STAR or LEED.</p>

<span style="border: 1px solid black; padding: 2px 5px; margin-right: 10px;">Back</span> <b>Program-Type Definitions</b>	
Term	Definition
<b>Other</b>	Programs not captured by any of the specific Residential, Industrial or Commercial categories but are sufficiently detailed or distinct to not be treated as a "general" program. Example: An EE program aimed specifically at the commercial subsector but is not clearly prescriptive or custom in nature might be classified as C&I: Other.
<b>Prescriptive/Standard Offer</b>	Prescriptive programs that encourage the purchase and installation of some or all of a specified set of pre-approved measures.
<b>Measure/Technology Focus</b>	Residential Programs that focus on specific a technology or a limited technology that require additional verification, quality control and/or includes specific design engineering prior to installation. Such programs can include water heating programs, pool pumps, HVAC "right sizing" replace on burn out or retrofit. Like the Consumer Product rebate program the Measure/Technology focus program must exceed standards in Arkansas. Unlike the Consumer Product programs these programs will usually require the recruitment and training of installation contractors and reporting from installation contractors followed by quality control practices.
<b>Whole Home</b>	Whole-home energy upgrade or retrofit programs combine a comprehensive energy assessment or audit that identifies energy savings opportunities with house-wide improvements in air sealing, insulation and, often, HVAC systems and other end uses. The HVAC improvements may range from duct sealing to a tune up to full replacement of the HVAC systems. Whole-home programs are designed to address a wide variety of individual measures and building systems, including but not limited to: HVAC equipment, thermostats, furnaces, boilers, heat pumps, water heaters, fans, air sealing, insulation (attic, wall, and basement), windows, doors, skylights, lighting, and appliances. As a result, whole- home programs generally involve one or more rebates for multiple measures. Whole-home programs generally come in two types: comprehensive programs that are broad in scope and less comprehensive, prescriptive programs sometimes referred to as "bundled efficiency" programs. This category addresses all of the former and most of the latter, but it excludes direct-install programs that are accounted for separately and completed outside this program.

**Program Detail**

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[Definitions - Residential](#)

[Definitions - C&I](#)

[Definitions - Cross Sector](#)

**Instructions:** Select all that apply.

**Program Name**

1. Residential Solutions
2. Lighting and Appliances
3. Income Qualified
4. AC Tune Up and HVAC
5. Small Business
6. Large C&I
7. Residential Market Development
8. Commercial Market Development

Residential																			
N/A	Behavioral/Education	CPR - Appliances	CPR - Electronics	CPR - Lighting	CPR - Appliance Recycling	DR - Load Control	DR - Price/Time Base	Financing	Manufactured Homes	M/TF - HVAC/Furnace	M/TF - Insulation	M/TF - Pool Pumps	M/TF - Water Heater	M/TF - Windows	Multi-family	Other	WH - Audits	WH - Direct Install	WH - Retrofit
											X				X				X
		X		X								X							
											X				X				X
										X									

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Definitions - Residential

Definitions - C&I

Definitions - Cross Sector

Instructions: Select all that apply.

**Program Name**

1. Residential Solutions
2. Lighting and Appliances
3. Income Qualified
4. AC Tune Up and HVAC
5. Small Business
6. Large C&I
7. Residential Market Development
8. Commercial Market Development

Commercial & Industrial (Small Business, Commercial, Industrial, and Agriculture)																		
Audit	Custom	Custom/Agriculture	Custom/Data Centers	Custom/Industrial Processes	Custom/Refrigerator Warehouses	DR - Load Control	DR - Price/Time Base	Financing	Govt/Nonprofit/MUSH	Other	Prescriptive/Grocery	Prescriptive/HVAC	Prescriptive/IT or Office	Prescriptive/Industrial	Prescriptive/Lighting	Prescriptive/Motors	Prescriptive/Small Commercial	Street Lighting
	X										X	X	X		X	X	X	
	X										X	X	X	X	X	X		

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Definitions - Residential

Definitions - C&I

Definitions - Cross Sector

**Instructions:** Select all that apply.

**Program Name**

1. Residential Solutions
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7. Residential Market Development
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Cross-Sector								
Codes & Standards	Market Transformation	Marketing, Education, Outreach	Multi-Sector Rebates	Other	Research	Shading/Cool Roofs	Voltage Reduction	Workforce Development



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## Program Definitions - Residential

Term	Definition
<b>Behavior/Education</b>	Residential programs designed around directly influencing household habits and decision-making on energy consumption through numerical or graphical feedback on consumption, sometimes accompanied by tips on saving energy. These programs include behavioral feedback programs (in which energy usage reports compare a consumer's household energy usage with those of similar consumers); online audits that are completed by the consumer; and in-home displays that help consumers assess their usage in real time. These programs do not include on-site energy assessments or audits.
<b>Consumer Product Rebate/Appliances</b>	Programs that incentivize the sale, purchase and installation of appliances (e.g., refrigerators, dishwashers, clothes washers and dryers) that are more efficient than those meeting minimum energy performance standards. Appliance recycling and the sale/purchase/installation of HVAC equipment, water heaters and consumer electronics are accounted for separately.
<b>Consumer Product Rebate/Electronics</b>	Programs that encourage the availability and purchase/lease of more efficient personal and household electronic devices, including but not limited to televisions, set-top boxes, game consoles, advanced power strips, cordless telephones, PCs and peripherals <u>specifically for home use, chargers for phones/smart phones/tablets.</u>
<b>Consumer Product Rebate/Lighting</b>	Programs aimed specifically at encouraging the sale/purchase and installation of more efficient lighting in the home. These programs range widely from point-of-sale rebates to CFL mailings or giveaways. Measures tend to be CFLs, fluorescent fixtures, LED lamps, LED fixtures, LED holiday lights and lighting controls, including occupancy monitors/switches.
<b>Consumer Product Rebate/Appliance Recycling</b>	Programs designed to remove less efficient appliances (typically refrigerators and freezers) from households.
<b>Demand Response - Load Control</b>	A demand response activity by which the program sponsor or program administrator remotely shuts down or cycles a customer's electrical equipment (e.g., air conditioner, water heater) on short notice. Direct load control programs are primarily offered to <u>residential or small commercial customers. Also known as direct control load management.</u>
<b>Demand Response - Price/Time Base</b>	<p>A) Interruptible Load: A demand response program where electric consumption is subject to curtailment or interruption under tariffs contracts that provide a rate discount or bill credit for agreeing to reduce load during system contingencies. In some instances, the demand reduction may be effected by action of the System Operator (remote tripping) after notice to the customer in accordance with contractual provisions.</p> <p>b) Time of Use Pricing: Demand-side management that uses a retail rate or Tariff in which customers are charged different prices for using electricity at different times during the day. Examples are time-of-use rates, real time pricing, hourly pricing, and critical peak pricing. Time-based rates do not include seasonal rates, inverted block, or declining block rates.</p>
<b>Financing</b>	Financing programs for residential projects. Costs here are utility costs, including the costs of any inducements for lenders, e.g., loan loss reserves, interest rate buy downs, etc.
<b>Manufactured Homes</b>	Manufactured programs are designed to encourage the installation of energy efficient measures in manufactured homes.
<b>Measure/Technology Focus - HVAC/Furnace</b>	Programs designed to encourage the distribution, sale/purchase, proper sizing and installation of HVAC systems that are more efficient than current standards. Programs tend to support activities that focus on central air conditioners, air source heat pumps, ground source heat pumps, and ductless systems that are more efficient than current energy performance standards, as well as climate controls and the promotion of quality installation and quality maintenance.

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## Program Definitions - Residential

Term	Definition
<b>Measure/Technology Focus - Insulation</b>	Programs designed to encourage the sale/purchase and installation of insulation in residential structures, often through per-square-foot incentives for insulation of specific R- values versus existing baseline. Programs may be point-of-sale rebates or rebates to insulation installation contractors.
<b>Measure/Technology Focus - Pool Pumps</b>	Programs that incentivize the installation of higher efficiency or variable speed pumps and controls, such as timers, for swimming pools.
<b>Measure/Technology Focus - Water Heater</b>	Programs designed to encourage the distribution, sale/purchase and installation of electric and gas water-heating systems that are more efficient than current standards, including high efficiency water storage tank and tankless systems.
<b>Measure/Technology Focus - Windows</b>	Programs designed to encourage the sale/purchase and installation of efficient windows in residential structures.
<b>Multi-Family</b>	Multi-family programs are designed to encourage the installation of energy efficient measures in common areas, units or both for residential structures of more than four units. These programs may be aimed at building owners/managers, tenants or both.
<b>Other</b>	All residential programs not specifically captured in the other residential program categorizations.
<b>Whole Home/Audits</b>	Residential audit programs provide a comprehensive, standalone assessment of a home's energy consumption and identification of opportunities to save energy. The scope of the audit includes the whole home although the thoroughness and completeness of the audit may vary widely from a modest examination and simple engineering-based modeling of the physical structure to a highly detailed inspection of all spaces, testing for air leakage/exchange rates, testing for HVAC duct leakage and highly resolved modeling of the physical structure with benchmarking to customer utility bills.
<b>Whole Home/Direct Install</b>	Direct-install programs provide a set of pre-approved measures that may be installed at the time of a visit to the customer premises or provided as a kit to the consumer, usually at modest or no cost to the consumer and sometimes accompanied by a rebate. Typical measures include CFLs, low-flow showerheads, faucet aerators, water-heater wrap and weather stripping. Such programs also may include a basic, walk-through energy assessment or audit, but the savings are principally derived from the installation of the provided measures.
<b>Whole Home/Retrofit</b>	Whole-home energy upgrade or retrofit programs combine a comprehensive energy assessment or audit that identifies energy savings opportunities with house-wide improvements in air sealing, insulation and, often, HVAC systems and other end uses. The HVAC improvements may range from duct sealing to a tune up to full replacement of the HVAC systems. Whole-home programs are designed to address a wide variety of individual measures and building systems, including but not limited to: HVAC equipment, thermostats, furnaces, boilers, heat pumps, water heaters, fans, air sealing, insulation (attic, wall, and basement), windows, doors, skylights, lighting, and appliances. As a result, whole-home programs generally involve one or more rebates for multiple measures. Whole-home programs generally come in two types: comprehensive programs that are broad in scope and less comprehensive, prescriptive programs sometimes referred to as "bundled efficiency" programs. This category addresses all of the former and most of the latter, but it excludes direct-install programs that are accounted for separately.

<span style="border: 1px solid black; padding: 2px 5px; margin-right: 10px;">Back</span> <b>Program Definitions - Commercial &amp; Industrial</b>	
Term	Definition
<b>Audit</b>	Programs in which an energy assessment is performed on one or more participant commercial or industrial facilities to identify sources of potential energy waste and measures to reduce that waste.
<b>Custom</b>	Programs designed around delivery of site-specific projects typically characterized by an extensive onsite energy assessment and identification and installation of multiple measures unique to that facility. These measures may vary significantly from site to site. This category is intended to capture "whole-building" approaches to commercial sector efficiency opportunities for a wide range of building types and markets (e.g., office, retail) and wide range of measures.
<b>Custom/Agriculture</b>	Farm- and orchard-based agricultural programs that primarily involve irrigation pumping and do not include agricultural refrigeration or processing at scale.
<b>Custom/Data Centers</b>	Data center programs are custom-designed around large-scale server floors or farms that often serve high-tech, banking or academia. Projects tend to be site-specific and involve some combination of lighting, servers, networking devices, cooling chillers, and energy management systems/software. Several of these may be of experimental or proprietary design.
<b>Custom/Industrial Processes</b>	Industrial programs deliver custom-designed projects that are characterized by an onsite energy and process efficiency assessment and a site-specific measure set that may include, for example, substantial changes in a manufacturing line. This category includes all EE program work at industrial sites that is not otherwise covered by the single-measure prescriptive programs below, e.g., lighting, HVAC, water heaters. This category therefore includes, but is not limited to, all industrial and agricultural process efficiency, all non-single measure efficiency activities inside and on industrial buildings.
<b>Custom/Refrigerator Warehouses</b>	Warehouse programs are aimed at large-scale refrigerated storage. Typical end uses are lighting, climate controls and refrigeration systems.
<b>Demand Response - Load Control</b>	<p>a) Direct Load Control: A demand response activity by which the program sponsor or program administrator remotely shuts down or cycles a customer's electrical equipment (e.g., air conditioner, water heater) on short notice. Direct load control programs are primarily offered to residential or small commercial customers. Also known as direct control load management.</p> <p>b) Demand Response Program: A demand response program that provides incentive payments to customers for load reductions achieved during an Emergency Demand Response Event.</p> <p>c) Interruptible Load: A demand response program where electric consumption is subject to curtailment or interruption under tariffs contracts that provide a rate discount or bill credit for agreeing to reduce load during system contingencies. In some instances, the demand reduction may be effected by action of the System Operator (remote tripping) after notice to the customer in accordance with contractual provisions.</p>

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## Program Definitions - Commercial & Industrial

Term	Definition
<b>Demand Response - Price/Time Base Response</b>	<p>a) Critical Peak Pricing: Demand-side management that combines direct load control with a pre-specified high price for use during designated critical peak periods, triggered by system contingencies or high wholesale market prices.</p> <p>b) Critical Peak Pricing with Load Control: Demand-side management that combines direct load control with a pre-specified high price for use during designated critical peak periods, triggered by system contingencies or high wholesale market prices.</p> <p>c) Peak Time Rebate: Peak time rebates allow customers to earn a rebate by reducing energy use from a baseline during a specified number of hours on critical peak days. Like Critical Peak Pricing, the number of critical peak days is usually capped for a calendar year and is linked to conditions such as system reliability concerns or very high supply prices.</p> <p>d) Real time pricing: Demand-side management that uses rate and price structure in which the retail price for electricity typically fluctuates hourly or more often, to reflect changes in the wholesale price of electricity on either a day-ahead or hour-ahead basis.</p> <p>e) Time of Use Pricing: Demand-side management that uses a retail rate or Tariff in which customers are charged different prices for using electricity at different times during the day. Examples are time-of-use rates, real time pricing, hourly pricing, and critical peak pricing. Time-based rates do not include seasonal rates, inverted block, or declining block rates.</p>
<b>Financing</b>	<p>Programs designed to increase loan financing for C&amp;I energy efficiency projects. As with other programs, program costs here are any costs paid by the PA out of utility-customer funds, including, e.g., loan loss reserves or other credit enhancements, interest rate buy downs, etc.,- but not including rebates. Where participant costs are available for collection, these ideally will include the total customer share, i.e., both principal (the participant payment to purchase and install measures) and interest on that debt. Most of these programs will be directed toward enhancing credit or financing for commercial structures.</p>
<b>Govt/Nonprofit/MUSH</b>	<p>MUSH (Municipal, University, School &amp; Hospital) and government and non-profit programs cover a broad swath of program types generally aimed at public and institutional facilities. Examples include incentives and/or technical assistance to promote energy efficiency upgrades for elementary schools, recreation halls and homeless shelters. Street lighting is accounted for separately.</p>
<b>Other</b>	<p>Programs not captured by any of the specific C&amp;I categories but are sufficiently detailed or distinct to not be treated as a "general" program. Ex ample: An EE program aimed specifically at the C&amp;I subsector but is not clearly prescriptive or custom in nature might be classified as C&amp;I: Other.</p>
<b>Prescriptive/Grocery</b>	<p>Grocery programs are prescriptive programs aimed at supermarkets and are designed around indoor and outdoor lighting and refrigerated display cases.</p>
<b>Prescriptive/HVAC</b>	<p>C&amp;I HVAC programs encourage the sale/purchase and installation of heating, cooling and chiller systems at higher efficiency than current energy performance standards, across a broad range of unit sizes and configurations. Most of these programs will be directed toward commercial structures.</p>
<b>Prescriptive/IT or Office</b>	<p>Programs aimed at improving the efficiency of office equipment, chiefly commercially available PCs, printers, monitors, networking devices and mainframes not rising to the scale of a server farm or floor.</p>

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## Program Definitions - Commercial & Industrial

Term	Definition
<b>Prescriptive/Industrial</b>	Prescriptive programs that encourage the purchase and installation of some or all of a specified set of pre-approved industrial measures besides those covered in other measure-specific prescriptive programs.
<b>Prescriptive/Lighting</b>	C&I lighting programs incentivize the installation of higher efficiency lighting and controls, compared to the existing baseline. Most of these programs will be directed toward commercial structures. Typical measures might include T-8/T-5 fluorescent lamps and fixtures; CFLs and fixtures; LEDs for lighting, displays, signs and refrigerated lighting; metal halide and ceramic lamps and fixtures; occupancy controls; daylight dimming; and timers.
<b>Prescriptive/Motors</b>	Motors programs usually offer a prescribed set of approved higher efficiency motors, with industrial motors programs typically getting the largest savings from larger, high powered motors (>200 hp).
<b>Prescriptive/Small Commercial</b>	Prescriptive programs applied to small commercial facilities. (See definition of prescriptive programs for additional detail.) Such programs may range from a walk-through audit and direct installation of a few pre-approved measures to a fuller audit and a fuller package of measures.
<b>Street Lighting</b>	Street lighting programs include incentives and/or technical support for the installation of higher efficiency street lighting and traffic lights than current baseline.

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## Program Definitions - Cross Sector

Term	Definition
<b>Codes &amp; Standards</b>	In C&S programs, the PA may engage in a variety of activities designed to advance the adoption, application or compliance level of building codes and end-use energy performance standards. Examples might include advocacy at the state or federal level for higher standards for HVAC equipment; training of architects, engineers and builder/developers on compliance; and training of building inspectors in ensuring the codes are met.
<b>Market Transformation</b>	Market transformation programs include programs aimed primarily at reducing market barriers to the adoption of more efficient goods and services rather than acquiring energy savings, per se. MT programs are gauged by their market effects, e.g., increased awareness of energy efficient technologies among customers and suppliers; reduced prices for more efficient models; increased availability of more efficient models; and ultimately, increased market share for energy efficient goods, services and design practices. Example programs might include upstream incentives to manufacturers to make more efficient goods more commercially available; and point-of-sale or installation incentives for emerging technologies that are not yet cost effective. Workforce training and development programs are covered by a separate category. Upstream incentives for commercially available goods are sorted into the program categories for those goods, e.g., consumer electronics or HVAC.
<b>Marketing, Education, Outreach</b>	ME&O programs include most standalone marketing, education and outreach programs, e.g., development and delivery of in-school energy and water efficiency curricula; and statewide marketing, outreach and brand development.
<b>Multi-Sector Rebates</b>	Multi-sector rebate programs include providing incentives for commercially available end-use goods for multiple sectors, e.g., PCs, HVAC.
<b>Other</b>	This category is intended to capture all programs that cannot be allocated to a specific sector (or are multi-sectoral) and cannot be allocated to a specific program type.
<b>Research</b>	These programs are aimed generally at helping the PA identify new opportunities for energy savings, e.g., research on emerging technologies or conservation strategies. Research conducted on new program types or the inclusion of new, commercially available measures in an existing program are accounted for separately under cross-cutting program support.
<b>Shading/Cool Roofs</b>	Shading/reflective programs include programs designed to lessen heating and cooling loads through generally changes to the exterior of a structure, e.g., tree plantings to shade walls and windows ,window screens and cool/reflective roofs. These programs are not necessarily specific to a sector.
<b>Voltage Reduction</b>	Programs that support investments in pre-meter system savings, typically by the program administrator. The most common form of these programs are voltage regulation programs that reduce voltage (within reliability parameters) during select time periods. Other measures may include purchase of higher efficiency transformers.
<b>Workforce Development</b>	Workforce training and development programs are a distinct category of market transformation program designed to provide the underlying skills and labor base for deployment of energy-efficiency measures.

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**Instructions:** Provide RBudget amount for each cost category, including Regulatory at bottom. Provide budget reconciliation by clicking on the "Budget Reconciliation" button.

Program Name	Promotion/Advertising		Customer	Delivery &		Total
	Admin/Planning		Incentives	EM&V	Vendors	
1. Residential Solutions	\$ 68,586	\$ 8,067	\$ 412,342	\$ 27,498	\$ 326,688	\$ 843,181
2. Lighting and Appliances	\$ 41,141	\$ 4,839	\$ 247,290	\$ 16,499	\$ 196,013	\$ 505,782
3. Income Qualified	\$ 28,635	\$ 3,368	\$ 126,287	\$ 11,071	\$ 182,672	\$ 352,033
4. AC Tune Up and HVAC	\$ 28,339	\$ 3,333	\$ 170,450	\$ 11,357	\$ 134,918	\$ 348,397
5. Small Business	\$ 41,884	\$ 4,926	\$ 285,925	\$ 14,786	\$ 167,397	\$ 514,918
6. Large C&I	\$ 86,829	\$ 10,213	\$ 462,139	\$ 36,345	\$ 471,937	\$ 1,067,463
7. Residential Market Development	\$ 14,763	\$ 1,736	\$ -	\$ -	\$ 164,994	\$ 181,493
8. Commercial Market Development	\$ 8,128	\$ 956	\$ -	\$ -	\$ 90,842	\$ 99,926
<b>Total:</b>	<b>\$ 318,305</b>	<b>\$ 37,438</b>	<b>\$ 1,704,433</b>	<b>\$ 117,556</b>	<b>\$ 1,735,461</b>	<b>\$ 3,913,193</b>
					<b>Total Portfolio Budget:</b>	<b>\$ 3,913,193</b>

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**Instructions:** Provide net demand savings, net energy savings, number of participants and the participant definition for each program.

Program Name	Demand Savings (kW)	Energy Savings (kWh)	Participants	Participant Definition
1. Residential Solutions	716	2,454,704	1,093	Customer
2. Lighting and Appliances	645	2,704,330	40,957	Customer
3. Income Qualified	99	509,375	96	Customer
4. AC Tune Up and HVAC	547	1,427,077	1,017	Customer
5. Small Business	316	1,793,523	67	Customer
6. Large C&I	952	4,987,003	31	Customer
7. Residential Market Development	0	0	0	Customer
8. Commercial Market Development	0	0	0	Customer
<b>Total:</b>	<b>3,275</b>	<b>13,876,012</b>	<b>43,261</b>	



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**ELL - 2014 EE Portfolio Information**  
Training

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**Instructions:** Provide details for both External and Internal Training by clicking the "Details" button. Provide the Cost associated with the training.

	<u>Sessions</u>	<u>Attendees</u>	<u>Man Hours</u>	<u>Certificates</u>	<u>Cost</u>
<b>External Training</b>	111	879	4,364	47	\$ 267,692

Details

	<u>Sessions</u>	<u>Attendees</u>	<u>Man Hours</u>	<u>Certificates</u>	<u>Cost</u>
<b>Internal Training</b>	2	28	48	0	\$ -

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**External Training (contractors, trade allies, consumer groups, ect.)**

Event No.	Start Date	Class	Class Description	Training Location	Sponsor	No. of Attendees (A)	Length of Session (B)	Training Session Man-Hours (A x B)	Any Certificates Awarded? (Y or N)	# of Certificates Awarded
1.	11/1/14	Energy Solutions Quick Start Kick-Off	Contractor Meeting to discuss all aspects of the Energy Solutions Quick Start Program	Crowne Plaza Executive Center - Baton Rouge	ELL/CLEAResult	90	3	270	N	N/A
2.	12/8/14	BPI Building Analyst	Building Performance Institute national certification training on building systems, thermal boundaries, air flow, and many other topics; Written & Field Tests	Louisiana Housing Corp - Weatherization Training Center in Baton Rouge	ELL/CLEAResult	10	40	400	Y	9
3.	1/12/15	BPI Building Analyst	Building Performance Institute national certification training on building systems, thermal boundaries, air flow, and many other topics; Written & Field Tests	Louisiana Housing Corp - Weatherization Training Center in Baton Rouge	ELL/CLEAResult	16	48	768	Y	14
4.	1/28/15	CoolSaver & HVAC Replacements	Butcher Distributors Sales Event	Butcher Dist. - Harahan, LA	ELL/CLEAResult	3	6	18	N	N/A
5.	1/30/15	CoolSaver & HVAC Replacements	Butcher Distributors Sales Event	Butcher Dist. - Mandeville, LA	ELL/CLEAResult	4	6	24	N	N/A
6.	15 through 8/1	Retailer Trainings	Provide program & product training to store associates and management at participating retailers - (Average training time is 15 minutes per person)	Multiple - Statewide	ELL/CLEAResult	127	0	32	N	N/A
7.	2/2/15	CoolSaver & HVAC Replacements	Butcher Distributors Sales Event	Butcher Dist. - Broussard, LA	ELL/CLEAResult	2	6	12	N	N/A
8.	2/19/15	Louisiana Heat Pump Association Annual Training & Convention	Seminar Presentation to Association members on CoolSaver Tune-Ups & HVAC Replacements	Ramada Lafayette Conference Center - Lafayette, LA	ELL/CLEAResult	50	2	75	N	N/A

9.	3/28/15	CoolSaver	CoolSaver Kick-Off meeting - Provided technical training to contractors on use of tools required by program	South Central Louisiana Technical College in Reserve, LA	ELL/CLEARResult	9	7	63	N	N/A
10.	4/20/15	BPI Building Analyst	Building Performance Institute national certification training on building systems, thermal boundaries, air flow, and many other topics; Written & Field Tests	Louisiana Housing Corp - Weatherization Training Center in Baton Rouge	ELL/CLEARResult	6	40	240	Y	6
11.	5/6/15	CoolSaver	Classroom training on the introduction of iManifold, its implementation & Quickbase reporting	Baton Rouge	ELL/CLEARResult	7	7	49	N	N/A
12.	5/8/15	CoolSaver	Instrument Field training for airflow, multi-meters & iManifold	Baton Rouge	ELL/CLEARResult	7	6	42	N	N/A
13.	5/21/15	Trade Orientation	Introduce CoolSaver & A/C Replacement to local HVAC Supply Houses - Johnstone Supply; Coburn's and Carrier Enterprise	Harahan	ELL/CLEARResult	9	7	63	N	N/A
14.	5/27/15	CoolSaver	Instrument Field training for airflow, multi-meters & iManifold	New Orleans	ELL/CLEARResult	8	3	24	N	N/A
15.	6/8/15	Contractor Orientation	Introduce CoolSaver & A/C Replacement to interested contractors	Harahan	ELL/CLEARResult	10	2	20	N	N/A
16.	6/9/15	Trade Orientation	Introduce CoolSaver & A/C Replacement to local HVAC Supply Houses - Johnstone Supply; Coburn's and Carrier Enterprise	Harahan	ELL/CLEARResult	6	1	6	N	N/A
17.	6/17/15	CoolSaver	Instrument Field training for airflow, multi-meters & iManifold	Gretna	ELL/CLEARResult	4	3	12	N	N/A
18.	6/26/15	CoolSaver	Instrument Field training for airflow, multi-meters & iManifold	Hammond	ELL/CLEARResult	2	4	8	N	N/A

19.	7/9/15	CoolSaver	Instrument Field training for airflow, multi-meters & iManifold	Mandeville	ELL/CLEARResult	6	8	48	N	N/A
20.	7/24/15	CoolSaver	Instrument Field training for airflow, multi-meters & iManifold	Kenner	ELL/CLEARResult	2	4	8	N	N/A
21.	8/11/15	CoolSaver	Instrument Field training for airflow, multi-meters & iManifold	Gretna	ELL/CLEARResult	2	4	8	N	N/A
22.	9/30/15	Air Sealing, Duct Sealing & Insulation	Webinar training covered Air Sealing , Duct Sealing and Insulation techniques; Illustrated	Webinar	ELL/CLEARResult	32	2	64	N	N/A
23.	10/12/15	BPI IDL	Building Performance Institute national certification training on the proper use of blower door and duct blaster; Field Test requirement	Louisiana Housing Corp - Weatherization Training Center in Baton Rouge	ELL/CLEARResult	7	16	112	Y	6
24.	10/19/15	BPI Building Analyst	Building Performance Institute national certification training on building systems, thermal boundaries, air flow, and many other topics; Written & Field Tests	Louisiana Housing Corp - Weatherization Training Center in Baton Rouge	ELL/CLEARResult	10	40	400	Y	8
25.	10/1/14	Commerical & Industrial Contractor Development	Program, Policies and Procedures	Remote by Phone and email	CLEARResult/ELL	20	1	20	N	N/A
26.	10/1/14	Commerical & Industrial Participant Eduction	Program, Policies and Procedures	Remote by Phone and email	CLEARResult/ELL	15	1	15	N	N/A
27.	10/27/14	Open Tool Training	Open Tool Training of Trainers	CLEARResult Office	CLEARResult/ELL	5	1	5	N	N/A
28.	11/4/14	Large C&I Program Review	Lighting Calcultor & Program Guidelines Usage & Overview	Prolumin Office	CLEARResult/ELL	4	4	16	N	N/A
29.	11/6/14	Large C&I Program Review	Lighting Calcultor & Program Guidelines Usage & Overview	NOLA LED Office	CLEARResult/ELL	3	4	12	N	N/A
30.	11/12/14	Large C&I Program Review	Lighting Calcultor & Program Guidelines Usage & Overview	LED Supply Plus Office	CLEARResult/ELL	4	4	16	N	N/A

31.	11/18/14	Large C&I Program Review	Lighting Calculator & Program Guidelines Usage & Overview	Nu-Lite Office	CLEAResult/ELL	12	4	48	N	N/A
32.	11/24/14	Large C&I Program Review	Lighting Calculator & Program Guidelines Usage & Overview	Clearesult Office	CLEAResult/ELL	2	4	8	N	N/A
33.	11/24/14	OPEN Field Tool Training	Training contractors on OPEN Program and Field Tool	Webinar	CLEAResult/ELL	2	2	3	N	N/A
34.	11/24/14	OPEN Field Tool Training	Training contractors on OPEN Program and Field Tool	Webinar	CLEAResult/ELL	2	2	3	N	N/A
35.	11/26/14	OPEN Field Tool Training	Training contractors on OPEN Program and Field Tool	Webinar	CLEAResult/ELL	3	2	5	N	N/A
36.	11/26/14	OPEN Field Tool Training	Training contractors on OPEN Program and Field Tool	Webinar	CLEAResult/ELL	3	2	5	N	N/A
37.	12/1/14	Large C&I Program Review	Lighting Calculator & Program Guidelines Usage & Overview	Clearesult Office	CLEAResult/ELL	2	4	8	N	N/A
38.	12/3/14	Large C&I Program Review	Lighting Calculator & Program Guidelines Usage & Overview	Clearesult Office	CLEAResult/ELL	1	4	4	N	N/A
39.	12/4/14	OPEN Field Tool Training	Training contractor on OPEN Program and Field Tool	In Person	CLEAResult/ELL	5	1	5	N	N/A
40.	12/5/14	OPEN Field Tool Training	Training contractor on OPEN Program and Field Tool	In Person	CLEAResult/ELL	2	1	2	N	N/A
41.	12/8/14	Large C&I Program Review	Lighting Calculator & Program Guidelines Usage & Overview	Clearesult Office	CLEAResult/ELL	3	4	12	N	N/A
42.	12/8/14	OPEN Field Tool Training	Training contractor on OPEN Program and Field Tool	Webinar	CLEAResult/ELL	3	1	3	N	N/A
43.	12/8/14	OPEN Field Tool Training	Training contractor on OPEN Program and Field Tool	Webinar	CLEAResult/ELL	6	2	9	N	N/A
44.	12/9/14	OPEN Field Tool Training	Training contractor on OPEN Program and Field Tool	In Person	CLEAResult/ELL	2	1	2	N	N/A
45.	12/10/14	OPEN Field Tool Training	Training contractor on OPEN Program and Field Tool	Webinar	CLEAResult/ELL	2	1	2	N	N/A

46.	12/19/14	OPEN Field Tool Training	Training contractors on OPEN Program and Field Tool	Webinar	CLEAResult/ELL	3	2	5	N	N/A
47.	12/19/14	OPEN Field Tool Training	Training contractors on OPEN Program and Field Tool	In Person	CLEAResult/ELL	2	1	2	N	N/A
48.	1/2/15	OPEN Field Tool Training	Training contractors on OPEN Program and Field Tool	Webinar	CLEAResult/ELL	2	1	2	N	N/A
49.	1/14/15	OPEN Field Tool Training	Training contractors on OPEN Program and Field Tool	Webinar	CLEAResult/ELL	2	1	2	N	N/A
50.	1/27/15	OPEN Field Tool Training	Training contractors on OPEN Program and Field Tool	Webinar	CLEAResult/ELL	2	1	2	N	N/A
51.	2/1/15	Commerical & Industrial Contractor Development	Program, Policies and Procedures	Remote by Phone and email	CLEAResult/ELL	15	1	15	N	N/A
52.	2/1/15	Commerical & Industrial Participant Eduction	Program, Policies and Procedures	Remote by Phone and email	CLEAResult/ELL	10	1	10	N	N/A
53.	2/13/15	OPEN Field Tool Training	Training contractor on OPEN Program and Field Tool	Webinar	CLEAResult/ELL	3	2	5	N	N/A
54.	3/27/15	OPEN Field Tool Training	Training contractors on OPEN Program and Field Tool	Webinar	CLEAResult/ELL	2	1	2	N	N/A
55.	3/27/15	OPEN Field Tool Training	Training contractors on OPEN Program and Field Tool	Webinar	CLEAResult/ELL	2	1	2	N	N/A
56.	5/1/15	Commerical & Industrial Contractor Development	Program, Policies and Procedures	Remote by Phone and email	CLEAResult/ELL	10	1	10	N	N/A
57.	5/1/15	Commerical & Industrial Participant Eduction	Program, Policies and Procedures	Remote by Phone and email	CLEAResult/ELL	5	1	5	N	N/A
58.	8/1/15	Commerical & Industrial Contractor Development	Program, Policies and Procedures	Remote by Phone and email	CLEAResult/ELL	15	1	15	N	N/A

59.	8/1/15	Commerical & Industrial Participant Education	Program, Policies and Procedures	Remote by Phone and email	CLEAResult/ELL	10	1	10	N	N/A
60.	8/25/15	C&I Program Review	Training on C&I program, procedures and policies	WebEx Webinar	CLEAResult/ELL	43	1	43	N	N/A
61.	10/15/15	Lighting Calculator Training	Training on how to in put data into lighting calculator	Clearesult Office	CLEAResult/ELL	4	1	4	N	N/A
62.	11/6/14	Multi-Family	Tutorial on processing multi-family rebates	Remote by Phone	CLEAResult/ELL	2	1	2	N	N/A
63.	11/18/14	OPEN field tool training	Webinar to teach contractors the OPEN tool	Webinar	CLEAResult/ELL	15	1	15	N	N/A
64.	12/4/14	School Kits	Tutorial on processing School Kit invoices	CLEAResult - New Orleans Office	CLEAResult/ELL	2	1	2	N	N/A
65.	12/4/14	BPI Training	Matt Killen of BPI - Proctoring Exam	Louisiana Housing Corp - Weatherization Training Center in Baton Rouge	CLEAResult/ELL	1	1	1	Y	1
66.	12/11/14	Contractor Training	Proctoring BPI exams	Louisiana Housing Corp - Weatherization Training Center in Baton Rouge	CLEAResult/ELL	10	8	80	N	N/A
67.	12/16/14	Entergy Gulf States - Mgmt Meeting for Entergy Solutions overview	Provided Entergy Managers with detailed overview of energy efficiency program	Entergy Office in Baton Rouge	CLEAResult/ELL	2	3	6	N	N/A
68.	12/20/14	BPI - IDL	Building Performance Institute national certification training on the proper use of blower door and duct blaster; Field Test requirement	Louisiana Housing Corp - Weatherization Training Center in Baton Rouge	CLEAResult/ELL	1	2	2	Y	1
69.	1/15/15	Contractor Training	Proctoring BPI exams	Louisiana Housing Corp - Weatherization Training Center in Baton Rouge	CLEAResult/ELL	3	8	24	N	N/A

70.	1/30/15	Income Qualified	Tutorial on processing Income-Qualified rebates	CLEAResult - New Orleans Office	CLEAResult/ELL	2	1	2	N	N/A
71.	2/11/15	Diversified Rebate Process	Discussed rebate issues and details of Entergy Solutions program	CLEAResult - New Orleans Office	CLEAResult/ELL	1	30	30	N	N/A
72.	2/13/15	QuickBase Training	General Program Training	CLEAResult - New Orleans Office	CLEAResult/ELL	2	1	2	N	N/A
73.	3/2/15	South Coast Solar Rebate Process	Discussed rebate issues and details of Entergy Solutions program	Metairie, LA	CLEAResult/ELL	1	1	1	N	N/A
74.	3/5/15	WilServ Rebate Process	Discussed rebate issues and new program	Covington, LA	CLEAResult/ELL	10	1	10	N	N/A
75.	3/6/15	Big Star - Contractor Training	Discussion with Big Star about program, process, requirements and expectations.	CLEAResult - New Orleans Office	CLEAResult/ELL	4	1	4	N	N/A
76.	3/6/15	Haley's Home Consulting - Contractor Training	Discussion with Haley's Home Consulting about program, process, requirements and expectations.	CLEAResult - New Orleans Office	CLEAResult/ELL	3	1	2	N	N/A
77.	3/6/15	CoolSaver Training	CoolSaver Field/Equipment Training with Robert Robertson	CLEAResult Office - Gulfport, MS	CLEAResult/ELL	1	50	50	N	N/A
78.	3/10/15	Met with IDI Wholesale	Met with IDI Sales & 2 insulation contractors about Entergy Solutions	Baton Rouge, LA	CLEAResult/ELL	3	1	3	N	N/A
79.	3/12/15	National Air Meeting	Discussed rebate issues and new program	Marrero, LA	CLEAResult/ELL	7	1	7	N	N/A
80.	3/18/15	Contractor Training - Eco Energy Solutions	Field training about duct sealing, process and requirements.	Marrero, LA	CLEAResult/ELL	7	1	7	N	N/A
81.	3/20/15	CoolSaver Training	CoolSaver Field/Equipment Training with David Rubalcava	CLEAResult Office - Houston, TX	CLEAResult/ELL	1	40	40	N	N/A
82.	3/28/15	CoolSaver Training	CoolSaver Kick-Off meeting - Provided technical training to contractors on use of tools required by program	South Central Louisiana Technical College in Reserve, LA	CLEAResult/ELL	9	7	63	N	N/A



83.	3/30/15	QuickBase Training	CoolSaver QB 2015 updates & refresher training	GoToMeeting /internal training	CLEARResult/ELL	3	1	3	N	N/A
84.	3/31/15	Catalyst	General Program Training	CLEARResult - New Orleans Office	CLEARResult/ELL	20	7	130	N	N/A
85.	4/1/15	QuickBase Training	QB Intro Training for New Programs	GoToMeeting	CLEARResult/ELL	15	1	15	N	N/A
86.	4/8/15	CLEARResult Manager Meeting	VP-Sponsored meeting to cross train throughout South Region; Discussed HR related issues & Program high/low points	CLEARResult Corporate Office in Austin, TX	CLEARResult/ELL	3	24	72	N	N/A
87.	4/23/15	Contractor Training	Proctoring BPI exams	Louisiana Housing Corp - Weatherization Training Center in Baton Rouge	CLEARResult/ELL	6	24	144	N	N/A
88.	4/24/15	QuickBase Training	General Program Training	GoToMeeting	CLEARResult/ELL	1	2	2	N	N/A
89.	5/4/15	Affordable Comfort Institute/Home Performance Annual Conference	ACI/HP is a continuing education service provider; sessions provide CEUs and professional training	New Orleans - Hyatt Regency	CLEARResult/ELL	4	4	16	N	N/A
90.	5/6/15	CoolSaver	Classroom Training on nuances of CoolSaver Tune-Up and iManifold	Louisiana Housing Corp - Weatherization Training Center in Baton Rouge	CLEARResult/ELL	7	7	49	N	NA
91.	5/8/15	CoolSaver	Field Training at various customer residences - Real-life scenarios with iManifold	Baton Rouge, LA	CLEARResult/ELL	7	6	42	N	NA
92.	5/20/15	Contractor Training	Program training with David Sims Insulation	Louisiana Housing Corp - Weatherization Training Center in Baton Rouge	CLEARResult/ELL	3	3	9	N	N/A
93.	6/1/15	QuickBase Training	Processing rebates through QuickBase software	CLEARResult - New Orleans Office	CLEARResult/ELL	2	1	2	N	N/A

94.	6/3/15	DOE/BPI	Home Energy Score Assessor	Louisiana Housing Corp - Weatherization Training Center in Baton Rouge	CLEARResult/ELL	1	6	6	Y	1
95.	6/15/15	BPI CEU webinars	BPI Best Practices EE	Remote on Laptop	CLEARResult/ELL	1	2	2	N	N/A
96.	6/26/15	CoolSaver	Contractor participation overview	CLEARResult - New Orleans Office	CLEARResult/ELL	7	2	14	N	N/A
97.	6/30/15	Diversified Rebate Process	Discussed rebate issues and payment expectations	CLEARResult - New Orleans Office	CLEARResult/ELL	2	1	2	N	N/A
98.	7/7/15	TV Interview	Interview on Lunchtime News; discussed energy efficiency; how to access program	Fox29 in Lake Charles	CLEARResult/ELL	1	0	0	N	N/A
99.	7/29/15	TV Interview	Interview on Morning News; discussed energy efficiency; how to access program	KTVE/KARD - TV in Monroe	CLEARResult/ELL	1	1	1	N	N/A
100.	7/29/15	TV Interview	Interview on Lunchtime News; discussed energy efficiency; how to access program	KNOE - TV in Monroe	CLEARResult/ELL	1	1	1	N	N/A
101.	7/30/15	Met with Insulation Wholesaler - Applegate Insulation	Discussed Entergy Solutions with Plant Manager	Applegate plant in Monroe	CLEARResult/ELL	1	1	1	N	N/A
102.	8/12/15	QuickBase Training	General Program Training	Comfort Engineering Systems Office	CLEARResult/ELL	2	2	3	N	N/A
103.	8/13/15	QuickBase Training	General Program Training	CLEARResult - New Orleans Office	CLEARResult/ELL	3	1	3	N	N/A
104.	8/18/15	Entergy Lake Charles - Customer Service monthly meeting	Presented to Entergy's Customer Service Reps in Lake Charles about Entergy Solutions	Entergy office - Lake Charles	CLEARResult/ELL	2	2	4	N	N/A
105.	9/1/15	QuickBase Training	General Program Training	AFJ Mechanical	CLEARResult/ELL	2	1	2	N	N/A
106.	9/1/15	Contractor Meeting with WilServ	Discussed rebate issues and payment expectations	WebEx	CLEARResult/ELL	4	1	2	N	N/A

107.	9/24/15	TYPE universal EPA cert	Testing for EPA Certification	CLEAResult - New Orleans Office	CLEAResult/ELL	1	3	3	N	N/A
108.	10/7/15	CLEAResult Staff Retreat	Discussed all programs, Presented to staff full synopsis of each program component; made plans for next Program Year	New Orleans & Manchac Wildlife Management Area Headquarters Galva Canal	CLEAResult/ELL	18	16	288	N	N/A
109.	10/12/15	BPI Training	Infiltration and duct leakage	Louisiana Housing Corp - Weatherization Training Center in Baton Rouge	CLEAResult/ELL	1	8	8	Y	1
110.	10/22/15	Contractor Training	Proctoring BPI exams	Louisiana Housing Corp - Weatherization Training Center in Baton Rouge	CLEAResult/ELL	11	8	88	N	N/A
111.	10/29/15	One on One with Mechanical consultants	Discussed rebate process and new program	CLEAResult - New Orleans Office	CLEAResult/ELL	2	1	1	N	N/A
<b>Totals:</b>	<b>Events:</b>	<b>111</b>				<b>879</b>		<b>4,364</b>		<b>47</b>

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### Internal Training (Utility or Administrator Staff)

Event No.	Start Date	Class	Class Description	Training Location	Sponsor	No. of Attendees (A)	Length of Session (B)	Training Session Man-Hours (A x B)	Any Certificates Awarded? (Y or N)	# of Certificates Awarded
1.	9/18/14	Entergy Internal Training	ELL & EGSL Energy Efficiency Training for Residential, Commercial, and Industrial Accounts	Baton Rouge & WebEx	Entergy	20	2	40	N	0
2.	8/26/15	Entergy Internal Training	C&I Program Training for Major Accounts	Baton Rouge	Entergy	8	1	8	N	0
								0		
		<b>Note: Class participants split equally between ELL &amp; EGSL programs</b>						0		
<b>Totals:</b>	<b>Events:</b>	<b>2</b>				<b>28</b>		<b>48</b>		<b>0</b>

Company Statistics	Actual Expenses	Evaluated Savings	Cost-Benefits	LCFC	Incentives
<b>ELL - 2014 Program Year Evaluation</b>					
Company Statistics					
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<b>Instructions:</b> Provide all required data. <b>Note</b> - Report program year data, when available. This should not report forecasted data.					
<b>Revenue and Expenses</b>					
<b>Year</b>	<b>Total Revenue</b> (a) (\$000's)	<b>Portfolio Budget</b> (b) (\$000's)	<b>Budget as % of Revenue</b> (%=b/a)	<b>Actual Expenses</b> (c) (\$000's)	<b>Expenses as % of Revenue</b> (%=c/a)
2014	\$ 1,160,439,195	\$ 3,913,195	0.34%	\$ 3,557,822	0.31%
<b>Energy</b>					
<b>Year</b>	<b>Total Energy Sales</b> (d) (MWh)	<b>Planned Energy Savings</b> (e) (MWh)	<b>Planned Savings as % of Sales</b> (%=e/d)	<b>Evaluated Energy Savings</b> (f) (MWh)	<b>Evaluated Savings as % of Sales</b> (%=f/d)
2014	23,938,938	13,876	0.06%	15,621	0.07%

## Notes:

- (1) Total Revenue is 2012 Retail Revenues excluding opt outs and \$75 cap.
- (2) The Incentive Tab is designed to represent the amount of incentives ELL would receive for exceeding kWh savings. Utility incentives are not currently authorized by the LPSC and therefore, this tab was not used in this filing.

Company Statistics

Actual Expenses

Evaluated Savings

Cost-Benefits

LCFC

Incentives

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## ELL - 2014 Program Year Evaluation

### Actual Expenses

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**Instructions:** Provide actual PY expenses, including Regulatory at bottom.

Program Name	Admin/Plannin g	Promotion/Adv ertising	Customer Incentives	EM&V	Delivery & Vendors	Total	
<b>1. Residential Solutions</b>	\$ 3,756	\$ 14,341	\$ 425,192	\$ 27,498	\$ 312,347	\$ 783,135	
Utility	\$ 3,756		\$ 425,192			\$ 428,948	
3rd Party		\$ 14,341		\$ 27,498	\$ 312,347	\$ 354,187	
<b>2. Lighting and Appliances</b>	\$ 3,341	\$ 2,510	\$ 226,738	\$ 16,499	\$ 193,503	\$ 442,591	
Utility	\$ 3,341		\$ 226,738			\$ 230,079	
3rd Party		\$ 2,510		\$ 16,499	\$ 193,503	\$ 212,512	
<b>3. Income Qualified</b>	\$ 689	\$ 1,108	\$ 123,605	\$ 11,071	\$ 181,564	\$ 318,037	
Utility	\$ 689		\$ 123,605			\$ 124,294	
3rd Party		\$ 1,108		\$ 11,071	\$ 181,564	\$ 193,743	
<b>4. AC Tune Up and HVAC</b>	\$ 1,687	\$ 10,306	\$ 180,379	\$ 11,357	\$ 124,612	\$ 328,340	
Utility	\$ 1,687		\$ 180,379			\$ 182,066	
3rd Party		\$ 10,306		\$ 11,357	\$ 124,612	\$ 146,275	
<b>5. Small Business</b>	\$ 1,843	\$ 587	\$ 283,856	\$ 14,786	\$ 166,006	\$ 467,078	
Utility	\$ 1,843		\$ 283,856			\$ 285,699	
3rd Party		\$ 587		\$ 14,786	\$ 166,006	\$ 181,379	
<b>6. Large C&amp;I</b>	\$ 5,947	\$ 313	\$ 448,575	\$ 36,345	\$ 471,624	\$ 962,804	
Utility	\$ 5,947		\$ 448,575			\$ 454,522	
3rd Party		\$ 313		\$ 36,345	\$ 471,624	\$ 508,282	
<b>7. Residential Market Development</b>	\$ -	\$ 853	\$ -	\$ -	\$ 164,141	\$ 164,994	
Utility						\$ -	
3rd Party		\$ 853	\$ -	\$ -	\$ 164,141	\$ 164,994	
<b>8. Commercial Market Development</b>	\$ -	\$ 474	\$ -	\$ -	\$ 90,368	\$ 90,842	
Utility						\$ -	
3rd Party		\$ 474	\$ -	\$ -	\$ 90,368	\$ 90,842	
<b>Portfolio Total</b>							
Utility	\$ 17,263	\$ -	\$ 1,688,344	\$ -	\$ -	\$ -	\$ 1,705,608
3rd Party	\$ -	\$ 30,492	\$ -	\$ 117,556	\$ 1,704,165	\$ -	\$ 1,852,213
<b>Total:</b>	\$ 17,263	\$ 30,492	\$ 1,688,344	\$ 117,556	\$ 1,704,165	\$ -	\$ 3,557,820

<b>Program Name</b>	<b>Admin/Planning</b>	<b>Promotion/Advertising</b>	<b>Customer Incentives</b>	<b>EM&amp;V</b>	<b>Delivery &amp; Vendors</b>	<b><u>Total</u></b>
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Note:

The Incentive Tab is designed to represent the amount of incentives ELL would receive for exceeding kWh savings.

Utility incentives are not currently authorized by the LPSC and therefore, this tab was not used in this filing.

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## ELL - 2014 Program Year Evaluation

### Evaluated Savings

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**Instructions:** Provide evaluated net savings and participant results. Provide the methodology for energy savings by clicking the "Methodology for Energy Savings" button.

Program Name	Demand Savings	Energy Savings	Participants
	(kW)	(kWh)	
1. Residential Solutions	692	3,398,741	1,514
2. Lighting and Appliances	669	3,023,121	45,785
3. Income Qualified	96	623,201	117
4. AC Tune Up and HVAC	488	1,526,575	1,088
5. Small Business	283	1,667,792	62
6. Large C&I	762	5,381,724	33
7. Residential Market Development	0	0	0
8. Commercial Market Development	0	0	0
<b>Total:</b>	<b>2,990</b>	<b>15,621,154</b>	<b>48,599</b>

[Methodology for Energy Savings](#)

## Notes:

- (1) Programs savings reported are net savings and do not include adjustments for leakage.
- (2) The Incentive Tab is designed to represent the amount of incentives ELL would receive for exceeding kWh savings. Utility incentives are not currently authorized by the LPSC and therefore, this tab was not used in this filing.



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## Methodology for Calculating Net Energy Savings

Program Name	Deemed Savings (kWh)	Custom Savings (kWh)	Other Savings (kWh)	Total Savings (kWh)
1. Residential Solutions	3,398,741			3,398,741
2. Lighting and Appliances	3,023,121			3,023,121
3. Income Qualified	623,201			623,201
4. AC Tune Up and HVAC	1,526,575			1,526,575
5. Small Business	1,667,792			1,667,792
6. Large C&I	5,381,724			5,381,724
7. Residential Market Development				0
8. Commercial Market Development				0
<b>Total Portfolio:</b>	<b>15,621,154</b>	<b>0</b>	<b>0</b>	<b>15,621,154</b>

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## ELL - 2014 Program Year Evaluation

### Cost-Benefits

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**Instructions:** Provide the required TRC components. Provide "Key Assumptions" and "Other Cost-Benefit Test" by clicking on the action buttons.

Other Cost-Benefit Test

#### Program Name

1. Residential Solutions
2. Lighting and Appliances
3. Income Qualified
4. AC Tune Up and HVAC
5. Small Business
6. Large C&I
7. Residential Market Development
8. Commercial Market Development

Net Energy Savings			Total Resource Cost Test (TRC)			
Annualized Energy Saved (kWh)	Effective NTGR Ratio	Lifetime Energy Savings (MWh)	Total Cost (\$000's)	Total Benefits (\$000's)	Total Net Benefits (\$000's)	TRC Ratio
3,398,741	100.00	57,474	\$ 1,352	\$ 2,492	\$ 1,140	1.84
3,023,121	100.00	28,032	\$ 724	\$ 985	\$ 260	1.36
623,201	100.00	10,615	\$ 309	\$ 435	\$ 126	1.41
1,526,575	100.00	16,342	\$ 429	\$ 1,025	\$ 596	2.39
1,667,792	100.00	21,400	\$ 491	\$ 950	\$ 459	1.94
5,381,724	100.00	70,981	\$ 1,263	\$ 2,934	\$ 1,671	2.32
0					\$ -	n/a
0					\$ -	n/a
<b>Total:</b>	<b>15,621,154</b>	<b>204,844</b>	<b>\$ 4,568</b>	<b>\$ 8,820</b>	<b>\$ 4,252</b>	<b>1.93</b>

Regulatory Cost:

\$ -

#### Notes:

- (1) Programs savings reported are net savings and do not include adjustments for leakage.
- (2) The Incentive Tab is designed to represent the amount of incentives ELL would receive for exceeding kWh savings. Utility incentives are not currently authorized by the LPSC and therefore, this tab was not used in this filing.

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## Cost-Effectiveness Test

**Program Name**

- 1. Residential Solutions
- 2. Lighting and Appliances
- 3. Income Qualified
- 4. AC Tune Up and HVAC
- 5. Small Business
- 6. Large C&I
- 7. Residential Market Development
- 8. Commercial Market Development

**Total:**

Utility Cost Test (UCT)	
Net Benefits (\$000's)	Ratio
\$ 2,492	3.14
\$ 985	2.22
\$ 435	1.37
\$ 1,025	3.12
\$ 950	2.03
\$ 2,934	3.05
\$ 8,820	2.67

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**ELL - 2014 Program Year Evaluation**

Lost Contributions to Fixed Cost

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**Instructions:** Provide the LCFC Energy Savings and Cost Recovery for the PY's . The LCFC Cost Recovery should be directly related to the LCFC Energy Savings.

Program Name	LCFC Energy Savings (MWh)	LCFC Cost Recovery (\$)
	2014	2014
1. Residential Solutions	3,399	\$ 204,944
2. Lighting and Appliances	3,023	\$ 182,294
3. Income Qualified	623	\$ 37,579
4. AC Tune Up and HVAC	1,527	\$ 92,052
5. Small Business	1,668	\$ 51,385
6. Large C&I	5,382	\$ 165,811
7. Residential Market Development		
8. Commercial Market Development		
<b>Total:</b>	<b>15,621</b>	<b>\$ 734,065</b>
<b>Total LCFC Recovery for Program Year 2014: \$ 734,065</b>		

Program Name	LCFC Energy Savings (MWh)	LCFC Cost Recovery (\$)
	2014	2014
1. Residential Solutions	3,399	\$ 204,944
2. Lighting and Appliances	3,023	\$ 182,294
3. Income Qualified	623	\$ 37,579
4. AC Tune Up and HVAC	1,527	\$ 92,052
5. Small Business	1,668	\$ 51,385
6. Large C&I	5,382	\$ 165,811
7. Residential Market Development		
8. Commercial Market Development		
<b>Total:</b>	<b>15,621</b>	<b>\$ 734,065</b>

**Total LCFC Recovery for Program Year 2014: \$ 734,065**

## Notes:

- (1) Programs savings reported are net savings and do not include adjustments for leakage.
- (2) The Incentive Tab is designed to represent the amount of incentives ELL would receive for exceeding kWh savings.

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## Target Sectors and Program-Type Names

Target Sector	Program Type	Delivery Channel
N/A	Audit - C&I	Coupon Redemption
*****Single-Class*****	Behavior/Education	Direct Install
Residential	Consumer Product Rebate	Implementing Contractor
Small Business	Custom	Retail Outlets
Commercial & Industrial	Demand Response	Self-Install
Municipalities/Schools	Financing	Statewide Administrator
Agriculture	Market Specific/Hard to Reach	Trade Ally
Other	New Construction	Utility Outreach (email/direct mail)
*****Multi-Class*****	Other	Website
Res/Small Business	Prescriptive/Standard Offer	
Res/C&I	Measure/Technology Focus	
Small Business/C&I	Whole Home	
All Classes		

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## Program Cost Type

### Planning / Design

Program planning cost  
 Program design cost  
 Research and development cost  
 Request for proposal preparation and evaluation  
 Consultants used for program design and planning  
 Company employee costs relating to program design, planning and research and development

### Incentives / Direct Install Costs

Rebates  
 Water conservation kits  
 Interruptible credits or payments  
 Payments to CADC (AWP) for weatherization of homes  
 Payments to contractors for weatherization services  
 Direct install costs for all programs with direct install provisions  
 Coupons and upstream program incentives  
 Residential energy audits

### Administration

Utility company personnel training costs  
 Utility company EE personnel salary and benefits not charged elsewhere  
 Overhead costs (office space, vehicles, etc.)

### Marketing & Delivery

Advertising costs including, but not limited to, educational/promotional materials, website development and updates  
 TV/Radio ads  
 Payment to AEO for EEA program  
 Commercial and Industrial energy audits  
 Personnel costs for performing marketing and delivery functions  
 Costs of processing rebates  
 Database development/update costs  
 Trade ally training events  
 Costs to support other EE related events and organizations  
 Measurement and Verification costs as related to direct program/project/measure costs to validate savings within the utility program (i.e. customer projects) and outside of independent EM&V

### EM&V

Payments to consultants for preparation/update of Deemed Savings and Technical Reference Manual  
 Consultants costs for IEM and independent third party evaluations

### Regulatory

Outside counsel legal fees for EE dockets  
 Travel costs related to EE dockets  
 Costs for preparing annual reports and EECR filings, including costs related to performing the required cost effectiveness tests  
 Costs related to regulatory specific collaborative meetings and events

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**Table 1**
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**2014 Portfolio Summary**

Net Energy Savings		Cost			Cost-Benefits	
Demand MW	Energy MWh	Actual Expenses	LCFC	Performance Incentives	TRC Net Benefits	TRC Ratio
3	15,621	\$ 3,557,820	\$ 734,065	\$0	\$ 4,252,046	1.93

## Note:

Utility Performance Incentives are not currently authorized by the LPSC.

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Table 2

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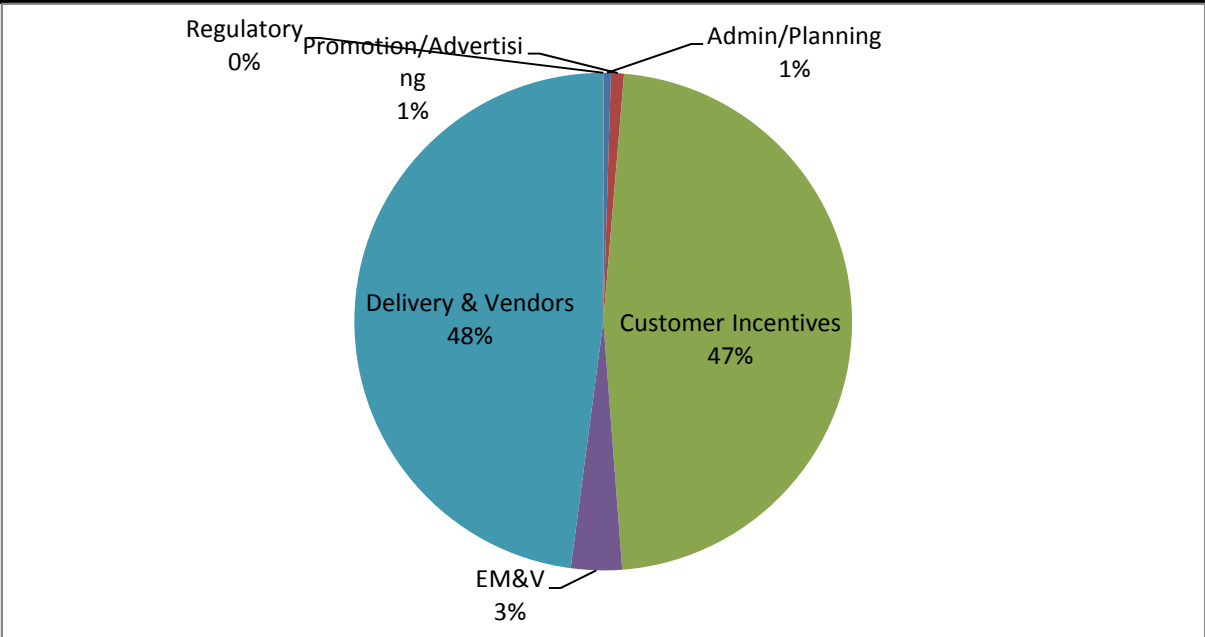
## EE Portfolio Cost by Program

Program Name	Target Sector	Program Type	2014		% of Budget
			Budget (\$)	Actual (\$)	
AC Tune Up and HVAC	Residential	Prescriptive/Standard Offer	348,397	328,340	94%
Income Qualified	Residential	Whole Home	352,033	318,037	90%
Lighting and Appliances	Residential	Consumer Product Rebate	505,782	442,591	88%
Residential Market Development	Residential	Other	181,493	164,994	91%
Residential Solutions	Residential	Whole Home	843,181	783,135	93%
Commercial Market Development	Commercial & Industrial	Other	99,926	90,842	91%
Large C&I	Commercial & Industrial	Prescriptive/Standard Offer	1,067,463	962,804	90%
Small Business	Commercial & Industrial	Prescriptive/Standard Offer	514,918	467,078	91%
Regulatory	-	-	-	-	-
		<b>Total</b>	<b>3,913,193</b>	<b>3,557,820</b>	<b>91%</b>



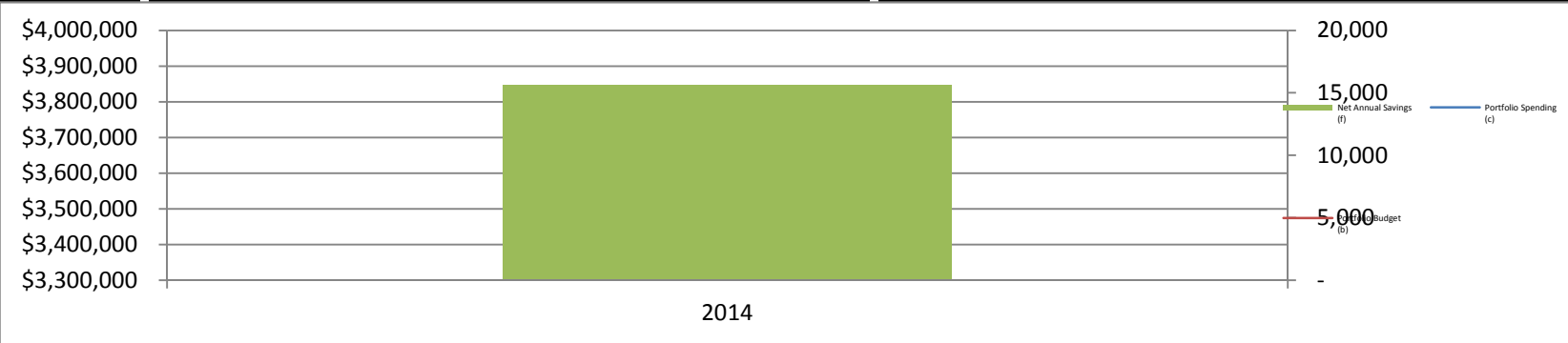
### EE Portfolio Summary by Cost Type

EE Program Cost Summary	2014 Total Cost			
Cost Type	% of Total	Budget (\$)	Actual (\$)	% of Total
Admin/Planning	8%	318,305	17,263	0%
Promotion/Advertising	1%	37,438	30,492	1%
Customer Incentives	44%	1,704,433	1,688,344	47%
EM&V	3%	117,556	117,556	3%
Delivery & Vendors	44%	1,735,461	1,704,165	48%
Regulatory	0%	-	-	0%
	<b>100%</b>	<b>3,913,193</b>	<b>3,557,820</b>	<b>100%</b>



**Company Statistics**

Program Year	Revenue and Expenses					Energy				
	Total Revenue (a) (\$000's)	Budget		Actual		Total Annual Energy Sales (d) (MWh)	Plan		Evaluated	
		Portfolio Budget (b) (\$000's)	% of Revenue (%=b/a)	Portfolio Spending (c) (\$000's)	% of Revenue (%=b/a)		Net Annual Savings (e) (MWh)	% of Energy Sales (%=b/a)	Net Annual Savings (f) (MWh)	% of Energy Sales (%=b/a)
2014	\$ 1,160,439,195	\$ 3,913,195	0.3%	\$ 3,557,822	0.3%	23,938,938	13,876	0.1%	15,621	0.1%



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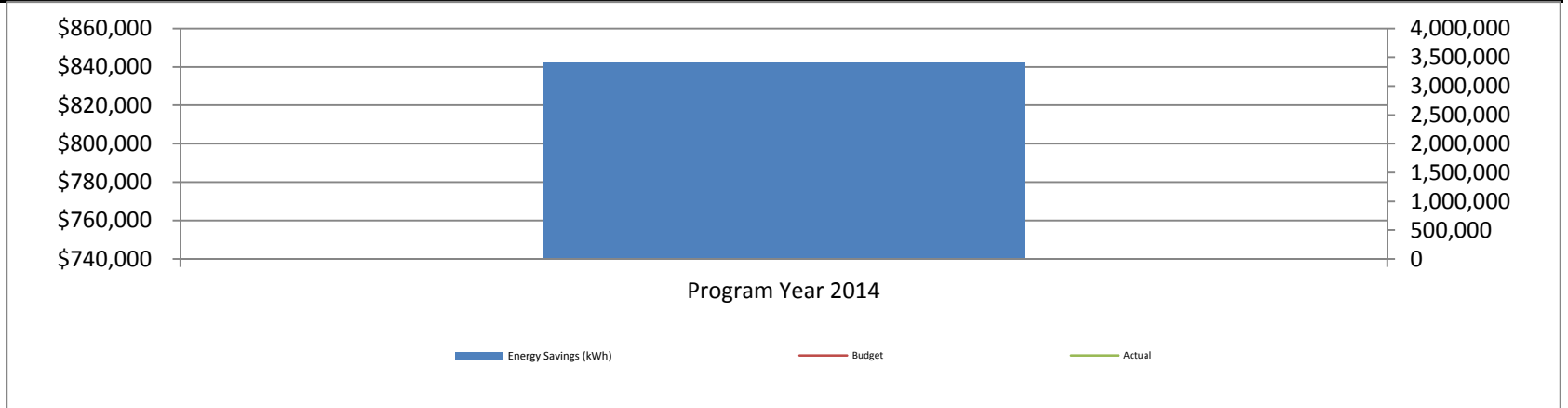
Table 5

Residential Solutions

Select program from dropdown menu to view details.

Residential Solutions

Program	Cost			Energy Savings (kWh)			Demand Savings (kW)			Participants		
	Budget	Actual	%	Plan	Evaluated	%	Plan	Evaluated	%	Plan	Actual	%
Program Year 2014	\$ 843,181	\$ 783,135	93%	2,454,704	3,398,741	138%	716	692	97%	1,093	1,514	139%



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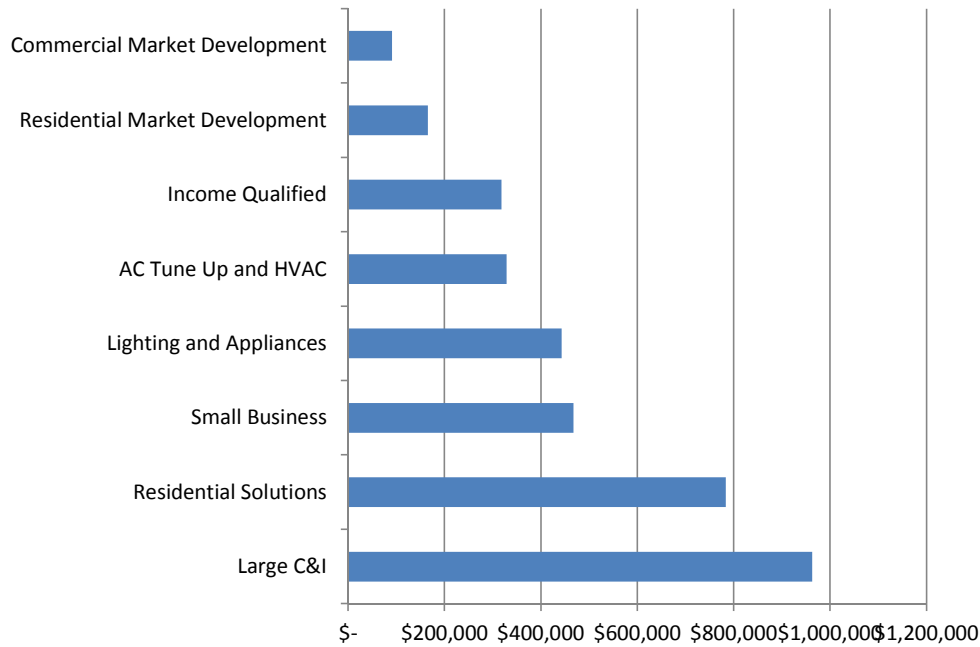
Report 1

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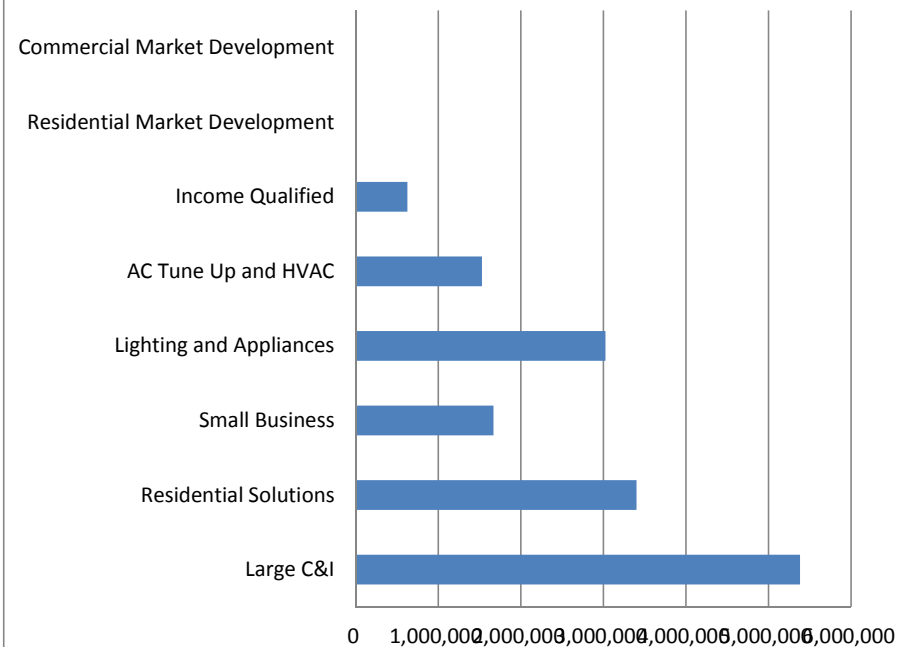
2014 Portfolio Results Detail

Program Name	Target Sector	Cost			Savings (kWh)			Participants			TRC Ratio
		Budget	Actual	%	Plan	Evaluated	%	Plan	Actual	%	
AC Tune Up and HVAC	Residential	\$ 348,397	\$ 328,340	94%	1,427,077	1,526,575	107%	1,017	1,088	107%	2.39
Income Qualified	Residential	\$ 352,033	\$ 318,037	90%	509,375	623,201	122%	96	117	122%	1.41
Lighting and Appliances	Residential	\$ 505,782	\$ 442,591	88%	2,704,330	3,023,121	112%	40,957	45,785	112%	1.36
Residential Market Development	Residential	\$ 181,493	\$ 164,994	91%	0	0	-	0	0	-	n/a
Residential Solutions	Residential	\$ 843,181	\$ 783,135	93%	2,454,704	3,398,741	138%	1,093	1,514	139%	1.84
Commercial Market Development	Commercial & Industrial	\$ 99,926	\$ 90,842	91%	0	0	-	0	0	-	n/a
Large C&I	Commercial & Industrial	\$ 1,067,463	\$ 962,804	90%	4,987,003	5,381,724	108%	31	33	106%	2.32
Small Business	Commercial & Industrial	\$ 514,918	\$ 467,078	91%	1,793,523	1,667,792	93%	67	62	93%	1.94
<b>TOTAL:</b>		<b>\$ 3,913,193</b>	<b>\$ 3,557,820</b>	<b>91%</b>	<b>13,876,012</b>	<b>15,621,154</b>	<b>113%</b>	<b>43,261</b>	<b>48,599</b>	<b>112%</b>	<b>1.93</b>

Cost



Savings (kWh)



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Report 2

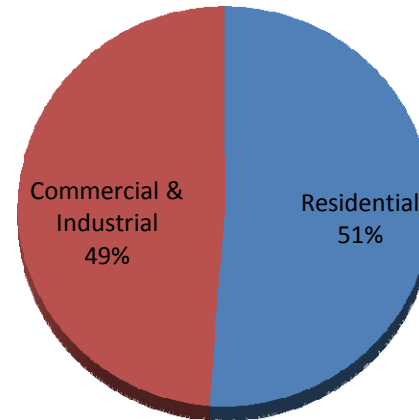
2014 Portfolio Results Detail by Target Sector

Target Sector	Cost			Savings (kWh)			Participants			TRC Ratio
	Budget	Actual	%	Plan	Evaluated	%	Plan	Actual	%	
Residential	\$ 2,230,886	\$ 2,037,096	91%	7,095,486	8,571,638	121%	43,163	48,504	112%	1.75
Commercial & Industrial	\$ 1,682,307	\$ 1,520,724	90%	6,780,526	7,049,516	104%	98	95	97%	2.21
<b>TOTAL</b>	<b>\$ 3,913,193</b>	<b>\$ 3,557,820</b>	<b>91%</b>	<b>13,876,012</b>	<b>15,621,154</b>	<b>113%</b>	<b>43,261</b>	<b>48,599</b>	<b>112%</b>	<b>1.93</b>

Select the Data to be Displayed in Chart

Savings (kWh)

Savings (kWh)



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## Report 4 - Data

Program Name	Target Sector	Program Type	Delivery Channel
Residential Solutions	Residential	Whole Home	Trade Ally
Lighting and Appliances	Residential	Consumer Product Rebate	Retail Outlets
Income Qualified	Residential	Whole Home	Trade Ally
AC Tune Up and HVAC	Residential	Prescriptive/Standard Offer	Trade Ally
Small Business	Commercial & Industrial	Prescriptive/Standard Offer	Trade Ally
Large C&I	Commercial & Industrial	Prescriptive/Standard Offer	Trade Ally
Residential Market Development	Residential	Other	Implementing Contractor
Commercial Market Development	Commercial & Industrial	Other	Implementing Contractor

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## 2014 Portfolio Data

Program Name	Expenses		Energy Savings (kWh)		Demand Savings (kW)		Participants	
	Budget	Actual	Plan	Evaluated	Plan	Evaluated	Plan	Actual
Residential Solutions	\$ 843,181	\$ 783,135	2,454,704	3,398,741	716	692	1,093	1,514
Lighting and Appliances	\$ 505,782	\$ 442,591	2,704,330	3,023,121	645	669	40,957	45,785
Income Qualified	\$ 352,033	\$ 318,037	509,375	623,201	99	96	96	117
AC Tune Up and HVAC	\$ 348,397	\$ 328,340	1,427,077	1,526,575	547	488	1,017	1,088
Small Business	\$ 514,918	\$ 467,078	1,793,523	1,667,792	316	283	67	62
Large C&I	\$ 1,067,463	\$ 962,804	4,987,003	5,381,724	952	762	31	33
Residential Market Development	\$ 181,493	\$ 164,994	0	0	0	0	0	0
Commercial Market Development	\$ 99,926	\$ 90,842	0	0	0	0	0	0

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Program Name	TRC					
	Lifetime Savings (MWh)	Total Cost	Total Benefits	Net Benefits	Ratio	Levelized cost
Residential Solutions	57,474	\$ 1,352	\$ 2,492	\$ 1,140	1.8	#REF!
Lighting and Appliances	28,032	\$ 724	\$ 985	\$ 260	1.4	#REF!
Income Qualified	10,615	\$ 309	\$ 435	\$ 126	1.4	#REF!
AC Tune Up and HVAC	16,342	\$ 429	\$ 1,025	\$ 596	2.4	#REF!
Small Business	21,400	\$ 491	\$ 950	\$ 459	1.9	#REF!
Large C&I	70,981	\$ 1,263	\$ 2,934	\$ 1,671	2.3	#REF!
Residential Market Development	0	\$ -	\$ -	\$ -	n/a	#REF!
Commercial Market Development	0	\$ -	\$ -	\$ -	n/a	#REF!



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## Historical Data (Next Annual Report)

### Annual Budget & Actual Cost

	2014	
	Budget	Actual
1. Residential Solutions	\$ 843,181	\$ 783,135
2. Lighting and Appliances	\$ 505,782	\$ 442,591
3. Income Qualified	\$ 352,033	\$ 318,037
4. AC Tune Up and HVAC	\$ 348,397	\$ 328,340
5. Small Business	\$ 514,918	\$ 467,078
6. Large C&I	\$ 1,067,463	\$ 962,804
7. Residential Market Development	\$ 181,493	\$ 164,994
8. Commercial Market Development Regulatory	\$ 99,926	\$ 90,842
	\$ -	\$ -
<b>Total</b>	<b>\$ 3,913,193</b>	<b>\$ 3,557,820</b>

### Annual Net Energy Savings (kWh)

	2014	
	Plan	Evaluated
1. Residential Solutions	2,454,704	3,398,741
2. Lighting and Appliances	2,704,330	3,023,121
3. Income Qualified	509,375	623,201
4. AC Tune Up and HVAC	1,427,077	1,526,575
5. Small Business	1,793,523	1,667,792
6. Large C&I	4,987,003	5,381,724
7. Residential Market Development	0	0
8. Commercial Market Development	0	0
<b>Total</b>	<b>13,876,012</b>	<b>15,621,154</b>

### Annual Net Demand Savings (kW)

	2014	
	Plan	Evaluated
1. Residential Solutions	716	692
2. Lighting and Appliances	645	669
3. Income Qualified	99	96
4. AC Tune Up and HVAC	547	488
5. Small Business	316	283
6. Large C&I	952	762
7. Residential Market Development	0	0
8. Commercial Market Development	0	0
<b>Total</b>	<b>3,275</b>	<b>2,990</b>

### Number of Participants

	2014	
	Plan	Evaluated
1. Residential Solutions	1,093	1,514
2. Lighting and Appliances	40,957	45,785
3. Income Qualified	96	117
4. AC Tune Up and HVAC	1,017	1,088
5. Small Business	67	62
6. Large C&I	31	33
7. Residential Market Development	0	0
8. Commercial Market Development	0	0
<b>Total</b>	<b>43,261</b>	<b>48,599</b>