STATE OF INDIANA

INDIANA UTILITY REGULATORY COMMISSION

IN THE MATTER OF THE COMMISSION'S INVESTIGATION, PURSUANT TO IC § 8-1-2-58, INTO THE EFFECTIVENESS OF DEMAND SIDE MANAGEMENT ("DSM") PROGRAMS CURRENTLY UTILIZED IN THE STATE OF INDIANA, INCLUDING AN EXAMINATION OF ISSUES THAT COULD IMPROVE THE EFFECTIVENESS OF DEMAND SIDE MANAGEMENT PROGRAMS IN THE STATE, INCLUDING CONSIDERATION OF THE ESTABLISHMENT OF AN INDEPENDENT DSM ADMINISTRATOR MODEL ON A STATE-WIDE BASIS.	)	**CAUSE NO. 42693 S-1**
RESPONDENTS: ALL JURISDICTIONAL UTILITIES IN THE STATE OF INDIANA	)	

SUBMISSION OF DUKE ENERGY INDIANA, INC.'S SUPPLEMENTAL RESPONSE TO THE COMMISSION'S APRIL 22, 2014, DOCKET ENTRY

Duke Energy Indiana, Inc. ("Duke Energy Indiana"), by counsel, hereby respectfully submits its response to the Commission's Docket Entry dated April 22, 2014, in the above-captioned Cause. The Docket Entry inquiry and Duke Energy Indiana's response is as follows:

Request:

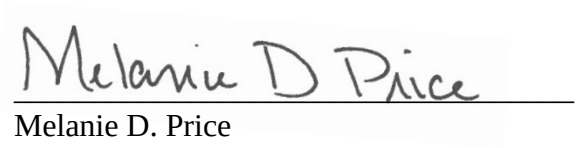
> **Please provide copies of all Evaluation, Measurement and Verification ("EM&V") reports prepared for or by a Respondent for its Core Plus Demand Side Management ("Core Plus DSM") programs since 2010. If copies of an EM&V report have previously been filed with the Commission, please provide the date it was filed with the Commission and the Cause No. under which it was filed in lieu of filing another copy.**

Response:

> Attached please find Duke Energy Indiana's Process and Impact Evaluation of the Non-Residential Smart $aver® Prescriptive Program in Indiana: Core Plus Lighting Measures for January 2012 through November 2013. This EM&V Report has been reviewed by Duke Energy Indiana's Oversight Review Board.

Respectfully submitted,

DUKE ENERGY INDIANA, INC.



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CERTIFICATE OF SERVICE

I hereby certify that I have this 21st day of July, 2015, served a copy of the foregoing Submission of Duke Energy Indiana's Supplemental Response to the Commission's April 22, 2014 Docket Entry electronically to the following:

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Final Redacted Report

Process and Impact Evaluation of the Non-Residential Smart $aver® Prescriptive Program in Indiana: Core Plus Lighting Measures

Prepared for
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November 6, 2014

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TABLE OF CONTENTS

Executive Summary

Significant Impact Evaluation Findings

- Energy and coincident peak demand savings realization rates for kWh and coincident peak kW for LED lighting were 1.06 (energy) and 1.14 (demand) respectively, indicating the program planning estimates were within 6% of the verified energy savings and 14% of the verified demand savings.
- Measurement and verification (M&V) activities conducted for this study produced an estimate of 5,195 lighting hours compared to a program planning estimate of 4,144 hours.
- M&V activities estimated a coincidence factor (CF) of 0.94, compared to a program planning estimate of 0.77.
- M&V estimates of efficient fixture watts were an average of about 16% higher than program planning estimates. Baseline fixture watts were within 1% on average of program planning estimates.

Significant Process Evaluation Findings

Key Findings from the Management Interviews

- Duke Energy has invested in developing staff and long-term contractors to implement Smart $aver programs, because of a need to maintain customer satisfaction levels.
- The trade ally network continues to be a primary channel through which Smart $aver is marketed. Lighting trade allies continue to see the need for Smart $aver, in part due to concern that they are able to offer incentives on the key lighting measures in the future.
- Duke Energy has begun marketing Smart $aver directly to the small-to-medium customer segment, a segment with high energy-saving potential but comparatively low awareness of Smart $aver's benefits.
- Duke Energy has begun offering an online store, to bring in participants for whom paper applications may not be appropriate.
- Duke Energy has added a new technology category to Smart $aver, information technology, allowing Duke Energy to reach the trade allies and customers in that industry.
- Duke Energy's market strategy team is collaborating with the Smart $aver outreach team so that trade allies are more responsive to the different stages of a customer's decision-making process. This strategy also allows Duke Energy to take a long view that supports positioning Duke Energy as a long term partner to the trade allies and the customers.
- Smart $aver Indiana has faced challenges due to the need to coordinate with a statewide energy efficiency program, and may face continued challenges due to market effects that may be lasting.

Key Findings from the Participant Surveys

- All of the Non-Residential Smart $aver Prescriptive participants surveyed received rebate incentives for lighting measures (100%). Overall, the average rebate received by

participants in this survey was $1,824 per organization (including all locations), with a median rebate of $537.

- Thirty-five percent (35.0% or 14 out of 40) of surveyed Prescriptive participants have previously submitted applications to the Prescriptive program, and 17.5% (7 out of 40) have previously submitted applications to the Smart $aver Custom program.
- The most frequent channels for learning about the Smart $aver program are through trade allies (40.0% or 16 out of 40), the information provided by the program (12.5% or 5 out of 40) and from Duke Energy employees (12.5% or 5 out of 40).
- Overall, nearly one in four surveyed Smart $aver participants (22.5% or 9 out of 40) reported problems receiving their rebates. All nine participants with problems reported that their issues were related to the application process (having to redo applications, finding information for applications, etc.)
- The most common reason for purchasing the energy efficient equipment was to reduce energy costs, mentioned as a reason for participation by 82.5% (33 out of 40). Another 30.0% (12 out of 40) mentioned the incentive rebate, and 22.5% (9 out of 40) apiece mentioned recommendations of trade allies and the desire to have better lighting.
- Every participant in this survey replaced an existing unit (100% of 40). Twenty percent (20.0% or 8 out of 40) of the replaced units were less than ten years old, while 27.5% (11 out of 40) were more than twenty years old. Only 27.5% (11 out of 40) of replaced units are described as being in "good" working condition, while 22.5% (9 out of 40) are described as being in "poor" working condition or not working at all.
- Most surveyed participants (62.5% or 25 out of 40) have installed more high efficiency equipment since participating in Smart $aver: most frequently mentioned are further lighting upgrades (by 84.0% or 21 out of 25 who made additional high efficiency installations) and HVAC system upgrades (by 24.0% or 6 out of 25). When asked to rate the influence of their recent Smart $aver Prescriptive participation on the installation of additional high-efficiency measures, the mean influence rating is 5.96 on a ten-point scale where “10” means most influential.
- Overall satisfaction with the Smart $aver program is high: among all participants surveyed, 75.0% (30 out of 40) rated their satisfaction an “8” or higher on a ten-point scale where “10” is most satisfied. The mean satisfaction rating with the program overall is 8.33 and the median satisfaction rating is 9.0.
- The specific aspect of the program that participants are most satisfied with is interactions and communications with Duke Energy staff (mean rating of 8.37 on a 10-point scale), and the aspect they are least satisfied with is the size of incentive payments (mean rating of 7.61).
- When asked to name their favorite thing about participating in the program, a majority (65.0% or 26 out of 40) said it was receiving an incentive rebate, followed by 15.0% (6 out of 40) saying their favorite part of the program is that they now have better lighting. When asked to name their least favorite thing about the program, 45.0% (18 out of 40) could not name anything, while the most-mentioned complaints involve the application process (mentioned by 17.5% or 7 out of 40).
- Participants surveyed are also satisfied with Duke Energy overall: the mean satisfaction rating is 8.36 on a ten-point scale where “10” means most satisfied, and the median satisfaction rating is 9.0.

Half of surveyed Smart $aver Prescriptive participants (50.0% or 20 out of 40) also participated in Energizing Indiana.

Recommendations

Based on the results of the impact evaluation, the TecMarket Works team has the following recommendations:

1. Program estimate of lighting hours should be updated from 4,144 to 5,195 hours per year.
2. The measured coincidence factor of 0.94 was higher than the program planning estimate of 0.77. Consider revising the coincidence factor assumption to 0.94 for future program planning activities.
3. The waste heat factor should be revised from 0.097 to -0.018 to account for higher penetration of electric heating systems.
4. Efficient fixture watts should be increased from 12W to 14W to account for variation in installed fixture watts and step down transformer requirements.

Based on the results of the process evaluation, the TecMarket Works team has the following recommendations:

FINDING: Trade allies seem perplexed at some measures and their incentives on the Smart $aver Prescriptive list.

RECOMMENDATION: If not already being done, Duke Energy should consider adding a question or two to their FAQs online about how they determine incentive levels and measures, addressing the most common queries they hear from trade allies. This may help decrease the number of questions received by the trade ally representatives on measure criteria beyond Duke Energy's control. This may also help decrease any perception that there is an arbitrary nature to the Prescriptive measure list.

FINDING: Trade allies report they do not use the information on the website nor refer customers to the website. Rather, they pitch a project to a prospective customer using their own materials. Participants do not consider program technical information or assistance to have had much influence on their technology selection (they rate the influence of the program information and technical assistance on equipment selection at only 3.87 on a 10-point scale). Together these findings suggest that there is an opportunity for the Smart $aver program to help educate customers.

RECOMMENDATION: Duke Energy should consider what information they would like trade allies to take to their customers, and if warranted, make this information available on the website. This will allow Duke Energy to play a more central role in helping move customers move toward an energy-efficient equipment decision.

FINDING: The online store is a promising channel through which to meet the needs of the small-to-medium business customers who are unlikely to submit paper applications, but there is some concern by Duke Energy that trade allies may come to perceive the online store as competing for their target audience.

RECOMMENDATION: If Duke Energy intends to include customer testimonials on their website, they should consider ways to include testimonials from the smaller customers. This will allow Duke Energy to show that the online store is not intended to compete with the trade allies. Smaller customers may also be more willing to allow commercial endorsements, something larger customers (such as universities) may not.

FINDING: Duke Energy's strategy for outreach to the different market segments are designed to meet the customer's different needs along their decision-making process, a process that may require time and multiple "touches".

RECOMMENDATION: Duke Energy should consider ways to develop metrics that track a customer's movement along their path to decision-making that take into account the fact that other external organizations also "touch" the customer. By developing a marketing strategy that recognizes the influence of external energy efficiency messages, and explicitly incorporating those influences as part of Duke Energy's own marketing strategy, Duke Energy can help regulators and evaluators develop more realistic expectations about the influence of any single program upon customers' non-linear decision-making processes.

FINDING: Customers may not be distinguishing between incentives from multiple energy efficiency programs because the turnkey services offered by lighting trade allies buffer customers from the application process.

RECOMMENDATION: Duke Energy should consider ways to protect its Smart $aver brand from dilution that may occur if incentives are presented to customers without making clear to them that they come from Duke Energy. Emphasizing the durability of the Smart $aver program, and of Duke Energy as a long-term partner, may help buffer future Smart $aver Indiana participation from any lasting effects of Energizing Indiana's short term incentive increase.

FINDING: Participants rated the ease of applying for the incentive a 7.52 (with 10 the highest possible rating), suggesting that there was room for improvement. In the past, the Smart $aver pages in the Duke Energy website did include video demos on how to fill out the application and an example of a completed application. These types of information no longer appear on the website, and a link to "get tips on completing your application" does not lead to any tips.

RECOMMENDATION: Duke Energy should consider including on their website more assistance on filling out applications, such as video demonstrations and an example of a complete application. Duke Energy might choose to just focus on one or two types of the most popular technologies with these examples, such as lighting and HVAC. This will allow Duke Energy customers to provide more accurate information and thus decrease the amount of application processing work for customers as well as Duke Energy.

Introduction and Purpose of Study

This report presents the results of an impact and process evaluation of the Non-Residential Smart $aver® (Core Plus) Prescriptive Program in Indiana. The focus of this impact study is on LED lighting fixtures, while the process evaluation and NTG analysis covers lighting measures in the overall program portfolio not addressed by the Statewide Energizing Indiana (Core) Program evaluation.

The impact evaluation was conducted by BuildingMetrics and Architectural Energy Corporation and examined LED fixtures, which were the dominant measure adopted by Smart $aver program participants during the evaluation period.

The process evaluation was conducted by TecMarket Works with Carol Yin of Yinsight as a subcontractor. All surveys were conducted by TecMarket Works' staff.

Summary Overview

Summary of the Evaluation

This report presents the results of an impact evaluation of LED lighting offered in Duke Energy's Indiana's Smart $aver Program (Core Plus Measures). The C&I Smart $aver Prescriptive Program provides incentives to customers to upgrade to energy efficient lighting and commercial equipment. The study focuses on participants from January 2012 through November 2013.

The impact evaluation employed a tracking system review, onsite surveys, and short term Measurement and Verification (M&V) of selected lighting fixtures using portable data loggers.

For the process evaluation, the evaluation team conducted in-depth interviews with four Duke Energy managers and program staff members at different levels of responsibility for the program. The evaluation team also conducted eight 20-minute interviews with trade allies who participated in the 2013 Smart $aver Prescriptive Indiana program. Finally, TecMarket Works completed telephone surveys with 40 Indiana participants who received incentive rebates from this program for the installation of lighting measures.

Evaluation Objectives

The goal of the impact analysis was to estimate program level energy (kWh) and demand (kW) savings. Secondary objectives included estimates of unit energy savings for sampled measures, and overall energy and demand savings realization rates.

The process evaluation of the C&I Smart $aver Prescriptive program has several purposes. First, this process evaluation is intended to help identify areas where the program may be improved, drawing upon the insights of Duke Energy staff across different divisions and upon the insights of a sample of participating customers. Second, this report will document program operations for future reference, including ways in which the program has addressed and overcome past program challenges.

Researchable Issues

Researchable issues for the impact evaluation include:

- Verification of measures as recorded in the program tracking database with field observations.
- Verification of efficient lamp watts with field measurements
- Estimation of average operating hours for LED lighting

The participant survey addressed several research issues that were identified collaboratively by Duke Energy and the TecMarket Works team:

- How did customers hear about the Smart $aver Prescriptive Program?
- What can Duke Energy do to increase participation from trade allies?

Program Description

The C&I Smart $aver® Prescriptive program influences business customer decisions for saving energy by providing incentives to install qualifying high-efficiency measures such as lighting, HVAC, and motors. Duke Energy's commercial and industrial customers fund this program by paying an energy efficiency rider based upon their kWh usage. The Statewide (Core) program ("Energizing Indiana") provides other types of lighting measures to Duke Energy's commercial and industrial customers. This evaluation study looks at the Prescriptive Smart $aver (Core Plus) program only.

In the Smart $aver Prescriptive program, customers may install selected energy efficient measures and then send in an application for rebates. Energy efficiency measures that are not part of the Smart $aver or Energizing Indiana programs may still earn a rebate through the C&I Smart $aver Custom program. The eligibility of the custom measures must be approved by Duke Energy through a separate application process prior to installation.

The Smart $aver Prescriptive program is designed to motivate Duke Energy's commercial and industrial customers to install high-efficiency equipment that they otherwise might not have chosen, by offering incentives up to 50% of the project cost on selected equipment. Customers must apply for the incentive within 90 days of installing the equipment, and provide invoices with model numbers as proof. The Smart $aver Prescriptive program is offered in conjunction with the Smart $aver Custom program, which is being evaluated in a separate study. The measures offered through the prescriptive program have pre-calculated ex ante energy savings, while the measures eligible for the custom program require project-specific energy savings calculations to be submitted with each application. The combination of both programs allows Duke Energy customers a flexible range of options to meet their individual needs for energy efficient equipment.

The Smart $aver programs achieve their objectives through a multi-pronged approach. First, Duke Energy's Large Account Management Team provides a channel by which Duke Energy is able to communicate to their large customers any programs that may help with individual customers' current needs. Second, for other customers, the Smart $aver program is presented to the market through "trade allies", the distributors and contractors offering high efficiency equipment. This marketing approach through nurturing a network of trade allies (TAs) has been found successful in past evaluations. Third, Duke Energy conducts outreach directly to small and medium business (SMB) customers. This SMB outreach channel was first implemented in 2013, in coordination with Duke Energy's market segmentation strategy team. Fourth, Duke Energy offers an online store where customers can purchase a selection of equipment with the incentive factored into the product price.

Duke Energy offers the Smart $aver Prescriptive program across all five states in their service territory, and the program is managed by two product managers. Though nominally assigned to either the Midwest states or to the Carolinas, these two product managers report that they run Smart $aver as one program, with shared decision-making. The only differences between the states stem from the different measures on the Prescriptive incentive list.

Program Background and Recent Changes. Duke Energy has offered a non-residential prescriptive rebate program in the Midwest since 2000, reports a Duke Energy manager, with Smart $aver Indiana starting in 2009. As part of a mature program offered across Duke Energy's service territories in five states, the biggest program changes from year to year had been the addition of new technologies to the list of qualifying Prescriptive measures (though no new measures were added in 2013).

However, in the past several years, there have been several major changes that have affected program operations, as reported by program staff, trade allies, and participants.

- Smart $aver Prescriptive added a new category of measures to its list of qualifying measures for 2014.

- Smart $aver has started working with a group within Duke Energy, the Market Strategy Team.

- Duke Energy was also required to re-file the Smart $aver program, yielding some of its measures to a new statewide program, Energizing Indiana, that was launched in 2012 (and will be concluded at the end of 2014). When Energizing Indiana was launched, Duke Energy issued a new portfolio in Indiana, tailored to complement Energizing Indiana's offerings[1].

Each of these will be discussed in more detail in this report.

[1] Prior to the re-filing, Smart $aver was not available to Duke Energy Indiana's largest customers (over 500 MW).

Methodology

Overview of the Evaluation Approach

This process and impact evaluation has multiple components as described below.

Study Methodology

Impact Evaluation

The impact methodology consisted of an engineering analysis following the International Performance Measurement and Verification Protocol (IPMVP). Site surveys and metering equipment were installed to gather data according to an M&V plan developed for each measure. Energy and demand savings estimates were developed for each sampled project.

Management Interviews

TecMarket Works and Yinsight developed the interview protocol for the Smart $aver Program management that was implemented in April of 2014. The full interview guide can be found in *Appendix B: Management Interview Instrument.*

In-depth interviews were conducted with:

- Three Smart $aver product and services managers
- Manager of the market strategy team
- The Midwest trade ally outreach manager.

Eight lighting industry trade allies from Indiana were also interviewed. (Trade allies were randomly selected from the listing of trade allies on the Duke Energy website.) These trade allies held company positions that ranged from President of the company, to office manager, to one electrician, with anywhere from three to 28 years of experience in the field.

Participant Surveys

TecMarket Works and Yinsight developed the customer survey for the Smart $aver Program participants. The survey can be found in *Appendix D: Participant Survey Instrument.*

The sample list, selected from the population list of all Smart $aver (Core Plus) lighting measure participants provided by Duke Energy, consisted of 243 installation records in Indiana, representing 116 participating organizations in total. An additional 10 participating organizations representing 15 installation records[2] were added to the call list from the Impact evaluation (described above), yielding a total of 258 installation records for 126 organizations. TecMarket Works attempted to contact all 126 organizations (100%), and completed interviews with 40 organizations for a total response rate of 31.7% (40 out of 126). All 40 surveyed respondents received incentives for Smart $aver (Core Plus) lighting installations.

[2] TecMarket Works could not find current contact information for one participant from the Impact Evaluation (a small retailer with one rebated installation). Thus the Impact Evaluation section of this report includes 11 organizations with 16 installation records, but only 10 of these organizations with 15 installation records were on the call list for the Participant Survey.

Data collection methods, sample sizes, and sampling methodology

Impact Evaluation

The impact evaluation employed a tracking system review, onsite surveys, and short term Measurement and Verification (M&V) of selected lighting fixtures using portable data loggers.

For the lighting measures, the sample design specified a minimum sample of 16 LED lighting projects. A target sample of 16 projects was selected for the study. The sampling plan incorporated a stratified random sample approach, where the projects were stratified according to project size and sampled randomly within each stratum.

Each sampled site was recruited for the M&V study by TecMarket Works contractors.

Participant Surveys

The sample list, selected from the population list of all Smart $aver (Core Plus) lighting measure participants provided by Duke Energy, for the process evaluation consisted of 116 organizations in Indiana, and an additional 10 organizations were added from the Impact evaluation. Out of these 126 organizations in Indiana, all 126 were called (100%), and of those, 40 completed the survey for a total response rate of 31.7% (40 out of 126). Three of the 40 interviews (7.5%) were completed with customers from the Impact evaluation, which is similar to the representation of this group on the calling list (7.9% or 10 out of 126). All respondent organizations received incentives for Smart $aver (Core Plus) lighting measures.

Number of completes and sample disposition for each data collection effort

Impact Evaluation

The evaluation team was successful in completing all sites in the sampled 16 sites. The final sample disposition is shown below:

Table 1. Final Sample Disposition

Group	Minimum Required Sample Size	Target Sample Size	Achieved Sample Size
LED Lighting	16	16	16

Participant Surveys

The final sample list provided by Duke Energy consisted of 126 organizations in Indiana. Out of these 126 organizations, all 126 were called (100%), and of those, 40 completed the survey for a total response rate of 31.7% (40 out of 126). All respondent organizations received incentives for lighting measures.

Expected and achieved precision

Impact Evaluation

A sample meeting +/- 10% relative precision at 90% confidence at the program level was selected. Due to lower than expected variability in the savings in the M&V sample relative to the program planning values, the achieved relative precision was +/- 8.3%. Planned and sample coefficient of variance are shown below.

Table 2. Planned and Sample Coefficients of Variance

Project Type	Target cv	Actual Sample cv
LED Lighting	0.5	0.44

Participant Surveys

The survey sample methodology had an expected precision of 90% +/- 10.6% and an achieved precision of 90% +/-10.6%.

Description of baseline assumptions, methods and data sources

For the LED lighting measures, the baseline was the existing lighting system prior to the retrofit. Due to the nature of prescriptive rebate programs, it was not possible to observe the baseline lighting system. The baseline lighting system description was obtained by interviewing the site contacts at each sampled site.

Description of measures and selection of methods by measure(s) or market(s)

The focus of this impact study is on LED lighting fixtures. All projects were evaluated in compliance with the International Performance Measurement and Verification Protocols (IPMVP) Option A – Partially measured, retrofit isolation protocol.

Use of TRM values and explanation if TRM values not used

Engineering algorithms from the Indiana TRM were used to calculate lighting savings. The study conducted primary data collection, so deemed parameters from the TRM were substituted by primary data as available. HVAC interactive effects multipliers from the Indiana TRM were applied based on the observed building type.

Threats to validity, sources of bias and how those were addressed

Impact Evaluation

There is the possibility for extrapolation error going from short term measurement to annualized savings. To address this, industry standard protocols were followed in the selection of the duration of the monitoring period in order to capture sufficient workday and weekend operation and also to avoid anomalous operation periods.

Process Evaluation

No causal relationships were being investigated, so threats to validity are not a concern. Participants may have exhibited the social desirability bias when answering a question relating to the customer's main motive for participating in the Smart $aver program, and when answering

questions about satisfaction with the Smart $aver program. To counter this bias, these questions used neutral language wherever possible.

Impact Evaluation

The impact evaluation employed a tracking system review, an engineering review of the lighting measure savings calculations, and field measurement and verification (M&V) of selected lighting measures.

Tracking Data Analysis

The tracking system review revealed that a few measures were responsible for the majority of the savings. Tracking data for the C&I Smart Saver Prescriptive program were obtained from Duke Energy from January 2012 through November 2013 show the following breakdown of energy savings by measure.

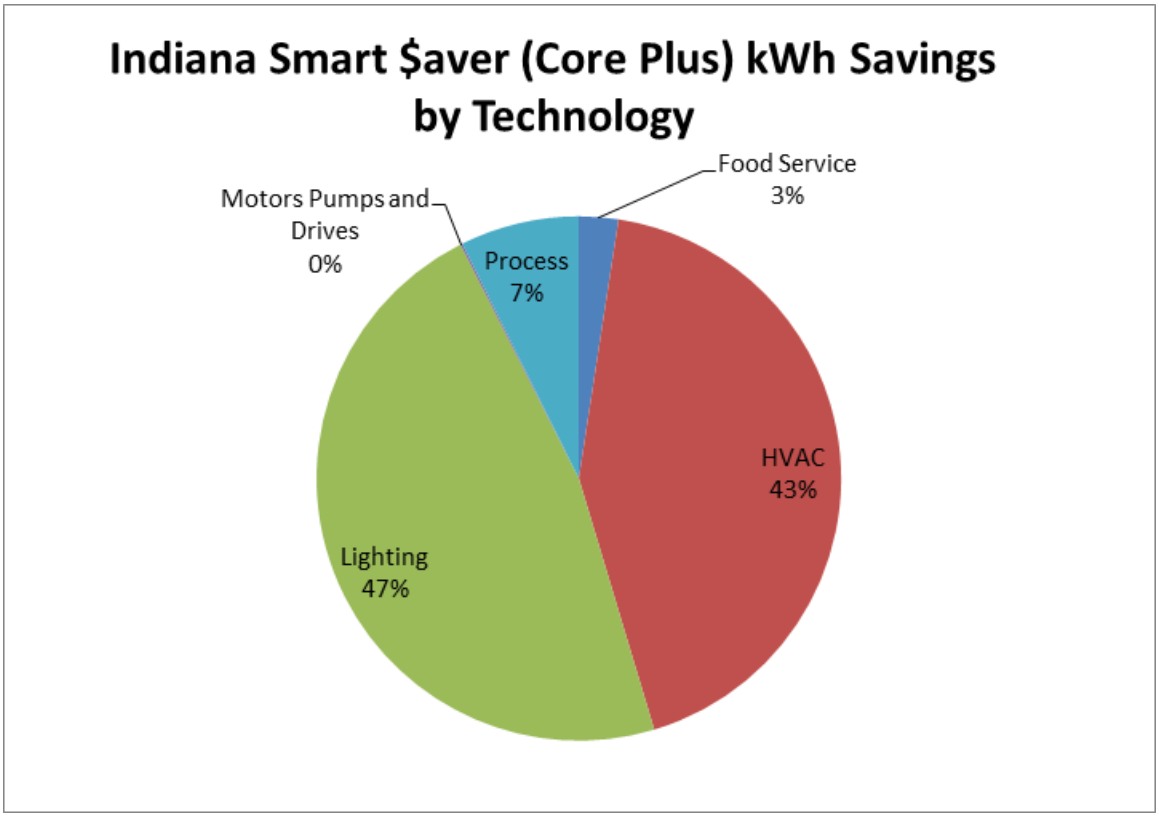


Figure 1. Measure Contribution to Indiana Smart $aver (Core Plus) Program Savings

Note that lighting measures made up 47% of the total reported savings. Lighting was dominated by LED fixtures, making up 49% of the total lighting savings.

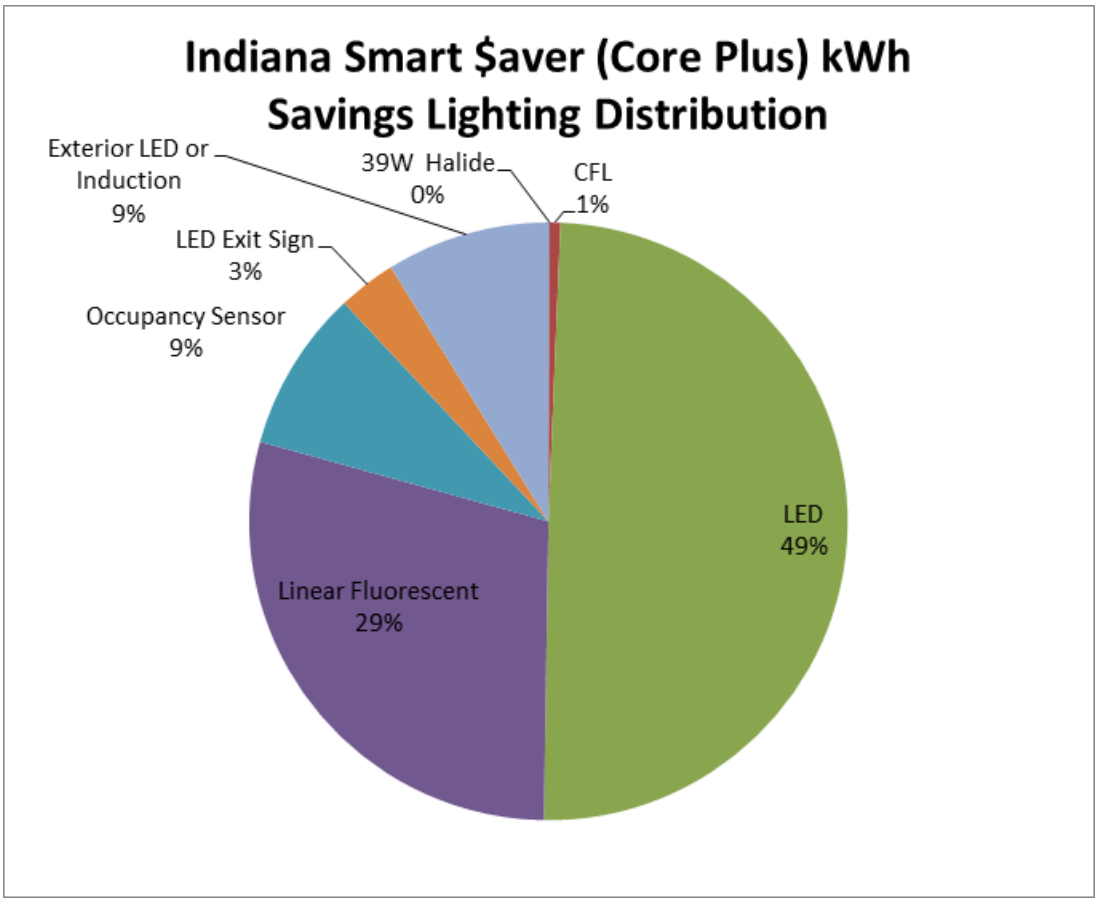


Figure 2. Smart $aver (Core Plus) Lighting Measure Savings Distribution

The next largest measure group was HVAC. This group is dominated by chiller tune-ups, comprising over 44% of the HVAC energy savings.

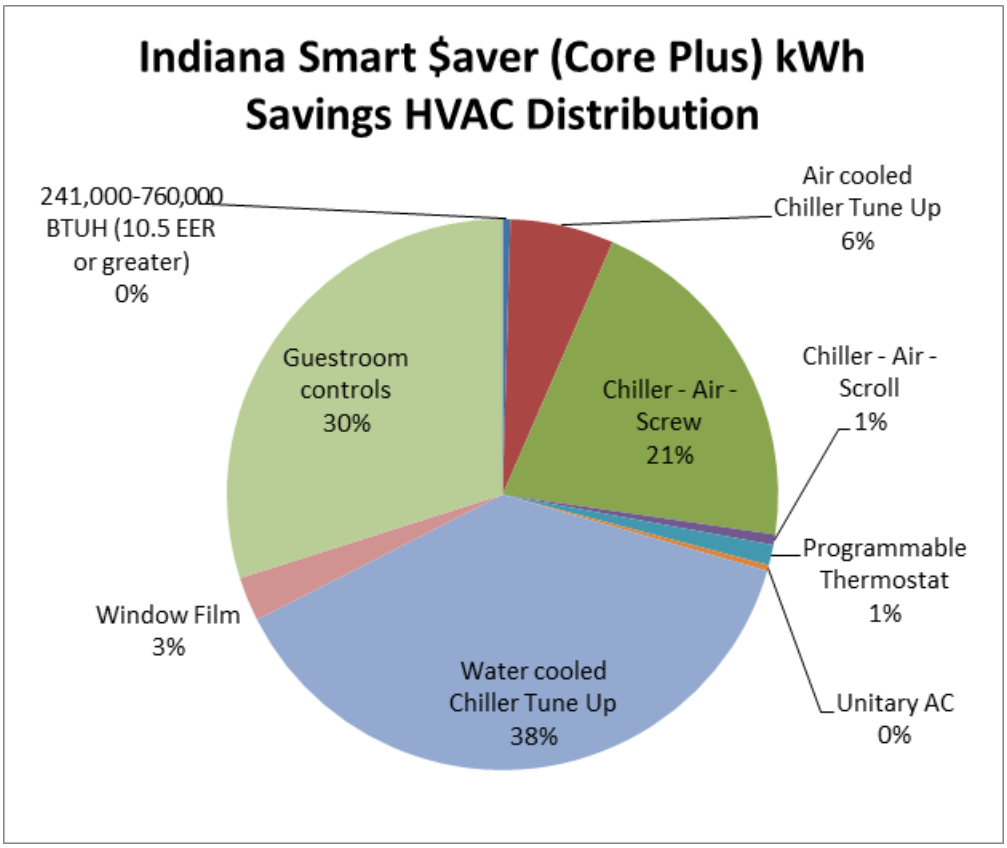


Figure 3. Core Plus HVAC Measure Savings Distribution

Process measures were almost entirely VFD controlled air compressors (98%). Food Service measures included refrigerated casework measures (anti-sweat heater controls and EC fan motors), beverage cooler and vending machine controls, and cooking equipment (combination ovens).

The Energizing Indiana Non-Residential Prescriptive Core program evaluation report dated June 2013[3] included only linear fluorescent measures. For the impact study on the Smart $aver (Core Plus) Prescriptive program, TecMarket Works focused on LED lighting measures based on the relative contribution of the various measures, and that the top measures (linear fluorescents) were already studied in the Statewide Energizing Indiana Core program evaluation.

The evaluation team conducted field M&V on a sample of LED lighting participants to estimate savings for this measure. The field M&V for LED lighting consisted of a site visit, verification of the quantity and type of incented lighting fixtures, verification of fixture wattage assumptions against manufacturers' catalog data, interviews with customers to identify the type and quantity of the replaced fixtures, and short-term monitoring of lighting system operation using light loggers to measure operating hours. The field M&V activities were conducted by TecMarket Works' subcontractors and the results were forwarded to Architectural Energy Corporation for

[3] 2012 Energizing Indiana Programs EM&V Report, Prepared for Indiana Demand Side Management Coordination Committee, TecMarket Works, June 20, 2013.

analysis. The field M&V activities were compliant with the International Performance Measurement and Verification Protocols (IPMVP) Option A – Partially measured, retrofit isolation protocol.

Program participation records covering the period from January 2012 through November 2013 were obtained from Duke Energy. The data, delivered as an Excel spreadsheet flat file, contained customer name and address, installing vendor contact information, measure descriptions, unit energy savings estimates, number of measures installed, lighting operating hours, installed fixture watts, VFD horsepower, rebate amounts, etc. These data were examined to identify which of the measures promoted by the program were adopted by program participants and in what numbers, how the energy savings in the tracking system compared to the program savings estimates, and the availability of any customer description data that could be used in the analysis.

Sample Design

The sampling plan incorporates a stratified random sample approach, where the projects are stratified according to project size, and sampled randomly within each stratum. The total sample size is calculated from the following equation[4]:

$$n = \frac{\left(\sum_k \left(kWh_k \times cv_k\right)\right)^2}{\left(\frac{P \times kWh}{Z}\right)^2 + \sum_k \frac{\left(kWh_k \times cv_k\right)^2}{N_k}}$$

where:

n = total sample size required
kWh_k = estimated savings from group k
cv_k = assumed coefficient of variation for group k
P = desired precision
kWh = total kWh savings
Z = z statistic (1.645 at 90% confidence)
N_k = population size of group k

Samples are allocated to each group based on the following equation:

$$n_k = n \times \frac{kWh_k \times cv_k}{\sum_k \left(kWh_k \times cv_k\right)}$$

[4] Bonneville Power Administration, *Sampling Reference Guide. Research Supporting an Update of BPA's Measurement and Verification Protocols*, August, 2010.

A sample meeting +/- 10% relative precision at 90% confidence at the program level was selected. A coefficient of variation of 0.5 was assumed for the lighting measure population. The program participation (at the time of sample selection) and the resulting sample sizes are summarized in Table 3.

Table 3. Sample Selection for Indiana LED Lighting Measures

Stratum	kWh	cv	Total Applications	Minimum Required Sample Size	Target Sample Size
LED1	891,544	0.5	3	3	3
LED2	1,023,051	0.5	13	7	7
LED3	974,167	0.5	76	6	6
				16	16

A sample of 16 lighting measures was selected for the study. The allocation of the projects across the different size strata is shown in Table 3. Sites were randomly selected within each stratum. Each sampled site was recruited for the M&V study by TecMarket Works contractors. Backup sites were used when it was not possible to successfully recruit customers in the primary sample.

The achieved sample met the minimum required sample size, as shown in Table 4 below.

Table 4. Status of LED Lighting Sample

Group	Minimum Required Sample Size (Sites)	Target Sample Size (Sites)	Completed (Sites)	Notes
LED Lighting	16	16	16	2 Backup sites used

A summary of the characteristics of the 16 customers that participated in the LED Lighting M&V study is shown in Table 5.

Table 5. LED Lighting M&V Study Participants

Site	Customer Name	Building Type	Total fixtures rebated	Installed Fixture(s)	Baseline Fixture(s)
LED-1	[redacted]	Big Box Retail	566	10W PAR 38 LED Lamp	50W Halogen
			10	15W PAR 38 LED Lamp	50W Halogen
LED-2	[redacted]	Big Box Retail	1551	10W PAR 38 LED Lamp	50W Halogen
LED-3	[redacted]	Big Box Retail	780	10W PAR 38 LED Lamp	50W Halogen
			20	17W PAR 38 LED Lamp	90W Halogen
			102	12W PAR 38 LED Lamp	50W Halogen

Site	Customer Name	Building Type	Total fixtures rebated	Installed Fixture(s)	Baseline Fixture(s)
			18	15W PAR 30 LED Lamp	50W Halogen
LED-4	[redacted]	Big Box Retail	1410	10W PAR 38 LED Lamp	50W Halogen
			15	17W PAR 38 LED Lamp	90W Halogen
			74	12W PAR 38 LED Lamp	65W Halogen
			110	15W PAR 30 LED Lamp	50W Halogen
			8	8W PAR 20 LED Lamp	50W Halogen
LED-5	[redacted]	Big Box Retail	414	12W PAR 38 LED Lamp	75W Halogen
LED-6	[redacted]	Big Box Retail	480	12W PAR 38 LED Lamp	75W Halogen
LED-7	[redacted]	Big Box Retail	481	12W PAR 38 LED Lamp	80W Halogen
LED-8	[redacted]	Small Office	10	12W LED Downlight	60W incandescent
			6	10.5 W LED Downlight	40W incandescent
LED-9	[redacted]	Full Service Resturant	8	16.3 W LED Lamp	60W incandescent
			13	20.3W LED Lamp	75W Incandescent
			9	9W LED Lamp	55W incandescent
LED-10	[redacted]	Small Retail	72	19.5W LED Lamp	79W Halogen
LED-11	[redacted]	Hotel	8	16.3W LED Lamp	60W incandescent
			27	18W LED Lamp	90W incandescent
			12	9W LED Lamp	55W incandescent
LED-12	[redacted]	Small Office	108	7W LED Lamp	50W Incandescent
LED-13	[redacted]	Big Box Retail	750	15W LED Lamp	50W Incandescent
LED-14	[redacted]	Small Retail	163	15W LED Lamp	50W Incandescent
LED-15	[redacted]	College/ University	5	20W LED Lamp	90W Halogen
LED-16	[redacted]	College/ University	190	10W LED Lamp	60W incandescent
			14	17W LED Lamp	75W Incandescent
			60	18W PAR 38 LED Lamp	90W Halogen

Gross Savings Analysis – LED Lighting

Fixture watts reported in the manufacturer's cut sheets were compared to spot-watt measurements conducted during logger installation. The manufacturers' data were used in all but 4 sites, since these values were within the measurement error associated with the spot-watt measurements. For these four sites, the spot watt measurements identified the presence of step-down transformers added to the lighting circuits, which increased the lamp input power from 21% - 135%, as shown below:

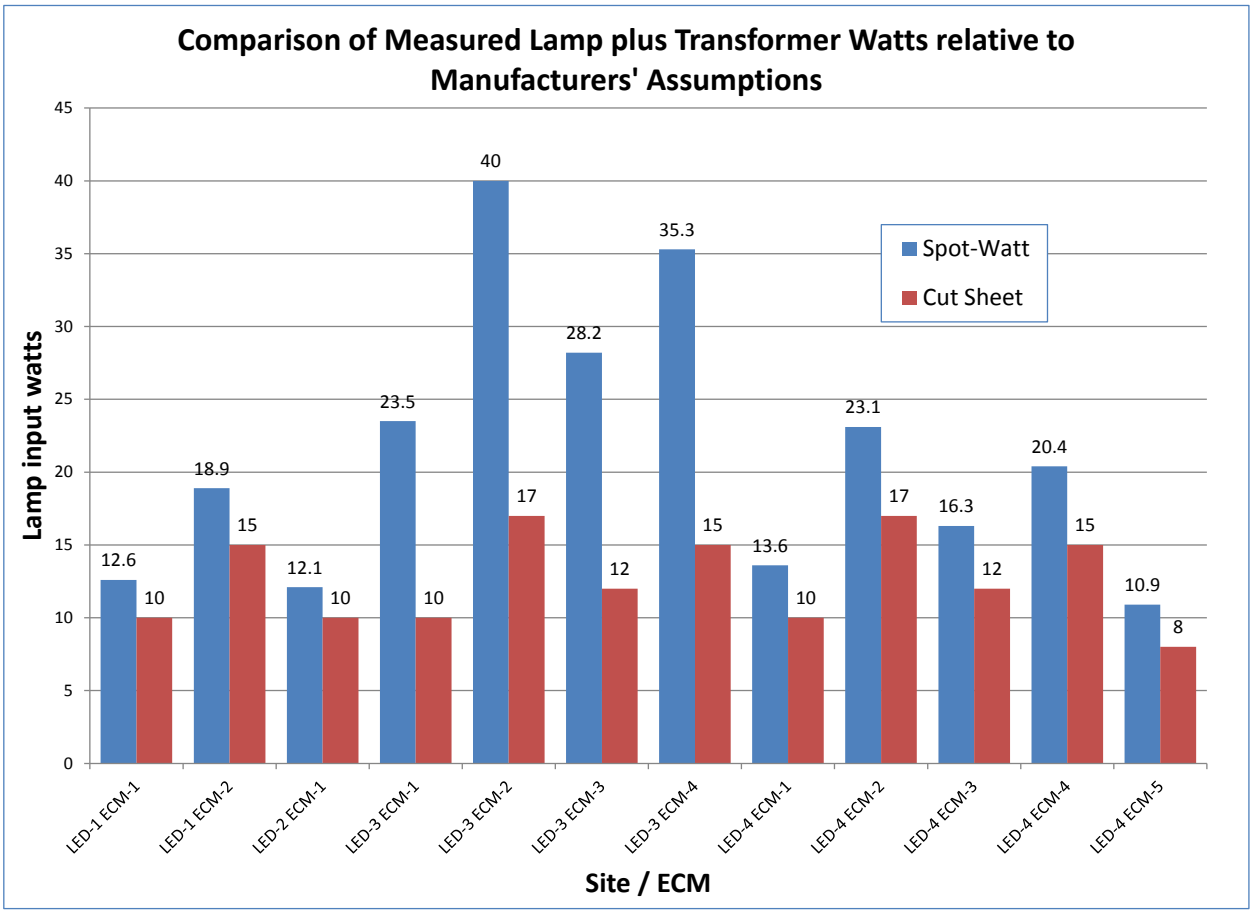


Figure 4. Comparison of Measured Lamp plus Transformer Watts relative to Manufacturers Assumptions

These data are also shown in Table 6.

Table 6. Comparison of Spot Watt Measurements with Manufacturers' Cut sheets for LED Lamps including Step-Down Transformer

Site	ECM	Spot-Watt Measurements	Lamp Watts from Cut Sheet
LED-1	ECM-1	12.6	10
	ECM-2	18.9	15
LED-2	ECM-1	12.1	10
LED-3	ECM-1	23.5	10
	ECM-2	40.0	17
	ECM-3	28.2	12
	ECM-4	35.3	15
LED-4	ECM-1	13.6	10
	ECM-2	23.1	17
	ECM-3	16.3	12
	ECM-4	20.4	15
	ECM-5	10.9	8

Step-down transformers used in Sites LED-1 through LED-4 were required to adapt the 277V lighting circuits in the building to 115V required for the LED lamps. The previously installed lamps were 277V lamps, requiring the addition of the stepdown transformers prior to the installation of the LED lamps.

The fixture quantities installed at the sampled sites along with the number of light loggers deployed are shown in Table 7. Light loggers were deployed to monitor the on/off behavior of the lighting systems based on the circuiting and switching of the lighting systems. At some sites, current loggers[5] were installed to measure time series current on selected lighting circuits.

Table 7. Logger Installations at LED Lighting M&V Study Sites

Site	Customer Name	Business Type	Total fixtures rebated	Loggers installed
LED-1	[redacted]	Big Box Retail	576	9
LED-2	[redacted]	Big Box Retail	1551	17
LED-3	[redacted]	Big Box Retail	920	12
LED-4	[redacted]	Big Box Retail	1617	18
LED-5	[redacted]	Big Box Retail	414	12
LED-6	[redacted]	Big Box Retail	480	12
LED-7	[redacted]	Big Box Retail	481	11
LED-8	[redacted]	Small Office	16	2
LED-9	[redacted]	Full Service Restaurant	30	6
LED-10	[redacted]	Small Retail	72	7
LED-11	[redacted]	Hotel	8	2

[5] Current loggers measure and record time series data on lighting circuit amps.

Site	Customer Name	Business Type	Total fixtures rebated	Loggers installed
LED-12	[redacted]	Small Office	108	0
LED-13	[redacted]	Big Box Retail	750	12
LED-14	[redacted]	Small Retail	163	6
LED-15	[redacted]	College/University	5	1
LED-16	[redacted]	College/University	264	4

The light logger data were downloaded by the TecMarket Works' contractors. These data were processed by engineers from Architectural Energy Corporation. The results are summarized in Table 8. Average weekday and weekend load shapes for each site from the logger study are also shown in *Appendix A: Load Shapes*.

Table 8. Lighting Logger Study Results

Site	Customer Name	Business Type	Application self-reported annual operating hours	Logger study annual operating hours	Ratio logged / self report	Coincident demand factor
LED-1	[redacted]	Big Box Retail	4500	4159	0.92	0.986
LED-2	[redacted]	Big Box Retail	4500	5239	1.16	0.995
LED-3	[redacted]	Big Box Retail	4500	4127	0.92	1.00
LED-4	[redacted]	Big Box Retail	4500	4248	0.94	0.97
LED-5	[redacted]	Big Box Retail	3952	3864	0.98	1.00
LED-6	[redacted]	Big Box Retail	3952	3854	0.98	0.989
LED-7	[redacted]	Big Box Retail	3952	3943	1.00	1.00
LED-8	[redacted]	Small Office	8760	2444	0.28	1.00
LED-9	[redacted]	Full Service Restaurant	7260	6632	0.91	1.00
LED-10	[redacted]	Small Retail	4004	5090	1.27	0.994
LED-11	[redacted]	Hotel	6570	2098	0.32	0.248
LED-12	[redacted]	Small Office	8760	8760	1.00	1.00
LED-13	[redacted]	Big Box Retail	2800	7890	2.82	0.986
LED-14	[redacted]	Small Retail	4368	4329	0.99	1.00
LED-15	[redacted]	College/ University	3600	5060	1.41	1.00
LED-16	[redacted]	College/ University	1800	4251.	2.34	0.81
Wt Average			5001	5195	1.04	0.94

On average, the light logger study predicted about 4% more operating hours for LED Lighting measures than the customer self-reported values, and 25% more operating hours than the 4144

hours assumption used in the program design workpapers. The coincidence factor of 0.94 was 22% higher than the program design assumption of 0.77.

For LED lighting measures, the light logger results were combined with the verified fixture counts and verified installed fixture watts to estimate the actual energy and peak demand savings, using the equations shown below.

$$kWh_{savings} = (Watts_{base} - Watts_{ee}) / 1000 \times HOURS_{post} \times (1+WHF_e)$$

$$kW_{savings} = (Watts_{base} - Watts_{ee}) / 1000 \times CF \times (1+WHF_d)$$

where:

$Watts_{base}$ = baseline fixture watts
$Watts_{ee}$ = efficient fixture watts
$HOURS_{post}$ = equivalent full-load lighting operating hours after retrofit
CF = coincidence factor
= fraction of total connected load operating at the utility coincident peak hour
= defined as hour ending at 4pm
WHF_e = waste heat factor for energy
WHF_d = waste heat factor for demand

Waste heat factors were obtained from the Indiana TRM. Based on the observed building type, the interactive effects multipliers used for each of the sites in the study are shown below:

Site	Customer Name	Business Type	HVAC System Type	WHF_e	WHF_d
LED-1	[redacted]	Big Box Retail	AC with electric heat	-0.18	0.2
LED-2	[redacted]	Big Box Retail	AC with electric heat	-0.18	0.2
LED-3	[redacted]	Big Box Retail	AC with electric heat	-0.25	0.2
LED-4	[redacted]	Big Box Retail	AC with electric heat	-0.19	0.2
LED-5	[redacted]	Big Box Retail	AC with gas heat	0.146	0.2
LED-6	[redacted]	Big Box Retail	AC with gas heat	0.177	0.2
LED-7	[redacted]	Big Box Retail	AC with gas heat	0.17	0.2
LED-8	[redacted]	Small Office	Geothermal heat pump	-0.11	0.2
LED-9	[redacted]	Full Service Restaurant	AC with gas heat	0.124	0.2
LED-10	[redacted]	Small Retail	AC with gas heat	0.146	0.2
LED-11	[redacted]	Hotel	Water source heat pump	-0.047	0.2
LED-12	[redacted]	Small Office	Geothermal heat pump	-0.04	0.2
LED-13	[redacted]	Big Box Retail	AC with gas heat	0.146	0.2
LED-14	[redacted]	Small Retail	AC with gas heat	0.146	0.2
LED-15	[redacted]	College/ University	AC with gas heat	0.126	0.2
LED-16	[redacted]	College/ University	AC with gas heat	0.165	0.2
Weighted Average				-0.018	0.2

The waste heat factor for energy consumption was -0.018 on average, compared to the program design assumption of 0.097. The waste heat factor for demand was consistent with the program design assumptions.

Gross Impact Results – LED Lighting Measures

These results of the energy and demand savings calculations are shown in Table 9. These results were compared to the tracked savings based on the fixture counts and standard per fixture kW and kWh savings estimates from the Duke Energy tracking data. The ratio of the evaluated savings to the program planning estimated savings is expressed as a realization rate (RR) for kWh, non-coincident peak (NCP) kW, and coincident peak (CP) kW.

Table 9. Results of LED Lighting M&V Study

Site	Customer Name	Building Type	Stratum	kWh Savings			NCP kW Savings			CP kW Savings		
				M&V	Program Planning	RR	M&V	Program Planning	RR	M&V	Program Planning	RR
LED-1	[redacted]	Big Box Retail	2	73,253	125,943	0.58	25.8	33.2	0.78	25.4	25.5	0.99
LED-2	[redacted]	Big Box Retail	1	252,530	339,128	0.74	70.5	89.5	0.79	70.2	68.8	1.02
LED-3	[redacted]	Big Box Retail	1	74,782	201,159	0.37	29.0	53.1	0.55	29.0	40.8	0.71
LED-4	[redacted]	Big Box Retail	1	204,727	353,559	0.58	71.4	93.3	0.77	69.3	71.7	0.97
LED-5	[redacted]	Big Box Retail	2	115,495	90,522	1.28	31.3	23.9	1.31	31.3	18.4	1.70
LED-6	[redacted]	Big Box Retail	2	137,173	104,953	1.31	36.3	27.7	1.31	35.9	21.3	1.69
LED-7	[redacted]	Big Box Retail	2	139,797	105,171	1.33	36.4	27.7	1.31	36.4	21.3	1.70
LED-8	[redacted]	Small Office	3	1,429	3,854	0.37	0.8	1.0	0.78	0.8	0.8	1.01
LED-9	[redacted]	Full Service Restaurant	3	10,993	6,560	1.68	1.8	1.7	1.02	1.8	1.3	1.33
LED-10	[redacted]	Small Retail	3	24,989	15,743	1.59	5.1	4.2	1.24	5.1	3.2	1.60
LED-11	[redacted]	Hotel	3	5,875	10,277	0.57	3.4	2.7	1.26	0.8	2.1	0.41
LED-12	[redacted]	Small Office	3	39,054	23,614	1.65	5.6	6.2	0.89	5.6	4.8	1.16
LED-13	[redacted]	Big Box Retail	2	237,351	163,988	1.45	31.5	43.3	0.73	31.1	33.3	0.93
LED-14	[redacted]	Small Retail	2	28,303	35,640	0.79	6.8	9.4	0.73	6.8	7.2	0.95
LED-15	[redacted]	College/University	3	1,994	1,093	1.82	0.4	0.3	1.46	0.4	0.2	1.89
LED-16	[redacted]	College/University	2	71,765	57,724	1.24	17.6	15.2	1.15	14.2	11.7	1.21

A comparison of the assumptions used in the calculations for LED lighting measures is shown in Table 10. Total installed measure count, baseline fixture watts, and installed fixture watts assumptions from the program design work papers were compared to verified values from the M&V study. Installation counts matched exactly. M&V estimates of efficient fixture watts were an average of about 16% higher than program planning estimates. Baseline fixture watts were on average 1% lower than the program planning estimates.

Table 10. Comparison of Program Assumptions and M&V Results

Site	Customer Name	Building Type	Duke Measure Name	Quantity			Baseline Fixture Watts			Efficient Fixture Watts		
				M&V	Tracking	Ratio	M&V	Program	Ratio	M&V	Program	Ratio
LED-1	[redacted]	Big Box Retail	LED Lamps	566	566	1.00	50	60	0.83	12.6	12	1.05
				10	10	1.00	50	60	0.83	18.9	12	1.58
LED-2	[redacted]	Big Box Retail	LED Lamps	1551	1551	1.00	50	60	0.83	12.1	12	1.01
LED-3	[redacted]	Big Box Retail	LED Lamps	780	780	1.00	50	60	0.83	23.5	12	1.96
				20	20	1.00	90	60	1.50	40.0	12	3.33
				102	102	1.00	50	60	0.83	28.2	12	2.35
				18	18	1.00	50	60	0.83	35.3	12	2.94
LED-4	[redacted]	Big Box Retail	LED Lamps	1410	1410	1.00	50	60	0.83	13.6	12	1.13
				15	15	1.00	90	60	1.50	23.1	12	1.93
				74	74	1.00	65	60	1.08	16.3	12	1.36
				110	110	1.00	50	60	0.83	20.4	12	1.70
				8	8	1.00	50	60	0.83	10.9	12	0.91
LED-5	[redacted]	Big Box Retail	LED Lamps	414	414	1.00	75	60	1.25	12	12	1.00
LED-6	[redacted]	Big Box Retail	LED Lamps	480	480	1.00	75	60	1.25	12	12	1.00
LED-7	[redacted]	Big Box Retail	LED Lamps	481	481	1.00	75	60	1.25	12	12	1.00
LED-8	[redacted]	Small Office	LED Downlight	10	10	1.00	60	65	0.92	12	12	1.00
				6	6	1.00	40	65	0.62	10.5	12	0.88
LED-9	[redacted]	Full Service Restaurant	LED Lamps	8	8	1.00	60	60	1.00	16.3	12	1.36
				13	13	1.00	75	60	1.25	20.3	12	1.69
				9	9	1.00	55	60	0.92	9	12	0.75
LED-10	[redacted]	Small Retail	LED Lamps	72	72	1.00	79	60	1.32	19.5	12	1.63
LED-11	[redacted]	Hotel	LED Lamps	8	8	1.00	60	60	1.00	16.3	12	1.36
				27	27	1.00	90	60	1.50	18	12	1.50
				12	12	1.00	55	60	0.92	9	12	0.75
LED-12	[redacted]	Small Office	LED Lamps	108	108	1.00	50	60	0.83	7	12	0.58

Site	Customer Name	Building Type	Duke Measure Name	Quantity			Baseline Fixture Watts			Efficient Fixture Watts		
				M&V	Tracking	Ratio	M&V	Program	Ratio	M&V	Program	Ratio
LED-13	[redacted]	Big Box Retail	LED Lamps	750	750	1.00	50	60	0.83	15	12	1.25
LED-14	[redacted]	Small Retail	LED Lamps	163	163	1.00	50	60	0.83	15	12	1.25
LED-15	[redacted]	College/University	LED Lamps	5	5	1.00	90	60	1.50	20	12	1.67
LED-16	[redacted]	College/University	LED Lamps	190	190	1.00	60	60	1.00	10	12	0.83
				14	14	1.00	75	60	1.25	17	12	1.42
				60	60	1.00	90	60	1.50	18	12	1.50
Weighted Average						1.00			0.99			1.16

Gross Savings Analysis – Overall Realization Rates

Applying the appropriate stratum weights to the results from Table 9 above, the realization rates by stratum, and the overall program realization rate is shown in Table 10 below.

Table 10. Program Realization Rates

Stratum		kWh Savings			NCP kW Savings			CP kW Savings		
	Stratum Wt	M&V	Program Planning	RR	M&V	Program Planning	RR	M&V	Program Planning	RR
1	0.31	532,039	893,846	0.60	170.9	235.8	0.72	168.4	181.3	0.93
2	0.35	803,137	683,941	1.17	185.6	180.5	1.03	181.1	138.7	1.31
3	0.34	84,334	61,141	1.38	17.1	16.1	1.06	14.5	12.4	1.17
Overall Program RR				1.06			0.95			1.14

The estimated achieved sampling precision in the realization rates are shown in Table 11.

Table 11. Realization Rate Achieved Sampling Precision

Stratum	Population Size	Sample Size	Actual Sample cv	Relative Precision
LED-1	3	3	0.23	+/- 0%
LED-2	13	7	0.27	+/- 11%
LED-3	76	6	0.33	+/- 21%
Total				+/- 8.3%

Process Evaluation: Management Interviews

Smart $aver Prescriptive is jointly managed by two Duke Energy product and services managers, who share decision-making for all aspects of the program. The Smart $aver program is supported by a wider team of company experts in market strategy and outreach, by the Large Account Managers, and by other product and services managers who are responsible for implementing components of the program[6]. These management interviews were designed to document how the different components of Smart $aver Prescriptive are coordinated to provide customers with a unified offering that helps them select and use energy efficient equipment. The sections below detail the operations and processes of the different components of Smart $aver Prescriptive Indiana.

Measure Development

The Smart $aver Prescriptive measures are reviewed annually. Duke Energy hires consultants to help them decide which technologies to add to the measure list. Duke Energy also uses feedback from customers and trade allies on what measures they would like to see. A product manager says that the trade allies "*always have lots of ideas for us*". However, these ideas may not be cost effective, and the trade allies may have their own business priorities in mind. So, the Smart $aver program staff always follows up these suggestions with further research. A product manager also explains that while there is no cost associated with offering Prescriptive measures that are not widely installed, their trade allies would and do question incentives for what they perceive as irrelevant technologies. By aligning the prescriptive measures with market interests, Smart $aver can continue to stay relevant to their customers and trade allies. The overarching criterion for new measures is that they are cost effective for the program.

In 2014, Smart $aver added new information technology measures, including energy efficient power strips. *"We are really excited about the IT measures we added in February."* Duke Energy also added one long-awaited Prescriptive measure category: LED lighting, as well as other measures within existing categories[7].

Incentive Levels

The product managers believe that the incentives are at the appropriate levels to motivate customer participation. Trade allies frequently will give feedback that an incentive needs to be higher on a measure that is more expensive, but the product managers are constrained by cost effectiveness. "*Even those things where they think our incentives are too low, we are seeing good participation. They always want more*."

[6] The product managers report that due to multiple changes in key staff at the third-party vendor ECOVA, no ECOVA project managers were sufficiently knowledgeable about the details of ECOVA's previous implementation responsibilities. For that reason, and because much of ECOVA's original scope of work is now being implemented by Duke Energy staff, no ECOVA staff were interviewed as part of this process evaluation.

[7] LED lighting incentives are not available through Energizing Indiana.

Two trade allies interviewed for this study did question Duke Energy's incentive levels, saying that the incentive should be based upon wattage reduction rather than be based on specific measures. Several trade allies asked about criteria for energy efficiency ratings for the lighting measures, and were perplexed by what they saw as logical inconsistencies in the measures being offered (or not offered, such as 2x2 LED panels). Because the Duke Energy product managers have stated a desire for the Smart $aver program to stay relevant to the market actors, Duke Energy may wish to directly address some of the most common questions.

> RECOMMENDATION: If not already being done, Duke Energy should consider adding a question or two to their FAQs online about how they determine incentive levels and measures, addressing the most common queries they hear from trade allies. This may help decrease the number of questions received by the trade ally representatives on measure criteria beyond Duke Energy's control. This may also help decrease any perception that there is an arbitrary nature to the Prescriptive measure list.

Quality Assurance and Verification of Applications

Duke Energy provides an application that can be filled out online, and then printed out for submission. Completed applications can be mailed, faxed, or emailed to Duke Energy. Duke Energy has been developing an online application that is due to be available in 2015. Incentive applications must be submitted within 90 days after installation (or after the project is completed and the qualifying measures are operable).

Duke Energy reviews incentive applications to make sure that they include invoices and specification sheets that match the measures in the application. Model numbers are required on the invoices. The product managers state that the most common errors in the application are usually in a mismatch between the quantities listed in the application and the quantities on the invoices. In these cases, Duke Energy will pay either the amount that can be substantiated, or notify the customer and ask them to produce the remaining invoices.

Duke Energy conducts verification site visits to a random sample of customer sites in order to verify measure installations. These visits are conducted by the outreach representatives after the incentive is paid (in order not to delay payment to the customers). They verify a total of 5% of all Prescriptive applications in each state. After each site visit, the outreach representative creates a report on how many measures were found compared with the measures in the incentive application. These same representatives are conducting on-site verifications for measures purchased through the online store as well. For these installations, because of the relatively low overall volume, outreach reps verify installations at 10 customer sites per month (5 for Ohio/Kentucky, and 5 for Indiana), which exceeds the 5% rate.

During the random inspections, Duke Energy may occasionally find that customers have not installed the equipment. In these cases, Duke Energy gives the customer a reasonable period of time to complete the installation. If the equipment is still not installed by that deadline, Duke Energy will request that the incentive be returned. However, these situations are rare; the product manager reports that this may have happened only three times in the last four years.

Under certain circumstances, Duke Energy may verify an installation prior to sending an incentive check. The product manager explains that these circumstances are rare, and gives as an example a situation where a large customer with many identical stores consistently fills out their paperwork incorrectly. Once Duke Energy has verified that the installations were correctly reported at a few locations, they do not need to conduct pre-inspections at the remaining locations.

Marketing

Duke Energy traditionally markets the Smart $aver Prescriptive program through three channels: through Duke Energy Account managers to the large business customers, through the network of trade allies to unassigned customers (as well as to the large customers), and through the website, which serves as the repository of resources and information needed to successfully apply for the incentives. In the last two years, Duke Energy has added a new marketing channel, the online store. All of these marketing efforts are guided by the Market Strategy Team. Each of these will be discussed in turn.

Large Account Managers. Duke Energy has an account management team with approximately 60-70 representatives assigned to the large commercial customers across the five states. These account managers are in regular communication with the large customers about their needs and actively recruit them to participate in the Smart $aver Prescriptive program, as well as the other energy efficiency and demand response programs. As an account manager explains, "*A lot of it is individual work with the customer, building relationships.*"

Web Site. The Duke Energy website serves as the primary means of disseminating updated information about the program to both the customers and the trade allies. The website includes lists of qualifying measures, their associated incentives, and updated applications that need to be filled out. The website also includes other tools on the benefits of energy efficiency, including some clever video clips.

However, based on the trade ally interviews, it seems that many trade allies do not use these tools. In most of these cases, the trade allies themselves present the benefits of energy efficiency to the customer, as part of their services. One trade ally says he only directs customers to the Duke Energy website to verify the legitimacy of the incentives, "*Sometimes customers say these [incentives] are too good to be true*." Another trade ally says, "*I have, but our value is managing that entire incentive process for them."*

We note that there seem to be fewer resources for Smart $aver on Duke Energy's website compared to past years. Even though customers might be getting all the information they need from the trade allies, Duke Energy may be able to use the website better, both as a marketing channel and as a repository of tools to aid the customers. The issue of who provides what information is also critical to net-to-gross considerations: While there is no one litmus test for assigning attribution to a program, there are several rubrics that consider the role of information in customer decision-making. The Smart $aver program's influence would be clearer if both trade allies and customers are able to find useful information from Duke Energy (whether from the website or other Duke Energy channels) about the benefits of installing energy-efficient equipment.

RECOMMENDATION: Duke Energy should consider what information they would like trade allies to take to their customers, and if warranted, make this information available on the website. This will allow Duke Energy to play a more central role in helping move customers toward an energy efficient equipment decision.

Trade allies can also sign up to be listed on the Duke Energy website. They provide their contact information, their geographical area, their services, and their areas of expertise. Customers can then search for trade allies according to the technologies and services they are interested it. This listing is not an endorsement of these vendors, it just facilitates the customer's initial research into finding a suitable trade ally. The eight trade allies we interviewed were randomly selected off the list of vendors who are listed on the website. However, two were not sure if there were listed, and one was sure they were not. This suggests that trade allies could be made more aware of their listing status, and that if Duke Energy is using this list for any outreach purposes, Duke Energy could also remind the trade allies that they are receiving the outreach as a result of this listing.

Trade Allies

The Smart $aver program is primarily marketed through a network of trade allies, including vendors, distributors, and contractors. This network is managed by Duke Energy staff directly, and allows Duke Energy to position the Smart $aver option to customers who directly contact vendors when faced with urgent or early replacement equipment replacement needs, and/or who may not have assigned account representatives at Duke Energy. Duke Energy credits their strong Smart $aver trade ally (TA) network as being the key to Smart $aver's success in Indiana.

Trade Ally Outreach. Smart $aver's trade ally outreach activities are the result of a joint effort between the trade ally outreach representatives and Duke Energy's market segmentation team. Each will be discussed in turn.

The Midwest Outreach Team manager oversees four trade ally (TA) representatives, who are contractors hired by ECOVA. Three of the TA representatives market to trade allies exclusively, while the fourth markets to the unassigned customers. These TA representatives promote both Smart $aver Prescriptive and Smart $aver Custom.

The TA representatives typically will meet with trade allies to tell them how the Prescriptive program works. At the beginning of each year, the TA representatives will discuss measures that have been added (reminding TAs that the latest measure updates will always be on the Duke Energy website). Or they may discuss specific projects on which the TAs are working and talk about the relevant incentives that Duke Energy offers, "*They would essentially give the trade allies all the information they would need to successfully fill out an application.*"

The TA representative is responsible for informing TAs on how to participate in the program, and regularly meets with TAs to provide training seminars. The TA representative also serves as the point of contact for many TA who have questions about filling out their applications.

The Midwest outreach manager coordinates with the Carolina System outreach manager to outline goals for the trade allies and the topics they would like the trade allies to cover. The

Midwest outreach manager reports that the TA representatives' goals are set in terms of a certain number of new trade allies to reach, and sometimes a certain number in a particular industry. A program manager adds that there are also goals tied to increasing participation with existing trade allies. As an example, Smart $aver added new IT measures in 2014, so in addition to their goal of reaching out to 10 new trade allies who have never worked with Smart $aver before, the TA representatives were challenged to reach 2-3 trade allies in the IT industry, "*That's a whole new field and industry [for] trade ally outreach*."

The Midwest TA Outreach manager is very pleased with the trade ally outreach, particularly for new trade allies who have not worked with energy efficiency programs in the past. In light of that, the manager says, "*I think the outreach reps do a fantastic job reaching the trade allies… I think it's a lot for a new trade ally to process, taking both Prescriptive and Custom into account... But I think we do a great job marketing it to them and providing them with all the information they need to be successful*."

The outreach manager also reports that Duke Energy conducts satisfaction surveys twice a year with the trade allies and with the customers. The trade ally satisfaction survey also asks trade allies how frequently they talked about the Smart $aver program with their customers, whether they knew who their TA representative was, and how frequently they used the trade ally resources on Duke Energy's web portal. The customer satisfaction survey asked about their satisfaction with the program as well as any trade ally who worked with them on their project. Customers were also asked if there were any ways in which Duke Energy could improve the program (other than increase the incentive).

Trade Ally Interviews

We interviewed eight lighting industry trade allies from Indiana, randomly selected from the list of those trade allies who signed up with Duke Energy to be listed on their website. These trade allies held company positions that ranged from President of the company, to office manager, to an electrician, with anywhere from 3 to 28 years of experience in the industry. The view of the Smart $aver market from the trade allies' perspective may be different from the view from the participants' (see *Participant Surveys*), for a variety of reasons.

The eight trade allies interviewed as a part of this evaluation effort report that they first learned about the Smart $aver program in one of three ways: through word of mouth from their colleagues, from the Duke Energy trade ally representative, or through web research that they conducted as a result of a customer request for incentives to help reduce costs.

These trade allies reported that they would often mention that there is more efficient lighting technology available than what the customer currently had, and then raise the possibility that there might be lighting incentives to help bring down the costs. When a customer indicates interest, the trade ally then searches for any applicable incentives as a part of their service. The trade allies report that they do not market Smart $aver qualifying equipment any more or less than non-qualifying equipment, but several also note that it was because all their products were energy efficient, "*Our projects are designed to save 50% or more*."

For the most part, trade allies also believed that the Prescriptive measure list included relevant technologies, though there were a couple who suggested adding 2x2 LED panels. All the trade allies admitted that they would not complain if the incentives were higher, but most felt the incentives were high enough to motivate customer action.

One trade ally, however, volunteered that a recent double-incentive promotion by Energizing Indiana likely hurt his future lighting business. He believes that incentives should be no more than 2/3 of the measure cost, saying "*When you get up to 2/3 of retail you are too high. The customer needs to have some stake in this, or it changes the dynamics of future [projects]*." He also adds, "*I don't ever want to see a double rebate again*."

Increasing participation from trade allies. The experienced trade allies appreciate the competitive advantage they have over non-participating trade allies. When asked what Duke Energy might do to increase participation from trade allies, one trade ally said half-jokingly, "*From a competitive standpoint, this is a value add we bring to our clients, managing and processing incentives. I hope they DON'T bring it to more contractors*." Three trade allies though the current outreach was working well: "*They seem to get the word out really well*," and "*Just do as they are doing now*."

One trade ally believed that increasing trade ally participation will happen on its own, as the state phases out the Energizing Indiana program. "*If anyone [trade ally] is not actively involved with the Duke program they will be in the next year*."

The savviest trade allies may even be turning program barriers into opportunities for sales. For example, when asked for ways in which Duke Energy could improve the application process, there was one trade ally who thought an online application would help, saying "*Duke is behind the curve*". However another trade ally mentioned that other utilities have gone to an online application, but seemed reluctant to suggest that Duke Energy does so as well, explaining that they are able to tell the customer that their service includes taking care of the application submission: "*That is one of our main selling points, we are a turnkey service provider, we do lighting from A to Z.*" Three other trade allies thought the incentive application was easy, for example, "*No, it's fairly easy*," and "*No it's pretty efficient. They lay out exactly what you need*."

No customer complaints. These trade allies also report they have not heard of any complaints or concerns about the program from their target customers. In the cases where the processing of their applications was delayed, they readily admit that sometimes it was due to their own error. The trade allies also report a wide range of application turnaround times, with some saying they received the incentive check two weeks after submission and others saying their check took 6-8 weeks. However, none of the trade allies had any complaints to raise about the turnaround time.

Recognition of Smart $aver's influence. Trade allies generally had positive comments about Duke Energy, "*We work with many other utilities, I would say that Duke is one of our favorites. Duke is up there*." Another trade ally says, "*I have a very good relationship with the TA representative, I don't have a problem calling him up directly. I like having that individual attention. Not all of them are like that.*"

Role of Smart $aver incentives in the market. All trade allies agreed that the Smart $aver program was still very much needed in the market to move their target customers[8] to action. The trade allies generally agree that the incentives allow them to increase their sales: "*It's a positive for our customers' and makes the sale of energy-efficient items easier with that [incentive] available*."

When asked what they would do if Duke Energy no longer offered Smart $aver, trade allies differed on whether they would still offer equipment with the same level of energy efficiency. One trade ally says, "*We would, but I'm confident the sales volume would decrease, or our close rates would decrease*." One design-build trade ally said they thought the absence of an incentive would not hurt their business, whereas another design-build trade ally said, "*We would offer it of course, the same we have always done with custom design. But projects wouldn't sell as quickly. A lot will say no."*

One trade ally said that their target customers' decision-making relied entirely on first costs: "*It's always about the initial investment, always. They either have the cash available or they don't, we can talk all day long about a two-year payback, but they don't care because they are still having to shell out the money up front.*" The same trade ally works with utilities in other states and reports, "*There are some customers in areas with no [applicable] incentives who say, 'Put it on hold, we'll just wait until [an incentive] is available*.'"

One trade ally wanted some reassurance that Duke Energy would pick up the incentives that are currently offered by Energizing Indiana, after that program ends.

Small-to-Medium Business Outreach

The sheer number of small-to-medium business customers in Duke Energy territory presents both an enormous opportunity as well as an enormous outreach challenge. Duke Energy has developed an outreach strategy to include small-to-medium business (SMB) customers.

In the past, the outreach team only reached out to trade allies, and Duke Energy relied on account managers to reach out to their assigned large business accounts. Duke Energy reached out to the numerous SMB customers through email and direct mail. The Market Strategy team's outreach plans provide a structured approach to driving higher participation in the SMB customers. The outreach manager estimates that approximately 70-80% of SMB customers have not heard about Smart $aver. Duke Energy product managers have mentioned that it is difficult to know who an appropriate decision-maker is within SMB customers, and that other challenges in reaching the SMB customers include split incentives for those who lease their facilities, limited access to capital, and less knowledge and expertise about energy efficiency, compared to large customers.

One outreach representative is dedicated to marketing the program to these SMB customers across Duke Energy's Midwest service territories, including Indiana. Duke Energy learns of many SMB opportunities through their toll free number. The manager reports that the customers that call Duke Energy are usually ones that have a project in mind, allowing the SMB outreach

[8] The target customers are those who would call upon a trade ally for assistance with projects they would not be able to undertake on their own.

representative to help meet their needs immediately. Duke Energy has also commissioned a potentials study to estimate the energy savings that may be available with SMB customers, that they have used to make outbound calls to high-potential customers.

Duke Energy launched the SMB outreach approach in January of 2013, and plans to increase efforts with this customer segment by hiring additional staff in the summer of 2014. While it is still too early to quantify results, Duke Energy has been pleased so far: A product manager says, "*We think there's a lot of opportunity with that size customer, that they are not doing projects because they are not aware how this could have a positive impact on their business."*

Savings Store

The online store was built to reach unassigned SMB customers and features the ability to receive an incentive for measures purchased without filling out an application. The online store does not accept purchase orders. Duke Energy is cognizant of the desire to have the online store be a channel through which to reach new participants, not to compete with trade allies.

The third party implemented online store opened in April of 2013 and currently offers a subset of Prescriptive measures that are typically self-installed, such as CFL screw-ins, high-watt CFLs, three-way CFLs, dimmable CFLs, LEDs, occupancy sensors, and smart power strips. The product manager reports that Duke Energy hopes to offer a pre-rinse sprayer for non-residential food service customers. The incentive for each qualifying measure is factored into the price of the measure. The incentives for these are the same whether they are obtained from the online store or from a trade ally. For Indiana, the maximum incentive is approximately 50%, depending on the particular measure. Customers need to provide their account number (or phone number) in order to access the online store, along with the last four digits of their Federal tax ID (or Social Security Number).

The online store implementation vendor recommends the products to be carried in the store for Duke Energy's approval. The product manager also says she welcomes feedback from customers on what measures they would like to see added. In addition to being cost effective and high efficiency, the measures need to be high quality products that are easy to install. The product manager reports there have only been three returns since the online store opened, in all of Duke Energy's service territories. In one case, a customer seemed to have simply ordered too many bulbs.

The product manager says that the online store offers Smart $aver a low cost channel through which to deliver the program: "*It is very low cost to us, it's the same cost to offer 10 products as it does to offer one product. It makes complete sense to offer this avenue*."

Duke Energy has conducted two in depth interviews with larger customers (a university and a K-12 school system) who have made purchases on the online store, and upon finding that they were extremely satisfied, have asked them for testimonials to include on the website. The product manager says, "*The facility managers [at this university] really saw the value in the store, just for certain items, not for the projects that they are doing. But if they are just relamping a building, something [on that scale]…I don't think they are trading in a paper application for the online store."*

RECOMMENDATION: If Duke Energy intends to include customer testimonials on their website, they should consider ways to include testimonials from the smaller customers. This will allow Duke Energy to show that the online store is not primarily intended to compete with the trade allies. Smaller customers may also be more willing to allow commercial endorsements, something larger customers (such as universities) may not.

In the first year of implementation, approximately $1,500 in incentive payments were given out each month. The product manager has set a minimum objective of increasing the amount of incentives paid out in 2014, by double or up to quadruple the previous year. The product manager reports they are on track to quadruple performance this year.

By making these program changes, Duke Energy has responded to some long-standing feedback from the market that the paper applications were sometimes a barrier to participation. To address this, Duke Energy has developed the online store, and is exploring a midstream marketing channel, through which they expect new customers to participate who have not participated before. The product manager says that the midstream channel may help reach industries that were undersubscribed: "*We have low participation in food service currently, so it would be great if this was the channel that helps that [segment] out.*"

Coordination with Market Strategy Team

Duke Energy's Market Strategy team provides outreach guidance to all of Duke Energy's energy efficiency programs, including Smart $aver. The team members each have responsibility over specific commercial and industrial market segments. Within those segments, they have expert knowledge of the customer's drivers and barriers. The Market Strategy team has developed an outreach strategy that further segments customers along an "awareness to action" continuum, and developed actionable plans to move customers along that continuum. Within these plans, the trade allies can play important roles along the entire continuum, by virtue of the services and products they offer, and the advisory nature of their relationships with their customers.

Duke Energy wants to provide support helping the trade allies identify possible next steps along the continuum. The Marketing Strategy manager explains, "*There's a lot of facets to what we need to be doing, when we need to be doing it, how we need to be doing it, and without guidance, each person does it their own way.*"

The manager also reports that trade allies want to know how Duke Energy is marketing to customers. "*We are working on more opportunities to provide that information to them, so that it's something they might piggy back on or look to collaborate [with Duke] on.*" Duke Energy also plans to create outreach efforts to customers around updated technology information that Duke Energy has in the past shared primarily with the trade allies, so that the same messaging is coming from both Duke Energy and the trade allies. "*Hopefully we start creating more of that 'push' and 'pull'.*"

The marketing strategy manager also reports that they are taking the long view toward energy efficiency: "*What we did in 2013, we did for 2014, as well as 2014-2016…instead of taking a one-year view, a lot what we're doing may not produce impacts tomorrow, but are really*

intended to raise awareness, raise interest, create opportunity, and create pipeline for the future." The manager says it is difficult to demonstrate the value of this approach in the traditional ways of evaluating attribution to a marketing effort. The evaluation team agrees that it may be a futile exercise for any program or marketing effort to try to claim sole attribution for a customer's energy efficiency actions.

> RECOMMENDATION: Duke Energy should consider ways to develop metrics that track a customer's movement along their path to decision-making that take into account the fact that other external organizations also "touch" the customer. By developing a marketing strategy that recognizes the influence of external energy efficiency messages, and explicitly incorporating those influences as part of Duke Energy's own marketing strategy, Duke Energy can help regulators and evaluators develop more realistic expectations about the influence of any single program upon customers' non-linear decision-making processes.

Program Challenges

Over the past two years, the Smart $aver Prescriptive program faced challenges on several fronts. These challenges have caused the Smart $aver Prescriptive program to take a slightly different approach to implementing the program, but the evaluation team believes that these changes may result in greater resiliency for future challenges.

Vendor challenges. The Smart $aver program in previous years has been implemented primarily by a third party vendor, with Duke Energy providing strategic direction. The product managers report that a third party vendor, ECOVA has been assisting with the implementation of Smart $aver since January of 2013. However, the product managers report that they had numerous quality control concerns with application processing and program data tracking. Due to numerous changes in key staff at the vendor, no one knowledgeable about the program history remained to be interviewed as part of this study, so the issues mentioned in this report here rely solely upon the Duke Energy program managers' reports.

The two product managers report that during application processing there were repeated errors including, among others, errors in matching information on applications with information and account numbers in the customer database. The product managers also report that ECOVA was not able to deliver on an online application nor a program database on time. When an online system was delivered, it suffered from usability flaws. In August of 2013, after repeated efforts to resolve these issues, Duke Energy transferred these responsibilities back to Duke Energy management and staff, in order for Duke Energy to maintain the customer satisfaction levels that they expect. The product managers report that at the time of these interviews, ECOVA's responsibilities and scope of work had been reduced to receiving data files from Duke Energy on participants and incentive amounts, and sending customers incentive checks. ECOVA hires the contractors who process applications and conduct outreach to the trade allies, though Duke Energy has taken over management of these staff as well. ECOVA also has responsibility for uploading data into Duke Energy's participation database.

The product managers reported that the Smart $aver program is on its way to fully resolving these issues, and expects that these earlier problems might be reflected in customer satisfaction ratings for a while.

Database integrated online application. At present, Duke Energy has developed an internal database that they have been using since March 8, 2014 without any problems. Duke Energy expects to be using this database through the end of 2014. In parallel, Duke Energy's internal IT division is working with an external vendor to develop a database that can be integrated with Duke Energy's Salesforce tracking system. A product manager reports, "*That's the ideal situation, to have all the tools together*." This new database is due to be in use by 2015.

Application processing. At the present Duke Energy is meeting their application processing needs by asking ECOVA to hire processing staff approved by Duke Energy, to work in Duke Energy's facilities. There are currently three processors in Cincinnati, OH, and one in Charlotte, NC. This allows the Smart $aver program staff to directly oversee the application processors and conduct quality assurance on new applications as well as applications that had been entered previously.

One of these application processors has been able to assume all responsibility for sending out letters notifying customers of missing information. Duke Energy reports that customers now receive clearly worded letters that can tell them what information was missing or incorrect, allowing customers to take action. Previously, ECOVA's remote staff were attempting to use form letters that were not able to capture the level of specificity needed for customers to understand what action they needed to take.

Duke Energy's objective is to process incentive applications within three to five business days of receipt. At the time of these interviews in April of 2014, the program staff were in the midst of their transition to the internal database. A product manager reports that they had a 14-day backlog due in part to the need to enter resubmitted applications (that previously had missing or incomplete information) into the new internal database. A product manager says, "*It has been a relatively smooth transition, it really hasn't affected the customers or the trade allies. We are always up front with them when they submit an application, letting them know if we're running 10 days behind in processing, and I think they appreciate that.*"

Call Center. Duke Energy transferred the toll free number from the call center to a voice mailbox monitored by Smart $aver outreach representatives. The product manager reports that this allowed Duke Energy staff to directly address customer inquiries, and provide a higher level of service that could be achieved with third party call center, simply based upon the long-standing familiarity of the program staff with the program's details. As a product manager explains, "*Then [the customers] get to talk with someone who works on this program day in and day out.*" Duke Energy reports they are usually able to follow up with customers within the same business day. Duke Energy also says that the volume of calls has historically been low, a factor that has been a barrier to building program expertise within third party call centers. The product manager believes this program is working well and says there have been no complaints.

Coordination with Energizing Indiana

One big challenge the Smart $aver program faced in Indiana is coordination with Energizing Indiana. In 2009, the state of Indiana ordered the creation of a statewide, comprehensive energy efficiency program to help meet the state's energy efficiency resource standard. This program, "Energizing Indiana", launched in 2012 and was administered through an independent statewide administrator. Energizing Indiana offered a "Core" program that provided commercial and industrial prescriptive rebates that were available to all companies in the state, across utilities. This effort required existing Indiana utility programs such as Duke Energy's Smart $aver Prescriptive program to re-file their program with the state's regulatory agency with a revised measure list that complemented the Energizing Indiana Core Program's measure list. While this has meant fewer measures were available to the Smart $aver Prescriptive measure list, the re-filing allowed Duke Energy to start offering Smart $aver to their larger (over 500 MW) customers, something that was prohibited by previous state regulations.

Smart $aver Prescriptive and Energizing Indiana coordinated their outreach efforts with mixed success. Duke Energy staff were able to recount both an example of success where an Energizing Indiana outreach representative went out of his way to include and refer customers to Smart $aver, and an opposite example where an Energizing Indiana outreach representative was known to be representing the Smart $aver program in a way other than what was agreed upon. The best coordination efforts would have meant that customers and trade allies are aware of all their measure options for saving energy, irrespective of which program offered it. These positive coordination efforts may take the form of both Smart $aver and Energizing Indiana knowing when customers were interested in installing measures, and both being at meetings and presentations with these prospects. Under the best circumstances, Smart $aver and Energizing Indiana would not be in competition with one another, but rather they would complement one another with the ultimate shared objective of meeting customers' energy efficiency needs.

In addition to anecdotal data about outreach efforts, the Duke Energy product managers report what appears to be a decrease in participation that may be due to insufficient coordination with Smart $aver: Because Smart $aver had been offering lighting measures for several years in the Midwest prior to Energizing Indiana, they had a baseline for market adoption of the most popular lighting measures. A product manager reports that Energizing Indiana offered incentives for reduced wattage T8s, while Smart $aver offered incentives for high performance T8s. Historically, market adoption of these measures in Smart $aver Indiana have mirrored the proportions of Smart $aver Ohio. However, since the launch of Energizing Indiana, the product managers found that the reduced wattage T8s offered by Energizing Indiana received most of the participation, while in Ohio, the reduced wattage T8s and the high-performance T8s continued to bring equal participation. A trade ally confirms that in 2013, "*About 90% of [my] projects have an incentive, but most of those are Energizing Indiana…*"

Despite their efforts, the coordination between Smart $aver and Energizing Indiana has resulted in some confusion in the minds of customers and trade allies. Such a confusion may create a halo effect stemming from one program's successes to all other energy efficiency programs. Or, conversely, there may be a negative halo caused by one poorly implemented energy efficiency program on the others. In Indiana's case, the fact that the confusion is limited may be due to the fact that Duke Energy has nurtured a trade ally network in Indiana that preceded Energizing

Indiana: a number of trade allies explained that their business model includes finding out about incentives on behalf of their client from all sources. When asked whether his customers were confused about Energizing Indiana and Smart $aver, one said, "*Oh, they wouldn't be aware until we brought it up to them. And, I wouldn't even bring up particular names until I see which one would benefit them the best. That's the one I tell them about*." However, now that Energizing Indiana will no longer be offered after 2014, efforts to coordinate may become more difficult. As one trade ally says, "*Coordination has been fine in the past. But since Energizing Indiana has been defunded, it's getting tougher and tougher to deal with the Energizing side because the responses aren't there. I would rather, frankly, deal with Duke at this point."*

The product manager reports that Smart $aver Indiana did not meet its 2013 program goals. When asked whether a slow economic recovery might have affected program goal achievement, the product managers said that they did not believe this to be the case: the economic downturn affected program participation in 2011 and 2012, but that since then the product managers have since seen an increase during 2013 for all areas in Duke Energy's service territory except Indiana.

While this evaluation team believes that a "rising tide" of energy efficiency options "lifts all boats", we also believe it would be important for the Smart $aver program to maintain its brand in Indiana. As an example, the evaluation team learned through the trade ally interviews that there may be valid concerns that the lighting market may have been altered by the introduction of a limited-time double incentive for replacing 400w metal halide fixtures.

At the end of 2013, Energizing Indiana began offering increased incentives that were available for a limited time. A Smart $aver product manager says, "*That hurt [program goals] because the trade allies were really pushing those products where they could give customers a bigger discount and get customers moving more quickly on projects because of the short term deadlines.*" It is known from the energy efficiency program literature that offering these limited-time "bonus" programs may alter the price signals in a market, so that customers come to expect higher incentives. The evaluation team's interviews with trade allies confirms some of this. As one trade ally said, in his opinion, "*We just came off a double incentive that Energizing Indiana did. It was poorly run and it hurt us in the long run, because even though we probably took a third of our metal halides off the grid in the state, the other two-thirds got a bad taste in their mouth. There were a lot of fly-by-night companies [using the incentives to make sales]. Now people want free lighting.*" While that was an opinion volunteered by only one of the eight trade allies we interviewed and may not represent the opinion of the majority of the trade allies, the evaluation team believes this to be an accurate concern. The potentially long-lasting effects of limited-time bonus incentives are not unheard of.

Duke Energy itself had offered a limited-time bonus incentive in Smart $aver Ohio in 2009 to increase participation during the worst of the economic downturn[9]. Duke Energy readily admits that bonus had a lasting effect on the Ohio market, and that it should not be a tool used by programs that intend to endure in the market. As a result of this knowledge, Duke Energy's

[9] Process Evaluation of the Non-Residential Smart $aver Prescriptive Program In Ohio and Kentucky, TecMarket Works, 2013.

Smart $aver Indiana did not increase any of its incentives to match Energizing Indiana, even though they saw a drop in participation. As one product manager says, "*We found that once we did that one time, people were waiting for that [bonus] to be offered again. Then it causes even bigger peaks and valleys for participation.*"

At the time if this report, there are no plans to continue Energizing Indiana beyond 2014. If the Energizing Indiana bonus were reliably branded to the State of Indiana and not to Duke Energy (or any of the other utilities in Indiana), then there is a reasonable expectation that, in the customers' minds, this increase incentive was truly a one-time offering that will not be repeated in the future. However, from the trade ally interviews, this evaluation team has found anecdotal evidence that Energizing Indiana incentives may not have been clearly branded to the State because the trade allies may have served as a buffer between program marketing and customer awareness.

> RECOMMENDATION: Duke Energy should consider ways to protect its Smart $aver brand from dilution that may occur if incentives are presented to customers without making clear to them that they come from Duke Energy. Emphasizing the durability of the Smart $aver program, and of Duke Energy as a long-term partner, may help buffer future Smart $aver Indiana participation from any lasting effects of Energizing Indiana's short term incentive increase.

Program Successes and Future Improvements

Despite these challenges, the product managers have been laying the groundwork to improve future program participation. The product managers attributed the success of their program to the strong trade alley network that Duke Energy has established over the years. One program strength that should be noted is in the fact that Duke Energy is able to transfer lessons learned from other states in their territory to benefit customers of Duke Energy Indiana. This unique feature of Duke Energy's energy efficiency programs comes from Duke Energy's wide experience across a variety of state markets and environments.

Duke Energy has been in the process of developing an online application that was originally promised by their vendor by January of 2013, but the vendor was not able to deliver a satisfactory product. Duke Energy has taken steps to address this and expect to have an online application ready for 2015.

Midstream Partnerships

A product manager reports that Duke Energy is also developing a midstream marketing channel where distributors will be able to present a list of prospects and products for Duke Energy to prequalify for Smart $aver Prescriptive incentives. Distributors could use this prequalification to upsell more energy efficient products. Customers would receive their invoice from the distributor with the incentive amount already applied. Duke Energy will require that the Smart $aver Prescriptive incentive be clearly listed on the invoice with the dollar amount and Duke Energy's name, so that customers know they are getting the incentive from Duke Energy. The distributors then would submit their sales data to Duke Energy and Duke Energy would reimburse them. Duke Energy plans to launch this midstream marketing channel in Ohio sometime in 2014, and is

considering launching it in Indiana after Ohio. The product manager expects sales and participation to increase with the midstream marketing channel, and that increase would more than offset any possible decrease in paper applications. A product manager says of the midstream channel, "*There is a little bit of cannibalization, but overall it seems to be new customers participating*."

Summary

In summary, the Smart $aver Prescriptive program in Indiana has faced a number of challenges in 2012 and 2013. However, Duke Energy has been addressing those challenges, and has been able to lay some foundations to support future Smart $aver program success.

- We found that Duke Energy has invested in developing long-term contract staff to implement Smart $aver programs.
- We found that lighting trade allies continue to see the need for Duke Energy, in part due to concern that they remain able to offer incentives on the key lighting measures in the future.
- We found that Duke Energy has developed a strategy to expand marketing of Smart $aver to a customer segment with untapped potential: the small-to-medium business customers.
- We found that Duke Energy has added a new technology category to Smart $aver, information technology, allowing Duke Energy to reach the trade allies and customers in that industry.

Duke Energy continues to face challenges in the future. With the recent bill, SB 340, Indiana large customers (> 1 MW) will be able to opt out of energy efficiency programs in 2015. Also, the lighting market may face lasting effects due to changes in the price signals caused by double incentives offered by an external energy efficiency program, Energizing Indiana.

However, if Duke Energy continues to offer Prescriptive incentives without competition from Energizing Indiana, Duke Energy may benefit from the publicity that had accompanied Energizing Indiana. As one trade ally said, by virtue of the fact that more trade allies are now accustomed to being able to offer their target customers some kind of incentive: "*If anyone is not actively involved with the Duke program, they will be in the next year*." Furthermore, the uncertain political support in Indiana for energy efficiency may emphasize Duke Energy as a steadfast partner to customers and trade allies. One trade ally believes that Duke Energy's continued involvement in energy efficiency programs "*will make or break the lighting industry in Indiana*."

It is clear to the evaluation team that Duke Energy has a long-term commitment to energy efficiency for their customers. Their market strategy and outreach plans allow for the long turnaround time that some customers need in order to make decisions. In the energy efficiency industry, we see some utilities and regulators beginning to move toward offering a portfolio of programs that are primarily implemented by third parties. While third party implementation is an appropriate choice in some instances, the Smart $aver Prescriptive program's move to greater internal implementation has several benefits:

- Duke Energy can access and build institutional memory and expertise in their program staff
- Duke Energy can maintain their long-term relationships with the trade allies

- Duke Energy's SMB outreach means they will also have stronger relationships with SMB customers
- Duke Energy can continue to play a steadfast role in the market

As technologies evolve and markets for individual technologies transform, there will always be a need by some customers to reduce first costs.

Duke Energy's long-view strategy for outreach shows that they understand the value of moving customers along the awareness-to-action continuum, which can result in programs that better meet the realistic needs of customers.

We believe that Duke Energy's long view strategy, coupled with an increased ability of internal staff to implement programs, will allow Duke Energy to lead other utilities in developing less reliance on short term kWh and kW metrics. While kWh and kW metrics will always be critical, they cannot represent the full value of Smart $aver or its outreach strategy to Duke Energy's Indiana customers.

Participant Surveys

This survey focused on customers whose organizations, according to program tracking records, received a rebate from Duke Energy for the purchase of new lighting measures. After filtering for qualifying dates, installations and "do not call" lists, the sample, selected from the population list of all Smart $aver (Core Plus) lighting measure participants provided by Duke Energy, consisted of 258 installations, representing 126 organizations in total. Out of these 126 organizations in Indiana, all 126 were called (100%), and of those, 40 completed the survey for a total response rate of 31.7% (40 out of 126). All 40 respondent organizations received incentives for purchasing lighting measures.

Non-Residential Smart $aver Prescriptive Equipment Installations

The customer data provided by Duke Energy specified the equipment installation which resulted in a Smart $aver rebate for respondents, which is characterized in Table 12. About half of the survey respondents received rebates for installing T-8 fluorescent lighting (52.5% or 21 out of 40), and about a quarter upgraded to LED lighting (27.5% or 11 out of 40). Some survey participants' organizations installed multiple types of measures at multiple locations, and sometimes at multiple businesses.

Table 12. Equipment Installations Which Received Smart $aver Rebates (N=40)

	Indiana (count)	Indiana (percent)
High performance T-8 fluorescent lighting (retrofit T-12 lamps)	21	52.5%
Relamp T-8 with lower wattage fluorescent bulbs	2	5.0%
CFL specialty bulbs replacing incandescents	1	2.5%
LED bulbs replacing incandescents	11	27.5%
Exterior LED or Induction fixture replacing HID fixture	7	17.5%
LED exit signs	8	20.0%
Occupancy sensors	1	2.5%

Columns total to more than 100% because customers could have more than one type of measure installed.

Table 13 shows the range and distribution of incentives received by survey participants. Total rewards for all installations at all locations by these customers ranged from $20 to $24,102, with a mean of $1824 and a median of $537.

Table 13. Amount of Smart $aver Incentive Rebate (N=40)

	Indiana (count)	Indiana (percent)
$60 or less	6	15.0%
$61 to $300	9	22.5%
$301 to $999	14	35.0%
$1000 or more	11	27.5%
Minimum rebate	$20	

Maximum rebate	$24,102
Median rebate	$537
Average rebate	$1824

Participation in the Non-Residential Smart $aver Program

Table 14 shows that all respondents were aware that their companies participated in the Smart $aver program (aided awareness 100% or 40 out of 40), all respondents (100% or 40 out of 40) confirmed that they are employees of the participant companies, and all respondents (100% or 40 out of 40) confirmed that their companies purchased lighting measures for which they received a Smart $aver rebate.

Table 14. Awareness of the Non-Residential Smart $aver Program (N=40)

	Indiana (count)	Indiana (percent)
Unaided awareness	38	95.0%
Aided awareness	40	100.0%
Confirmed employee of participant company	40	100.0%
Confirmed rebate for lighting measures	40	100.0%

The most frequently-mentioned source of awareness of the Non-Residential Smart $aver program is trade allies (40.0% or 16 out of 40), followed by the information provided with the Smart $aver program (12.5% or 5 out of 40) and contact with Duke Energy account managers or other Duke Energy employees (12.5% or 5 out of 40). None of the surveyed respondents mentioned Energizing Indiana as their first source of awareness of the program, and none of these participants mentioned past experience with the program either (though one participant heard about the program through a friend who had participated).

Table 15. Sources of Awareness of Non-Residential Smart $aver Program (N=40)

Percentage mentioning factor	Indiana (count)	Indiana (percent)
From trade allies	16	40.0%
From a Duke Energy employee (account manager / marketing rep)	5	12.5%
The information provided by the Smart $aver program	5	12.5%
The information provided by the Energizing Indiana program	0	0.0%
The information provided by a third party company (listed below)	1	2.5%
From another employee or branch of my company	2	5.0%
Past experience with this program	0	0.0%
Recommendation of a friend or associate who participated in the program	1	2.5%
Duke Energy website	2	5.0%
News media / advertising	0	0.0%
Other sources, listed below	4	10.0%

Don't know	4	10.0%

One participant named information from a third party company as the source of their awareness; this participant identified the third party company as Let It Shine LLC, a consultant from Bloomington.

Four customers named other sources of awareness of the program, which are listed below.

- *Ace District Manager*
- *City of Bloomington Manager of Facilities Forum*
- *Indiana Industrial Energy Consumers, Inc. (INDIEC)*
- *"We heard about it from one of our customers."*

Surveyed participants in the Smart $aver Prescriptive program were asked if they have also submitted applications in the past to the Smart $aver Prescriptive and Custom programs. These responses are shown in Table 16; a third of surveyed participants have previously submitted applications to Smart $aver Prescriptive (35.0% or 14 out of 40), and about one in five has submitted an application to Smart $aver Custom (17.5% or 7 out of 40). A majority of 55.0% (22 out of 40) report that they have not previously applied to either of these programs.

Table 16. Past Participation in Non-Residential Smart $aver Prescriptive and Custom Programs (N=40)

	Indiana (count)	Indiana (percent)
Previously submitted applications to S$ Prescriptive program	14	35.0%
Previously submitted applications to S$ Custom program	7	17.5%
Have not previously submitted applications to either S$ program	22	55.0%
Not sure if previously submitted applications to either S$ program	4	10.0%

Columns total to more than 100% because respondents could apply to multiple programs.

Applying for Rebates through the Smart $aver Program

Table 17 indicates that most participants got their incentive applications online at the Duke Energy website (47.5% or 19 out of 40) or through trade allies (30.0% or 12 out of 40), while nearly one in five respondents could not recall ("don't know" 17.5% or 7 out of 40).

Table 17. Source of Rebate Application (N=40)

	Indiana (count)	Indiana (percent)
Website / online	19	47.5%
Trade allies	12	30.0%
Program staff / Duke Energy representative	1	2.5%
Consultant or third party company	1	2.5%
Don't know	7	17.5%

As seen in Table 18, a majority of surveyed participants filled out the application form themselves (60.0% or 24 out of 40 including three participants who filled out the application with assistance from others). Seven surveyed participants reported that someone else at their company filled out the application (17.5% or 7 out of 40), and trade allies were involved with filling out one in four applications submitted by participants (25.0% or 10 out of 40, including two participants who filled out the application with the assistance of trade allies).

Table 18. Who Filled Out the Rebate Application for Your Company? (N=40)

	Indiana (count)	Indiana (percent)
I did (respondent)	21	52.5%
Someone else from respondent's company	7	17.5%
Respondent with assistance from trade ally	2	5.0%
Respondent with assistance from another employee at their company	1	2.5%
Trade ally	8	20.0%
Don't know	1	2.5%

Program participants who filled the application out themselves were asked to rate their satisfaction with the ease of understanding the application on a scale from 1 to 10, where 10 means most satisfied. The mean rating given by 21 participants who filled out applications is 7.52, and the median score is 8. The distribution of ratings is shown in Figure 5.

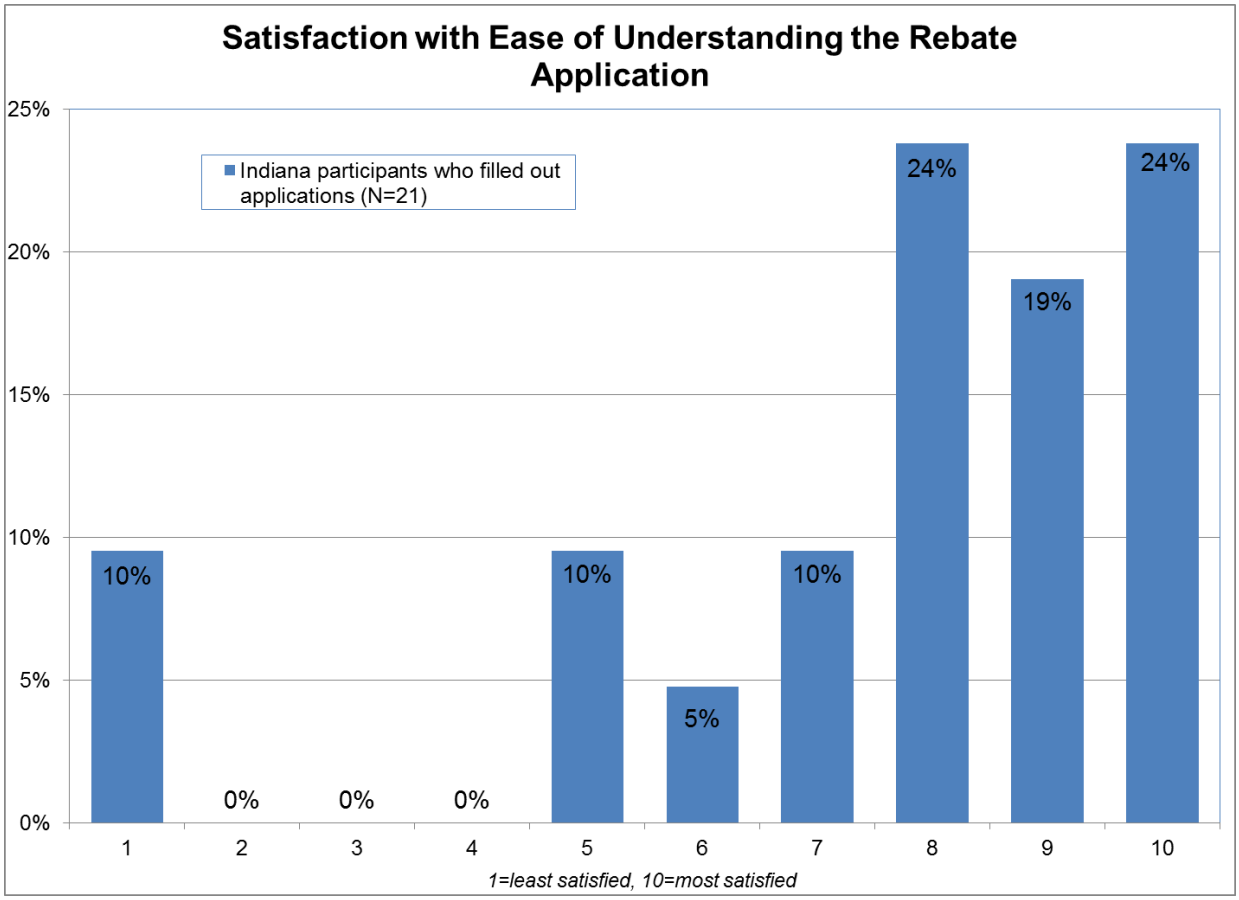


Figure 5. Satisfaction with Ease of Understanding the Rebate Application
(Base: N=21 respondents who filled out applications themselves)

Participants who rated their satisfaction with this aspect of the program at "7" or lower on a 10-point scale were asked what could be done to improve the situation. A third of surveyed participants who filled out applications (33.3% or 7 out of 21), and their suggestions for improving the ease of understanding the application are listed below.

- *It should have been an automatic process when we bought the lighting. It was a nightmare. How would I know the sizes and pieces? It took a year to do the application and get the check. It should been on the electric company who supplied the lighting's end. I shouldn't have had to have been involved at all.*
- *The application process can be daunting to those uninitiated with it. The applications require a lot of information; part specifications, W9 form, etc. Gathering this information can be laborious. The learning curve could be improved by providing more technical support. The website could show a completed example of the incentive application.*
- *Duke could make the website much more user-friendly. As it is, the portals in tabs are too hard to find. I've spoken to several facility managers and vendors who have said the same thing.*
- *Duke could simplify the incentive application by gearing it more towards the layperson. Include photos and step-by-step instructions.*

- *I don't have an answer there.*
- *I have no suggestions.*
- *I don't know.*

In past evaluations of Smart $aver in the Midwest, we noted that the Smart $aver pages in the Duke Energy website did include video demos on how to fill out the application and an example of a completed application. These types of information no longer appear on the website, and a link to "get tips on completing your application" does not lead to any tips. Rather, it leads to a page with and email address and phone number for more information.

> RECOMMENDATION: Duke Energy should include on their website more assistance on filling out applications, such as video demonstrations and an example of a complete application. Duke might choose to just focus on one or two types of the most popular technologies with these examples, such as lighting and HVAC. This will allow Duke Energy customers to provide more accurate information and thus decrease the amount of application processing work for customers as well as Duke Energy.

As Table 19 indicates, most (55.0% or 22 out of 40) respondents submitted the application for Smart $aver themselves, and in another 22.5% (9 out of 40) cases someone else from their company did the paperwork. Trade allies submitted the application for 12.5% (5 out of 40) of respondents, and 10.0% (4 out of 40) could not recall.

Table 19. Who Submitted the Application to Duke Energy? (N=40)

	Indiana (count)	Indiana (percent)
I did (respondent)	22	55.0%
Someone else from respondent's company	9	22.5%
Trade allies	5	12.5%
Don't know	4	10.0%

According to Table 20, overall nearly one in four respondents in this survey (22.5% or 9 out of 40) reported problems receiving their Smart $aver rebate, while 17.5% (7 out of 40) could not recall and a majority of 60.0% (24 out of 40) reported no problems. This is a higher rate of problems with applications than we found in the 2012 evaluation of Smart $aver in Ohio and Kentucky[10], which found that only 7.7% (4 of 52 respondents) had problems receiving incentive checks. This higher rate was expected by the Duke Energy program staff due to the problems reported with the application vendor (see *Program Challenges* beginning on page 41).

[10] There have been no previous evaluations of Smart $aver Indiana.

Table 20. Problems Receiving Smart $aver Rebates (N=40)

	Indiana (count)	Indiana (percent)
Had problems receiving Smart $aver rebate	9	22.5%
Did not have problems receiving Smart $aver rebate	24	60.0%
Don't know	7	17.5%

Nine respondents (22.5% of 40) reported problems receiving their Smart $aver rebates. Their descriptions of these problems and whether or not they were resolved are listed below:

- *I had to go through an arduous process of re-filling-out and re-submitting the application because Duke lost the first application I sent. After a long delay, the amount of incentive we received was far less than expected. Duke could provide much more assistance with the application process.*
- *It took a year to do the application and get the check. It should been on the electric companies end. The last guy at Duke Energy was wonderful. He helped me to split the application between two purchase orders to get it through.*
- *I have three Duke Energy accounts linked to this business. Two of the accounts are designated as "residential" so there was some initial confusion about whether we met the program's requirements. Eventually everything worked out and I received the rebate.*
- *There was confusion with the application, with split between Energizing Indiana and with the split between prescriptive versus custom. There wasn't a clearly defined form for Prescriptive.*
- *I submitted an older version of the incentive application and had to re-submit it using the newer form. Once I did that I had no problems receiving the incentive.*
- *I got a letter stating that I needed to clarify an Energy Star listing number. I did, and then received the incentive.*
- *Occasionally I've had applications sent back to me for lack of and/or incorrect details. …. These issues get resolved eventually.*
- *It took a long time, I had to fill out the form twice, and it was an overall mess. I just accepted what I got, because the end product LEDs are great.*
- *We're a very large manufacturing plant. The Smart $aver application process is not user-friendly and can be overly time consuming.*

Reasons for Participating in Non-Residential Smart $aver

Table 21 shows that the most frequently mentioned reason for organizations' participation in Non-Residential Smart $aver was to reduce energy costs, mentioned by more than four out of five surveyed participants (82.5% or 33 out of 40) and the first reason mentioned by two-thirds of participants (65.0% or 13 out of 20). The program incentive was mentioned by about a third of participants (30.0% or 12 out of 40) and was the first reason given by about a sixth of participants (17.5% or 7 out of 40). Recommendations of trade allies (mentioned by 22.5% or 9 out of 40) and wanting better lighting (mentioned by 22.5% or 9 out of 40) were also mentioned

by about a quarter of surveyed participants. Only one customer (2.5% of 40) could not give any reasons.

Table 21. Reasons for Purchasing Smart $aver-Rebated Equipment (N=40)

	First mention (count)	First mention (percent)	Total mentions (count)	Total mentions (percent)
Wanted to reduce energy costs	26	65.0%	33	82.5%
Wanted to reduce maintenance / labor costs	2	5.0%	5	12.5%
The program incentive	7	17.5%	12	30.0%
Recommendation of trade ally	3	7.5%	9	22.5%
Wanted better lighting	6	15.0%	9	22.5%
Needed more lighting	2	5.0%	2	5.0%
Wanted lighting that generates less heat	1	2.5%	2	5.0%
Greater longevity of new bulbs	2	5.0%	4	10.0%
Old equipment working poorly	1	2.5%	1	5.0%
Old lighting being phased out (T12) / time to upgrade old lighting	3	7.5%	3	7.5%
Remodeling / making improvements	1	2.5%	1	2.5%
Environmental concerns	1	2.5%	2	5.0%
Past experience with this program	0	0.0%	1	2.5%
The information provided by Smart $aver	0	0.0%	0	0.0%
The information provided by Energizing Indiana	0	0.0%	0	0.0%
Recommendation of someone other than Duke Energy or trade allies (listed below)	4	10.0%	6	15.0%
Other reasons, listed below	2	5.0%	3	7.5%
Don't know	1	2.5%	1	2.5%

Columns total to more than 100% because respondents could name multiple reasons, including multiple first-mentioned reasons.[11]

Three customers gave "other" reasons for their Smart $aver-rebated lighting installations, which are listed below.

- *We wanted to improve the appearance of our property.*
- *Vibrations from the gallery affect spotlights, so we wanted the strength and durability of LEDs.*
- *We wanted to get rid of the inefficient halogens.*

Six customers mentioned recommendations from sources other than Duke Energy and trade allies; these responses are listed below.

[11] Respondents were asked "what kind of factors motivated you to purchase the energy-saving lighting?", followed by "were there any other reasons?" until they could not give any more responses. Responses are ranked according to the order they were given, but some customers gave multiple reasons when the question was asked the first time.

- *Recommended by a GENGEE energy audit.*
- *Recommendation of University Planning and Specs.*
- *Recommendation of the Ace District Manager.*
- *One of our employees recommended it.*
- *On recommendation of my boss.*
- *One of our customers recommended it.*

Units Replaced by Smart $aver-rebated Equipment

Table 22 shows that every rebate recipient surveyed replaced an existing system (100.0% of 40). One-fifth of surveyed participants replaced a unit that was less than ten years old (20.0% or 8 out of 40), while a quarter replaced units that were more than twenty years old (27.5% or 11 out of 40) and the plurality of 37.5% (15 out of 40) were between ten and twenty years old. Another 15.0% (6 out of 40) did not know the age of the replaced equipment.

Table 22. Replacing Existing Units and Age of Replaced Units (N=40)

	Indiana (count)	Indiana (percent)
Newly installed unit replaced an existing unit	40	100.0%
Replaced a unit less than 5 years old	2	5.0%
Replaced a unit 5 to less than 10 years old	6	15.0%
Replaced a unit 10 to less than 20 years old	15	37.5%
Replaced a unit 20 years to less than 30 years old	8	20.0%
Replaced a unit 30 or more years old	3	7.5%
Don't know age of replaced unit	6	15.0%

As seen in Table 23, only 27.5% (11 out of 40) rebated prescriptive lighting installations replaced units that were described as being in "good" working condition, while a plurality of 40.0% were merely in "fair" working condition. Another 17.5% (7 out of 40) were described as "poor" working condition, and 5.0% (2 out of 40) did not work at all. The remaining 10.0% of survey respondents (4 out of 40) confirmed that their replaced units were in working condition, but could not describe the quality of the condition.

Table 23. Condition of Units Replaced by Smart $aver Installation (N=40)

	Indiana (count)	Indiana (percent)
Replaced unit was in good condition	11	27.5%
Replaced unit was in fair condition	16	40.0%
Replaced unit was in poor condition	7	17.5%
Replaced unit was not in working condition	2	5.0%
Don't know replaced unit's condition	4	10.0%

Influence of the Non-Residential Smart $aver Program

Table 24 indicates that overall 55.0% (22 out of 40) of the respondents in this survey say that without the Smart $aver program, their organizations would have purchased their new units when they did anyway. Only 27.5% (11 out of 40) would have continued using the old unit. The remaining 17.5% (7 out of 40) would have delayed their purchase of new equipment. Among the four respondents who would have delayed their purchase and who gave specific time estimates as to how long, the average delay in making the purchase is estimated at 15 months.

Table 24. Actions Taken If Smart $aver Program Had Not Been Available (N=40)

	Indiana (count)	Indiana (percent)
Would have bought the new unit at the same time	22	55.0%
Would have bought the new unit within less than a year	0	0.0%
Would have bought the new unit one to three years from now	4	10.0%
Would have bought the new unit more than three years from now	0	0.0%
Would have replaced old units as they failed	0	0.0%
Would have waited for equipment prices to come down	1	2.5%
Would have waited to purchase new units, don't know how long	2	5.0%
Would have purchased a used unit	0	0.0%
Would have continued using the old unit	11	27.5%

Surveyed participants were asked to rate the influence of the program incentive and information on the level of energy efficiency of their new equipment. Figure 6 indicates that the incentive had significantly more influence than the program information. The mean influence of the incentive rebate is 6.43, and the mean influence of the program information is only 3.87 (significantly different at $p<.05$ using Student's t-test). The median influence ratings are 7.0 for the incentive and 5.0 for the program information, though a third of surveyed participants (32.5% or 13 out of 40) rated the influence of the program information at "zero out of ten".

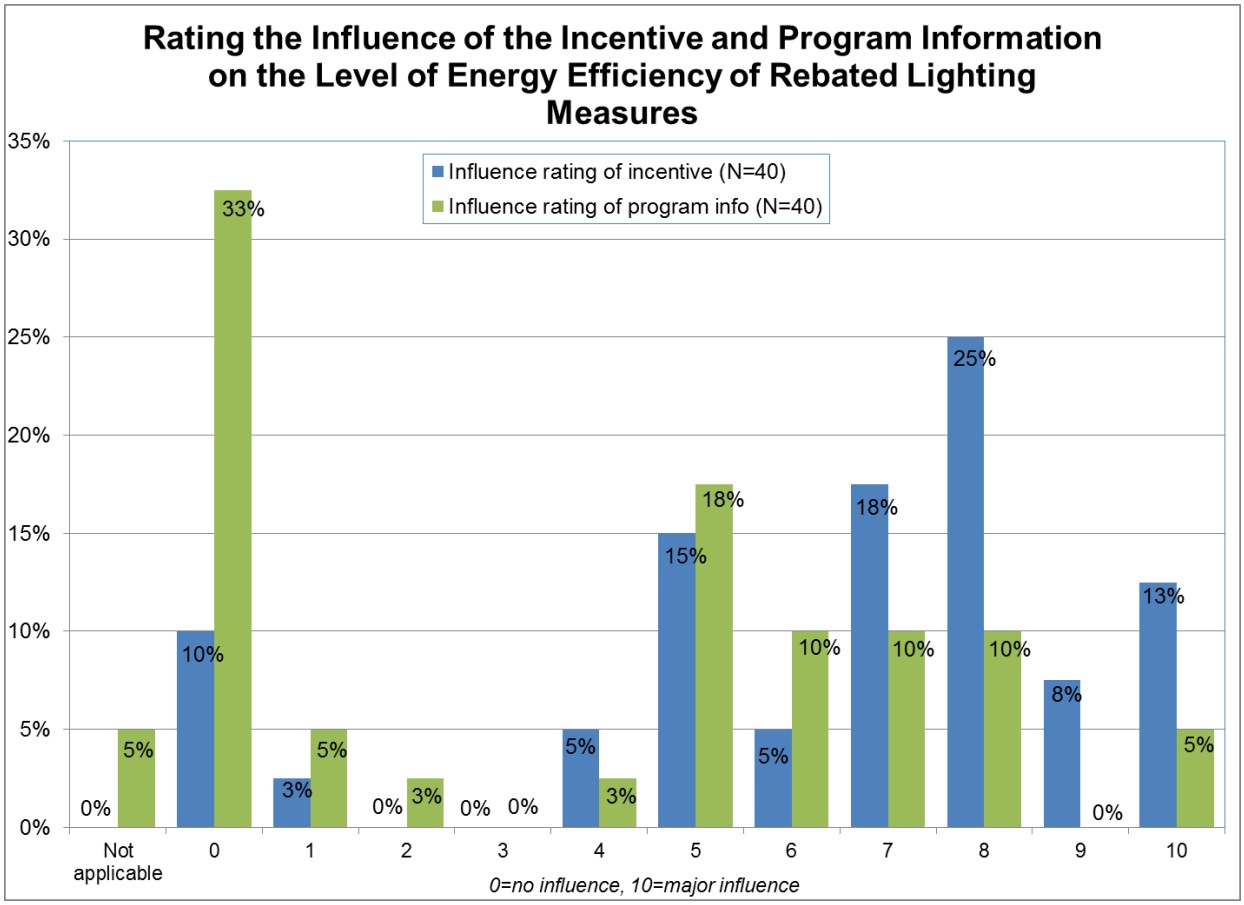


Figure 6. Influence of the Incentive and Program Information on the Level of Energy Efficiency of the Rebated Equipment (N=40)

It is worth reiterating that Smart $aver has an opportunity to help move customers towards their decisions to install high efficiency equipment, but seems to be leaving that opportunity unused. Most considerations of program influence will credit a program for providing technical information, assistance, and information about non-energy benefits to the customer, if all of those can be shown to drive customers to adopting energy efficient equipment. If Duke can provide this information to customers, they will likely participate in higher numbers in the future.

As an example, one experienced trade ally reported he was very excited to learn from his outreach representative that LED lighting will reduce food spoilage because it emits cooler light. This trade ally says he found out that, "*there are tools available that I didn't realize existed so I was pretty excited about it*", and said his rep promised to send those tools. A quick review of the website shows that this information is nowhere to be found. Duke Energy could benefit by capturing some of the information and expertise from their own staff, and make it consistently available to customers and trade allies.

> RECOMMENDATION: Duke Energy should consider ways in which the Smart $aver program can provide customers with useful information about the financial as well as non-energy benefits of installing energy efficient equipment. One possible source of useful information may be the account managers and trade ally representatives. More

information about the benefits of energy efficient equipment will likely lead to a higher participation rate in the future, and should be measureable in the ratings given to the program's influence on decision-making.

Most respondents (55.0% or 22 out of 40) say they would have purchased exactly the same equipment without the Smart $aver incentive rebate, as shown in Table 25. Another 22.5% (9 out of 40) would have selected a new model that was less efficient, 10.0% (4 out of 40) would have done a different project and 12.5% (5 out of 40) don't know what they would have done.

Table 25. Actions Taken if Smart $aver Financial Incentive Had Not Been Available (N=40)

	Indiana (count)	Indiana (percent)
Would have selected exactly the same energy efficiency without the financial incentive	22	55.0%
Would have selected a different energy efficiency without the financial incentive: almost as high efficiency as the model purchased	1	2.5%
Would have selected a different energy efficiency without the financial incentive: significantly more efficient than old model but not as efficient as the model purchased	4	10.0%
Would have selected a different energy efficiency without the financial incentive: somewhat higher efficiency than old model	1	2.5%
Would have selected a different energy efficiency without the financial incentive: similar efficiency to old model	3	7.5%
Would not have done the same project without the financial incentive	4	10.0%
Not sure what organization would have done without the financial incentive	5	12.5%

Table 26 shows that even more respondents (70.0% or 28 out of 40) would have selected exactly the same equipment without the program information and technical assistance compared to what they would have done without the incentive. Only 12.5% (5 out of 40) would have selected less efficient equipment without the program information and technical assistance, 2.5% (1 out of 40) would have done a different project, and 12.5% (5 out of 40) don't know what they would have done.

Table 26. Actions Taken if Smart $aver Program Information and Technical Assistance Had Not Been Available (N=40)

	Indiana (count)	Indiana (percent)
Would have selected exactly the same energy efficiency without the technical assistance	28	70.0%
Would have selected a different energy efficiency without the technical assistance: almost as high efficiency as the model purchased	0	0.0%
Would have selected a different energy efficiency without the technical assistance: significantly more efficient than old model but not as efficient as the model purchased	1	2.5%
Would have selected a different energy efficiency without the technical assistance: somewhat higher efficiency than old model	1	2.5%
Would have selected a different energy efficiency without the technical assistance: similar efficiency to old model	3	7.5%
Would not have done the same project without the technical assistance	1	2.5%
"*We made an increased efficiency choice, then got it approved for this program*"	1	2.5%
Not sure what company would have done without the technical assistance	5	12.5%

As noted earlier, there is less technical information currently available on the Smart $aver website than in past years. This points out an opportunity to easily increase customer satisfaction and perhaps increase participation rate, reiterating the need for the above recommendation to put more Smart $aver resources on the web site.

A majority of surveyed participants have installed more high efficiency equipment since participating in Smart $aver, as seen in Table 27. Nearly half have installed more equipment at their location (combined 45.0% or 18 out of 40), and more than a third have installed more equipment at other locations (combined 37.5% or 15 out of 40). Only 37.5% (15 out of 40) have not installed any additional high efficiency equipment.

Table 27. Other High Efficiency Installations Since Participating in Smart $aver (N=40)

	Indiana (count)	Indiana (percent)
Installed more high efficiency equipment – only at this location	10	25.0%
Installed more high efficiency equipment – only at other locations	7	17.5%
Installed more high efficiency equipment – at both this and other locations	8	20.0%
Have not installed more high energy efficiency equipment	15	37.5%
Don't know	0	0.0%

Table 28 shows what types of equipment were installed by organizations that made other high efficiency installations after participating in Smart $aver. The most common category was lighting upgrades (84.0% or 21 out of 25 respondents who installed more high efficiency

equipment), with LED installations being the most-mentioned type of lighting upgrade (28.0% or 7 out of 25). HVAC upgrades (24.0% or 6 out of 25), upgrades to chillers, compressors and pumps (20.0% or 5 out of 25), VFDs (16.0% or 4 out of 25) and occupancy sensors and lighting controls (16.0% or 4 out of 25) are the next most-mentioned high efficiency installations made by these customers.

Table 28. Other Energy Efficient Installations Which Were Influenced by Smart $aver (N=25)

Base: 25 respondents who said they installed more high energy efficient equipment since participating in Smart $aver	Indiana (count)	Indiana (percent)
Total lighting upgrades	21	84.0%
LED lighting upgrades	7	28.0%
T8 lighting upgrades	6	24.0%
T5 lighting upgrades	3	12.0%
Exterior lighting upgrades	3	12.0%
Other lighting upgrades (including unspecified)	9	36.0%
Occupancy sensors / lighting controls	4	16.0%
HVAC upgrades	6	24.0%
Chillers, compressors and pumps	5	20.0%
Variable frequency drives (VFD)	4	16.0%
Boiler / water heater upgrades	3	12.0%
New roof	1	4.0%
Water-saving measures	1	4.0%
Energy Star appliances / office equipment	1	4.0%

Columns total to more than 100% because respondents could give multiple responses.

Respondents were asked how they knew these installations were energy efficient; their responses are shown in Table 29. The most frequent response was the Energy Star rating, mentioned by about half of participants who installed additional efficient equipment (48.0% or 12 out of 25). Some other common reasons include information from trade allies (32.0% or 8 out of 25), information from manufacturers (28.0% or 7 out of 25) and in-house experts (20.0% or 5 out of 25).

Table 29. How Do You Know This Equipment Is High Efficiency? (N=25)

Base: 25 respondents who said they installed more high energy efficient equipment since participating in Smart $aver	Indiana (count)	Indiana (percent)
Energy Star, DesignLights Consortium (DLC) or other standard efficiency ratings	12	48.0%
Information from trade allies	8	32.0%
Equipment specifications / information from manufacturer	7	28.0%
In-house experts / engineers	5	20.0%
Respondent did their own research	4	16.0%
Based on past installations / previous experience	1	4.0%
Information from Duke Energy	1	4.0%
Other reasons, listed below	5	20.0%

Columns total to more than 100% because respondents could give multiple responses.

Five surveyed participants mentioned “other” reasons for believing their equipment was high-efficiency; these are listed below.

- *We use a database called ProjectDox.*
- *We hired an engineer to advise us.*

- *Recommended by Facilities Forum.*
- *Trade magazines.*
- *American Cancer Society marketing.*

Participants were asked if they received incentive payments for any of the additional high efficiency installations they have done since participating in Smart $aver. Overall, 72.0% (18 out of 25) of customers who did additional installations received incentives for at least some of those installations, as seen in Table 30.

Across 54 installations described by the 25 participants with additional installations, 32 of these installations (59.3% of 54) received incentives while 18 installations (33.3% of 54) did not; there are also two installations (3.7% of 54) for which the customer intends to apply for a Smart $aver incentive, and two installations (3.7% of 54) where the customer did not know if an incentive payment was involved or not.

Most of these incentives were paid by Duke Energy and Energizing Indiana, though there seems to be some confusion between these two programs among some customers, as indicated by four (16.0% of 25) respondents reporting that their incentive came from "Duke Energy or Energizing Indiana" (three of these four respondents participated in both programs, while the fourth was not sure if they had also participated in Energizing Indiana or not).

Table 30. Incentive Rebates for Additional Equipment Installations (N=25)

Base: 25 respondents who said they installed more high energy efficient equipment since participating in Smart $aver	**Indiana (count)**	**Indiana (percent)**
Received incentive for any additional installation	18	72.0%
Received incentive from Duke Energy	9	36.0%
Received incentive from Energizing Indiana	6	24.0%
Received incentive from Duke Energy or Energizing Indiana, but not sure which	4	16.0%
Received incentive from Vectren Corporation	2	8.0%
Received incentive from Indiana Finance Authority	1	4.0%
Received incentive, but not sure who paid it	2	8.0%
Will apply for Smart $aver incentive, but have not yet	1	4.0%
Did not receive incentive for any additional installations	6	24.0%

Columns total to more than 100% because respondents could receive multiple incentives for multiple installations.

Figure 7 shows that nearly half of participants (48.0% or 12 out of 25) rated the influence of Smart $aver on their organization's installation of additional high efficiency-equipment at "8" or higher a 10-point scale where "10" is the most influential. Overall, the mean influence rating is 5.96, and the median rating is 7.0.

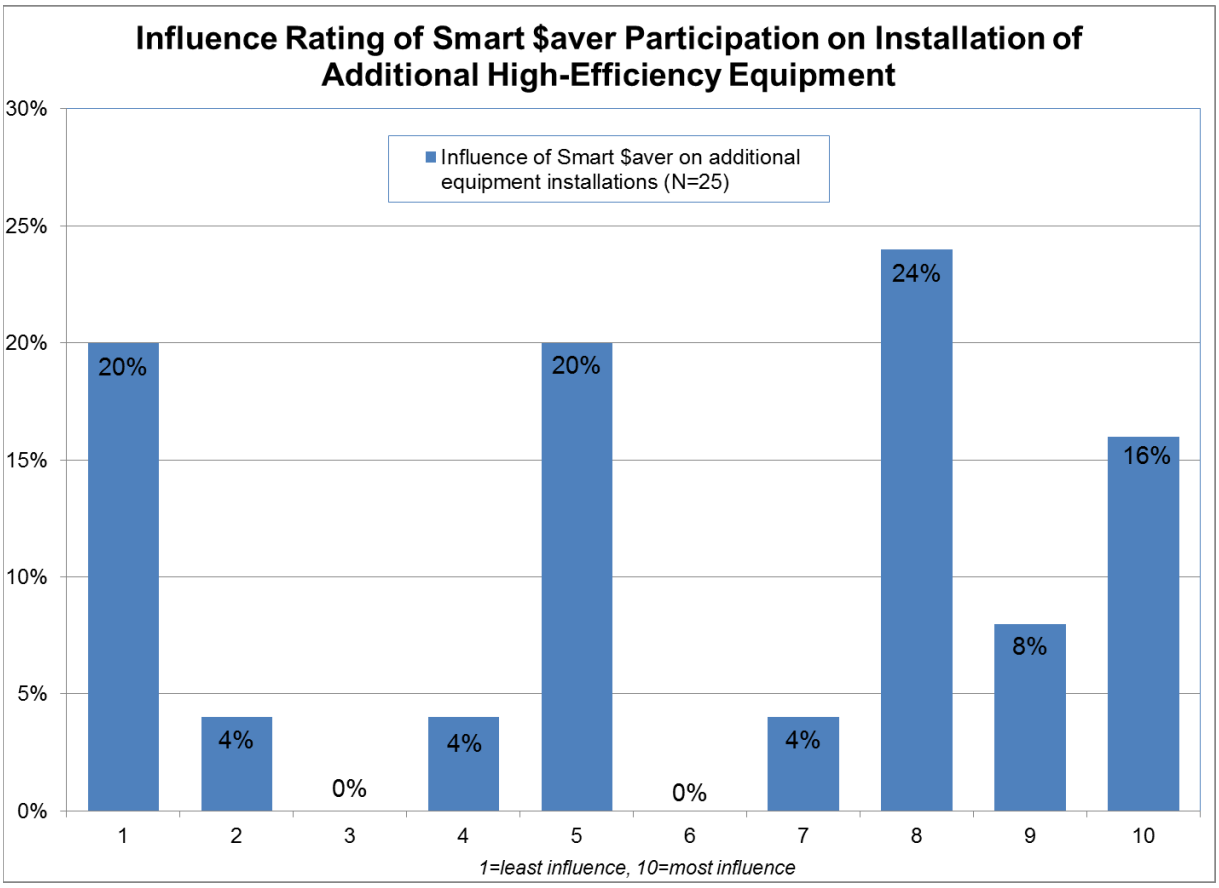


Figure 7. Influence of Smart $aver on Installation of Other High Efficiency Equipment
(Base: N=25 respondents who installed other high efficiency equipment since participating in Smart $aver)

Thirteen participants (52.0% of 25 who installed additional equipment) rated the influence of the program at "7" or less on a 10-point scale where "10" is most influential. These thirteen customers were asked what they considered the most important influence on these installation decisions; these responses are listed below.

- *Our company has an in-house department devoted to energy efficiency research. We also hold monthly meetings to discuss ways of reducing energy use.*
- *Our organization has an energy plan.*
- *We're influenced by the lack of incandescent bulbs in the future and the energy savings from more efficient bulbs.*
- *I consider overall cost savings to be the most important influence.*
- *I know the new equipment is more efficient.*
- *I consider the life cycle of the equipment, energy and operating costs, and the decibels of noise it produces to be important influences.*
- *I consider the quality of the new lighting to be the most important influence.*
- *I consider my previous experience with similar equipment to be the most important influence.*

- *I consider the most important influence to be the confidence we gained in the manufacturer by installing the exact same equipment at another job site.*
- *I was in the middle of a complete remodel, so these things were brought to my attention by the contractor.*
- *It was a combination of our own research and information from our contractor.*
- *I'd like to repeat that none of this was done because of the incentive. All the projects are pre-planned.*
- *Regardless of programs, I'm going to do these installations anyway.*

Survey participants were asked "w*hat other actions, if any, have you taken in your company to save energy and reduce utility bills as a result of what you learned in this program?*" These additional actions are summarized in Table 31. Two-thirds of customers (70.0% or 28 out of 40 said they did not take any additional actions based on what they learned from participating in this program. No category of actions taken was mentioned by more than 5% of the respondents surveyed.

Table 31. Other Efficiency Actions Taken Which Were Influenced by Smart $aver (N=40)

	Indiana (count)	Indiana (percent)
More efficient windows / doors / roofs	2	5.0%
HVAC upgrades	2	5.0%
More closely monitoring energy usage / energy studies	2	5.0%
Upgraded heavy equipment (chillers, pumps, boilers, etc.)	2	5.0%
Maintenance to improve performance / efficiency of equipment	1	2.5%
Educating employees / tenants / students to save energy (turn things off)	1	2.5%
Insulation / weatherization	1	2.5%
More lighting upgrades	1	2.5%
Occupancy sensors / motion sensors	1	2.5%
Unique actions (see list below)	3	7.5%
Nothing / don't know	28	70.0%

Multiple responses were accepted for this question, so columns total to more than 100%.

Three respondents mentioned unique actions they had done to improve energy efficiency; these are listed below.

- *All architects must select equipment and fixtures compatible with Smart $aver or Energizing Indiana.*
- *We purchased and installed a rooftop solar array.*
- *I put an outside wood stove in, so I save on running the furnace.*

Satisfaction with the Smart $aver Program

Figure 8 indicates that Smart $aver participants were generally very satisfied with the program as a whole; 75.0% (30 out of 40) surveyed participants rated their satisfaction with the program at "8" or higher on a 10-point scale where "10" is highest. The mean satisfaction rating is 8.33 and the median is 9.0.

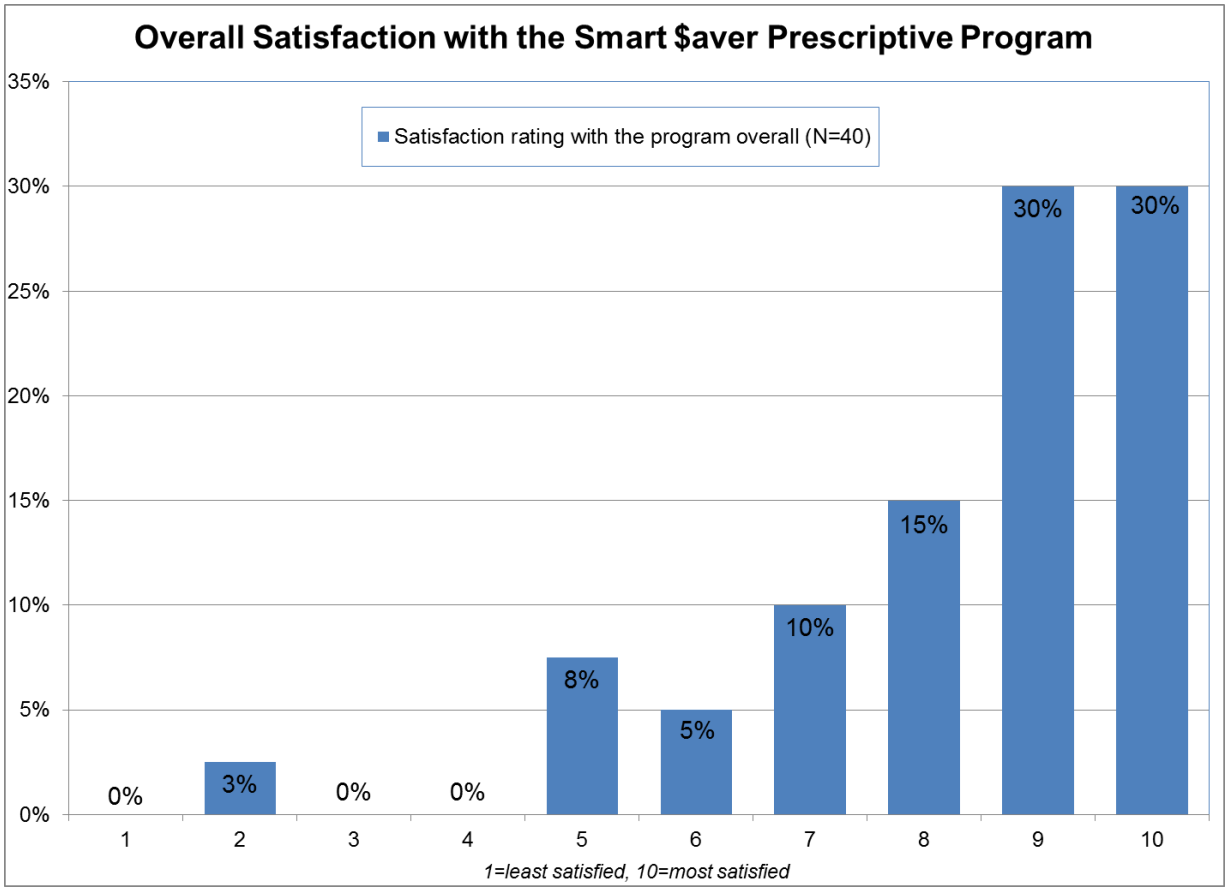


Figure 8. Overall Satisfaction with the Smart $aver Prescriptive Program (N=40)

Ten respondents rated their overall satisfaction with Smart $aver a "7" or less on a 10-point scale. They were asked what could be done to improve the program, and their answers are listed below.

- *I like the Smart $aver program, but the incentives could be increased. Duke could also improve their phone help, and become more knowledgeable about their customers.*
- *Duke could acknowledge receipt of the application and also follow up after the incentive has been paid.*
- *I'd like to have better contact information about who's assigned and a less confusing Prescriptive application.*
- *If the first person I talked to at Duke had given me the right information about the program and application when I was having problems, it wouldn't have taken a year to get the money.*

- *On my end, I didn't have a lot of interaction with Duke at all. Maybe it's not on Duke's end, but it would have beneficial to have more information from my contractor.*
- *I love the product and the concept.*
- *I think the program has potential.*
- *I'm satisfied.*
- *Don't know* (N=2)

The specific aspect of the Smart $aver program with the lowest level of participant satisfaction is the amount of the incentive rebate, though participants are generally satisfied with this aspect (mean rating 7.61 on a 10-point scale where "10" is highest). All of the specific aspects of the program rated by participants received mean satisfaction ratings between 7.5 and 8.5, and all aspects had median satisfaction ratings between 8.0 and 9.0. Overall satisfaction with Duke Energy is also high, with a mean rating of 8.36.

Table 32. Satisfaction with the Smart $aver Program and Duke Energy (N=40)

	Valid responses (count)	Mean rating	Median rating
Interactions and communications with Duke Energy staff	30	8.37	9.0
The info provided by Duke Energy account manager	13	8.23	9.0
The info provided by the Smart $aver website	25	7.96	8.0
The time it took to receive the incentive	30	7.93	8.5
The info provided by trade allies	28	7.89	8.5
The variety of technologies covered by the program	32	7.81	8.0
The amount of the incentive offered	36	7.61	8.0
Satisfaction with the Smart $aver Prescriptive program overall	40	8.33	9.0
Satisfaction with Duke Energy overall	39	8.36	9.0

Surveyed participants who rated their satisfaction with different aspects of the program at "7" or less on a 10-point scale were asked what could be done to improve these aspects of the program. These responses are listed below.

Amount of the incentive (N=16)

- *Duke could provide higher incentives.* (N=6)
- *Duke could provide higher incentives commensurate with 25% of the cost of new equipment.*
- *Incentives should be 25% of the purchase price of new equipment.*
- *Duke could provide higher incentives, say, at least 10% of the equipment cost.*
- *Duke could offer higher incentives. Even getting 5% back is appreciated. Every little bit helps.*
- *The amount of the incentives could be a flat rate instead of roughly 50% of the material cost. I feel like I'm penalized for being a good shopper and for having cultivated beneficial relationships with my vendors.*
- *The incentive could match more of the capital outlay, a closer percentage.*

- *Duke could increase the incentives. The incentives should be sufficient enough to help "payback" the cost of the new equipment within two years.*
- *Duke could increase the incentives. The amount we received was much less than expected. This confusion might be partially attributed to my father, who purchased the lighting upgrade, and his dealings with the lighting salesman.*
- *If it's less than $500, it's not worth my time or somebody else's time. Not worth the digging through specs and dealing with contractors. I know this has nothing to do with the program, but I don't know what is spec until I get into each project.*
- *Need clarification on what the amounts would be.*

Variety of technologies covered (N=8)

- *I would like to see renewable energy and LEP (Light Emitting Plasma) covered by the program. Advancements in energy efficiency equipment happen all the time. Duke needs to be stay informed and be responsive to include the latest technologies in the Smart $aver program.*
- *The technologies covered by Prescriptive are acceptable, though I would like Custom to include things such as robotics.*
- *The majority of what I was doing during a remodel was not covered.*
- *I don't spec any of the equipment. I don't know what else is out there that our engineers specify that we need to see added.*
- *It's fine the way it is. I'm satisfied.*
- *Don't know.* (N=3)

Information provided by trade allies (N=10)

- *I would like to see more thorough collaboration between vendors and Duke.*
- *In my experience, vendors rarely even mention the Smart $aver program. Duke could push vendors to participate in the program.*
- *Duke could promote the program more aggressively with vendors.*
- *Duke could provide more education and incentives for contractors.*
- *I could have used a better explanation of all the benefits, about the information and technical assistance. I didn't know anything about those things.*
- *The vendor could have more readily supplied the equipment spec sheets I needed to complete the Smart $aver paperwork.*
- *The vendor should have filled out the dang form!*
- *They don't provide much.*
- *I'm getting all my information through University Planning.*
- *Don't know.*

Time it took to receive the incentive payment (N=8)

- *Duke could pay the incentive within 30 days of receiving the application.*

- *Duke could pay the incentive within 6 months of receiving the completed application. Duke lost my first version of the incentive paperwork. I then had to re-fill and re-submit the paperwork. All-in-all a very frustrating process.*
- *Duke could provide the incentives within 2 weeks of receiving the completed application.*
- *Duke should pay the incentives within 2 weeks of receiving the completed application.*
- *Duke could provide the incentive within 7-10 days of receiving the application.*
- *Because of the confusion with the application, the incentive was too slow.*
- *Better processing would speed things up.*
- *It took a year because of problems with the application.*

Information provided by the Smart $aver website (N=6)

- *Duke could make the website more user friendly, provide specific information, and require less jumping around to find things.*
- *The information needs to be updated more frequently.*
- *The information provided about the Prescriptive program is good. Duke could do more to promote the Custom program.*
- *My dissatisfaction relates to our confusion with the application.*
- *I could look at it more often.*
- *It's satisfactory.*

Information provided by the Duke Energy account manager (N=4)

- *Again, the information needs to be updated more frequently.*
- *I'd like to have better contact information about who's assigned to our account.*
- *I would like less confusion and better communication.*
- *Don't know.*

Interactions and communications with Duke Energy staff (N=7)

- *I had very little interaction with Duke Energy staff. Duke could improve their customer service and relations.*
- *I didn't have much contact with them.*
- *The representatives could be more proactive in the suggestions.*
- *I'd like to have better contact information about who's assigned to our account.*
- *I'd like to see less bureaucracy and more organization.*
- *Duke could be more customer friendly by not forcing us to adhere to their unbudging agenda.*
- *I thought our rep did a fine job. I'm satisfied.*

Surveyed participants who rated their satisfaction with the program overall or with Duke Energy overall at "7" or less on a 10-point scale were asked what could be done to improve these situations. These responses are listed below.

Improving satisfaction with the program overall (N=9)

- *I like the Smart $aver program, but the incentives could be increased. Duke could also improve their phone help, and become more knowledgeable about their customers.*
- *I think the program has potential. To improve it, Duke needs to communicate better, and pay larger incentive amounts more quickly.*
- *If the first person I talked to at Duke had given me the right information about the program and application when I was having problems, it wouldn't have taken a year to get the money.*
- *Duke could acknowledge receipt of the application and also follow up after the incentive has been paid.*
- *I'd like to have better contact information about who's assigned and a less confusing Prescriptive application.*
- *On my end, I didn't have a lot of interaction with Duke at all. Maybe it's not on Duke's end, but it would have beneficial to have more information from my contractor.*
- *I love the product and concept.*
- *I'm satisfied.*
- *Don't know.*

Improving satisfaction with Duke Energy overall (N=9)

- *I wish they'd lower their rates; but other than that, I'm fine.*
- *It's the continual rate increases that cause us the biggest headache.*
- *Duke could make the billing cycles more regular and consistent.*
- *I would prefer to consolidate my billing across several Duke Energy accounts. We would like an assigned account manager. Also, Duke could provide on-site energy audits.*
- *Duke could improve their customer service skills, particularly over the phone. I would prefer being able to call an assigned account manager rather than having to wade through some general 800 number.*
- *Again, the incentive end of their programs needs better responsiveness or more creative ideas.*
- *Duke could embrace renewable energy.*
- *When it comes to equipment purchases, I go directly to cost/benefit.*
- *Don't know.*

What Participants Liked Most and Least about the Smart $aver Program

Table 33 categorizes the open-ended responses of participants when they were asked what they liked most about the non-residential Smart $aver prescriptive program. Almost two-thirds (65.0% or 26 out of 40) mentioned the incentive rebate saving them money on upfront costs. The upgraded equipment (15.0% or 6 out of 40), saving money on bills or return on investment (12.5% or 5 out of 40) and ease and simplicity of participation (12.5% or 5 out of 40) were the next most-mentioned favorite aspects of the program. Six survey participants (15.0% of 40) could not name a favorite thing about this program (nothing or don't know).

Table 33. What Do You Like Most About the Non-Residential Smart $aver Program? (N=40)

	Indiana (count)	Indiana (percent)
Like immediate rebate / incentive / recouping some upfront costs	26	65.0%
Like upgraded equipment / better lighting	6	15.0%
Like saving money on bills / return on investment	5	12.5%
Like how easy it was / simplicity	5	12.5%
Liked information / knowledge gained	3	7.5%
Like saving energy / helping the environment	3	7.5%
Other comments, listed below	2	5.0%
Nothing / don't know	6	15.0%

Multiple responses were accepted for this question, so columns total to more than 100%.

Two survey respondents mentioned other aspects of the program which they liked best; these responses are listed below.

- *I'm always out to try new things, and these LEDs are something new.*
- *The tax incentives.*

Next, Table 34 categorizes respondents' least favorite things about participating in the non-residential Smart $aver prescriptive program. Nearly one participant in five (17.5% or 7 out of 40) reported that their least favorite aspect of the program is the application process and accompanying paperwork and "bureaucracy". One participant in eight (12.5% or 5 out of 40) reported that their least favorite things about the program have to do with issues regarding the equipment types that are covered. All other responses were mentioned by fewer than 10% of surveyed participants.

Table 34. What Do You Like Least About the Non-Residential Smart $aver Program? (N=40)

	Indiana (count)	Indiana (percent)
Dislike the application process / paperwork / bureaucracy	7	17.5%
Limitations in what is covered / criteria for deciding what is covered by the program (listed below)	5	12.5%
Took too long to receive rebate	2	5.0%
Incentive is too low / projects don't pay for themselves quickly enough	2	5.0%
Disliked having to pay for a lighting upgrade	2	5.0%
Other comments, listed below	6	15.0%
Don't know/Nothing	18	45.0%

Multiple responses were accepted for this question, so columns total to more than 100%.

Six surveyed participants provided "other" comments about what they liked least about the program, which are listed below.

- *I dislike that the amounts of the incentives are based on inflated values. We cannot make cost saving decisions based on Duke's schedule and the tariffs in our rider agreement.*
- *The criteria pages you have to go through need to be searchable like John Deere lights: these two categories, these are the fixtures you can go with. I have to print all these pages and sift through the items to see what qualifies.*
- *[Our] University has an integrated energy reduction master plan. We have our own incentive because we're try to do this to improve our environment, cut down on our production of carbon, and reduce energy costs. I don't know that the program's driving us to make improvements. We're not really learning anything from the program. We're ahead of our own learning curve.*
- *We were told that the bulbs last longer than they do, but it seems to have settled a bit now. We were told the bulbs were supposed to last a year or more. We changed three or four bulbs within the first three months. Maybe they were defective.*
- *I didn't like trying to find Energy Star bulbs that are a match for our needs on the internet.*
- *I dislike the Duke Energy website.*

Five surveyed participants mentioned limitations in the equipment covered as their least favorite thing about the program; these responses are listed below.

- *I dislike the arbitrary nature of which items qualify for the DLC list. I disagree with the way some things are categorized. High bay lighting should not be pigeonholed strictly as a type of "floodlight".*
- *We did not like the lag between what the manufacturers say is the most efficient technology and what was approved by the program. As we looked through the options*

approved by the program, it's almost as though you are incentivized to not use the highest efficiency, which is counter intuitive to the program.

- *I dislike the quirky nature of which items qualify for the program. Certain items may be virtually identical and equally energy efficient, but one item qualifies for the incentive while the other does not.*
- *It was a little bit difficult to determine the program's offerings, the equipment, and find the contractor to provide it. It was an apples to oranges type of thing. I guess I needed to be an electrician or something.*
- *They need more opportunities for heating and cooling controls for those systems.*

Improving the Non-Residential Smart $aver Program

Respondents were asked what additional services they'd like to see provided by the Smart $aver program. Although two-thirds (67.5% or 27 out of 40) had no suggestions, 10.0% (4 out of 40) want to see more types of projects covered by Smart $aver, and 7.5% (3 out of 40) want tools for tracking energy usage and savings (these verbatim suggestions are listed after Table 35).

Table 35. What Additional Services Would You Like the Smart $aver Program to Provide? (N=40)

	Indiana (count)	Indiana (percent)
Include more types of projects (listed below)	4	10.0%
Promote the program more	3	7.5%
Provide tools for calculating and tracking usage / energy modeling (listed below)	3	7.5%
Improve customer service	1	2.5%
Make more technical info available	1	2.5%
Provide energy audits	1	2.5%
Don't know / nothing	27	67.5%

Four surveyed participants suggested additional projects and measures for inclusion in the program; these suggestions are listed below.

- *I would like energy-efficient high bay lighting to qualify for the program.*
- *Duke could provide incentives for Energy Management Systems.*
- *Maybe they could also provide wall insulation.*
- *The technologies covered by Prescriptive are acceptable, though I would like Custom to include things such as robotics.*

Three surveyed participants suggested tools for calculating and tracking energy usage and savings; these suggestions are listed below.

- *The program could provide an Excel spreadsheet to track incentives and confirm savings.*
- *Duke could provide an energy savings calculator or spreadsheet to project long-term usage and savings.*
- *I would like the program to provide energy modeling.*

As a follow-up question, respondents were asked if there were any other things they would like to see changed about the Smart $aver program. Only 14 respondents (35.0% of 40) had further suggestions; their verbatim comments are listed below. Four of these comments suggest that Duke Energy should do more to promote the program to potential participants, two suggest more program flexibility, and two suggest higher incentive payments.

- *I would like the program to restore the incentives for motors, and also provide incentives for HVAC control systems.*
- *I know it's Energizing Indiana, but the VFD rebate process is not good. I was happy to see more LEDs added to the program. Pumps are now added, but it doesn't make sense why 40 is Prescriptive and 50 is Custom. The way our planning is done, it's not conducive to our to our planning to have anything 60,000 or above be Custom.*
- *Duke could offer more flexibility regarding their Custom program. We would like to be able to move ahead on projects without adhering to Duke's strict timelines and inspection approval procedures.*
- *Duke could be more lenient, accessible, and allow exceptions to their rather stringent program qualifications.*
- *Duke could reinstate the "double" incentives. Those incentives helped us purchase a lot of energy efficient lighting.*
- *Increase the rebate dollars.*
- *I would prefer being able to contact someone at Duke Energy directly to occasionally guide me through the incentive applications.*
- *There are things that are constantly changing. You could subscribe to updates by email as products are added or deleted and we could use more notification of a form changes, too. Always make sure we're using the latest revision. Send form notifications.*
- *Maybe they could have a little flyer in your bill advertising the program. We really didn't know about it until our lighting rep brought it up.*
- *I would like to see the program promoted more. I had never heard of it until we started scoping this project.*
- *I hadn't heard of the Smart $aver Program until my contractor informed me. Duke could email prospective businesses with information about the program.*
- *Duke could use its influence to push energy efficiency projects.*
- *I would like the program to continue and improve.*
- *Just keep it simple.*

Surveyed participants were also asked at the end of the survey if they had any additional comments for Duke Energy. Six participants (15.0% of 40) provided comments, which are listed below.

- *Going forward, I don't know that they'll have the Custom incentives we want. We are looking at an automated HVAC this year, which is very costly. If we are going to*

implement this with the Custom program, we've got to have an equal bidding process because we're a public institution.

- *I would prefer not having to spend an entire day crunching numbers before submitting a Smart $aver Custom application if Duke's standard procedure is to then recalculate the entire job regardless of my previous efforts. Please spare me the unnecessary labor.*
- *I don't know much about the program, so maybe they're not doing a good job of getting program information out to the correct people at manufacturing facilities.*
- *I think it's a great program for the community. I guess they could publicize it more for the homeowner. Is it even available to the homeowner?*
- *Duke Energy could provide net metering.*
- *I love their website because it's uncomplicated.*

Participation in Energizing Indiana

Surveyed participants in the Smart $aver Prescriptive program were asked if they have also participated in Energizing Indiana. As seen in Table 36, at least half of survey respondents participated in Energizing Indiana (50.0% or 20 out of 40), though one in four was not sure ("don't know" 22.5% or 9 out of 40).

Table 36. Smart $aver Participants' Participation in Energizing Indiana (N=40)

	Indiana (count)	Indiana (percent)
Participated in Energizing Indiana	20	50.0%
Did not participate in Energizing Indiana	11	27.5%
Not sure if participated in Energizing Indiana	9	22.5%

Customers who participated in both Smart $aver and Energizing Indiana were about equally likely to have heard about either program first: 40.0% (8 out of 20) first heard about Smart $aver, 35.0% (7 out of 20) first heard about Energizing Indiana, and 25.0% (5 out of 20) first heard about both programs at the same time.

Table 37. Program Awareness: Energizing Indiana and Smart $aver (N=20)

Base: 20 customers who participated in both Smart $aver and Energizing Indiana	Indiana (count)	Indiana (percent)
Heard about Duke Energy Smart $aver first	8	40.0%
Heard about Energizing Indiana first	7	35.0%
Heard about both programs at the same time	5	25.0%

The eight customers who heard about the Smart $aver program first were asked "*Did you learn about Energizing Indiana through Duke Energy's marketing and outreach, or from Energizing Indiana's own marketing and outreach?*" Four of these participants (50.0% of 8) replied that they heard about Energizing Indiana from Energizing Indiana's outreach efforts, while two (25.0% of 8) heard about Energizing Indiana from Duke Energy, and two (25.0% of 8) could not recall.

The seven customers who heard about the Energizing Indiana program first were asked "*Did you learn about Smart $aver through Energizing Indiana's marketing and outreach, or from Duke Energy's own marketing and outreach?*" Two of these participants (28.6% of 7) replied that they heard about Smart $aver from Energizing Indiana's outreach efforts, while the other five (71.4% of 7) could not recall (none of the customers who learned about Energizing Indiana before Smart $aver reported hearing about Smart $aver from Duke Energy).

The five customers who heard about both programs at the same time were asked "*did you learn about them through Duke Energy's marketing and outreach, or from Energizing Indiana's own marketing and outreach?*" Three of these participants (60.0% of 5) replied that they heard about both of these programs from Duke Energy marketing, and two (40.0% of 5) said that they learned about both programs through a trade ally (none specified that they first heard of the programs through Energizing Indiana's outreach efforts).

Customers who participated in both programs were asked if they felt there were any aspects of Energizing Indiana that should be incorporated into Duke Energy's Smart $aver program. As seen in Table 38, only 30.0% (6 out of 20) had recommendations for improving Smart $aver by incorporating elements of Energizing Indiana.

Table 38. Recommendations to Improve Smart $aver by Incorporating Aspects of Energizing Indiana (N=20)

Base: 20 customers who participated in both Smart $aver and Energizing Indiana	**Indiana (count)**	**Indiana (percent)**
Recommend aspects of Energizing Indiana be incorporated into Smart $aver (details below)	6	30.0%
Do not recommend aspects of Energizing Indiana be incorporated into Smart $aver	12	60.0%
Don't know	2	10.0%

Six surveyed participants recommend incorporating elements of Energizing Indiana into the Smart $aver program; these responses are listed below.

- *Energizing Indiana is more encompassing; like, we received a rebate for an energy-saving dishwasher. I'm pretty sure that's not covered under Smart $aver.*
- *I think anything that plugs into the wall ought to be covered.*
- *It is my understanding that Energizing Indiana will cease to exist in December 2014. I'd prefer it if all the incentives offered by Energizing Indiana could be added to Duke Energy's Smart $aver Prescriptive program.*
- *A knowledgeable representative from Energizing Indiana visited our hospital, performed an on-site energy audit, and did a commendable job promoting the program. Duke should take a similar approach towards promoting Smart $aver.*
- *Energizing Indiana made a presentation at my kids' school and supplied them with an energy kit.*
- *Yes, have only one application.*

Customers who participated in both programs were asked if they would prefer a different division of incentives between Smart $aver and Energizing Indiana. As seen in Table 39, a minority of 40.0% (8 out of 20) prefer one program to pay all the incentives, with a slight preference for Energizing Indiana (20.0% or 4 out of 20) over Smart $aver (10.0% or 2 out of 20), although another 10.0% (2 out of 20) want the incentives paid by one organization but do not care which one. A majority of 60.0% (12 out of 20) either thinks the current incentive division is fine or has no preference for changing it.

Table 39. Preference for Division of Incentives Between Smart $aver and Energizing Indiana (N=20)

Base: 20 customers who participated in both Smart $aver and Energizing Indiana	**Indiana (count)**	**Indiana (percent)**
Prefer all incentives paid by Energizing Indiana	4	20.0%
Prefer all incentives paid by Smart $aver	2	10.0%
Prefer one payer, don't care which it is	2	10.0%
The current division is fine	1	5.0%
No preference at all	11	55.0%

Characteristics of Respondent Organizations

More than half of the respondents surveyed for this evaluation (55.0% or 22 out of 40) represent commercial enterprises, as seen in Table 40. Approximately a quarter are industrial concerns (22.5% or 9 out of 40) and the other quarter are non-profit and public sector organizations (22.5% or 9 out of 40).

Table 40. Survey Respondent's Organization (N=40)

	Indiana (count)	Indiana (percent)
Total non-profit and public sector	**9**	**22.5%**
School district / university / college	4	10.0%
Community service / church / non-profit	3	7.5%
Municipal facilities / libraries / local government	2	5.0%
Total industrial	**9**	**22.5%**
Industrial / heavy manufacturing	4	10.0%
Light manufacturing	2	5.0%
Contractors	2	5.0%
Farming / agriculture	1	2.5%
Total commercial	**22**	**55.0%**
Transportation / automotive	7	17.5%
Retail (non-food)	5	12.5%
Property management / condo association	2	5.0%
Restaurants	2	5.0%
Healthcare / hospitals	1	2.5%
Convenience / grocery stores	0	0.0%
Office	0	0.0%
Warehouse	0	0.0%
Miscellaneous other commercial (listed below)	5	12.5%

Five respondents' organizations (12.5% of 40) are categorized as "miscellaneous other commercial." Verbatim descriptions of these organizations are listed below:

- *Printing company*
- *Resort and casino*
- *Funeral home*
- *Racing team*
- *Our company specializes in solutions for telecommunication networks, business process outsourcing, energy efficiency, industrial assembly, and telehealth services.*

Respondents in this survey were asked their job title at the organization where the Smart $aver-rebated equipment was installed, which is reported in Table 41. The most common job titles among respondents are "proprietor or owner" (27.5% or 11 out of 40), "facilities manager or director" (12.5% or 5 out of 40) and "other manager, director or supervisor" (17.5% or 7 out of 40).

Table 41. Survey Respondent's Job Title at Organization (N=40)

	Indiana (count)	Indiana (percent)
Facilities Manager / Director	5	12.5%
Other facilities management / maintenance position	1	2.5%
Operations Manager / Director	3	7.5%
Proprietor / Owner	11	27.5%
President / CEO / COO / VP / GM	3	7.5%
Other Manager / Director / Supervisor	7	17.5%
CFO	2	5.0%
Other financial / administrative position	1	2.5%
Energy Manager / Coordinator	3	7.5%
Engineer / electrician / inspector / researcher	4	10.0%
"Real Estate" or "Property" title	0	0.0%
Government position	0	0.0%

Net to Gross Methodology

Freeridership

TecMarket Works utilized two different sets of multiple questions asked of each surveyed participant which are scored independently, and then combined to estimate freeridership.

For the first set of calculations, the primary "gateway" question asks if they would have purchased equipment without the program and if so when that would have occurred. This question is designed to segregate the respondents into groups associated with their intent to buy a new unit or not (not the efficiency of that purchase). The second question within this first set asks those who say they would have delayed their purchase to estimate how long they would have delayed the purchase. Together these two questions provide the foundation from the first set of questions to be used to move to the second set of questions that will be used for estimating the level of energy impacts that are attributable to freeridership rather than savings that are program induced (net savings).

The first question within the first set of questions asked survey respondents what their behavior would have been if the Smart $aver program had not been available. The four categories of responses were:

a.) bought a new unit at the same time
b.) bought a new unit at a later time
c.) bought a used unit at the same time or a later time
d.) continued to use the currently installed unit and not purchase a new or used unit

The breakdown of responses to the gateway question can be seen in Table 42. Participants who indicated that they would have bought the same unit at the same time are assigned a gateway freeridership score of 100%. Participants answering that they would have continued using the currently installed unit are assigned 0% freeridership.

Participants who indicated that they would have bought their units at a later time are asked an additional question for determining when they would have purchased the units in the absence of the program. Each response to this question was converted to a gateway freerider percentage as presented in Table 42.

From the foundational set of questions, the equivalent freerider rate (the number of units that count toward freeridership) is the product of the freerider percentages multiplied by the number of respondents/units.

Table 42. Program Freeridership Gateway Questions: Intention in Absence of the Program

Gateway Question Response	Lighting Count (freeriders)
New unit at same time (100% freerider)	22 (22)
New unit within 6 months (75% freerider)	0 (0)
New unit 6-12 months later (50% freerider)	3 (1.5)
New unit 12-24 months later (25% freerider)	1 (0.25)
New unit more than 24 months later (0% freerider)	0 (0)
New unit, don't know when (mean % freerider of the five rows above)	3 (1.31)
Used unit at the same time or later time	0 (0)
Continued using old unit (0% freerider)	11 (0)
TOTAL COUNT	**40**
Gateway Freeriders	**25.06**
Gateway Freerider %	**62.7%**

The second set of freerider calculations is based on an additional set of multiple questions which ask what participants would have done without the Smart $aver incentive, and without the Smart $aver program information and technical assistance. This set of questions focuses on the efficiency level of equipment that would have been purchased without the program.

The three categories of responses to these questions were:

a.) bought unit with at least the same efficiency level
b.) bought a unit with a lower efficiency level
c.) not sure what organization would have done

The breakdown of responses to these questions can be seen in Table 43 and Table 44. Participants who indicated that they would have bought the same efficiency level without the incentive or program information were assigned the average gateway freeridership calculated in Table 42: 62.7% for lighting measures. Participants answering that they would have selected a different efficiency level were assigned a lower percentage of freeridership depending on how much less efficient their choice would have been in the absence of the incentive or program information. If they would have purchased a unit of the same efficiency level as the old unit that was replaced, then 0% freeridership is assigned (there would have been no savings without the program since they would have installed a new unit with the same level of efficiency as the old unit).

Table 43. Program Freeridership Based on Financial Incentive

Response for "without financial incentive"	Lighting Count (freeriders)
Would have selected same efficiency level without financial incentive (freerider percent based on planned time of purchase times 100%)	22 (13.78)
Would have made a different choice without financial incentive: almost as efficient as new model (freerider percent based on planned time of purchase times 75%)	1 (0.47)
Would have made a different choice without financial incentive: significantly more efficient than old model (freerider percent based on planned time of purchase times 50%)	4 (1.25)
Would have made a different choice without financial incentive: somewhat more efficient than old model (freerider percent based on planned time of purchase times 25%)	1 (0.16)
Would have made a different choice without financial incentive: similar to old model (freerider 0%)	3 (0)
Would have made a different choice without financial incentive: not sure how efficient (freerider based on mean of the four columns above)	4 (0.83)
Not sure what company would have done without financial incentive (freerider percent based on mean of all columns above)	5 (2.36)
TOTAL COUNT	**40**
Freeriders based on incentive	**18.86**
Freerider % based on incentive	**47.1%**

Table 44. Program Freeridership Based on Information and Assistance

Response for "without program information and technical assistance"	Lighting Count (freeriders)
Would have selected same efficiency level without program information/technical assistance (freerider percent based on planned time of purchase times 100%)	28 (17.54)
Would have made a different choice without program information/technical assistance: almost as efficient as new model (freerider percent based on planned time of purchase times 75%)	0 (0)
Would have made a different choice without program information/technical assistance: significantly more efficient than old model (freerider percent based on planned time of purchase times 50%)	1 (0.31)
Would have made a different choice without program information/technical assistance: somewhat more efficient than old model (freerider percent based on planned time of purchase times 25%)	1 (0.16)
Would have made a different choice without program information/technical assistance: similar to old model (freerider 0%)	3 (0)
Would have made a different choice without program information/technical assistance: not sure how efficient (freerider based on mean of the four columns above)	2 (0.19)
Not sure what company would have done without program information/technical assistance (freerider percent based on mean of two columns above)	5 (2.60)
TOTAL COUNT	**40**
Freeriders based on information	**20.80**
Freerider % based on information	**52.0%**

Since the program included both an incentive payment and technical assistance/program information, each of which can motivate a decision to go with the more efficient choice, a two path analysis approach was used for assessing freeridership within the second set of questions. One path was scored for the influence of the incentive and another path was scored for the analysis of the effect of the technical assistance or program information. The final per-participant freeridership estimate is the lower of the two estimates from each of the two paths. These results are presented for each measure in Table 43 and Table 44. Thus, freeridership for the Smart $aver Prescriptive program in Indiana is estimated at 47.1% for lighting measures. Note that this freerider analysis was conducted using a sample of surveyed participants. The evaluation plan was designed to achieve statistically significant estimates of freeridership at the program level.

Validity and Reliability of the Freerider Estimation Approach

The field of freeridership assessment as specified in the California Evaluation Protocols basic estimation approach requires the construction of questions that allow the evaluation contractor to estimate the level of freeridership. The basic approach used in this evaluation is based on the results of a set of freerider questions incorporated into participant survey instruments that meets the reliability standards for freerider questions. The approach used in this assessment examines

the various ways in which the program impacts the customer's acquisition and use of equipment incented as part of the Non-Residential Smart $aver Prescriptive program, and allocates a freeridership factor for each of the types of responses contained in the survey questions. The allocation approach assigns high freeridership values to participants who would have acquired the same equipment on their own, and that factor is influenced by their stated intentions regarding the timing and efficiency level of this acquisition. The scoring approach is proportional to the degree to which the participant would have acquired and used equivalent equipment on their own.

Spillover

In order to estimate the spillover savings attributed to the program several questions were added to the participant questionnaire. These questions were asked to determine the extent to which the program's information and incentives caused additional non-incented spillover actions to be taken by the participants. A total of 40 survey participants answered the net to gross question battery.

Survey participants were asked if they had taken any actions above and beyond those rebated by the program at their company or at any other locations. If the respondent indicated that they had not purchased or installed any other type of high efficiency equipment or made energy efficiency improvements since their participation in the program, the spillover level was set to zero and no spillover credit was provided. Respondents that had taken additional measures were asked about the type of equipment and where it was installed. However, no spillover was provided to those respondents that took additional actions unless they also indicated that their experience with the program caused, to some degree, the action to be taken by rating the influence of their experience with the program on their decision to do so on a scale from one to ten with ten being the most influential. This rating is referred to as the participant's attribution score.

If a participant indicated that the program was influential in their purchase and use decision, then their spillover savings was adjusted by the fractional amount of the strength of their attribution score. That is, if the respondent indicated an attribution score of seven out of ten, then their spillover savings were multiplied by 0.7 to estimate their spillover contribution to the program net to gross ratio.

Table 45. Spillover Measures and Attribution

Measure	Quantity	Attribution Score	EUL[12]	kWh Savings	Spillover kWh Savings
T5 lighting	30	5	12	273	137
Air compressor	1	5	15	188	94
LED lighting	60	1	8	8454	0
CFL lighting	5	5	2	754	377
LED exterior lighting	70	4	12	19600	7840
VFDs	2	1	15	2735	0
T8 lighting	25	10	12	738	738
T8 lighting	25	10	12	738	738
Faucet Aerators	50	9	10	1700	1530
TOTAL/AVERAGE		**5.6**	**11.4**	**35,180**	**11,454**

Table 45 shows each measure taken by the 40 survey participants for which enough information was provided to calculate energy savings. Spillover energy savings were estimated from the customer description of the measure taken and ex-ante savings estimates from the Duke Energy Midwest Master Database for that measure. The spillover savings were not subject to ex-post evaluation. Actions taken by respondents that provided insufficient data to estimate impact received zero spillover credit. Actions that were determined, or believed, to be implemented outside of Duke Energy territory also received zero spillover credit. Although the spillover savings were not subject to ex-post evaluation, the approach taken is believed to provide the spillover estimates that are significantly below the actual achieved spillover savings.

Figure 9 graphically shows the estimated spillover impacts over the lifetime of the spillover measures. The vast majority of the spillover savings is the result of additional lighting. Thus, a large drop-off occurs at 12 years when these measures reach the end of their Effective Useful Life (EUL). Savings continue from year 12 to year 15, until the end of the air compressor EUL.

[12] EUL = Effective Useful Life

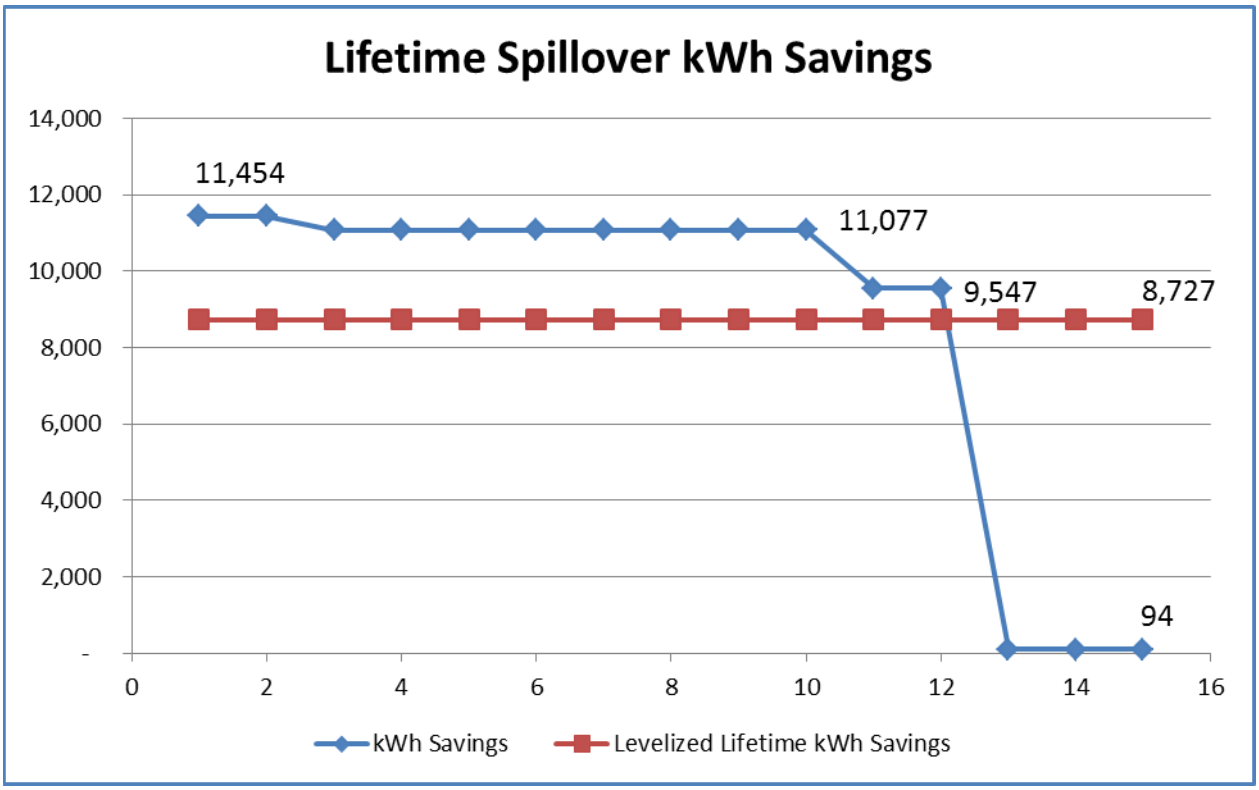


Figure 9. Lifetime Spillover kWh Savings

Table 46 shows the spillover percentage for the program of 1.5%.

Table 46. Spillover Percentage

Survey Respondent kWh Savings Excluding Spillover	Survey Respondent Spillover kWh savings	Spillover Percentage
764,028	11,454	1.5%

While TecMarket Works notes that the spillover savings documented in this report are lower than actually achieved, it should be understood that the assignment of spillover is, to a limited degree, subjective in that its accuracy depends on the ability of the attribution score to accurately estimate the degree of causation as well as the recall ability of the participant.

Program Net to Gross Adjustment

The average net to gross ratio for the lighting measures in the Smart $aver (Core Plus) program is 54.4%. It should be noted that this net to gross ratio only includes adjustments for free ridership and short term participant spillover. Estimates for short and long term non-participant spillover and short and long term market effects are not included in this study and would be savings in addition to that documented in this report. While a short term participant net-to-gross ratio of 0.544 indicates the program saved less energy that what is reflected in the gross energy projected savings estimates, this savings level is only part of the savings that are achieved by energy efficiency programs. Additional evaluation efforts are needed to document short and long term non-participant spillover and short and long term market effects.

The net to gross ratio is then calculated as follows:

Program Freeridership = 47.1%
Program Spillover = 1.5%

NTGR = 1 + (spillover – freeridership)
= 1+ (0.015 – 0.471)
= 0.544

Total Gross and Net Impacts

The total first year gross and net savings are tabulated for each of the lighting measures studied in the impact evaluation. These estimates were calculated by applying the gross realization rates for kWh, NCP kW and CP kW to the program planning estimates for each measure. The evaluated first year gross and net impacts are summarized in Table 47.

As a point of clarification, the Statewide Energizing Indiana (Core) program measures have a separate evaluation, including Net-to-Gross analysis, that applies to measures offered in the Statewide (Core) program.

Table 47. First Year Gross and Net Savings by Measure

Metric	Result
Number of Program Participants from January 2012 to November 2013	92 Applications
Gross Coincident Peak kW per unit	**kW/unit**
LED Lamps	0.051
LED Downlight	0.056
Gross kWh per unit	**kWh/unit**
LED Lamps	232.8
LED Downlight	256.5
Gross therms per unit	**N/A**
Freeridership rate	47.1%
Spillover rate	1.5%
Self Selection and False Response rate	0.0%
Total Discounting to be applied to Gross values	54.4%
Net Coincident Peak kW per unit	**kW/unit**
LED Lamps	0.028
LED Downlight	0.030
Net kWh per unit	**kWh/unit**
LED Lamps	126.6
LED Downlight	139.5
Net therms per unit	**N/A**
Measure Life	8yr (LED Lamps) 15yr (LED Downlight)

Lifecycle savings were estimated by applying the following EUL assumptions[13] to each measure.

Table 48. Effective Useful Life for Lighting Measures

Measure	EUL (years)
LED Lamps	8
LED Downlight	15

Applying the EUL estimates listed above to each measure, the lifecycle gross and net kWh savings are shown in Table 49.

[13] EUL data taken from Indiana TRM.

Table 49. Gross and Net Lifecycle Savings

Metric	Result
Number of Program Participants from January 2012 to November 2013	92 Applications
Gross lifecycle kWh per unit	**kWh/unit**
LED Lamps	1,862
LED Downlight	3,848
Net lifecycle kWh per unit	**kWh/unit**
LED Lamps	1,013
LED Downlight	2,093
Measure Life	8yr (LED Lamps) 15yr (LED Downlight)

Conclusions and Recommendations for Program Changes

Significant Impact Evaluation Findings for LED Lighting Measures

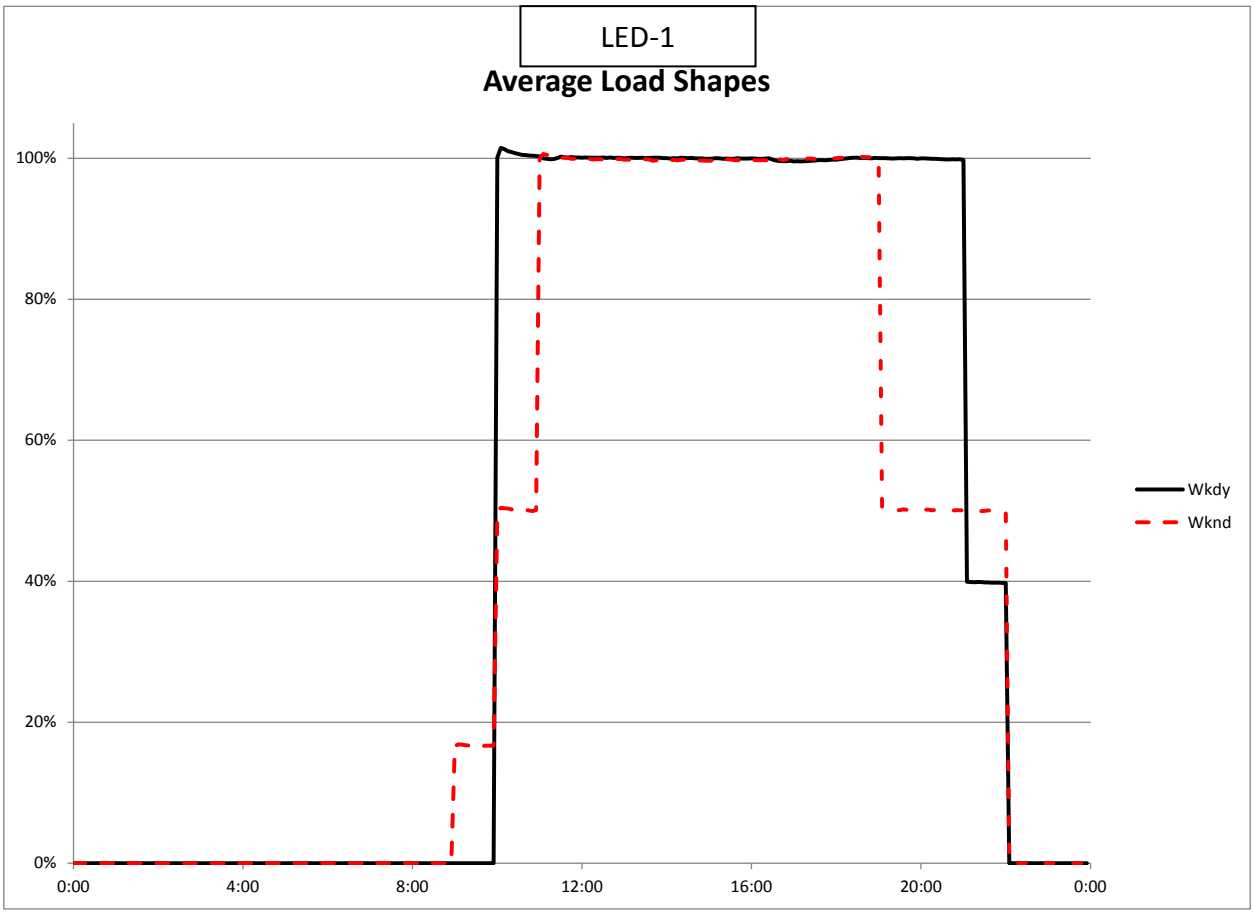
- Energy and coincident peak demand savings realization rates for kWh and coincident peak kW for LED lighting were 1.06 (energy) and 1.14 (demand) respectively, indicating the program planning estimates were within 6% of the verified energy savings and 14% of the verified coincident peak demand savings.
- Measurement and verification (M&V) activities conducted for this study produced an average estimate of 5,195 lighting operating hours, which is 25% higher than the program planning estimate of 4,144 hours.
- M&V activities estimated a coincidence factor (CF) of 0.94, compared to a program planning estimate of 0.77.
- Program planning and M&V estimates of efficient fixture watts were an average of about 16% higher than program planning estimates. This discrepancy was driven by the uniform assumption of 12 watts across all LED installations, while the actual LED lamps installed varied from 7 watts to 20 watts. 277V to 120V stepdown transformers were also required at 4 sites.
- M&V estimates of baseline fixture watts were an average of about 1% lower than program planning estimates. This discrepancy was driven by the uniform assumption of 60 watts across all LED lamp installations and 65 watts across all LED downlight installations, while the actual baseline lamp watts varied from 40 watts to 90 watts.

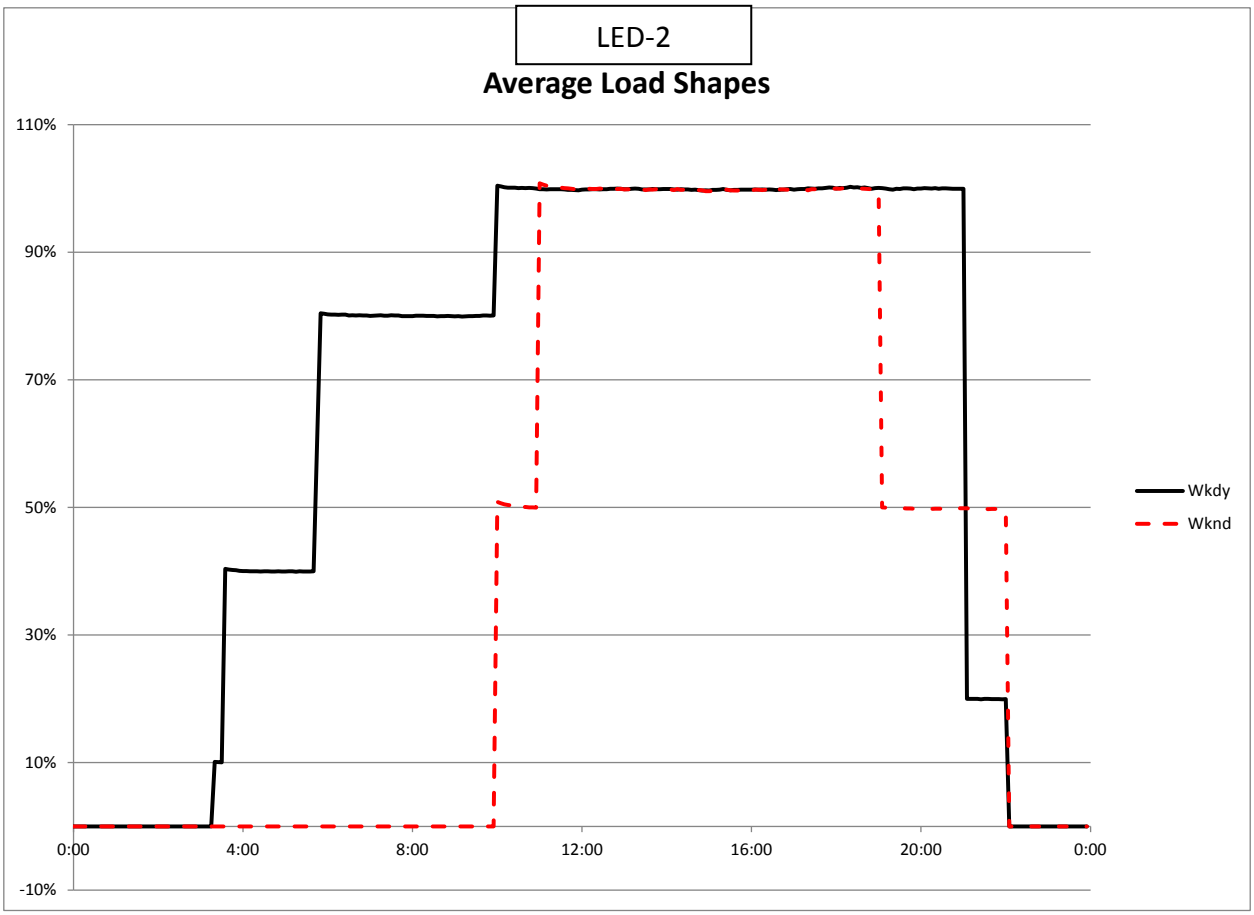
Based on the results of the impact evaluation, the TecMarket Works team has the following recommendations:

1. Program estimate of lighting hours should be updated from 4,144 to 5,195 hours per year.
2. The measured coincidence factor of 0.94 was higher than the program planning estimate of 0.77. Consider revising the coincidence factor assumption to 0.94 for future program planning activities.
3. The waste heat factor should be revised to -0.018 to account for higher penetration of electric heating systems.
4. Efficient fixture watts should be increased from 12W to 14W to account for variation in installed fixture watts and step down transformer requirements.

Appendix A: Load Shapes

Average weekday and weekend/holiday load shapes from the logger data are shown for each site in the study.




LED-2
Average Load Shapes
110%
90%
70%
50%
30%
10%
-10%
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4:00
8:00
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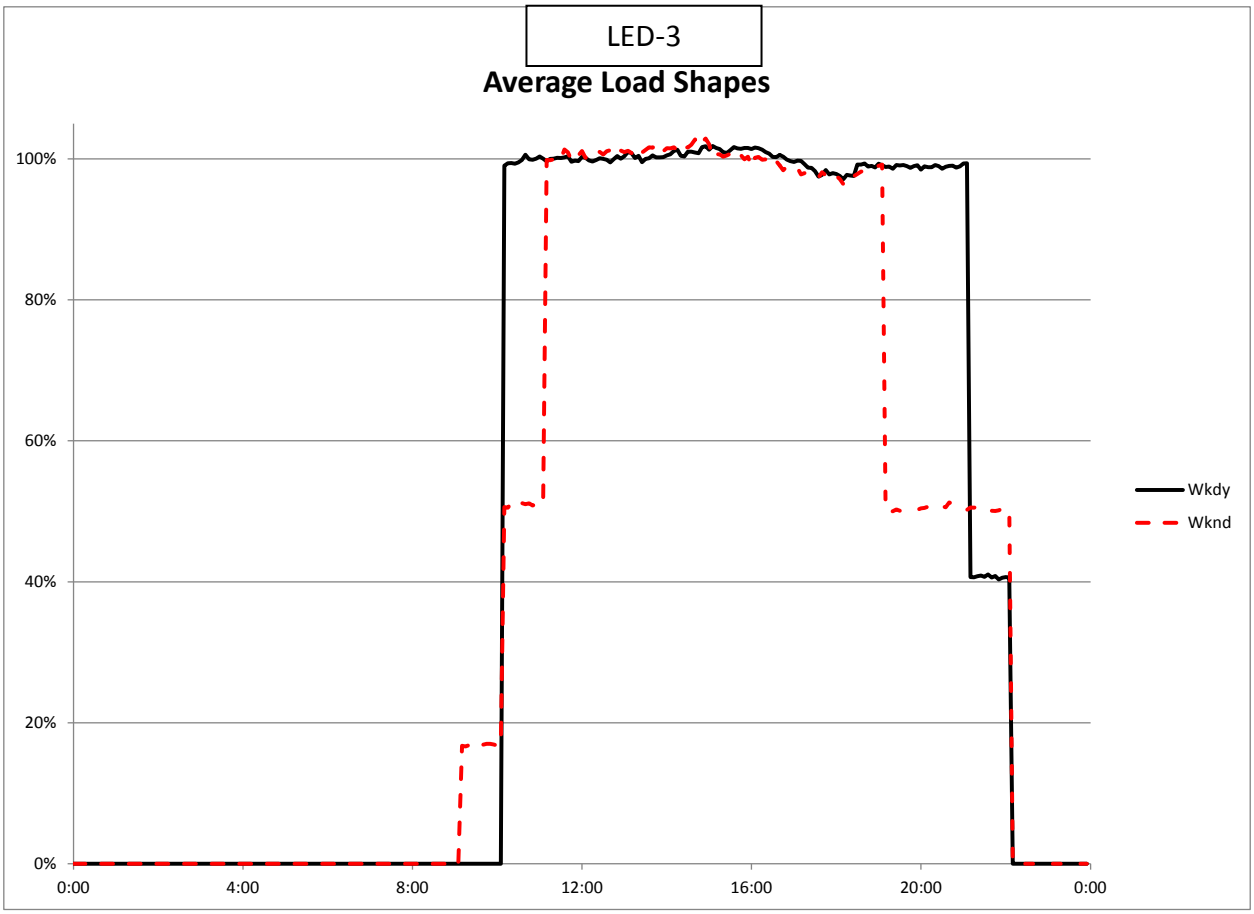
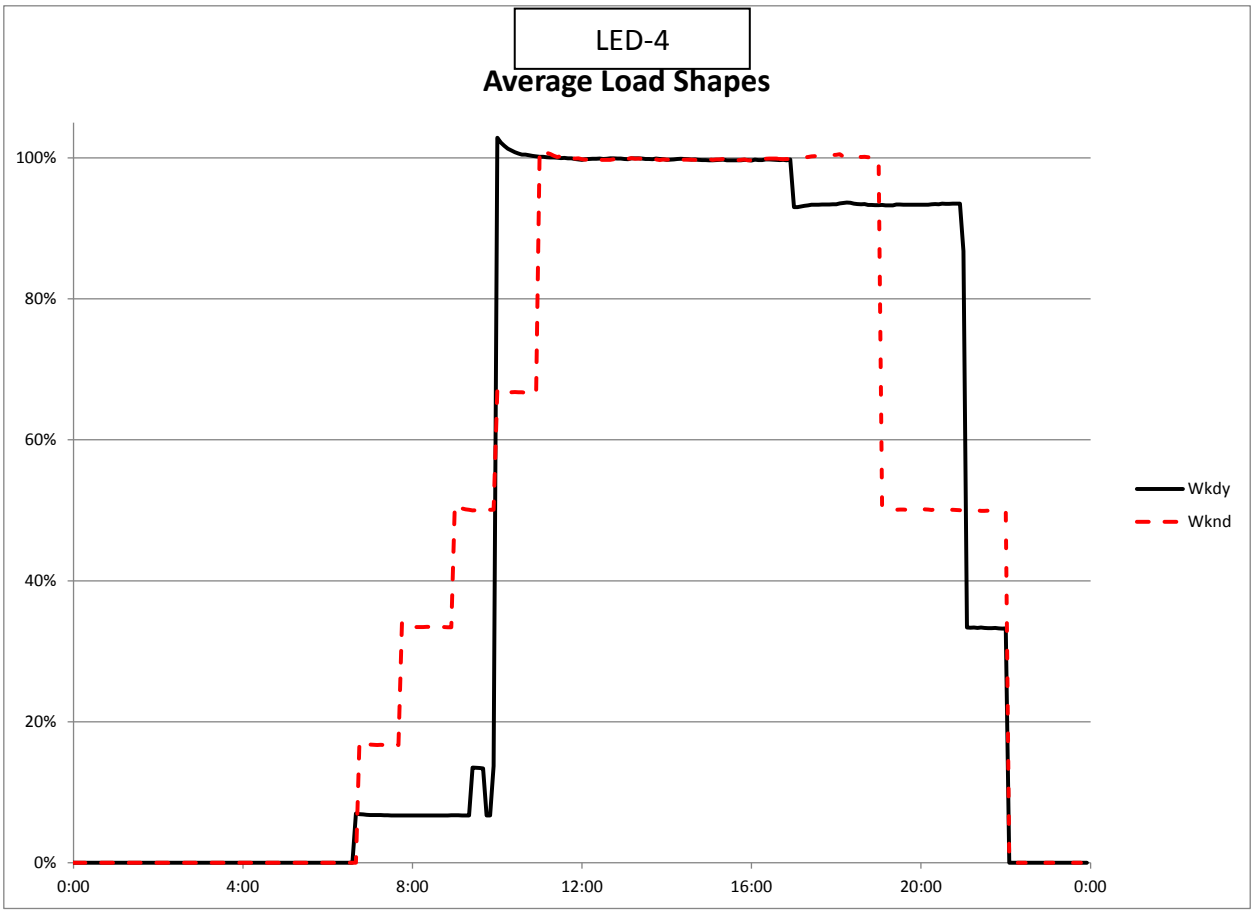
0:00
Wkdy
Wknd


LED-3
Average Load Shapes
100%
80%
60%
40%
20%
0%
0:00
4:00
8:00
12:00
16:00
20:00
0:00
Wkdy
Wknd


LED-4
Average Load Shapes
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80%
60%
40%
20%
0%
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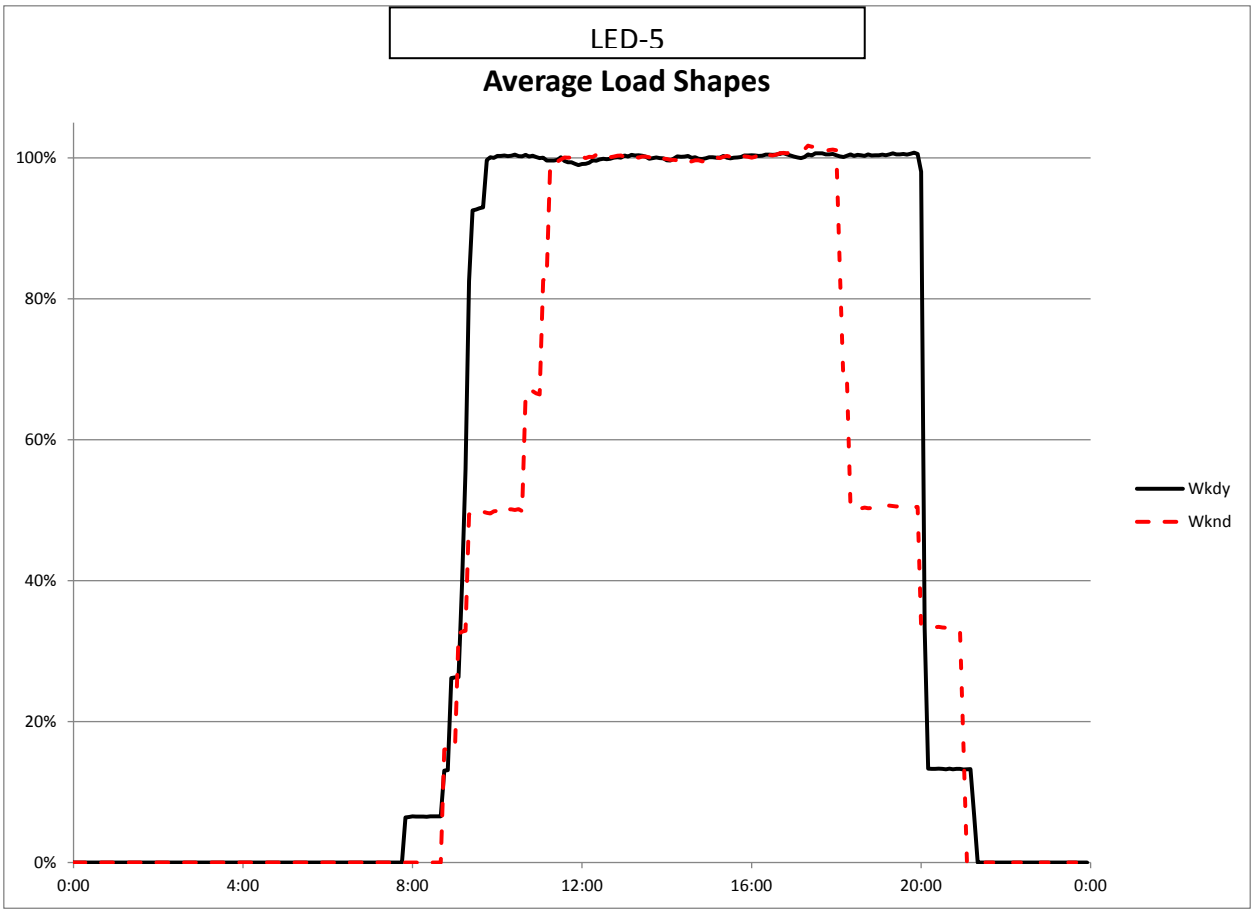
4:00
8:00
12:00
16:00
20:00
0:00
Wkdy
Wknd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Average Load Shapes
100%
80%
60%
40%
20%
0%
0:00
4:00
8:00
12:00
16:00
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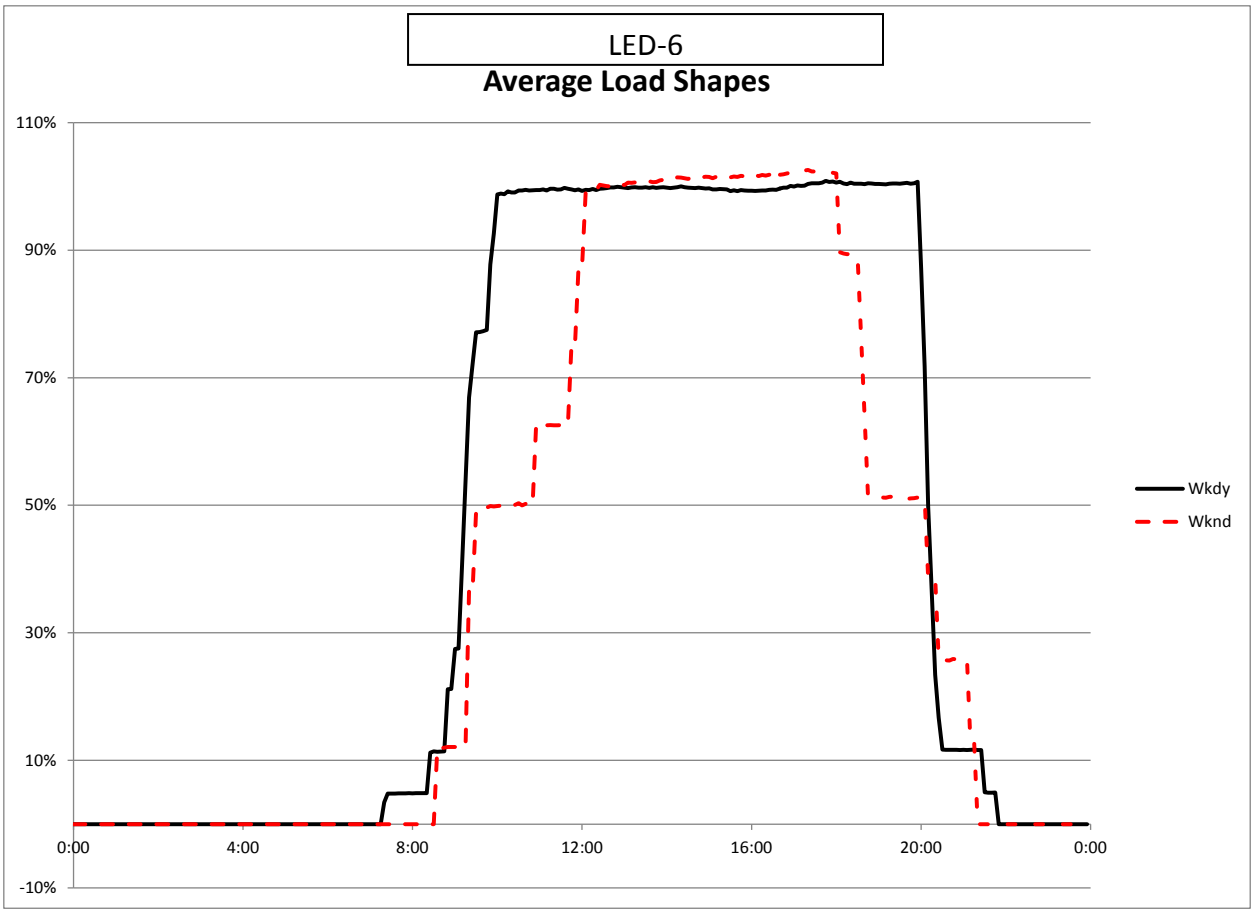
0:00
Wkdy
Wknd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Average Load Shapes
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90%
70%
50%
30%
10%
-10%
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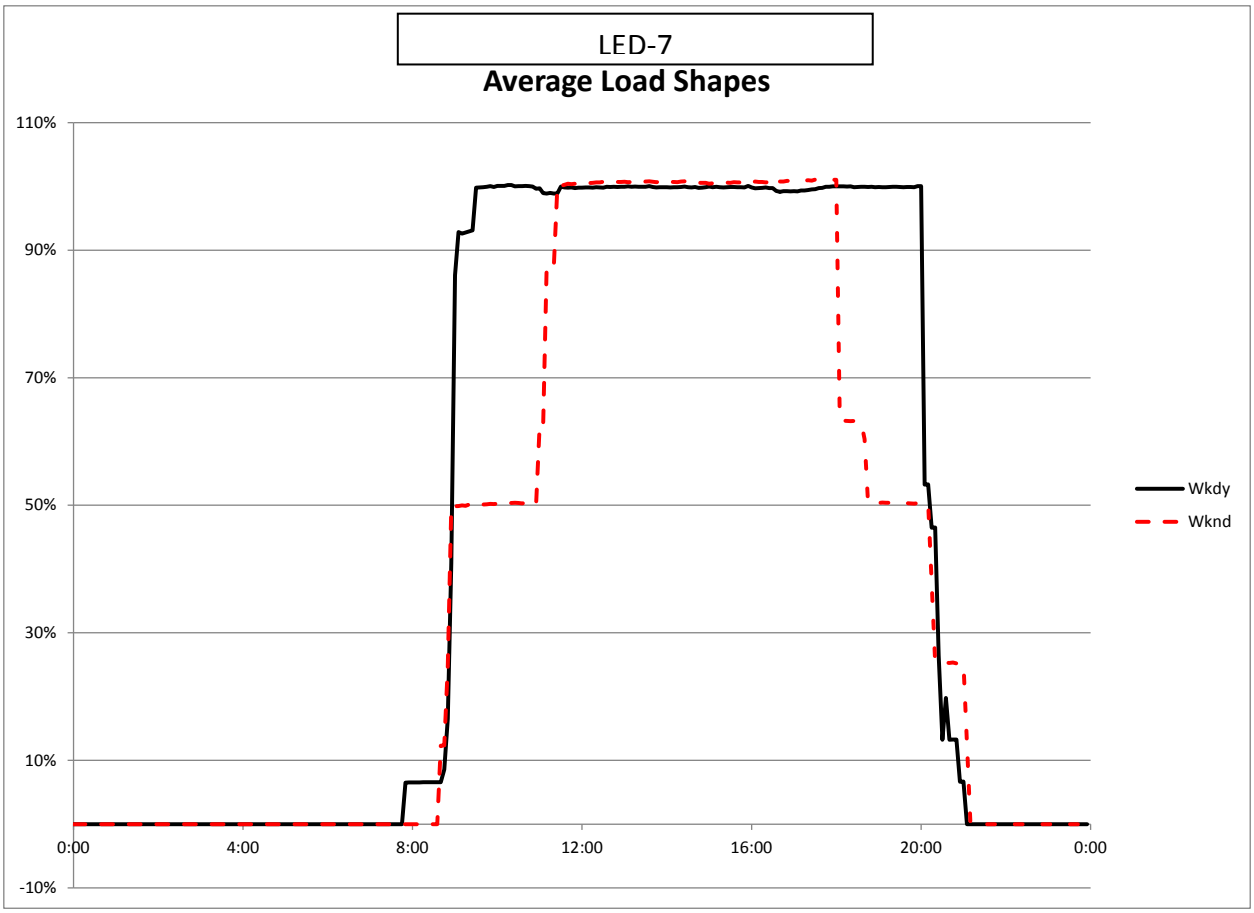
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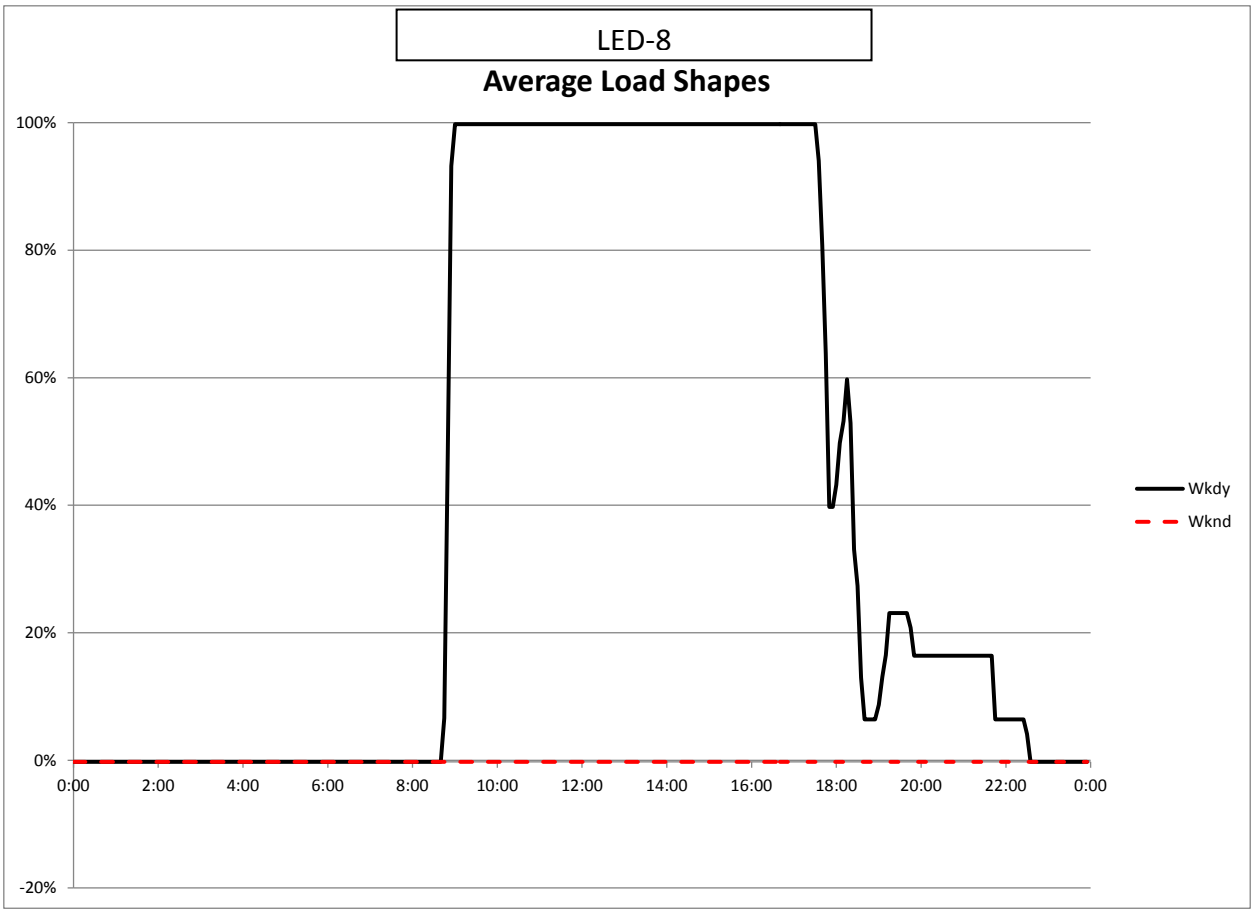
16:00
20:00
0:00
Wkdy
Wknd


LED-8
Average Load Shapes
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60%
40%
20%
0%
-20%
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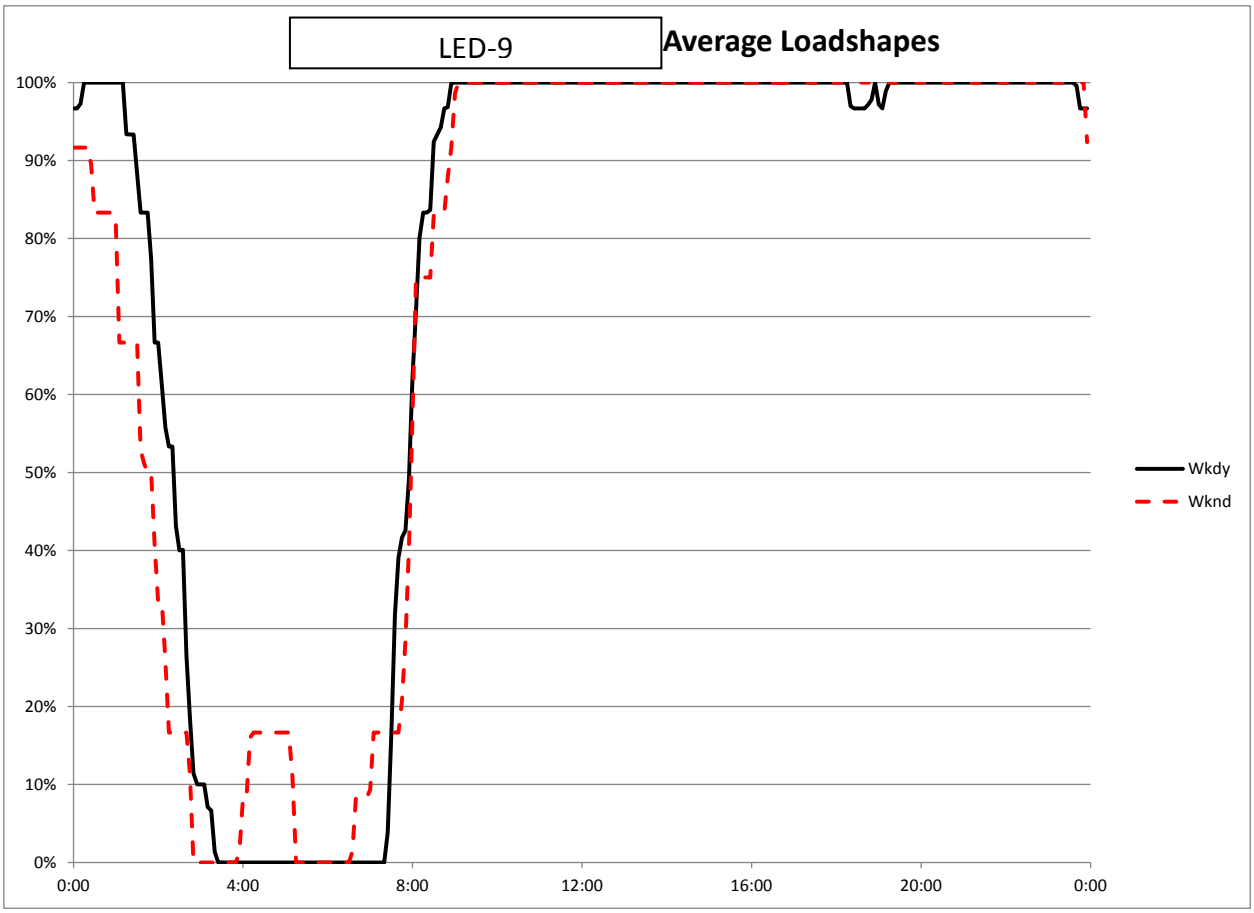
2:00
4:00
6:00
8:00
10:00
12:00
14:00
16:00
18:00
20:00
22:00
0:00
Wkdy
Wknd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Average Loadshapes
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90%
80%
70%
60%
50%
40%
30%
20%
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0%
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4:00
8:00
12:00
16:00
20:00
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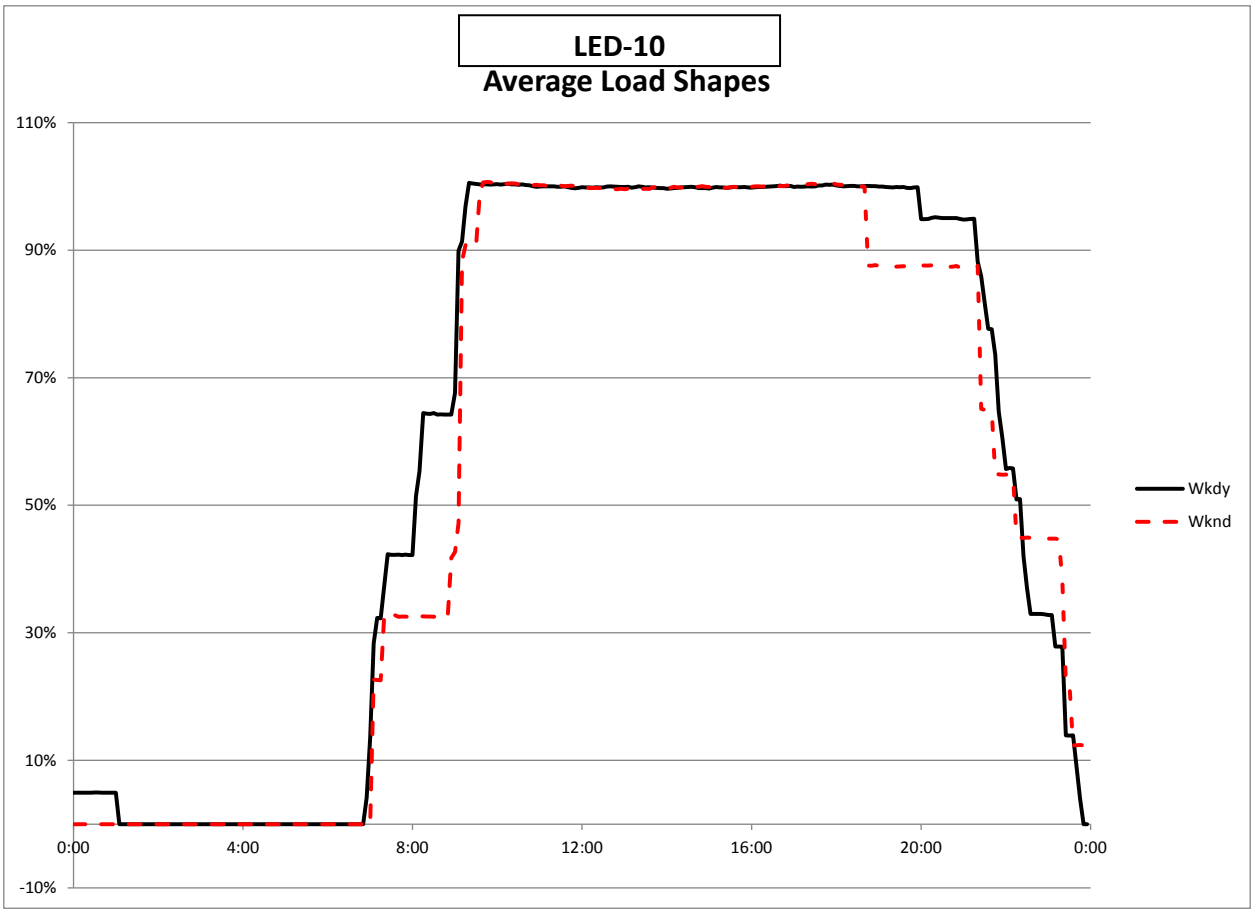
Wkdy
Wknd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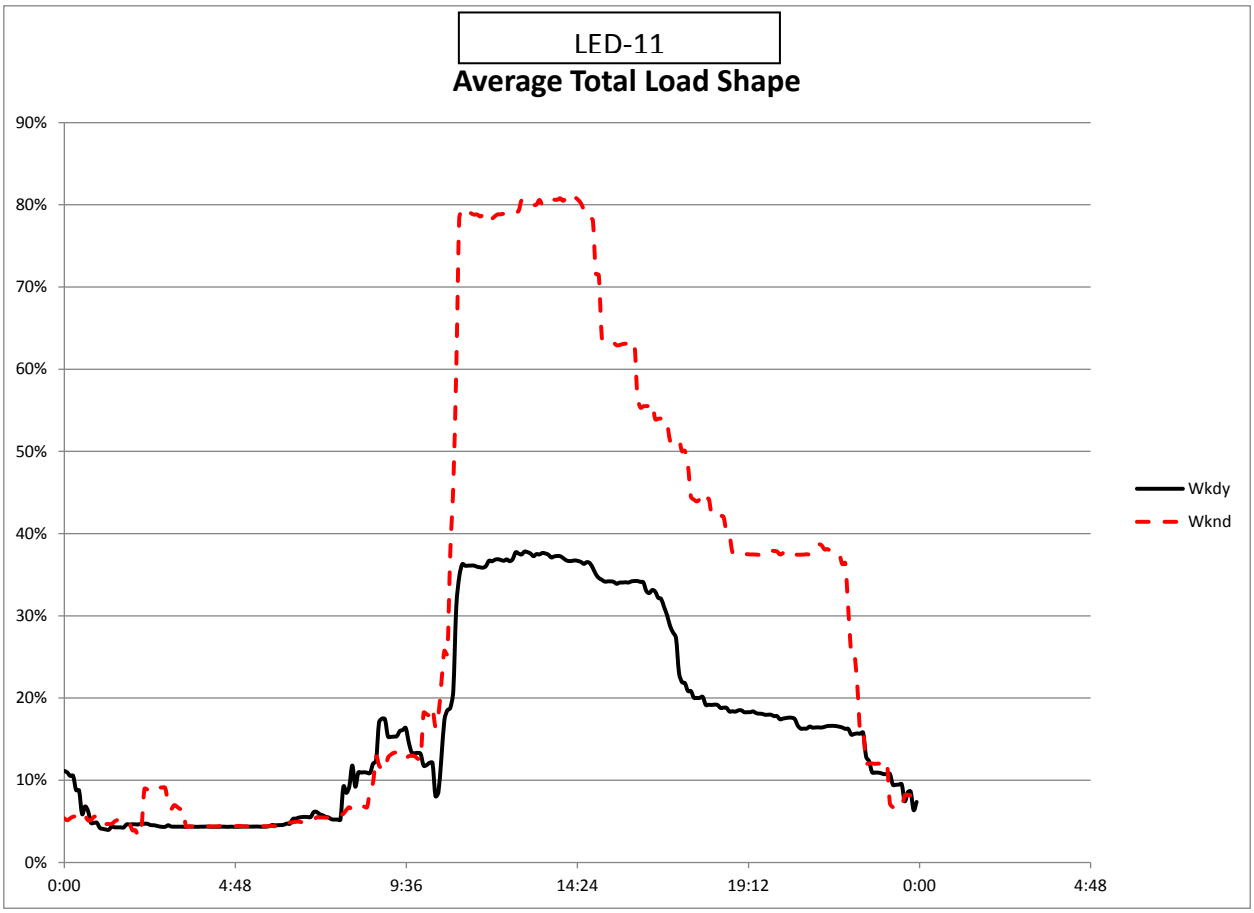
Wkdy
Wknd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70%
60%
50%
40%
30%
20%
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0%
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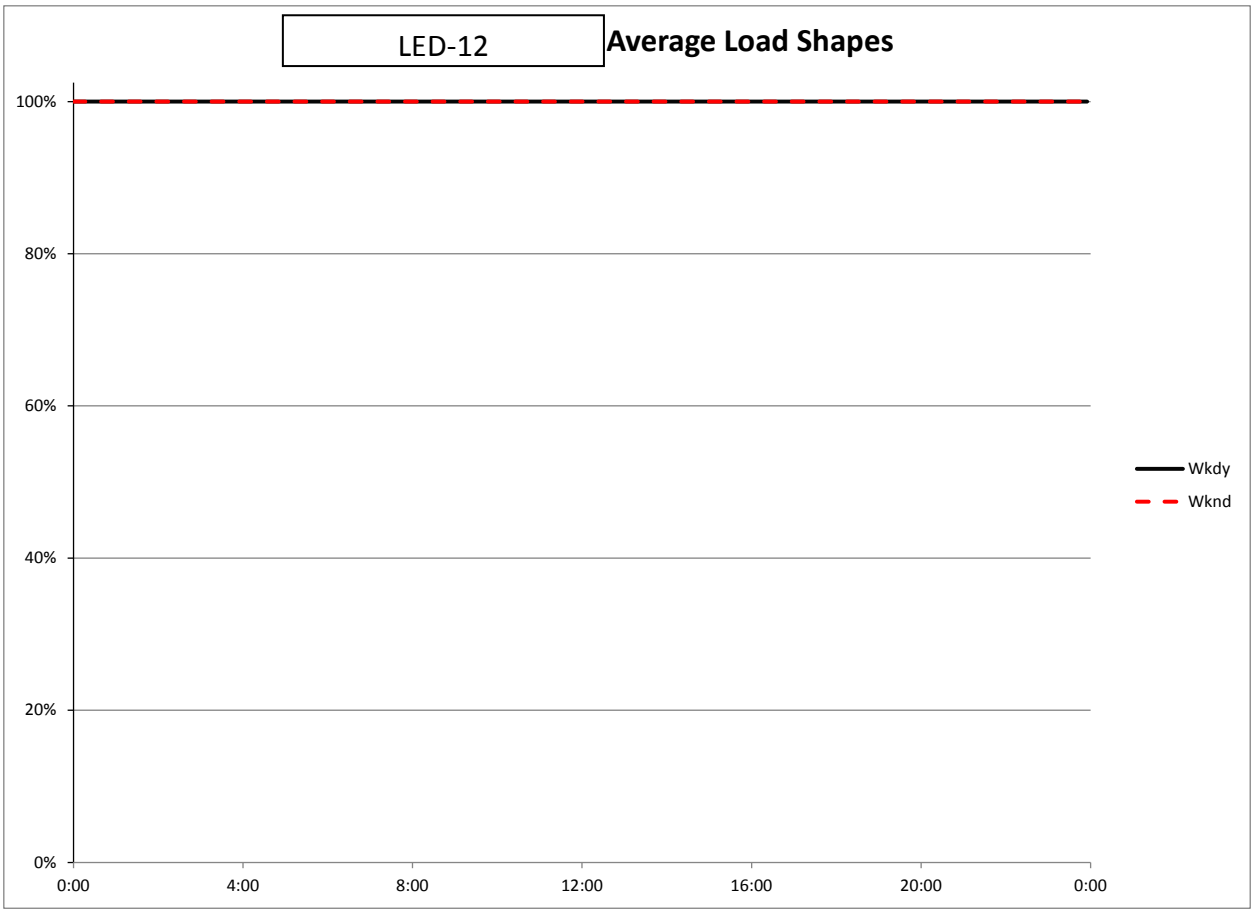
4:48
Wkdy
Wknd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16:00
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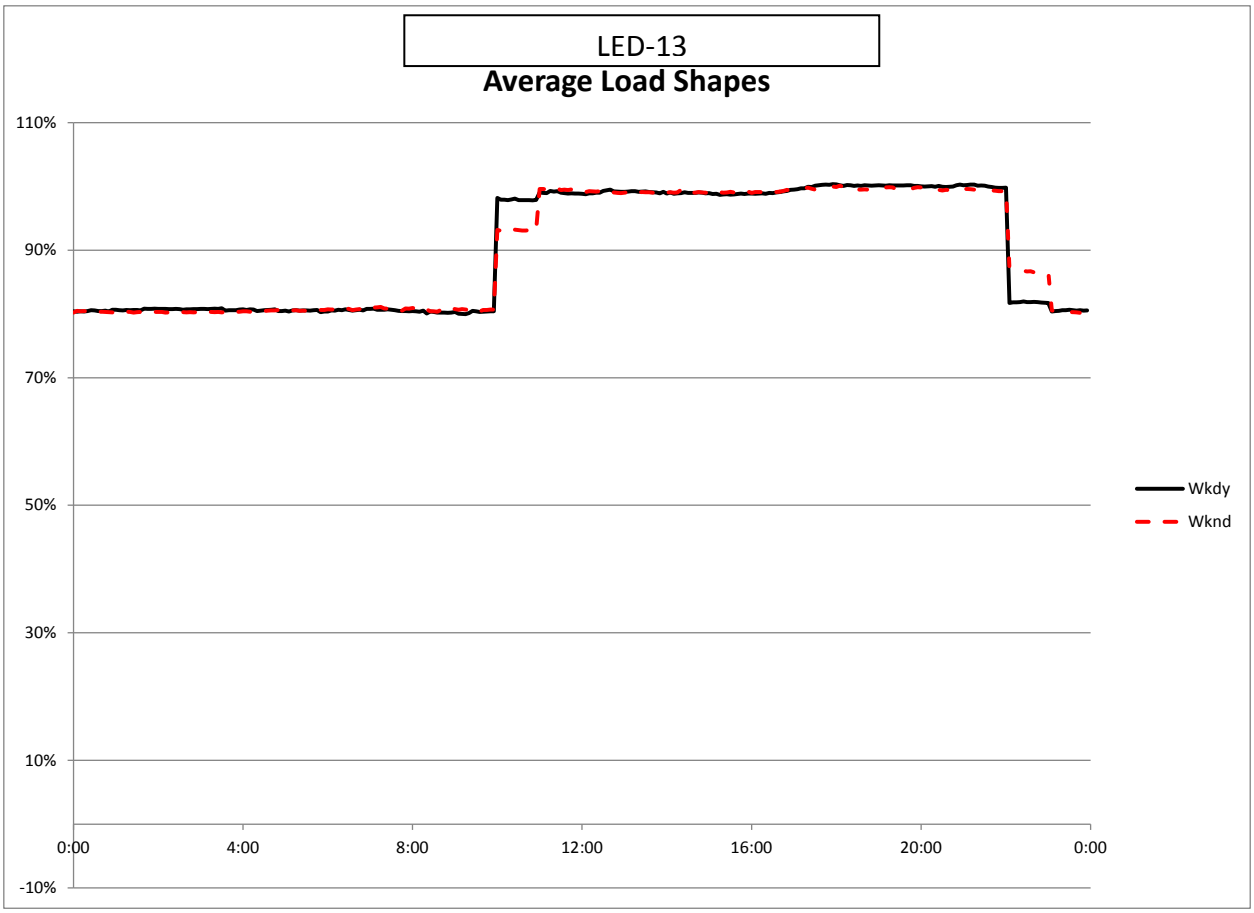
Wkdy
Wknd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30%
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-10%
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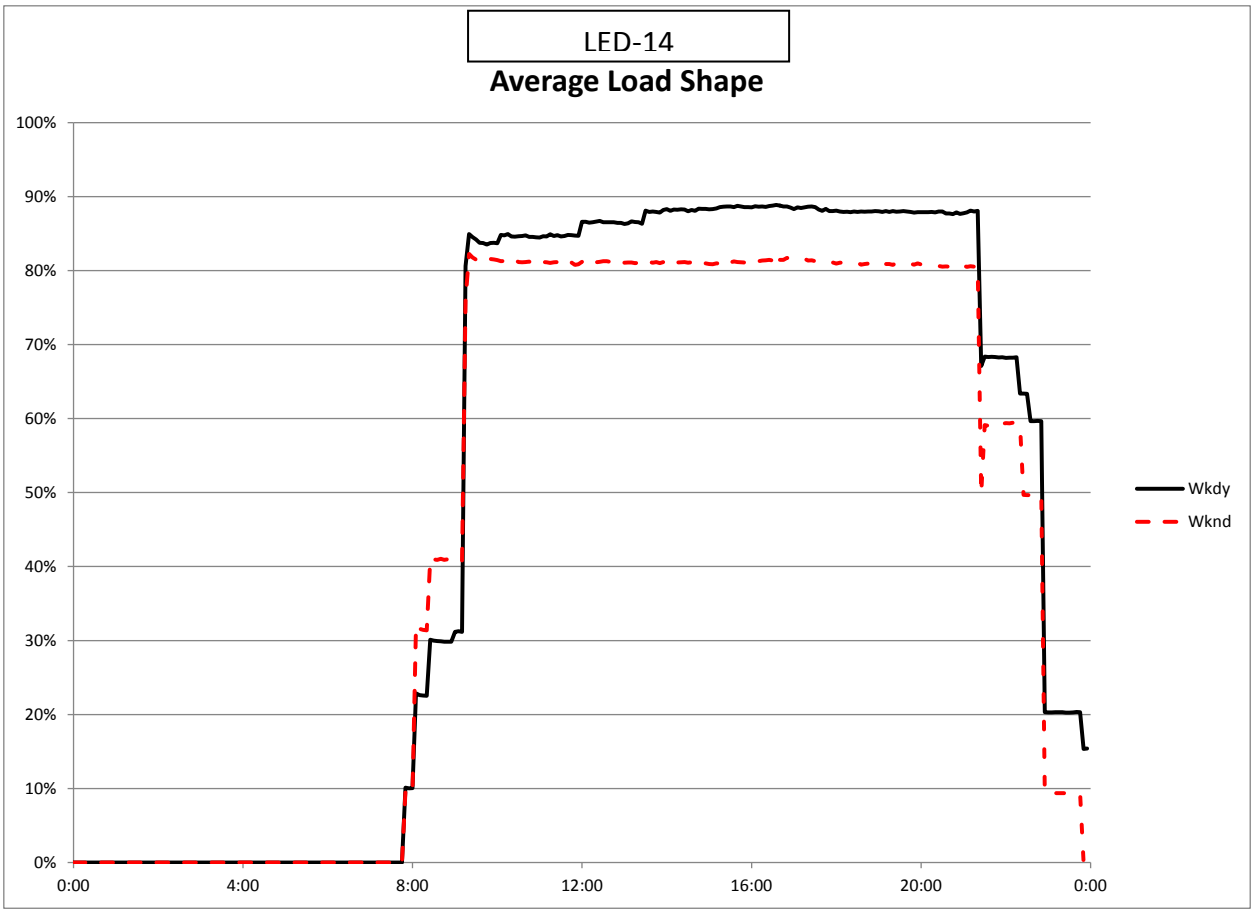
4:00
8:00
12:00
16:00
20:00
0:00
Wkdy
Wknd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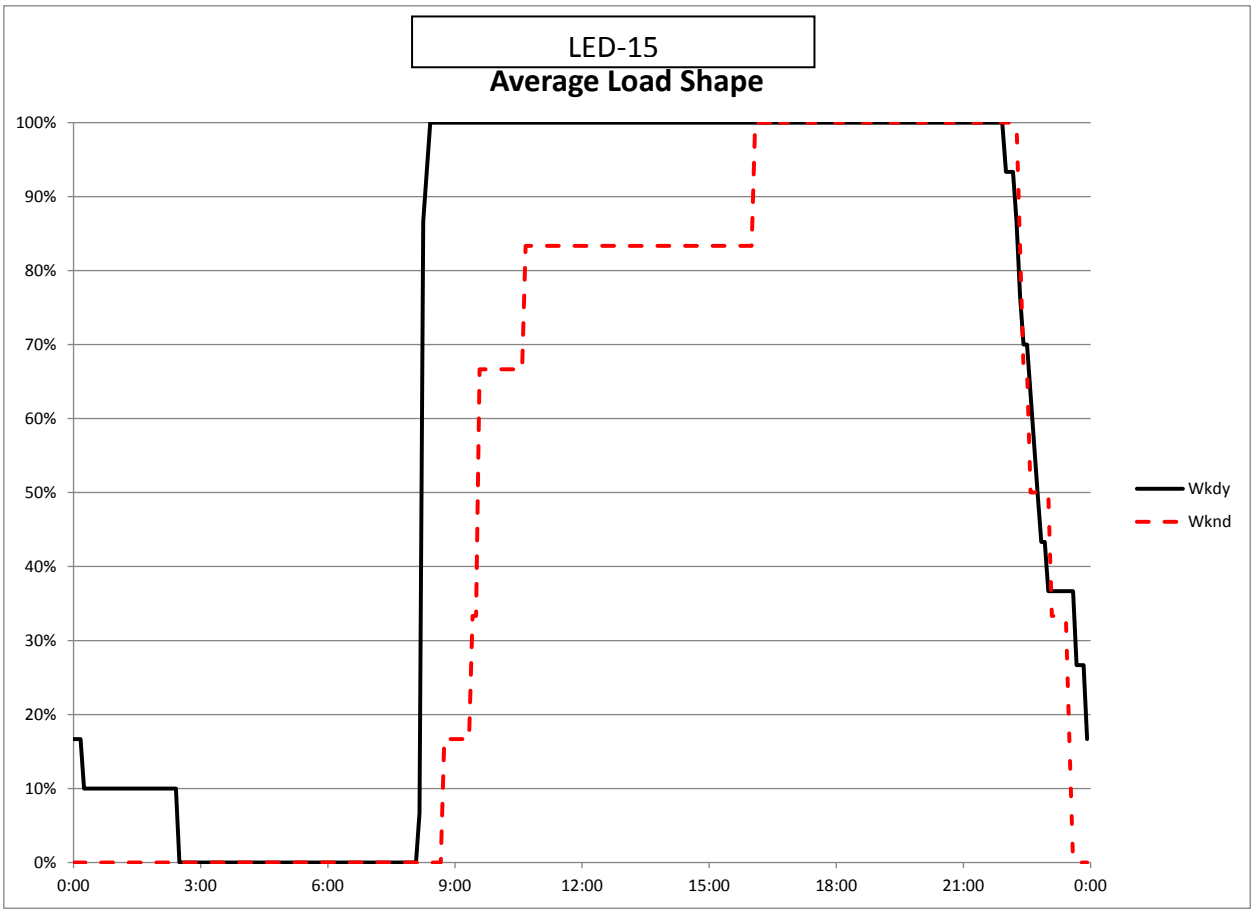
Wknd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6:00
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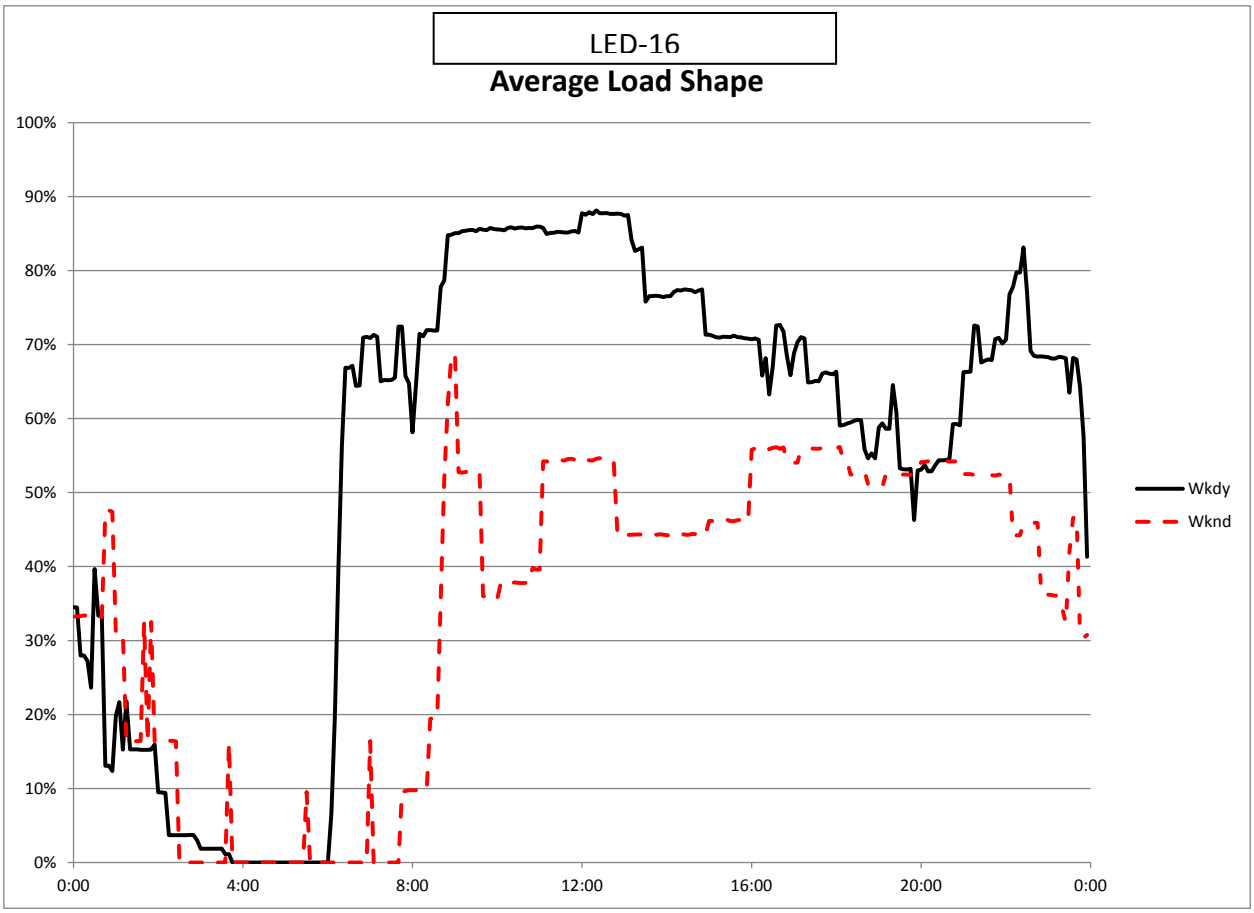
15:00
18:00
21:00
0:00
Wkdy
Wknd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0%
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8:00
12:00
16:00
20:00
0:00
Wkdy
Wknd

Appendix B: Management Interview Instrument

Name: _____Title:_____

Position description and general responsibilities:

_____

We are conducting this interview to obtain your opinions about and experiences with the Non Residential Smart $aver® Prescriptive program. We'll talk about the Smart $aver® Program and its objectives, your thoughts on improving the program, and the technologies the program covers. The purpose of this study is to capture the program's current operations as well as help identify areas where the program might be improved. Your responses will feed into a report that will be shared with Duke Energy and the state regulatory agency. I want to assure you that the information you share with me will be kept confidential; we will not identify you by name. However, you may provide some information or opinions that could be attributed to you by virtue of your position and role in this program. If there is sensitive information you wish to share, please warn me and we can discuss how best to include that information in the report.

The interview will take about an hour to complete. Do you have any questions for me before we begin?

Program Background and Objectives

1. Please describe your role and scope of responsibility in detail.

2. How long have you been involved with the Smart $aver program?

3. (PM only) Describe the evolution of the Smart $aver® Program. Why was the program created, and has the program changed since it was it first started?

4. Have there been any recent changes been made to your duties since you started?

    a. If YES, please tell us what changes were made and why they were made. What are the results of the change?

5. In your own words, please describe the Smart $aver® Program's objectives. (e.g. enrollment, energy savings, non-energy benefits)

6. (PM only) Can you please walk me through the program's implementation, starting with how the program is marketed and how you target your customers, through how the customer participates and finishing with how savings are verified?

    a. Marketing/Targeting: How & Who

    b. Enrollment/Participation

c. Rebate processing

d. Savings verification: How & Who

7. Of the program objectives you mentioned earlier, do you feel any of them will be particularly easy to meet, and why?

8. Which program objectives, if any, do you feel will be relatively difficult to meet, and why?

9. Are there any objectives you feel should be revised prior to the end of this program cycle? If yes, why?

Vendors

10. (PM only) Do you use any vendors or contractors to help implement the program?

    a. What responsibilities do they have?

    b. Are there any areas in which think they can improve their services?

11. *(If not captured earlier)* Please explain how activities of the program's vendors, customers and Duke Energy are coordinated.

    a. Do you think methods for coordination should be changed in any way? If so, how and why?

Rebates

12. (PM only) How do you determine which pieces of equipment are included in the program? For example, how do you determine what level of efficiency the rebated equipment should have?

    a. Do you use any outside vendors or experts to help with this process?

    b. What should be changed about this selection process?

13. Describe your quality control and process for tracking participants, rebates, and other program data.

14. Do you believe that the program currently offers rebates on enough energy efficient products to meet your customers' needs?

    a. If not, what products would you like to add? Are these currently being considered?

15. Is the program offering enough of a rebate to motivate your customers to participate?

    a. If not, which rebates do you think should be changed, and why?

Contractor Training

16. Describe Smart $aver's contractor program orientation training and development approach.

    a. (PM and WECC only) How do you ensure that contractors are getting adequate program training and updated program information?

    b. Can we obtain training materials that are being used?

    c. Are there any new areas where you think contractors could be trained?

17. Do you have any suggestions for improving contractor effectiveness?

Improvements

18. Are you currently considering any changes to the program's design or implementation?

    a. What are the changes?

    b. What is the process for deciding whether or not to make these changes?

19. Do you have suggestions for improvements to the program that would increase participation rates, or is Duke Energy happy with the current level of participation?

20. Do you have suggestions for increasing energy impacts *per participant*, given the same participation rates, or is Duke Energy happy with the current per participant impact?

21. Overall, what would you say about the Smart $aver® program is working really well?

    a. Is there anything in this program you could highlight as a best practice that other utilities might like to adopt?

22. What area needs the most improvement, if any?

    a. (If not mentioned before) What would you suggest can be done to improve this?

23. Are there any other issues or topics we haven't discussed that you feel should be included in this report?

24. Do you have any further questions for me about this study or anything else?

Appendix C: Trade Ally Interview Instrument

Name: _____

Title: _____

Position description and general responsibilities:

_____

_____

We are conducting this interview to obtain your opinions about and experiences with Duke Energy's Non-Residential Smart $aver program. We'll talk about your understanding of the Smart $aver Program and its objectives, your thoughts on improving the program, and the technologies the program covers. The interview will take about 30 minutes to complete. May we begin?

Understanding the Program

We would like to ask you about your understanding of the Smart $aver program. We would like to start by first asking you…

1. What is your job title and what are your responsibilities in your company?
2. How long have you been in this profession? 6
3. How did you first learn about Smart $aver?
4. Have you submitted applications for Prescriptive incentives only, Custom incentives only, or both?

    a. Prescriptive only
    b. Custom only
    c. Both
5. Are you or your company signed up in the Trade Ally list on Duke Energy's website?
6. How long have you been a partner in the Smart $aver Program?
7. Please walk me though the typical steps you take to help a customer participate in the Smart $aver Prescriptive program and receive the program incentive.
8. What kinds of problems or issues have come up in the Smart $aver program?
9. Have you heard of any customer complaints that are in any way associated with this program?

Reasons for Participation in the Program

We would like to better understand why contractors become partners in the Smart $aver Program.

9. What are your primary reasons for participating in the program? Why do you continue to be a partner?… *If prompts are needed*… Is this a wise business move for you, is it something you believe in professionally, does it provide a service to your customers, do you want to build a relationship with Duke Energy, or other reasons?

10. Please give me an estimate: What percentage of your sales includes equipment that received a Smart $aver Prescriptive incentive? (If they can't remember Prescriptive separate from Custom, have them estimate together).

11. Has this program made a difference in your business? How?

12. How do you think Duke Energy can get more contractors to participate in this program?

13. Do you market or sell the Smart $aver equipment differently than your other equipment? How?

14. If Customers decide not to purchase qualifying equipment, are they still interested in high efficiency equipment?

Program Design and Design Assistance

15. Do you feel that the proper technologies and equipment are being covered through the program?

16. Are the incentive levels appropriate? Are there any that are too high or too low?

17. Are there other technologies or energy efficient systems that you think should be included in the program?

18. Are there components that are now included that you feel should not be included? What are they and why should they not be included?

Program Participation Experiences

The next few questions ask about the process for submitting participation forms and obtaining the incentive payments.

19. Do you think the process could be streamlined in any way? How?

20. How long does it take between the time that you apply for your incentive, to the time that you and your customer receive the payments? Is this a reasonable amount of time? What should it be? Why?

21. Do you use any materials from Duke such as forms, information sheets, brochures or marketing materials to effectively show and sell your Smart $aver® qualifying equipment? What else do you need?

    Have you directed any customers to materials on Duke's website or to the video? If so, are they useful?

22. Overall, what about the Smart $aver Program do you think works well and why?

23. What changes would you suggest to improve the program?

24. Do you feel that communications between you and Duke Energy's Smart $aver program staff is adequate? How might this be improved?

25. Please tell me about coordination with Energizing Indiana, has that caused any confusion to customers?

Market Impacts and Effects

We would like to know what your practices were before you became a partner in the program, and what you would offer your customers without the program.

26. If the program were not offered, do you think customers would change their project scope in any way? If so, how?

27. In your opinion is the Smart $aver program still needed? Why?

28. What percent of Smart $aver buyers do you think are replacing older equipment that is still functioning, but less efficient? What percent of Smart $aver buyers do you think are replacing failed units?

Recommended Changes from the Participating Contractors

29. Are there any other changes that you would recommend to Duke Energy for their Program not already discussed?

Appendix D: Participant Survey Instrument

Surveyor Name _____

Survey ID _____

Customer Name _____

Enter Month and Year
Installation Date _____

for answering machine 1st through penultimate attempts:
Hello, my name is [*full name*] and I am calling from TecMarket Works on behalf of Duke Energy to conduct a customer survey about the Smart $aver Prescriptive Program. I'm sorry I missed you. I'll try again another time.

for answering machine - Final Attempt:
Hello, my name is [*full name]* and I am calling from TecMarket Works on behalf of Duke Energy to conduct a customer survey about the Smart $aver Prescriptive Program. This is my last attempt at reaching you, my apologies for any inconvenience.

if person answers
Hello, my name is [*full name]*. I am calling from TecMarket Works on behalf of Duke Energy to conduct a customer survey about the Smart $aver Prescriptive Program. May I speak with _____ please?

If person talking, proceed. If person is called to the phone reintroduce. If not home, ask when would be a good time to call and schedule the call-back:

We are conducting this survey to obtain your opinions about Duke Energy's Smart $aver Prescriptive Program in which you participated. We are not selling anything. The survey will take about 10-15 minutes and your answers will be confidential, and will help us to make improvements to the program to better serve others. May we begin the survey?

1a. What does your company do?

_____

1b. What is your role within your company?

_____

2. Do you recall participating in the Smart $aver Program?
( ) Yes
( ) No
( ) DK/NS

If No or DK/NS, ask:
This program was provided through Duke Energy. In this program, Duke Energy provides non-residential customers an incentive for purchasing and installing new qualifying energy-efficient motors, pumps, HVAC, or lighting systems. Customers can select equipment off a predetermined list on the Duke Energy website and send in an application for the incentive up to 90 days after installation is completed.

3. Do you remember participating in this program?
( ) Yes
( ) No
( ) DK/NS

If No or DK/NS, thank them, terminate interview and go to next participant.

4. Are you an employee of the company that will be using the equipment, or are you the vender or contractor who sold or installed this equipment?
( ) Employee
( ) Contractor
( ) Other : _____

if "Contractor", we will conduct a "Trade Ally" survey instead.
Please schedule for Trade Ally interview

if "Other"
Thank you so much for this information. We will update our records that you are neither an employee nor a vendor. This will conclude our survey. Thank you for your time and participation.

If "Employee", continue with survey

5. Did your company also participate in Energizing Indiana, "a united effort by the Indiana Utility Regulatory Commission, participating utilities, and consumer organizations to offer comprehensive energy efficiency programs that bring savings to communities across the state"?
( ) Yes
( ) No
( ) DK/NS

6. Have you submitted other applications in the past, to either the Smart $aver Custom or Prescriptive Programs?
( ) No
( ) Yes, Both
( ) Yes, Custom only
( ) Yes, Prescriptive only
( ) DK/NS

7. For Duke Energy's Smart Saver Prescriptive Program, our records indicate that you recently purchased lighting. Is this correct? If not, what was the equipment that you purchased for the incentive?
If they do not remember which project, tell them the name of the city and date of incentive check or checks if more than one project is listed in the spreadsheet.
And/or give them the "Measure Description" if that is included on the call sheet.
( ) Lighting
( ) Pump
( ) Motor
( ) HVAC
( ) Refrigeration
( ) Other: _____

8. Please think back to the time when you were scoping the project and deciding on the equipment, perhaps recalling things that occurred in your company shortly before and after your purchase. Let me give you a few seconds to think back to what else was affecting the scope of that project, and how you were planning to fund it.
(Wait 5 sec).

What kinds of factors motivated you to purchase the energy saving *[measure from q7]* ?
(Do not read list, place a "1" next to the response that matches best)
(Then ask: **Were there any other reasons?** *(Number responses above in the order they are provided - Repeat until 'no' response)*

If there is a follow-up question, put rank and reply in box e.g. "1, my supervisor"
The program incentive requirements: _____
Wanted to reduce energy costs: _____
The information provided by the Smart $aver Program: _____
The information provided by other Duke Energy program: _____
The information provided by the Energizing Indiana program: _____
The information provided by another organization (non- Duke Energy, non-Energizing IN):
_____
Past experience with the Smart $aver Prescriptive or Custom program:
_____
Because of past experience with another Duke Energy program
ask: **What program?** : _____

Recommendation by Duke Energy Account Manager or representative:
_____
Recommendation from other utility program
ask: **What program?**: _____
Recommendation of dealer/contractor: _____
Recommendation of someone else
ask: **Who?**: _____
Advertisement in newspaper
ask: **For what program?**: _____
Radio advertisement
ask: **For what program?**: _____
DK/NS: _____

9. How did you first hear about the program?
(Do not read list, check one response)
( ) The information provided by the Smart $aver Program
( ) The information provided by other Duke Energy program
ask: **What program?** : _____
( ) The information provided by the Energizing Indiana program
( ) The information provided by another organization (non- Duke Energy, non-Energizing IN)
ask: **What organization?** : _____
( ) Past experience with this Smart Saver Program
( ) Because of past experience with another Duke Energy program
ask: **What program?** : _____
( ) Recommendation by Duke Energy Account Manager or representative
( ) Recommendation from other utility program
ask: **What program?** : _____
( ) Recommendation of dealer/contractor
( ) Recommendation of someone else
ask: **Who?**: _____
( ) Advertisement in newspaper
ask: **For what program?** : _____
( ) Radio advertisement
ask: **For what program?** : _____
( ) Other *Please specify*: _____
( ) DK/NS

10. Did you get this *[measure from q7]* equipment to replace an existing *[measure from q7]* equipment?
( ) Yes
( ) No
( ) DK/NS

If "No" or "DK/NS", skip to q16

13. About how old was the *[measure from q7]* you replaced?
( ) Less than 5 years old
( ) 5 to less than 10 years old
( ) 10 to less than 20 years old
( ) 20 years to less than 30 years old
( ) 30 or more years old
( ) DK/NS

14. Was the old *[measure from q7]* working or not working?
( ) Yes, working
( ) No, not working *skip to q16*
( ) DK/NS

15. Was the old *[measure from q7]* in good, fair, or poor working condition?
( ) Good
( ) Fair
( ) Poor
( ) DK/NS

16. Where did you get your incentive application?
[Use list as prompt as necessary. Record one response.]
( ) Contractor or Equipment Vendor
( ) Website/on-line
( ) Duke Energy Account Manager
( ) Other Duke Energy representative
( ) Consulting Engineer, Architect or Energy Consultant
( ) Other *Please specify*: _____
( ) Refused
( ) DK/NS

17. Who filled out the program incentive application for your company?
( ) I did (customer)
( ) Someone from my company did
( ) The contractor
( ) The salesperson
( ) Someone from Duke Energy
( ) Other: _____

If they filled it out
17a. Using a 1 to 10 scale where a 1 means that you are very dissatisfied and a 10 means that you are very satisfied, please rate the ease of understanding the incentive application.
( ) 1 ( ) 2 ( ) 3 ( ) 4 ( ) 5 ( ) 6 ( ) 7 ( ) 8 ( ) 9 ( ) 10 ( ) NA ( ) DK/NS

If score is 7 or less:
17b. How can this be improved?

_____

18. Who submitted the application to Duke Energy?
( ) I did (customer)
( ) Someone from my company did
( ) The contractor
( ) The salesperson
( ) Someone from Duke Energy
( ) Other: _____

19. Did you have any problems receiving the incentives?
( ) Yes
( ) No
( ) DK/NS

If yes to Q19, ask Q19b:
19b. Please explain the problem and how it was resolved. Was it resolved to your satisfaction?

_____

20. Please indicate from the following choices what action you would have taken if the program had not been available:
( ) **I would have continued using the old *[measure from q7]***
( ) I would have bought a used *[measure from q7]* at the same time or later time,
( ) I would have bought a new *[measure from q7]* at the same time, or
( ) I would have bought a new *[measure from q7]* at a later time.

If "same time or later time" or "later time" checked for Q20, then ask Q20b
20b. How many months later would you have bought a new *[measure from q7]*?

_____

21. On a scale of 0 to 10, where a 0 means that the program had zero influence and a 10 means that the program had a major influence, please rate the level of influence the program incentive had on the level of energy efficiency of your new equipment?
Scale of 0 to 10 is correct in this case
( ) 0 ( ) 1 ( ) 2 ( ) 3 ( ) 4 ( ) 5 ( ) 6 ( ) 7 ( ) 8 ( ) 9 ( ) 10 ( ) NA ( ) DK/NS

22. Do you think that you would have selected the same level of energy efficiency if the program's financial incentive would not have been available to you?
( ) No. We would make a somewhat different equipment selection or not do the same project
( ) Not sure what we would do
( ) Yes. We would make exactly the same equipment choice
( ) Other: _____

If "no – different selection" checked in Q22, then ask Q22b

22b. You indicated that without the program you would have bought *[measure from q7]* with a different level of energy efficiency. If the program were not available do you think you would have bought a unit that is. . .

( ) **Similar in efficiency to your previous model,**

( ) Somewhat higher efficiency than your previous model,

( ) Significantly more efficient than your previous model but not as efficient as the one you bought, or

( ) Almost as efficient as the model you bought?

23. Aside from the financial incentive, Duke Energy also provides information and/or technical assistance on the benefits of using energy efficient equipment. On a scale of 0 to 10, where a 0 means that the program had zero influence and a 10 means that the program had a major influence, please rate the level of influence the program <u>information and/or technical assistance</u> had on the level of energy efficiency of your new equipment?

( ) 0 ( ) 1 ( ) 2 ( ) 3 ( ) 4 ( ) 5 ( ) 6 ( ) 7 ( ) 8 ( ) 9 ( ) 10 ( ) NA ( ) DK/NS

If score is 7 or less:

23b. What information source do you consider the most important influence on your choice of this particular equipment?

_____

24. Do you think that you would have selected the same level of energy efficiency if the Duke Energy Smart $aver Program information and/or technical assistance would not have been available to you?

( ) No. We would make a somewhat different equipment selection or not do the same project

( ) Not sure what we would do

( ) Yes. We would make exactly the same equipment choice

( ) Other: _____

If "no – different selection" checked in q24, then ask q24b

24b. You indicated that without the program you would have bought Lighting with a different level of energy efficiency. If the program were not available do you think you would have bought a unit that is. . .

( ) **Similar in efficiency to your previous model,**

( ) Somewhat higher efficiency than your previous model,

( ) Significantly more efficient than your previous model but not as efficient as the one you bought, or

( ) Almost as efficient as the model you bought?

25. When firms have experience with energy efficiency programs or products, they sometimes make similar decisions to continue the energy savings in other parts of their business. Since the time you participated in the Smart $aver Prescriptive Program, have you purchased and installed on your own initiative any additional types of high efficiency equipment or made energy efficiency improvements at your company including other locations?

( ) Yes, only at this company
( ) Yes, only at other locations
( ) Yes, at both company and other locations
( ) No
( ) DK/NS

(Probe to get exact type and quantity and location)

26. What type and quantity of additional high efficiency equipment did your company install on its own?

	Type	Quantity	Address
1	_____		
	_____		
	_____		
2	_____		
	_____		
	_____		
3	_____		
	_____		
	_____		
4	_____		
	_____		
	_____		

For each type listed above,

27. How do you know that this additional equipment is high efficiency? For example, was it Energy Star rated?

1: _____
2: _____
3: _____
4: _____

(For each type listed above)

28. Did you receive an incentive for installing any of this additional equipment?

	Yes	None	DK/NS
1	( )	( )	( )
2	( )	( )	( )
3	( )	( )	( )
4	( )	( )	( )

(For each type listed above)
Enter 'none' if no incentive was received for an installation
29. Who gave this incentive?

1 _____
2 _____
3 _____
4 _____

30. On a scale from 1-10, with 1 indicating that you strongly disagree, and 10 indicating that you strongly agree, please rate your agreement with the following statement: "My experience with the Smart $aver Prescriptive Program in *[month & year]* influenced my decision to install additional high efficiency equipment on my own."
( ) 1 ( ) 2 ( ) 3 ( ) 4 ( ) 5 ( ) 6 ( ) 7 ( ) 8 ( ) 9 ( ) 10 ( ) NA ( ) DK/NS

If score is 7 or less:
30b. What do you consider the most important influence on your choice of this particular equipment?

_____

31. What other actions, if any, have you taken in your company to save energy and reduce utility bills as a result of what you learned in this program?
Enter 'none' if no actions were taken
1: _____
2: _____
3: _____
4: _____

For q32 to q35, enter "None" if customer answers Nothing, DK, NS, etc.

32. What do you like most about this program, if anything?

_____

33. What do you like least about this program, if anything?

_____

34. What additional services would you like the program to provide that it does not now provide?

_____

35. Are there any other things that you would like to see changed about the program?

_____

We would like to ask you a few questions about your satisfaction with various aspects of the program. For these questions we would like you to rate your satisfaction using a 1 to 10 scale where a 1 means that you are very dissatisfied with that aspect and a 10 means that you are very satisfied.

How would you rate your satisfaction with:

36. The amount of the incentives provided by the program
( ) 1 ( ) 2 ( ) 3 ( ) 4 ( ) 5 ( ) 6 ( ) 7 ( ) 8 ( ) 9 ( ) 10 ( ) NA ( ) DK/NS

If score is 7 or less:
36b. How can this be improved?

_____

37. The time it took to receive the incentive
( ) 1 ( ) 2 ( ) 3 ( ) 4 ( ) 5 ( ) 6 ( ) 7 ( ) 8 ( ) 9 ( ) 10 ( ) NA ( ) DK/NS

If score is 7 or less:
37b. How can this be improved?

_____

38. The variety of technologies covered in the program
( ) 1 ( ) 2 ( ) 3 ( ) 4 ( ) 5 ( ) 6 ( ) 7 ( ) 8 ( ) 9 ( ) 10 ( ) NA ( ) DK/NS

If score is 7 or less:
38b. What would you like to see added?

_____

39. The information provided by your assigned account manager, if you have one, about the Smart $aver Prescriptive Program?
( ) 1 ( ) 2 ( ) 3 ( ) 4 ( ) 5 ( ) 6 ( ) 7 ( ) 8 ( ) 9 ( ) 10 ( ) NA ( ) DK/NS

If score is 7 or less:
39b. How can this be improved?

_____

40. The information provided by your vendor or contractor about the Smart $aver Prescriptive Program?
( ) 1 ( ) 2 ( ) 3 ( ) 4 ( ) 5 ( ) 6 ( ) 7 ( ) 8 ( ) 9 ( ) 10 ( ) NA ( ) DK/NS

If score is 7 or less:
40b. How can this be improved?

_____

41. The information provided on the website about the Smart $aver Prescriptive Program?
( ) 1 ( ) 2 ( ) 3 ( ) 4 ( ) 5 ( ) 6 ( ) 7 ( ) 8 ( ) 9 ( ) 10 ( ) NA ( ) DK/NS

If score is 7 or less:
41b. How can this be improved?

_____

42. The interactions and communications with Duke Energy staff.
( ) 1 ( ) 2 ( ) 3 ( ) 4 ( ) 5 ( ) 6 ( ) 7 ( ) 8 ( ) 9 ( ) 10 ( ) NA ( ) DK/NS

If score is 7 or less:
42b. How can this be improved?

_____

44. Now, considering all aspects of the program, how would you rate your overall satisfaction with the Smart $aver Prescriptive Program on a scale from 1 to 10 where 1 means very dissatisfied and 10 means very satisfied?
( ) 1 ( ) 2 ( ) 3 ( ) 4 ( ) 5 ( ) 6 ( ) 7 ( ) 8 ( ) 9 ( ) 10 ( ) NA ( ) DK/NS

If score is 7 or less:
44b. How can this be improved?

_____

45. How would you rate your overall satisfaction with Duke Energy?
( ) 1 ( ) 2 ( ) 3 ( ) 4 ( ) 5 ( ) 6 ( ) 7 ( ) 8 ( ) 9 ( ) 10 ( ) NA ( ) DK/NS

If score is 7 or less:
45b. How can this be improved?

_____

Ask Q46-Q50 for Indiana respondents who answered "yes" to Q5 (participated in Energizing Indiana) – OTHERWISE SKIP AHEAD TO Q51 NOW

46. Which program did you hear about first, Duke Energy's Smart $aver or Energizing Indiana?
( ) Smart $aver
( ) Energizing Indiana
( ) DK/NS
( ) Other: _____
( ) Both at same time

If 'both at same time' or 'other'

46a. Did you learn about them through Duke Energy's marketing and outreach, or from Energizing Indiana's own marketing and outreach?

( ) From Duke Energy
( ) From Energizing Indiana
( ) DK/NS
( ) Other: _____

If Smart $aver first

47. Did you learn about Energizing Indiana through Duke Energy's marketing and outreach, or from Energizing Indiana's own marketing and outreach?

( ) From Duke Energy
( ) From Energizing Indiana
( ) DK/NS

If Energizing Indiana first

48. Did you learn about Smart $aver through Energizing Indiana's marketing and outreach, or from Duke Energy's own marketing and outreach?

( ) From Duke Energy
( ) From Energizing Indiana
( ) DK/NS

49. Are there any aspects of Energizing Indiana that you would like to see incorporated into Duke Energy's Smart $aver Prescriptive Program?

( ) Yes *specify*: _____
( ) No
( ) DK/NS

50. What is your preference for the division of prescriptive incentives between Smart $aver and Energizing Indiana?

( ) The current division is fine with me.
( ) I don't have a preference at all.
( ) I would prefer that all the prescriptive incentives be offered by Energizing Indiana
( ) I would prefer that all the prescriptive incentives be offered by Smart $aver
( ) Other preference: _____

51. We have reached the end of the survey. Do you have any comments that you would like for me to pass on to Duke Energy?

_____

That's all the questions I have for you today. Thank you for your time!

Appendix E: DSMore Table

Per Measure Impacts Summary for Non-Residential Smart $aver Prescriptive

Impacts / Technology	Product code	State	EM&V gross savings (kWh/unit)	EM&V gross kW (coincident peak/unit)	EM&V gross kW (non-coincident peak/unit)	Unit of measure	Combined spillover less freeridership adjustment	EM&V net savings (kWh/unit)	EM&V net kW (coincident peak/unit)	EM&V net kW (non-coincident peak/unit)	EM&V load shape (yes/no)	EUL (whole number)
LED Lamps		IN	223.4	0.0500	0.0540	Lamp	45.6%	121.5	0.027	0.029	yes	8
LED Downlight		IN	246.1	0.0550	0.0590	Lamp	45.6%	133.9	0.030	0.032	yes	15
Program wide												

*The focus of this study is on LED lighting, a significant measure in the overall program portfolio not addressed by the Indiana Statewide Core Program evaluation.

The "Program wide" row is left blank because this report does not provide savings estimates for all technologies covered by the program.