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**AEP Ohio  
Energy Efficiency/  
Demand Response Plan  
Plan Year 1 (1/1/2009-12/31/2009)  
Program Year 2009 Evaluation Report:  
Business Prescriptive Program**

**Presented to**

**AEP Ohio**

**March 9, 2010**

**Presented by**

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## Section 1. Executive Summary

### 1.1 Evaluation Objectives

The goal of this report is to present a summary of the findings and results from the evaluation of the 2009 Business Prescriptive program<sup>1</sup> launched by AEP Ohio on June 1, 2009 under the gridSMARTohio (gridSMART) program umbrella. The primary objectives of this evaluation are to quantify savings impacts, to determine key process-related program strengths and weaknesses, and to identify ways in which the program can be improved.

Ohio recently passed comprehensive energy legislation, which includes an advanced energy portfolio standard ("AEPS") 2008 Senate Bill ("SB") 221, signed into law by Governor Ted Strickland on May 1, 2008.<sup>2</sup> The law directs Ohio utilities to implement programs to help their customers use electricity more efficiently, and requires electric utilities to achieve energy savings of 22.2% by the end of 2025 through energy efficiency programs. Utilities must also implement programs to reduce peak energy demand one percent beginning in 2009, and an additional 0.75% per year through 2018, for a total of 7.75%.

In response to the new legislative requirements, AEP Ohio is launching a set of Energy Efficiency/Peak Demand Reduction ("EE/PDR") programs in 2009-2011 under a three-year action plan with oversight by the Public Utilities Commission of Ohio. The 2009 Business Prescriptive program was one of three program elements available to non-residential customers of AEP Ohio's two operating companies, Ohio Power Company (OPC) and Columbus Southern Power (CSP) during 2009:

- » The **Prescriptive program** provides an expedited application approach for nonresidential customers interested in purchasing efficient technologies. The 2009 program targeted discrete new construction, retrofit, and replacement opportunities in lighting only and is commonly referred to by customers and trade allies as the "Lighting Program." A streamlined incentive application and quality control process is intended to facilitate ease of participation. Relationships with trade allies are a key strategy for promoting prescriptive incentive availability to customers. After 2009, AEP Ohio intends to expand the program to additional end-uses such as HVAC, motors, and refrigeration systems. The program targets projects installed within and after the current program year.
- » The **Custom program** offers incentives to customers for less common or more complex energy-saving measures installed in qualified retrofit and equipment replacement

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<sup>1</sup> Program Year 2009 (PY 2009) began June 1, 2009 and ended December 31, 2009.

<sup>2</sup> [http://www.legislature.state.oh.us/bills.cfm?ID=127\\_SB\\_221](http://www.legislature.state.oh.us/bills.cfm?ID=127_SB_221).

projects. The program targets projects installed within and after the current program year.

- » The **Self-Direct program** rewards qualifying customers who submit previously installed projects through one of two energy efficiency credit options: an energy efficiency credit payment of 75% of the calculated incentive amount under the Prescriptive or Custom program; or an exemption from the Energy Efficiency/Peak Demand Reduction (EE/PDR) rider for a specified number of months. The 2009 program targeted projects installed after January 1, 2006 and prior to May 31, 2009.

Some tasks within the Prescriptive, Custom, and Self-Direct program evaluations involved close coordination between the efforts, but the evaluations were otherwise conducted through separate approaches. The Prescriptive, Custom, and Self-Direct programs have evaluation results reported separately.

## **1.2 Evaluation Methods**

The data collected for evaluation of the PY 2009 Prescriptive program was gathered through a number of activities, including: 1) in-depth phone interviews with program managers and the implementation contractor (KEMA Services Inc.), 2) in-depth phone interviews with participating trade allies, 3) a participant phone survey, 4) engineering review of default savings assumptions, and 5) tracking system data review. Table 1.1 provides a summary of these data collection activities including the targeted population, the sample frame, and the timing in which the data collection occurred.

Navigant Consulting followed AEP Ohio's convention to define 2009 program savings and 2009 participants as installed projects with a payment request dated December 31, 2009 or earlier in the tracking system. There were many projects that were submitted to AEP Ohio during 2009 that still were in review stages as of December 31, 2009; these projects were not counted as 2009 participants for program savings reporting.

This evaluation defines a project based on tracking system assignment of a unique project number. A project typically represents a unique application form listing a single site address. A project may have multiple measures rebated and installed, with each measure representing a line-item technology on the application form. Businesses with multiple sites may submit applications for each site, and customers might submit multiple applications for a single site address. KEMA and AEP Ohio would define the project in such cases.

Part-year kWh savings<sup>3</sup> are defined by counting whole months from the completion date through December 2009. The month for the actual completion date entered in the tracking

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<sup>3</sup> Per June 17, 2009 Order in Docket 08-0888, page 9, paragraph 17.



system is counted as the first whole month. For example, a project with an actual completion date from any day in August 2009 will earn five months of part-year savings. Annualized kWh savings are calculated by dividing the part-year kWh savings by the number of months of part-year savings, and then multiplying by 12.

Table 1.1. Data Collection Activities for PY 2009

Data Collection Type	Targeted Population	Sample Frame	Sample Design	Sample	Timing
Tracking Data Review	Prescriptive measures installed in 2009 with a payment request by 12/31/2009	AEP Ohio Tracking Database	-	All	January-February 2010
In-depth Phone Interviews	Prescriptive and Business Program Managers	Contact from AEP Ohio	Prescriptive Program Manager Business Programs Manager	2	February 2010
	Prescriptive Program Implementers	Contact from AEP Ohio	KEMA Program Implementation Staff	1	February 2010
	Trade allies identified by 2009 customer participants	Application Form input Tracking Database	Random selection	7	February 2010
CATI Phone Survey	2009 Prescriptive participants – unique contact names with paid projects in 2009	Tracking Database	Attempted census of unique program participants with paid projects	37	February 2010
Engineering Review	2009 default savings assumptions	Business Programs Operations Manual	-	-	January-February 2010

### 1.3 Key Findings

Table 1.2 below provides an overview of participation for the PY 2009 Prescriptive program. As shown in Table 1.3 and Table 1.4, the PY 2009 evaluation found that evaluation-adjusted energy impacts were lower than savings in AEP Ohio's tracking system, as indicated by the realization rates (realization rate = evaluation adjusted / tracking system).

Table 1.2. PY 2009 Prescriptive Program Participation

Utility	Projects	Incentive Payments	Tracking kWh Annualized	Tracking kWh Payable Conventions	Tracking kWh
Ohio Power Company	86	\$878,942	13,173,622	2,861,494	2,475
Columbus Southern Power	53	\$398,858	5,952,435	1,804,790	1,113
AEP Ohio Total	139	\$1,277,799	19,126,057	4,666,283	3,588

Source: AEP Ohio tracking system, extract by KEMA dated February 19, 2010.

Table 1.3. PY 2009 Prescriptive Program Evaluation Adjusted kWh Savings

Utility	Tracking kWh Annualized	Evaluation Adjusted kWh Annualized	Realization Rate on Annualized kWh	Evaluation Adjusted kWh Payable Conventions
Ohio Power Company	13,173,622	11,760,136	89%	2,526,158
Columbus Southern Power	5,952,435	5,296,981	89%	1,600,753
AEP Ohio Total	19,126,057	17,057,117	89%	4,126,910

Source: Tracking savings from AEP Ohio tracking system, extract by KEMA dated February 19, 2010.

Table 1.4. PY 2009 Prescriptive Program kW Savings

Utility	Baseline, kW	Program, kW	Savings, %
Ohio Power Company	2,475	2,633	106%
Columbus Southern Power	1,113	1,148	103%
<b>AEP Ohio Total</b>	<b>3,588</b>	<b>3,781</b>	<b>105%</b>

Source: Tracking savings from AEP Ohio tracking system, extract by KEMA dated February 19, 2010.

#### Key Impact Findings

- » Program participation was highly concentrated in new T8/T5 fixtures and in certain building types (industrial, retail, warehouses). Manufacturing and retail provided 63% of energy savings by building type. The measure "New T8/T5 fixture" accounted for 67% of energy savings, while five measure types provided 95% of kWh savings.
- » AEP Ohio's default savings values, both kW and kWh, are well documented and reasonable for the building types and lighting measures that we reviewed. The program tracks savings and used default values that do not vary by building type. Default values are based instead on simple averages of building group specific operating hours, coincidence factors, and HVAC interaction factors. When Navigant Consulting used AEP Ohio's documented assumptions by building type, evaluation-adjusted energy savings were reduced by approximately 10%, while demand impacts increased by 5%. Offices, retail, and industry accounted for 67% of program savings, and each of these building types has default annual operating hours that are lower than the assumed average, while their coincidence factors are higher than the assumed average. Given the concentration of savings into a few building types and measures, Navigant Consulting recommends AEP Ohio transition to the use of default values that vary by building type.
- » Industrial business types in the participant survey showed significantly greater hours of use than AEP Ohio had assumed for the default value. Industrial facilities can be expected to have a high diversity factor. The default hours of use for industrial lighting should be reviewed for changes in 2010.
- » To support the impact evaluation, the evaluation team reviewed extracts from the program implementation contractor's tracking system. Navigant Consulting did not find any savings data in the tracking system that was judged to be outliers. There were some instances of missing values and inconsistencies that Navigant Consulting has identified in this report.
- » The PY 2009 Prescriptive program evaluation conducted a phone survey with 37 participating customers from a population of 104 unique companies that had been paid

for completed 2009 projects. All 37 respondents reported implementing the projects as described from tracking system data. The phone survey did not result in any adjustment to 2009 impacts, but did identify issues for follow-up in 2010. These aspects include possible adjustments to default baseline assumptions.

- » The implementation contractor, KEMA Services, Inc., has documented quality control and verification procedures for the Business Prescriptive program. Navigant Consulting reviewed the procedures and found them to be detailed and thorough. Putting in place documented procedures is an important early step that will help to ensure high quality projects and tracking data once these are fully adhered to on all projects from application received date through project close-out. Observations from our file review of Custom, Prescriptive, and Self-Direct projects suggest that verification of the initial projects after launch was not as detailed as current procedures, but that critical technical review, eligibility checks, and payment approvals were conducted. Navigant Consulting found shortcomings in project documentation, file management, and status tracking, and makes recommendations for improvements.

## Key Process Findings

### Program Participation

The Business Prescriptive program was well received in PY 2009. AEP Ohio customers received payment for completing 139 projects that accounted for 17,057 MWh and 3.78 MW of verified annualized savings. The PY 2009 participants represented a good range of business sectors, including light and heavy industry, schools, warehouses, offices, and retail/service.

Overall, a majority of program participants were highly satisfied with the application process. However, participants did report some issues with the program participation process, including receiving inconsistent information regarding participation status and the participation process generally taking too long. Among participating customers, 90% reported submitting a pre-approval application. Of these, 75% filled it out themselves. Most of the customers who completed the application themselves felt that the pre-approval application clearly explains the program requirements and participation process (88%) and rated the application process as easy (88%).

Respondents reported the initial application took, on average, 4.5 weeks for approval and the final application took slightly over four weeks for approval. Two-thirds were very satisfied with the amount of time for processing the initial and final applications.

Participants were asked what they considered to be the main benefits of participating in the program. Overwhelmingly, participants cited energy savings or bill reduction as a program benefit (ten of the 12 mentions).

### Customer and Trade Ally Satisfaction

Overall, the feedback to date indicates that customer satisfaction with the Business Prescriptive program and its implementation is high. Satisfaction is highest for AEP Ohio (87%) and the Prescriptive program (84%). The lowest level of satisfaction is with the measures offered by the program, but even for this aspect of the program, the satisfaction level was 72%. Three-fourths of the program participants were satisfied with the rebate levels. Importantly, the high level of customer satisfaction is also evident in the fact that 73% of participants are planning to participate in the Business Prescriptive program again in the future.

Trade allies commented that customers are comfortable with the processes and happy with components of the program, and few trade allies reported encountering problems during their involvement.

Trade allies are particularly satisfied with the rebate levels and the related generation of new lighting projects, the program simplicity, and call center responsiveness. Trade allies were generally satisfied with speed of application and payment processing, as well as general program implementation.

Trade allies were unhappy with the marketing of the program to customers and the limited trade ally support. When asked to suggest program improvements, trade allies most often cite higher incentives, more trade ally support, and better marketing and publicity. This is a common evaluation finding for programs in the first year after launch.

### **Marketing and Outreach**

AEP Ohio employed a variety of marketing and outreach methods in 2009. Contractors and trade allies were cited most often by respondents in the customer survey when asked how they first heard about the program. Participants were also directly asked whether they had ever heard about the program from a series of sources. The top two sources of information from the aided information were the contractor/trade ally and the AEP Ohio Web site.

Trade allies see little evidence of effective marketing of the program directly by AEP Ohio to smaller customers. The trade allies would like additional support in their marketing efforts, though most of the contractors were unaware of the opportunity to join AEP Ohio's trade ally network and the availability of marketing brochures. This added support appears likely to meet many of their needs.

### **Trade Ally Network**

During PY 2009, trade allies were an important channel of promotion and communication for the Business Prescriptive program. The level of trade ally involvement was particularly noteworthy given that many trade allies were unaware of the formal trade ally network structure that was put into place. Upon learning about it, many were very excited, particularly at the availability of program brochures and the opportunity to be listed on AEP Ohio's Web site as a trade ally.

AEP Ohio appears to have put into place a good process for its trade ally network, but it is not being effectively communicated in the market. Market actors have to complete an application and attend training that explains the program and program processes before they can become a trade ally. In return, the concept is that AEP Ohio trade allies will be listed on the AEP Ohio Web site and can make use of the program brochures. In practice, however, the trade ally Web site is not yet operational and many contractors are unaware of the program.

The trade ally network provides an excellent opportunity to promote program opportunities as contractors often specify the details of the installed equipment, and when they are aware of the program, they inform the customers of the AEP Ohio program and available incentives, and discuss the program with their customers. It is important to the success of the program that the trade ally network program be effectively marketed and fully implemented.

## Section 2. Introduction to the Program

This evaluation report covers the Prescriptive program element of the AEP Ohio gridSMART business energy efficiency and peak demand reduction programs.

### 2.1 Program Description

Ohio recently passed comprehensive energy legislation, which includes an advanced energy portfolio standard ("AEPS") 2008 Senate Bill ("SB") 221, signed into law by Governor Ted Strickland on May 1, 2008.<sup>4</sup> The law directs Ohio utilities to implement programs to help their customers use electricity more efficiently, and requires electric utilities to achieve energy savings of 22.2% by the end of 2025 through energy efficiency programs. Utilities must also implement programs to reduce peak energy demand one percent beginning in 2009, and an additional 0.75% per year through 2018, for a total of 7.75%.

In response to the new legislative requirements, AEP Ohio is launching a set of Energy Efficiency/Peak Demand Reduction ("EE/PDR") programs in 2009-2011 under a three-year action plan with oversight by the Public Utilities Commission of Ohio. The 2009 Business Prescriptive program was one of three program elements available to non-residential customers of AEP Ohio's two operating companies, Ohio Power and Columbus Southern Power during 2009:

- » The **Prescriptive program** provides an expedited application approach for nonresidential customers interested in purchasing efficient technologies. The 2009 program targeted discrete new construction, retrofit, and replacement opportunities in lighting. A streamlined incentive application and quality control process is intended to facilitate ease of participation. Relationships with trade allies are a key strategy for promoting prescriptive incentive availability to customers. After 2009, AEP Ohio intends to expand the program to additional end-uses such as HVAC, motors, and refrigeration systems. The program targets projects installed within and after the current program year.
- » The **Custom program** offers incentives to customers for less common or more complex energy-saving measures installed in qualified retrofit and equipment replacement projects. The program targets projects installed within and after the current program year.
- » The **Self-Direct program** rewards qualifying customers who submit previously installed projects through one of two energy efficiency credit options: an energy efficiency credit payment of 75% of the calculated incentive amount under the Prescriptive or Custom

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<sup>4</sup> [http://www.legislature.state.oh.us/bills.cfm?ID=127\\_SB\\_221](http://www.legislature.state.oh.us/bills.cfm?ID=127_SB_221)

program; or an exemption from the Energy Efficiency/Peak Demand Reduction (EE/PDR) rider for a specified number of months. The 2009 program targeted projects installed after January 1, 2006 and prior May 31, 2009.

The AEP Ohio gridSMART programs are funded on an annual calendar year basis. Funding in any given program year is limited to that year's budgeted amount and, therefore, incentives are paid on a first-come, first-served basis until the program year's incentive funds are exhausted. Funds may be shifted between the multiple business program elements based on participant response and approval of the Public Utilities Commission of Ohio. The business sector portion of the program is based on three year savings goals as follows:

Table 2.1. PY 2009 gridSMART Business Programs Planned Savings Goals and Budgets

Business Sector Program	2009	2010	2011	2009-2011 Total
Energy Savings (GWh)	107.2	176.5	249.9	533.6
% Savings of Sector Sales	0.30%	0.50%	0.70%	1.50%
Demand Savings (MW)	24.7	134.5	152.6	220.5
% Savings of Sector Sales	0.36%	0.56%	0.75%	1.65%
Total Cost (\$ millions)	\$16.1	\$32.2	\$40.4	\$88.8

Source: KEMA Operations Manual, January 25, 2010.

#### Program Implementation

AEP Ohio retained KEMA Services Inc. as its program administrator responsible for day-to-day operations. The AEP Ohio Prescriptive program manager reports to an overall Business Program Manager. An AEP Ohio staff person supports outreach and marketing, and other AEP Ohio staff support planning, evaluation, and reporting. Customer Service staff at Ohio Power Company (OPC) and Columbus Southern Power (CSP) promote the business programs to their accounts. KEMA provides the project and measure tracking system while AEP Ohio maintains systems for program level tracking and reporting.

AEP Ohio has provided the evaluation team with a detailed operations manual developed by KEMA that describes program implementation. Dated January 25, 2010, the operations manual



documents and formalizes procedures and policies that have been in place or evolved since program launch.

Important aspects of program implementation are summarized below.

**Incentive Caps:** Incentives are subject to project caps and yearly caps that are set per each business entity and vary by customer tariff. The project cap is \$300,000 and the yearly cap is \$500,000 per year for General Service tariffs I, II, and III and \$500,000 overall for 2009 through 2011 for all other tariffs.

**Incentive Limits:** Project incentives cannot exceed 50 percent of the total project cost.

**Preapproval and Final Applications:** Customers must submit pre-applications and final applications. In PY 2009, lighting layouts, fixture counts, and calculation spreadsheets were required for permanent lamp removal, new T8/T5 fixture retrofits, lighting occupancy sensors, and new construction.

**Pre-Review:** The program reviews pre-approval applications for eligibility and completeness. The program contacts the customer or contractor to clarify details or obtain further information, to discuss the overall process and timelines, and to explain the process for inspections where they are required.

**Pre-Inspection:** Pre-inspections provide the program with the opportunity to verify the existing conditions at the site. They are performed as defined by quality assurance procedures based on the type of measures that the participant submits.

**Reservation:** The program reserves the project funds once the pre-inspection report and/or initial project review is approved. Projects that come in after funds are fully reserved are placed on a waiting list. In the event that a project is not completed within 90 days of the reservation and an extension has not been requested and granted, then the project is cancelled.

**Final Submittal:** Final applications must be submitted within 60 days of project completion and include the appropriate back-up documentation to verify the project is complete and meets the program requirements. The program reviews final applications for eligibility and completeness.

**Final Inspection:** The program performs final inspections as defined by quality assurance/quality control procedures to verify the measures installed.

**Incentive Payment:** Once the program accepts a project for payment, incentives are processed and delivered within 30 days.

**Cancellation:** When a project either does not meet the program guidelines or is cancelled by the customer, the project is moved to the cancelled status. The project details remain in the database, but the project no longer counts towards the active program goals.

**Wait List:** If project applications and related funding requests reach the point where AEP Ohio determines that further funding reservations can no longer be made, the program moves projects to a waiting list. Projects on the wait list will not be reserved or paid unless sufficient funding becomes available. Wait list projects are not included in the active program totals. A wait list was not been employed by the 2009 program.

**Hold:** Projects are placed on hold when a customer with a reserved project decides not to move forward in the current program year and indicates that they may move forward with their project in the following year. Projects on hold are not included in the active program totals.

**Measures and Incentives for PY 2009**

The PY 2009 program application form listing measures, eligibility criteria, and incentive levels is provided in the Appendix.

## **Section 3. Evaluation Methods**

This section discusses the questions the evaluation sought to answer, the methods, sample design, and data sources used to answer those questions.

### **3.1 Evaluation Questions**

The evaluation sought to answer the following key researchable questions:

#### **Impact Questions**

1. What are the impacts from this program?
2. Did the program meet its energy and demand goals? If not, why not?

#### **Process Questions**

The process evaluation questions focused on five key areas:

1. Effectiveness of program implementation
2. Effectiveness of program design and processes
3. Customer and program partner experience and satisfaction with the program
4. Opportunities for program improvement
5. Program awareness and potential market effects

The full list of research questions can be found in the Business Prescriptive Evaluation Plan.

### **3.2 Analytical Methods**

#### **Program Savings**

The objective of this element of the impact evaluation is to verify the original savings estimates in the Prescriptive program tracking system. The savings reported in the program tracking system maintained by KEMA have been reviewed for evaluation adjustments through a multistep process:

1. Engineering review of the algorithms used by the program to calculate default energy savings for lighting measures and the assumptions that feed those algorithms.
2. Engineering review of KEMA's project tracking database to identify potential adjustments to reported tracking savings resulting from missing values, outliers, or changes to default values loaded into the database.
3. Review of participating customer phone survey responses to impact-related questions.

A realization rate (which is the evaluation-adjusted savings / reported tracking savings) can be estimated by applying adjustments at the measure-level based on steps 1 through 3, resulting in an evaluation-adjusted estimate of savings for the program.

## Default Savings Review

We conducted a technical review of measures with assigned default savings values to assess the reasonableness of underlying algorithms, technology assumptions, and calculated savings values assumed by AEP Ohio. Default savings for the Prescriptive program are documented in Appendix A of the KEMA's January 25, 2010 Operations Manual. A draft technical reference manual was developed by utilities in Ohio in 2009.<sup>5</sup> Since the TRM is not yet final, KEMA relied upon several sources to develop their default savings. The following are the types of issues Navigant Consulting considered in our review:

**Measure definition** – Is there an adequate description of the efficient technology, the required technology performance specifications, and the applications where the technology is eligible?

**Measure Savings Engineering Analysis** – Review the algorithms used to calculate non-coincident demand reduction, coincident demand reduction, and annual energy savings.

**Measure Savings Assumptions** – Review documentation for the wattages, efficiency ratings and operating assumptions for baseline and efficient equipment to calculate non-coincident demand reduction, coincident demand reduction, and annual energy savings.

**Measure Savings Results** – Presents the default values that are derived from the algorithms and assumptions – has the calculation been correctly performed to generate the default values (any math errors)? Is the weighting or averaging of data to derive a single default value reasonable? Do individual default values cover too broad of a range? Are the units for the savings correct and clearly presented?

## Tracking System Savings Review

Under this task, Navigant Consulting conducted a review of Prescriptive program data in the KEMA tracking system, exported on January 14, 2010, January 28, 2010, and February 19, 2010, to identify issues that could affect reported savings. During this review, Navigant Consulting looked at project and measure data for outliers and missing information, and checked for incorrect default values in lookup tables used by the tracking system to report savings.

## Review of Participating Customer Phone Survey Responses

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<sup>5</sup> *Technical Reference Manual (TRM) for Ohio Senate Bill 221 Energy Efficiency and Conservation Program and 09-512-GE-UNC*. Submitted by The Cleveland Electric Illuminating Company, Columbus Southern Power Company, The Dayton Power and Light Company, Duke Energy Ohio, Ohio Edison Company, Ohio Power Company, and The Toledo Edison Company. October 15, 2009. The October 15, 2009 draft TRM is currently under review by the Ohio Public Utilities Commission.

Relevant impact data from the phone survey (confirmation of installed measures, reported baseline equipment) was reviewed to determine whether to make adjustments to the tracking data.

#### File Review and On-Site Verification

File review and on-site verification was not conducted by Navigant Consulting on PY 2009 projects.

### 3.3 *Data Sources*

The data collected for evaluation of the PY 2009 Prescriptive program was gathered during a number of activities including: 1) in-depth phone interviews with program managers and the implementation contractor (KEMA Services Inc.), 2) in-depth phone interviews with participating trade allies, 3) a participant phone survey, 4) engineering review of default savings assumptions, and 5) tracking system data review. Table 3.1 provides a summary of these data collection activities including the targeted population, the sample frame, and timing in which the data collection occurred.

Table 3.1. Data Collection Activities for PY 2009

Data Collection Type	Targeted Population	Sample Frame	Sample Design	Sample	Timing
Tracking Data Review	Prescriptive measures installed in 2009 with a payment request by 12/31/2009	AEP Ohio Tracking Database	-	All	January-February 2010
In-depth Phone Interviews	Prescriptive and Business Program Managers	Contact from AEP Ohio	Prescriptive Program Manager Business Programs Manager	2	February 2010
	Prescriptive Program Implementers	Contact from AEP Ohio	KEMA Program Implementation Staff	1	February 2010
	Trade allies identified by 2009 customer participants	Application Form input to Tracking Database	Random selection	7	February 2010
CATI Phone Survey	2009 Prescriptive participants – unique contact names with paid projects in 2009	Tracking Database	Attempted census of unique program participants with paid projects	37	February 2010
Engineering Review	2009 default savings assumptions	Business Programs Operations Manual	-	-	January - February 2010

#### Tracking Data

The tracking data delivered for this evaluation was extracted from a program tracking database maintained by KEMA. Program samples for the Computer Assisted Telephone Interview (CATI) participating customer phone sample were drawn from a January 14, 2010 extract, while impact review was conducted on a 2010 tracking system extract dated February 19.

#### Program and Implementer Staff Interviews

Three in-depth staff interviews were conducted as part of this evaluation. Two of these interviews were conducted with AEP Ohio Business Programs Manager and the Business

Prescriptive Program Manager. The third interview was conducted with a member of the KEMA implementation staff. These interviews were completed in February 2010. The interviews with the Program Managers focused on program processes to better understand the goals of the program, how the program was implemented, the perceived effectiveness of the program, and also verified evaluation priorities. The interview with the implementation staff explored the implementation of the program in more detail and also covered areas of data tracking and quality assurance. The interview guides used for these interviews are included in the appendices.

The evaluation team also reviewed program materials developed by KEMA and AEP Ohio, including: KEMA's operations manual dated January 25, 2010, a technical reference manual documenting prescriptive savings (Appendix A of the operations manual), application forms (Appendix B), forms and checklists (Appendix C), program tracking database documentation, and program materials available from the program web site ([www.gridsmartohio.com](http://www.gridsmartohio.com)).

#### Trade Ally In-Depth Interviews

Seven in-depth interviews with participating trade allies were conducted as part of this evaluation to identify outreach effectiveness and barriers to participation. The trade allies were selected randomly from contact information provided on the application forms from the population of paid 2009 Prescriptive projects.

#### CATI Phone Survey

A computer-assisted telephone interview (CATI) was completed with 37 Prescriptive program participants with paid projects in 2009. This survey focused on questions to estimate the program impacts and to support the process evaluation. All CATI interviews were completed in early February 2010.

The CATI survey targeted a population of 104 unique customer contact names drawn from the tracking system for PY 2009 paid Prescriptive projects. The survey assessed all of the parameters necessary to support the adjusted savings analysis by collecting self reported data for end-use hours of operation and characterization of removed and installed equipment. Additional data was collected to support the process evaluation (such as program design and implementation, program marketing and awareness, customer satisfaction), a qualitative assessment of spillover, and business demographics for the process component of the evaluation. The CATI survey instrument used for this evaluation is included in the appendices.

### *3.4 Population and Sampling*

#### Profile of Participant Population

Table 3.2, Table 3.3, and Table 3.4 provide a profile of PY 2009 Prescriptive program participation. Participation is highly concentrated in certain buildings types (industrial, retail), and in a subset of measures. Five measure types supply 95% of kWh savings.

**Table 3.2. PY 2009 Prescriptive Program Participation by Business Type**

Business Type	Project Count	Energy Savings (\$)	Energy Savings (kWh)	Energy Savings (kWh) Normalized	Count
Heavy Industry	17	5,087,895	27%	27%	952
Retail/Service	29	3,898,333	20%	47%	727
Light Industry	16	3,050,526	16%	63%	576
School	19	2,240,857	12%	75%	421
Warehouse	12	1,450,304	8%	82%	275
Miscellaneous	20	1,352,309	7%	89%	254
Office	10	832,457	4%	94%	156
Medical	7	560,074	3%	97%	103
College/University	1	292,643	2%	98%	55
Hotel/Motel	3	270,788	1%	100%	51
Grocery	3	82,305	0%	100%	16
Restaurant	2	7,567	0%	100%	1
<b>Total</b>	<b>139</b>	<b>19,126,057</b>	<b>100%</b>		<b>3,588</b>

Source: Evaluation analysis of tracking savings from AEP Ohio tracking system, February 19, 2010.



Table 3.3. PY 2009 Prescriptive Program Participation by Measure Type

Rank	Measure Subcategory	Measure Description	Measure Type	Measure Type	Measure Type	Measure Type
1	New T8/T5 Fixture	12,908,778	67%	67%	2,406	67%
2	T12 to T8 Conversion (with electronic ballast) 2, 3, 4, and 8 foot lamps	2,516,031	13%	81%	489	14%
3	Delamping (Combined with T8 ballast retrofit)	1,195,866	6%	87%	222	6%
4	Screw in Compact Fluorescent Lamps	926,791	5%	92%	173	5%
5	Lighting Occupancy Sensors	662,986	3%	95%	144	4%
6	Standard T8 to Reduced Wattage T8 (Lamp Only)	568,174	3%	98%	99	3%
7	Other retrofits	184,624	1%	99%	34	1%
8	LED Exit Signs Electronic Fixtures (Retrofit Only)	141,137	1%	100%	17	0%
9	Lighting Density (New Construction)	21,671	0%	100%	4	0%
Total		19,126,057	100%		3,588	

Source: Evaluation analysis of tracking savings from AEP Ohio tracking system, February 19, 2010.

Table 3.4. PY 2009 Prescriptive Program Participation by Utility

Utility	Tracking kWh Annualized	Tracking kWh Last Year Conversion	Tracking kWh
Ohio Power Company	13,173,622	2,861,494	2,475
Columbus Southern Power	5,952,435	1,804,790	1,113
AEP Ohio Total	19,126,057	4,666,283	3,588

Source: Evaluation analysis of tracking savings from AEP Ohio tracking system, February 19, 2010.

## CATI Phone Survey

### Sampling

The CATI survey attempted to reach all 104 unique contact names with paid projects in the 2009 Prescriptive program to achieve the maximum number of completed phone interviews. The phone survey targeted unique contact names to avoid a burden on the respondent of discussing multiple projects. Many businesses submitted projects for multiple locations (e.g., chain stores) and listed a single contact person for all projects. These duplicates had to be removed from the calling list.

The sampling errors were calculated assuming the data to be normally distributed with a coefficient of variation 0.5 (which is a worst case estimate) and all data points to be independent and identically distributed (IID). The response of 37 participating customers from a population of 104 (36%) provides a relative precision at a 90% confidence level of  $\pm 11\%$ .

### Profile of Survey Respondents

Over 70% of survey respondents represent one of four business sectors: industry/manufacturing (22%), schools (22%), warehouse (16%), or offices (14%). This distribution is similar to that of all 104 company contacts that participated in the Prescriptive program in PY 2009. Table 3.5 presents the comparison of business sectors for survey respondents and the population of participants.

Eight out of ten respondents own and occupy their facility and employ about 175 full and part-time employees. Almost all (97%) pay their own electric bill. The average age of the respondent's facility is almost 38 years old.

**Table 3.5. Profile of Participating Customer Phone Survey Respondents**

Business Type	Non-Industrial Respondents (n=37)				Industrial Respondents (n=104)	
	Other Business	Construction Business	Total		Total	
School	3	5	8	22%	14	13%
Warehouse	3	3	6	16%	12	12%
Office	0	5	5	14%	11	11%
Miscellaneous	2	3	5	14%	15	14%
Light Industry	3	1	4	11%	14	13%
Heavy Industry	2	2	4	11%	14	13%
Medical	1	1	2	5%	5	5%
Hotel/Motel	1	1	2	5%	3	3%
Retail/Service	1	0	1	3%	10	10%
College/University	0	0	0	0%	1	1%
Grocery	0	0	0	0%	3	3%
Restaurant	0	0	0	0%	2	2%
<b>Total</b>	<b>16</b>	<b>21</b>	<b>37</b>	<b>100%</b>	<b>104</b>	<b>100%</b>

Source: PY 2009 Participant Survey.

## Section 4. Program Level Results

This section presents the results of the impact and process evaluations of the Business Prescriptive program.

### 4.1 Impact

#### Verification and Due Diligence

For the Verification and Due Diligence, Navigant Consulting explored the quality assurance and verification activities currently carried out by program and implementation staff. Navigant Consulting compared these activities to industry best practices<sup>6</sup> for similar business programs to determine:

1. If any key quality assurance and verification activities that should take place are currently not being implemented.
2. If any of the current quality assurance and verification activities are biased (i.e., incorrect sampling that may inadvertently skew results, purposeful sampling that is not defensible, etc.).
3. If any of the current quality assurance and verification activities are overly time-consuming and might be simplified or dropped.

This assessment primarily relied on in-depth interviews with program and implementation staff and documentation of current program processes, where available, for the Prescriptive, Custom, and Self-Direct programs.

The KEMA Operations Manual, dated January 25, 2010, documents quality control and verification procedures for the Business Prescriptive program. Navigant Consulting reviewed the procedures and found them to be detailed and thorough. Putting in place documented procedures is an important early step that will help to ensure high quality projects and tracking data once they are fully adhered to on all projects from application received date through project close-out.

Observations from Navigant Consulting's file review experience suggests that verification of the initial projects after launch was not as detailed as current procedures, but that critical technical review, eligibility checks, and payment approvals were conducted. Navigant Consulting found shortcomings in project documentation, file management, and status

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<sup>6</sup> See the Best Practices Self Benchmarking Tool developed for the Energy Efficiency Best Practices Project: <http://www.eebestpractices.com/benchmarking.asp>.

tracking. Going forward, AEP Ohio and KEMA should approach project verification as a continuous improvement process. Navigant Consulting has not identified QA/QC procedures that should be dropped.

Suggested improvements focus on having staff follow all documented procedures; developing an integrated tracking system to serve both KEMA and AEP Ohio; capturing important verification data in the tracking system including dates, electronic files, participant communications, and scanned supporting documentation; and maintaining accurate and complete review histories in the tracking system throughout the various stages application processing. It is important that tracking system entries and updates be made in a timely fashion, and AEP Ohio and KEMA should establish time policies that staff follows for timely data entry.

Files were reviewed from Prescriptive and Custom projects submitted into the Self-Direct program. Navigant Consulting had a difficult time confirming that all required verification procedures were followed on a substantial number of projects from 2009. Some projects had complete files and were confirmed quickly, while other projects had minimal supporting documentation. In some cases, project savings were altered from participant supplied information, but the reasons and supporting documentation for the changes were not provided. Some project invoices provided detailed lists of installed equipment, while others were not itemized.

AEP Ohio and KEMA need to document their project reviews so that a third party can request and receive all relevant project files and understand what verification tasks have taken place, what the outcomes were, and any changes to the project's claimed savings.

Table 4.1 summarizes the quality assurance and verification activities currently carried out by the Business Prescriptive and Custom programs. It also features recommended changes to current procedures, as well as suggestions regarding additional activities that AEP Ohio could implement to enhance current quality assurance and verification.

Table 4.1. Summary of Quality Assurance Activities in Place and Recommendations

Quality Assurance Activities in Place	Recommended Improvements
<p><b>Pre-Approval</b></p> <ul style="list-style-type: none"> <li>» Eligibility and completeness checks</li> <li>» Technical review</li> <li>» Pre-inspections</li> </ul>	<p><b>Pre-Approval</b></p> <ul style="list-style-type: none"> <li>» Capture all relevant verification data in tracking system including dates, electronic calculation files, participant communications, and scanned supporting documentation</li> <li>» Maintain complete and accurate revision histories of project savings and incentives in the tracking system, supported with documentation</li> <li>» Ensure each project has a complete set of required documents</li> <li>» After the pre-inspection, include a consistency check on incentive and impact data between applicant documentation, pre-review notes, pre-inspection forms, and the tracking system, and document differences</li> </ul>
<p><b>Final Approval</b></p> <ul style="list-style-type: none"> <li>» Eligibility and completeness checks</li> <li>» Engineering review</li> <li>» Post-Inspections</li> </ul>	<p><b>Final Approval</b></p> <ul style="list-style-type: none"> <li>» After the post-inspection, include a consistency check on incentive and impact data between applicant documentation, review notes, inspection forms, and the tracking system, and document differences</li> <li>» Maintain updated verification data in tracking system including dates, electronic calculation files, participant communications, and scanned supporting documentation</li> <li>» Maintain complete and accurate revision histories of project savings and incentives in the tracking system, supported with documentation</li> <li>» Segregate and label the documents and spreadsheets that are used to generate the reported savings and final incentive, and ensure each project has a complete set of required documents at closeout</li> </ul>

### Tracking System Review

To support the impact evaluation, the evaluation team was given periodic extracts from KEMA's tracking system and data. The extracts were multi-tabbed Excel spreadsheets. The spreadsheet format made it difficult to connect measure level data with project level details, status information, and program level results and then conduct analyses. The tracking system extracts did not include electronic files of supporting project documentation, which are stored separately.

While working with the database, the most important issue for the evaluation team is consistency of the data. There were some instances of inconsistency regarding field names and data input. Both must be consistent or the data may not be properly analyzed if the evaluation team does not catch the inconsistency. Some early inconsistencies were resolved in later extracts – for example, the convention used for project numbers between project and measure level details.

Navigant Consulting did not find any Prescriptive impact data in the tracking system that was judged to be outliers. One project had a date received of June 8, 2008 that appeared to be a typo for 2009. Navigant Consulting found four instances of projects with part-year savings based on an estimated project completion date. Navigant Consulting adjusted the part-year savings to reflect actual project completion dates reported in the tracking database.

Three 2009 paid projects identified as Business Prescriptive Lighting – project #111, #135, and #181 – were found to have minor discrepancies between project level savings impacts and measure level savings. These appear to be related to project-specific adjustments that shifted some savings into the Custom program measure category (and were tracked as Custom at the measure level), while other measures stayed within the Prescriptive program. At the project level, Custom and Prescriptive measure savings were included as a project designated as a prescriptive lighting project.

Navigant Consulting included the Custom measure savings for these three projects (project #111, #135, and #181) with the Prescriptive lighting program evaluation. The reasons are that the projects appeared to be handled under the Prescriptive program (administrative costs, incentive payment), the custom measures were lighting, and the project level savings are included in Prescriptive program reporting (not Custom project).

AEP Ohio and KEMA should examine administrative procedures and tracking for projects that combine measures from the Custom and Prescriptive programs. Although savings were not double counted at the project or measure level, there is a potential risk for over or undercounting savings depending on how the reports are generated.

Navigant Consulting did not find any differences between the default savings values documented in the January 25, 2010 Operations Manual and the tracking system database lookup values.

Suggested improvements to the tracking system deployment focus on having staff follow all documented procedures; developing an integrated tracking system to serve both KEMA and AEP Ohio; capturing important verification data in the tracking system including dates, electronic files, participant communications, and scanned supporting documentation; and maintaining accurate and complete review histories in the tracking system throughout the various stages application processing. It is important that tracking system entries and updates be made in a timely fashion, and AEP Ohio and KEMA should establish time policies that staff follows for timely data entry.

#### Default Savings Review

Below is a summary of observations and recommendations from Navigant Consulting's review of the default savings values documented in Appendix A of KEMA's January 25, 2010 Operations Manual. The manual covers lighting, cooling, motors, refrigeration, food service, and miscellaneous technologies. Navigant Consulting's review concentrated on the lighting technologies rebated in 2009.

- » The algorithms used are standard approaches for default and deemed savings manuals, incorporating building-type specific annual hours of use, coincident factors, a demand interactive effects factor for cooling, and an energy interactive effects factor for cooling.
- » AEP Ohio's default savings values, both kW and kWh, are well documented and built from reasonable assumptions for the building types and lighting measures that were reviewed. There was a strong reliance on the DEER database from California, although other sources were noted.
- » The program tracking system uses default per unit savings values that do not vary by building type. Tracking system default values are based instead on simple averages of building sector groupings of specific parameters. Navigant Consulting recommends AEP Ohio transition to default values that vary by building type. The Prescriptive program has a concentration of savings into a few building types, and there is a tendency of certain business types to employ specific measures. Offices, retail, and industry accounted for 67% of program savings, and each of these building types has default annual operating hours that are lower than the assumed average, while their coincidence factors are higher than the assumed average. The program experienced significant participation from low and high use facilities, so the averages cover a significant range. Navigant Consulting believes the use of building specific parameters will reduce the risks of evaluation adjustments as the program evolves and as building specific assumptions are refined through EM&V and local market research.
- » When Navigant Consulting used documented assumptions that vary by building type, evaluation-adjusted energy savings were reduced by approximately 10% from tracked



- savings, while demand impacts increased by 5%. Navigant Consulting notes that typical evaluation results provide a relative precision of  $\pm 10\%$  at a 90% confidence level.
- » The use of DEER as a starting data source for coincidence factors is reasonable. Navigant Consulting supports case-by-case revisions for specific buildings types when a solid case can be made for an alternate source, or as Ohio-specific data becomes available.
  - » Navigant Consulting recommends a set of HVAC interaction factors be developed that are specific to Ohio.
  - » Lighting default values make assumptions about the base fixture types, wattages, and operation that are reasonable for PY 2009, but these assumptions need to be confirmed through market research, program results, and evaluation M&V. Although limited in scope, the 2009 participant survey indicated that several baseline assumptions should be reviewed in 2010. The default hours of use for industrial lighting should be reviewed in 2010.
  - » KEMA should consider using separate demand and energy savings fractions for occupancy sensors, and revisit occupancy off rates after EM&V results. Navigant Consulting also recommend that KEMA not combine the 20% and 50% off rates into a single 28% average off rate. Occupancy sensors are a common measure for schools and industrial storage and warehouses. These building types have per unit impacts that are much different.

#### **Review of Participating Customer Phone Survey Responses**

Relevant impact data from the phone survey (confirmation of installed measures, reported baseline equipment) was reviewed to determine whether to make adjustments to tracking data. Table 4.2 identifies the survey question (paraphrased) or issue addressed, the participant responses, and conclusions. Although some responses suggest a minor reduction could be made to claimed savings for the individual project in question, Navigant Consulting did not adjust 2009 impacts based on survey responses. Navigant Consulting concluded the evaluation team could not adjust impacts based on participant responses without additional follow-up through engineering review of project files, conversations with site personnel, or on-site inspection. The responses can be used to inform future adjustments to default savings, and identify issues for 2010 EM&V activities.

Table 4.2. Participating Customer responses to Impact Questions

Survey Question	Response	Impact
Equipment installed as described?	Yes: 37 of 37	Do not adjust 2009 impacts
Installed additional fixtures to increase the light levels after the project was completed?	One respondent of 35 reported installing 20 additional fixtures to increase the light levels on a project of 2326 lamps.	Do not adjust 2009 impacts
Placed CFLs into storage?	One respondent of 7 reported placing CFLs into storage (amount = 2%).	Do not adjust 2009 impacts
Sent CFLs to another facility?	None of 7 respondents	Do not adjust 2009 impacts
On the type of linear fluorescents removed when installing T8 with electronic ballast or new T8/T5 fixtures	Of 19 responses, 17 identified T12 as the removed equipment, one identified T8's, and one identified both were removed.	Do not adjust 2009 impacts. Review baseline for 2010 default savings values.
On type of ballast removed	Of 11 responses, 10 identified magnetic, and one identified magnetic and electric	Do not adjust 2009 impacts. Review baseline for 2010 default savings values.
Was the new lighting equipment installed in an air conditioned (cooled) space?	18 (Yes) 12 (No) 5 (Some)	Merits follow-up in 2010. In particular, HVAC interaction factors for installing new T8/T5 fixtures to replace HID in industry and warehouses should be reviewed.
Type of exit sign removed	1 (CFL) 4 (Incandescent)	Do not adjust 2009 impacts. Review baseline for 2010 default savings values.

#### Hours of Use

Participants were asked a battery of questions to quantify the hours that their indoor lighting equipment was in operation. The questions asked typical lighting hours of use for three separate weekly periods: Monday through Friday, Saturday, and Sunday. Respondents were

also asked about the percentage of indoor lights that were kept on during hours when the businesses were closed. Finally, respondents were asked to describe the operating schedule for any months during the year that differ significantly from the schedule they described. For example, schools typically responded by describing a three-month summer schedule of reduced operation.

Although the lighting hours of use questions quantify the hours of use that lighting may be operating, these do not allow the evaluation team to estimate a diversity factor for occupied hours that accounts for some portion of lights that are switched off during occupied hours. For example, a high school facility manager will provide a schedule that represents the hours that a school is occupied, but this does not account for unused classrooms. The diversity factor for lighting during the school year will be less than 1.0 and should be factored into self-reported lighting hours of use. Navigant Consulting concluded the evaluation team could not adjust impacts based solely on reported hours of use without additional follow-up through engineering review of project files, conversations with site personnel, or on-site data logging of lighting equipment hours.

Table 4.3 compares default hours of use by building type for non-CFL lighting with data collected through the participant survey. Industrial business types show significantly greater hours of use than AEP Ohio has assumed for the default value, and can be expected to have a high diversity factor. The default hours of use for industrial lighting should be reviewed for changes in 2010.

Schools, offices, and warehouses were three common participants that had reported hours of use that were near or below the default value of 4,389 hours, and can be expected to have diversity factors below 0.9. Due to the lack of estimates for diversity factors and the limited response rate, Navigant Consulting cannot recommend changes to default values for lighting operating hours by building type based on the survey results.

Table 4.3. Results from Phone Survey Lighting Hours of Use Question Module

Business Type	Reported Annual Lighting Operating Hours	Ratio of Reported Hours to Default Value of 4,389 Hours		
		Count	Reported Hours	Ratio to 4,389-hour default value
Office	2,808	5	4,507	1.03
K-12 School	1,873	2	3,468	0.79
College / University	3,433	0	-	-
Retail/Service	4,210	1	3,233	0.74
Restaurant	5,278	0	-	-
Hotel/Motel	8,736	2	7,098	1.62
Medical	6,474	2	4,254	0.97
Grocery	5,824	0	-	-
Warehouse	4,859	6	3,814	0.87
Heavy Industry	4,290	4	6,721	1.53
Light Industry	4,290	4	5,199	1.18
Miscellaneous	4,325	5	4,053	0.92
Average	4,389	37	4,705	1.07

### Gross Program Impact Results

Based on the gross impact evaluation adjustments indicated by Sections 4.1.2, 4.1.3, and 4.1.4, Navigant Consulting estimated the evaluation-adjusted program impacts resulting from the PY 2009 Prescriptive program. The most significant evaluation adjustment is the use of building type specific lighting operating hours, coincidence factors, and cooling interaction factors. The results are provided in Table 4.4 and Table 4.5.

**Table 4.4. PY 2009 Prescriptive Program Evaluation-Adjusted kWh Savings**

Utility	Tracking kWh Annualized	Evaluation- Adjusted kWh Annualized	Reduction Rate on Annualized kWh	Carbon Reduction Conversion
Ohio Power	13,173,622	11,760,136	89%	2,526,158
Columbus Southern Power	5,952,435	5,296,981	89%	1,600,753
<b>AEP Ohio Total</b>	<b>19,126,057</b>	<b>17,057,117</b>	<b>89%</b>	<b>4,126,910</b>

Source: Tracking savings from AEP Ohio tracking system, extract by KEMA dated February 19, 2010.

**Table 4.5. PY 2009 Prescriptive Program kW Savings**

Utility	Tracking kW	Evaluation- Adjusted kW	Reduction Rate on kW
Ohio Power	2,475	2,633	106%
Columbus Southern Power	1,113	1,148	103%
<b>AEP Ohio Total</b>	<b>3,588</b>	<b>3,781</b>	<b>105%</b>

Source: Tracking savings from AEP Ohio tracking system, extract by KEMA dated February 19, 2010.

## 4.2 Process

The process component of the Business Prescriptive program evaluation focused on program implementation, program design and processes, marketing and outreach, and participant satisfaction. Data sources for the process component include a review of program materials, a telephone survey with 37 program participants, three in-depth interviews with program staff and implementers, and in-depth interviews with seven lighting trade allies. The Business Prescriptive program is still relatively early in its implementation so any feedback needs to be taken with that in mind.

### Customer Perspectives

#### Application Process

The application process includes both a pre-approval and final approval application. Overall, a majority of program participants were highly satisfied with the application process. However, participants did report some issues with the program participation process, including receiving inconsistent information regarding participation status and that the participation process generally taking too long.

Among participating customers, 90% reported submitting a pre-approval application. Of these, 75% filled it out themselves. Most of the customers who completed the application themselves feel that the pre-approval application clearly explains the program requirements and participation process (88%) and rated the application process as easy (88%).<sup>7</sup> Those that rated the process as difficult most often note that the application was difficult to complete without an engineering degree. Similarly, 78% of participating customers report filling out the final application themselves. Eighty-three percent of these customers rated the final application process as easy.

Respondents reported the initial application took, on average, 4.5 weeks for approval and that the final application took slightly over four weeks for approval. Two-thirds were very satisfied with the amount of time for processing the initial and final applications.

#### Participation Process

Overall, customers did not experience any problems during the participation process. However, when asked about how the program could be improved, respondents mentioned a number of process issues including a simpler application process, simplifying the application, faster

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<sup>7</sup> A score of seven or higher on a scale from zero to ten point scale, where zero is "very difficult" and ten is "very easy."

turnaround on the application process, clearer instructions, and less paperwork. When asked about any drawbacks to participating in the program, only four respondents answered the question. They said installation time, published wattage standards, the initial capital investment, and the time needed to complete the paperwork are drawbacks to the program.

#### Customer Service

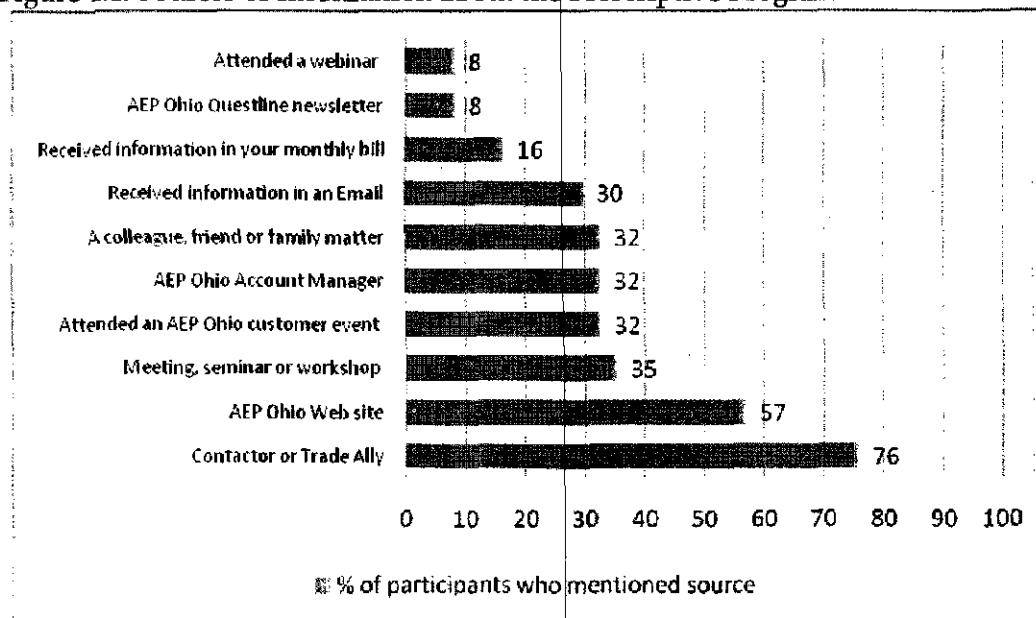
The Business Prescriptive program employed the AEP Ohio call center to field questions from program participants. Only four of the participants report calling the Call Center during their program participation. Three of them were very satisfied with their interaction and one was not.

#### Program Marketing & Outreach

Business Prescriptive program marketing efforts have included bill inserts, television advertisements, account manager outreach, seminars for larger customers, and trade ally seminars combined with a trade ally program.

Participants recall hearing about the program through a number of different channels. The top two first sources of program information are a contractor or trade ally (35%) and a recommendation from a friend, colleague, or other word of mouth source (16%). Participants were also directly asked whether they had ever heard about the program from a series of sources. Figure 4.1 summarizes participant responses about program information sources when prompted about information channels. The top two sources of information from the aided information were the contractor/trade ally and the AEP Ohio Web site.

Figure 4.1. Sources of Information about the Prescriptive Program



Source: CATI Participant Survey.

The contractor/trade ally was mentioned as the most critical source of program information. Information from this source and others appear to have encouraged program participants to search for more information on the Web site. Most program participants did not know when or how they encountered program marketing materials. 30% of Prescriptive program participants found them very useful in providing information about the program and almost 50% found the materials somewhat useful.

Information on the preferred method of contact was solicited in an open-ended survey question format. The most preferred method, receiving six mentions, was a direct mail piece. A visit from a representative of the utility or the program implementer, utility newsletters, and informational seminars were each mentioned by two of the program participants.

### **Barriers and Benefits of Participation**

In order to get a sense of potential barriers to participation, participants were asked two questions on their views, in an open ended format, of why other customers might not participate in the program and the drawbacks to the program. Drawbacks to the program included the time it takes to complete the paperwork and the time it takes to install the lighting and the initial capital investment. Cost or lack of capital investment dollars was mentioned by six of the program participants. Other mentions included satisfaction with current lighting system and the amount of paperwork involved.

Finally, participants were asked what they considered to be the main benefits of participating in the program. Overwhelmingly, participants cite energy savings or bill reduction as a program benefit (ten of the 12 mentions). The other two mentions were reducing the payback for the project and its usefulness as a marketing tool with residents.

Information on both potential barriers to and benefits of participation should be utilized when planning messaging for future marketing efforts.

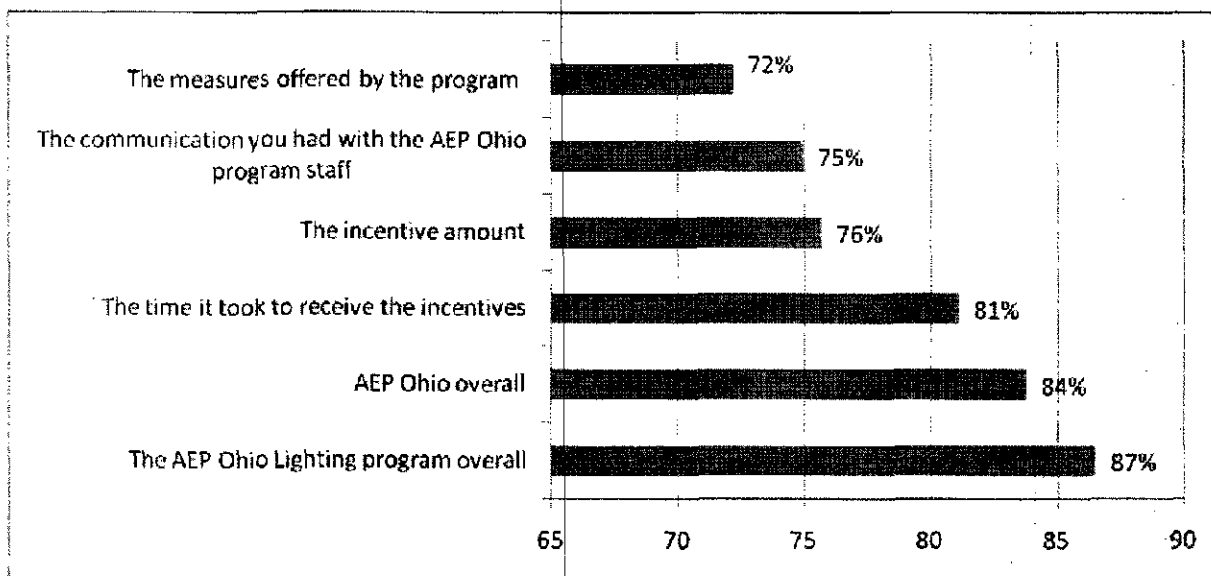
### **Participant Satisfaction**

Participants are satisfied with most aspects of the program. Customers were asked to rate – on a scale of zero to ten, where zero means “very dissatisfied” and ten means “very satisfied” – several aspects of the program, overall satisfaction with the program and with AEP Ohio. A score of seven or higher is “satisfied.” Satisfaction is highest for AEP Ohio (87%) and the Prescriptive program (84%). The lowest level of satisfaction is with the measures offered by the program, but even for this aspect of the program the satisfaction level was 72%. Three-fourths of the program participants were satisfied with the rebate levels. Figure 4.2 summarizes participant satisfaction with the various aspects of the program.

Importantly, the high level of customer satisfaction is also evident in the fact that 73% of participants are planning to participate in the Business Prescriptive program again in the future.



Figure 4.2. Satisfaction Levels with Various Aspects of the Program



Source: CATI Participant Survey.

Although only three program participants indicated they used a contractor for the lighting installation, all were very satisfied with the work done and would recommend the contractor to others.

When asked about recommendations to improve the program, about half of participants did not have any suggestions. Participants who did have recommendations most often mentioned simplifying the application and the application process (six mentions), better information from the utility including returned phone calls and audit visits, (three mentions) and more/better information on lighting products in the program literature (two mentions).

#### Trade Ally Perspectives

Calls were made to about 21 listed trade allies and interviews were conducted with seven during February 2010. Interviewees ranged from a four-person lighting contractor, to national contracting and energy services firms with over 1000 employees. Most trade allies had done multiple projects in AEP Ohio territory, ranging from four to ten. The following preliminary findings are the results of those trade ally interviews.

Overall, the Prescriptive program was given high marks by trade allies for rebate levels, straight-forwardness, incenting lighting projects, and KEMA call center responsiveness. Speed of application processing and payment had mixed reviews, while program marketing and implementation offer opportunities for improvement. Specifically, trade allies indicated that customers are not motivated to contact contractors about the program, few trade allies were aware of the trade ally program, and customers called on by trade allies initiated new projects the majority of the time, even with limited AEP Ohio marketing support.

## Marketing and Outreach

Trade ally interviews indicate that Prescriptive program marketing appears to be hit-or-miss and there are considerable opportunities to improve awareness at both the customer and contractor levels. Many trade allies commented that customers without an account manager are often unaware of the program. Those that are aware of it (through a seminar, for example) are skeptical of its terms and do not bother to learn more about the program on their own. This is typical finding for programs in the first year.

Contractors and trade allies were cited most often by respondents in the customer survey when asked how they first heard about the program. The majority of customers learned about the Prescriptive program through the contractors who called on them to sell them their services, according to the contractors contacted, although a couple reported that word of mouth brought a few potential customers in. Some larger customers learned about the program through their AEP account executive or energy services provider. One contractor active in the Duke Ohio territory commented that his customers there learned about Duke's program through their bill inserts; his AEP-Ohio customers, which are branch offices of his Duke Ohio customer, were not aware of the program until he contacted them.

The trade ally program appears to be somewhat slow in getting off the ground. Six of the seven trade allies contacted were not aware of the trade ally program, do not have AEP Ohio program literature, and have not been through a program training. The one participating trade ally observed that the promised Web site was not yet up. The lighting contractors who were not participating in the trade ally program were very excited to hear about the program. These contractors are particularly interested in the trade ally Web site and in obtaining AEP Ohio brochures, because at this point, they claim to have been marketing the program on their own and to have encountered issues with program credibility, which these brochures would help address. These contractors also have been training themselves on its requirements, and the concept of available training appeals to them.

Oversight of existing trade allies in the program seems effective based on the limited sample to date. The one trade ally program participant contacted had been asked to stop putting his company's sticker on the AEP Ohio brochure, in line with the program's rules.

Trade allies are either learning about the Prescriptive program on AEP Ohio's Web site (as part of their efforts to identify sales opportunities) or hearing about the program through the gridSMART TV ad, which in their mind has more of a residential focus. Based on the ad, trade allies then go to the Web site and learn about the Business Prescriptive program.

Customers approached by contractors are reportedly quite interested in the program, so any means that get customers to informed contractors appear likely to increase participation. Having a Web site that identifies selected contractors most active in the program (say top 20 or 30 contractors) and/or organized by region and their target job size could help customers select

contractors with whom to work. Having a bill insert or TV ad that directs customers to the trade ally Web site could also increase customer activity.

Methods to increase contractor effectiveness would also increase awareness and savings. One respondent commented that AEP Ohio's territory is so broken up it would help to have a detailed geographic map indicating where the territory is. Many were interested in having a trade ally Web site. More effective promotion of the trade ally program would potentially be a big boost to the program. Contractors are very interested in obtaining AEP Ohio program literature to use in their marketing efforts and would be attracted to the program with that benefit if they were aware of the program.

### **Program Characteristics and Barriers**

Overall, the Business Prescriptive program did not appear to offer any particular barriers to participation and in fact quite the contrary, its structure made participation quite straightforward. There are, however, several possible ways to smoothen its operation. Most trade allies commented that they completed the applications for their customers and followed them through the process. These trade allies found the program relatively simple and straightforward and operated effectively. Contractors offered several thoughts as to how it could be improved:

- » It would be helpful if only one KEMA person would work with each contractor so the processes and requirements are the same with each application.
- » It would also be helpful if there were AEP Ohio and/or KEMA staff available to make sales calls with contractors and answer customer questions (as is done in Duke Ohio territory) to lend credibility to the program and contractor.
- » One contractor commented that he would like to be able to know the status of each application so when his customers contacted him he would have a ready answer.

Detailed program design elements were variously praised and criticized by trade allies. One respondent commented that he really liked AEP Ohio's rebate design compared to Duke Ohio's because AEP's really encouraged efficient lighting projects and not just lighting projects. None of the participants indicated that the rebate cap of 50% of project costs was an issue, though one contact commented that rebates on fluorescent fixtures were a bit low to fully incent retrofits, while HID rebates were excellent. One contractor suggested the application should have a box to check to allow the rebate check to be made out to the contractor. Another trade ally said he was concerned about AEP Ohio's statement that the utility reserved the right to reduce the incentive amounts, since his customers were using the amounts he estimated to obtain capital expenditure authorization. AEP Ohio's providing some months warning of the change would alleviate this concern.

Feedback on the pre-approval process and timeframe for implementation were mixed. One trade ally strongly favored one part of Duke Ohio's program design: it requires no pre-approval nor funds reservation, which makes getting projects underway much easier and more quickly implemented. He commented that the AEP Ohio approach was not a barrier, but it sure slowed things down. Another respondent noted that one of his projects could not be completed in the 90 day period allowed, and that he had no difficulty at all in getting an extension.

When asked how to improve the program, most trade allies only suggested higher rebates. A few trade allies thought some of their customers might have moved forward on their projects if financing had been available. However, most indicated that financing would not make any difference in uptake since business was so weak, and one energy service provider commented that they offered financing to their customers and it did not make any difference. Clearly, the weak economy is affecting customers' appetites for capital projects, even cost reduction projects.

#### **Administration and Delivery**

Generally, the program administrative and delivery processes were effective for smoothly providing incentives to customers after an initial slow start during the start-up phase. All but one trade ally respondent commented that both the preapproval process and rebate processing were done in a reasonable amount of time. Staffing early on and perhaps more recently has been perceived to be a problem leading to delayed timing by a couple of trade ally respondents. One noted that it had gotten very slow again recently. One commented that different documentation had been requested for identical jobs when different implementation staff reviewed the application, so for him consistency was an issue.

Overall, early experience with the program has generated high customer satisfaction based on trade ally responses. Trade allies believe it has made a critical difference in bringing project paybacks down and enabling their customers to do the lighting jobs. The trade allies are generally happy with the incentive levels, though some would like to see the incentives applied to certain outside lighting that operates during peak periods. KEMA staff has routinely gotten good marks for being helpful and knowledgeable.

Quality control efforts also do not appear to offer any barriers to program participation. Two respondents indicated that they had been involved in pre-approval audits and there were no issues with them.

### 4.3 Cost Effectiveness Review

This section addresses the cost effectiveness of the Business Prescriptive program. Cost effectiveness is assessed through the use of the Total Resource Cost (TRC) test. Table 4.6 summarizes the unique inputs used in the TRC test.

**Table 4.6. Inputs to Cost-Effectiveness Model for AEP Ohio Business Prescriptive Program**

Item	CSP	OPCo	Combined
Measure Life	10.0	10.4	-
Participants	53	86	139
Annual Energy Savings	5,296,981	11,760,136	17,057,117
Coincident Peak Savings	1,148	2,633	3,781
Third Party Implementation Costs	\$26,231	\$93,598	\$119,829
Utility Administration Costs	\$46,734	\$92,004	\$138,738
Utility Incentive Costs	\$398,858	\$878,942	\$1,277,799
Participant Contribution to Incremental Measure Costs	\$991,460	\$1,961,352	\$2,952,812

Based on these inputs, the TRC ratio for CSP is 2.4 and 2.6 for OPCo, and the program passes the TRC test in each utility and for the program in its entirety.

Table 4.7 summarizes the results of the cost-effectiveness tests. Results are presented for the Total Resource Cost test, the Participant test, the Ratepayer Impact Measure test, and the Utility Cost test.

Table 4.7. Cost Effectiveness Results for Business Prescriptive Program

Test Results for Prescriptive	CS	TRC
Total Resource Cost	2.4	2.6
Participant Cost Test	6.3	7.1
Ratepayer Impact Measure	0.5	0.5
Utility Cost Test	7.5	7.4

At this time, additional benefits related to reduction of greenhouse gas emissions have not been quantified in the calculation of the TRC. These additional benefits would increase the given TRC benefit/cost ratio.

## Section 5. Conclusions and Recommendations

This section highlights the findings and recommendations from the PY 2009 evaluation of AEP Ohio's Business Prescriptive program. The primary objectives of this evaluation were to quantify the energy impacts resulting from the rebated measures and to assess participant satisfaction, program marketing, and delivery. Below are the key conclusions and recommendations.

### 5.1 Conclusions

The data collected for evaluation of the PY 2009 Prescriptive program was gathered during a number of activities, including in-depth phone interviews with program staff, program implementers, and trade allies; a participant phone survey; and engineering review of default savings assumptions and project and measure level tracking data. Following are the key conclusions drawn from those activities.

#### Program Impacts

##### Default Savings Review

AEP Ohio's default savings values, both kW and kWh, are well documented and built from reasonable assumptions for the building types and lighting measures that we reviewed. There was a strong reliance on the DEER database from California, although other sources were noted. The algorithms used are standard approaches for default and deemed savings manuals, incorporating building-type specific annual hours of use, coincidence factors, a demand interactive effects factor for cooling, and an energy interactive effects factor for cooling.

The program tracking system uses default per unit savings values that do not vary by building type. Tracking system default values are based instead on simple averages of building sector groupings of specific parameters. The Prescriptive program has a concentration of savings into a few building types, and there is a tendency of certain business types to employ specific measures. The program experienced significant participation from low and high use facilities, so the averages cover a significant range.

##### Tracking System

There were some instances of inconsistency regarding field names and data input. Both must be consistent or the data may not be properly analyzed if the evaluation team does not catch the inconsistency. Some early inconsistencies were resolved in later extracts.

Navigant Consulting did not find any 2009 Prescriptive program impact data in the tracking system that was judged to be outliers. One project had a date received date of June 8, 2008 that appeared be a typo for 2009. Navigant Consulting found four instances of projects with part-year savings based on an estimated project completion date.



AEP Ohio and KEMA should examine administrative procedures and tracking for projects that combine measures from the Custom and Prescriptive programs. Navigant Consulting found three 2009 paid projects identified as Prescriptive Lighting that had minor discrepancies between project level savings impacts and measure level savings due to combined prescriptive and custom measures. Although savings were not double counted at the project or measure level, there is a potential risk for over or undercounting savings depending on how the reports are generated.

Navigant Consulting did not find any differences between the default savings values documented in the January 25, 2010 Operations Manual and the tracking system database lookup values.

Weaknesses in the tracking system and its deployment affected project verification. Recommendations for improvements are provided below.

#### Verification Procedures

The KEMA Operations Manual, dated January 25, 2010, documents quality control and verification procedures for the Business Prescriptive program. Navigant Consulting reviewed the procedures and found them to be detailed and thorough. Putting in place documented procedures is an important early step that will help to ensure high quality projects and tracking data once they are fully adhered to on all projects from application received date through project close-out.

Observations from our 2009 program evaluation experience suggests that verification of the initial projects after launch were not as detailed as current procedures, but that critical technical review, eligibility checks, and payment approvals were conducted. Navigant Consulting found shortcomings in project documentation, file management, and status tracking. We have not identified QA/QC procedures that should be dropped.

#### Impacts

The PY 2009 Prescriptive program had an overall realization rate on tracking savings of 0.89 for energy and 1.05 for coincident demand reduction. This reduction is almost entirely due to evaluation adjustment of per unit default savings values to reflect building specific values documented by AEP Ohio. Tracking system review and participant phone interview responses led to minor adjustments for 2009, but resulted in recommendations for changes in 2010.

#### Program Processes

##### Program Participation

The Business Prescriptive program was well received in PY 2009. AEP Ohio customers received payment for completing 139 projects that accounted for 17,057 MWh and 3.78 MW of verified

annualized savings. The PY 2009 participants represented a good range of business sectors, including light and heavy industry, schools, warehouses, offices, and retail/service.

Overall, a majority of program participants were highly satisfied with the application process. However, participants did report some issues with the program participation process, including receiving inconsistent information regarding participation status and the participation process generally taking too long. Among participating customers, 90% reported submitting a pre-approval application. Of these, 75% filled it out themselves. Most of the customers who completed the application themselves feel that the pre-approval application clearly explains the program requirements and participation process (88%) and rate the application process as easy (88%).

Respondents reported the initial application took, on average, 4.5 weeks for approval and the final application took slightly over four weeks for approval. Two-thirds were very satisfied with the amount of time for processing the initial and final applications.

Participants were asked what they considered to be the main benefits of participating in the program. Overwhelmingly, participants cite energy savings or bill reduction as a program benefit (ten of the 12 mentions).

#### Customer and Trade Ally Satisfaction

Overall, the feedback to date indicates that customer satisfaction with the Business Prescriptive program and its implementation is high. Satisfaction is highest for AEP Ohio (87%) and the Prescriptive program (84%). The lowest level of satisfaction is with the measures offered by the program, but even for this aspect of the program the satisfaction level was 72%. Three-fourths of the program participants were satisfied with the rebate levels. Importantly, the high level of customer satisfaction is also evident in the fact that 73% of participants are planning to participate in the Business Prescriptive program again in the future.

Trade allies commented that customers are comfortable with the processes and happy with components of the program, and few trade allies reported encountering problems during their involvement. Selected customer feedback on the Prescriptive program during Self-Direct program interviews echoed these favorable comments.

Trade allies are particularly satisfied with the rebate levels and the related generation of new lighting projects, the program simplicity, and call center responsiveness. Trade allies were generally satisfied with speed of application and payment processing as well as general program implementation. Trade allies were unhappy with the marketing of the program to customers and the limited trade ally support. When asked to suggest program improvements, trade allies most often cite higher incentives, more trade ally support and better marketing/publicity.

## **Marketing and Outreach**

AEP Ohio employed a variety of marketing and outreach methods in 2009. Contractors and trade allies were cited most often by respondents in the customer survey when asked how they first heard about the program. Participants were also directly asked whether they had ever heard about the program from a series of sources. The top two sources of information from the aided information were the contractor/trade ally and the AEP Ohio Web site.

Trade allies see little evidence of effective marketing of the program directly by AEP Ohio to smaller customers, with many such customers unaware of its availability until informed by the contractor. This is a common finding for programs in the first year after launch.

### **Trade Ally Network**

During PY 2009 trade allies appear to be an active channel of promotion and communication for the Business Prescriptive program. The level of trade ally involvement is particularly noteworthy given that many trade allies are unaware of the formal trade ally network structure that was put into place.

AEP Ohio appears to have put into place a good process for its trade ally network, but it is not being effectively communicated in the market. Market actors have to complete an application and attend training that explains the program and program processes before they can become a trade ally. In return, the concept is that AEP Ohio trade allies will be listed on the AEP Ohio Web site and can make use of the program brochures. In practice, however, the trade ally Web site is not yet operational and many contractors are unaware of the program.

The trade ally network provides an excellent opportunity to promote program opportunities as contractors often specify the details of the installed equipment, and when they are aware of the program, they inform the customers of the AEP Ohio program and available incentives, and discuss the program with their customers. It is important to the success of the program that the trade ally network program be effectively marketed and fully implemented. Given the importance of trade allies to program delivery, this should be another emphasis for evaluation in PY 2010.

## **5.2 Recommendations**

### **Impact Recommendations**

#### **Default Savings Review**

1. Navigant Consulting recommends AEP Ohio transition to default values that vary by building type. Navigant Consulting believes the use of building specific parameters will reduce the risks of evaluation adjustments as the program evolves and as building specific assumptions are refined through EM&V and local market research.

2. Navigant Consulting believes that research and evaluation M&V in Ohio targeting key assumptions would improve the default savings values for use in AEP Ohio service territory. Priorities for improved, local knowledge are:
  - o Lighting hours of use in manufacturing, retail, offices, warehouses, and schools
  - o Occupancy sensor applications in retail, warehouse, and industrial settings
  - o Coincidence factors for lighting measures
  - o HVAC interaction factors for lighting measures
3. The participant phone interviews suggested some measures may need baseline review and adjustment.

#### Tracking System and Verification

1. Suggested improvements to the tracking system deployment focus on having staff follow all documented procedures; developing an integrated tracking system to serve both KEMA and AEP Ohio; capturing important verification data in the tracking system including dates, electronic files, participant communications, and scanned supporting documentation; and maintaining accurate and complete review histories in the tracking system throughout the various stages application processing. It is important that tracking system entries and updates be made in a timely fashion, and AEP Ohio and KEMA should establish time policies.
2. Suggested improvements in the QA/QC process focus on rigorous adherence to documented procedures, and maintaining a complete and accurate tracking system.

#### Impacts

1. Savings are highly concentrated by building type and measure, and this carries a risk for program performance. To achieve goals in future years and maintain high realization rates, AEP Ohio should identify the next tier of participation targets by end-use, building type, and measure, and develop plans to gain their participation.

#### Process Recommendations

##### Program Participation

1. The program has been successful in launching the lighting component in 2009, and should move forward with plans to add non-lighting measures. While heavy reliance on lighting is common for new programs, a better mix of end-uses will make the program more sustainable in the long-term.
2. Continue to recruit a mix of business types into the program, with an emphasis on improving outreach to smaller customers.

3. Although a majority of program participants were highly satisfied with the application process, participants did report some issues with the participation process, including receiving inconsistent information regarding participation status. Improved communication of participation status was mentioned among Self-Direct program participants as well.

#### Marketing and Outreach

1. AEP Ohio should continue to market the program through contractors/trade allies, including building on the existing trade ally network to recruit more trade allies and raising awareness of the program via these market actors.
2. As the program's pent up demand wanes, AEP Ohio should be prepared to make greater use of certain program delivery channels, including direct marketing and Customer Service representatives and Account Managers, to build program awareness and participation among customers who may not be easily reached by trade allies.
3. Information on both potential barriers to and benefits of participation should be utilized when planning messaging for future marketing efforts.

#### Trade Ally Network

1. Continue development of the Trade Ally Network. Trade allies are an effective channel of reaching customers.
2. Consider ways to increase the visibility of the "trade ally" designation. Customers currently are not aware of their contractor's status as a trade ally and do not place importance on this. However, status as a trade ally can be an effective promotional tool for contractors and provide them with additional incentive to promote the program.
3. As the program matures and the Trade Ally Network grows, consider additional ways to reward trade allies that are especially active in the program. This could be done through an identifier in the trade ally directory or through some formal recognition at the end of a program year.
4. Identify registered trade allies in the program tracking database. The database currently lists the contractor who implemented the project and contains a TRUE/FALSE flag to designate whether the trade ally is registered, but it does not appear this flag has been activated. By assigning a unique identification number to each trade ally, ally activity can be more easily monitored. This would be beneficial for both program tracking and for evaluation purposes.

## Section 6. Appendices

### 6.1 Data Collection Instruments

#### Interview Guides

# **AEP-Ohio Evaluation for the Business Lighting Program Program Staff and Implementer In-Depth Interview Guide**

AEP-Ohio Program Manager: Gary Enama

AEP-Ohio Business Programs Manager: Mark Garrison

KEMA: Andy Braatz

February 18, 2010

Name of Interviewee: \_\_\_\_\_ Date: \_\_\_\_\_

Title: \_\_\_\_\_ Company: \_\_\_\_\_

*[Note to Reviewer] The Interview Guide is a tool to guide process evaluation interviews with utility staff and implementation contractors. The guide helps to ensure the interviews include questions concerning the most important issues being investigated in this study. Follow-up questions are a normal part of these types of interviews. Therefore, there will be sets of questions that will be more fully explored with some individuals than with others. The depth of the exploration with any particular respondent will be guided by the role that individual played in the program's design and operation, i.e., where they have significant experiences for meaningful responses. The interviews will be audio taped and transcribed.*

#### Introduction

Hi, may I please speak with [NAME]?

My name is \_\_\_ and I'm calling from Navigant Consulting, we are part of the team hired to conduct an evaluation of AEP-Ohio's gridSmart Business Energy Efficiency programs. We're conducting interviews with program managers and key staff in order to improve our understanding of AEP-Ohio's programs. At this time we are interested in asking you some questions about the Business Lighting program. The questions will only take about an hour. Is this a good time to talk? [IF NOT, SCHEDULE A CALL BACK.]

Ok, great. If you don't mind, I would like to do a voice recording our conversation to speed up the note taking. Is that OK? I'm going to switch you to speaker phone. I am in an enclosed, private office.

#### **Roles and Responsibilities**

1. Can you briefly summarize your role in the Business Lighting Program (or Prescriptive Incentives program: How should we refer to this program?) What are your main responsibilities? For how long have you carried these out? Has your role changed over time?
2. Can you explain who is involved in the program implementation, and what their roles are? *[Probe for all significant actors with responsibility in program delivery including implementer, account managers, and program allies.]*
3. Can you explain the division of program responsibilities between AEP Ohio and the two operating utilities?
4. What other departments at AEP are involved in the back-office program services?
  - Rebate Processing?
  - Manage Data? / Tracking Targets?
  - Planning and oversight
5. Roughly, how many people are assigned to work on this program?
6. What are the formal and informal communication channels between these groups (between AEP and KEMA; between AEP and OP/CSP; within AEP)? Do you feel information is shared in a timely manner?
7. We have the KEMA Operations Manual dated January 25 2010. Are there any other documents that outline the roles and responsibilities of program staff for the program?
8. How closely was the KEMA Operations manual followed in 2009?

#### **Overall Goals and Objectives**

The KEMA manual lays out goals for the total Business Sector. Do you have goals and budgets for the Prescriptive Lighting program? Do the operating utilities have separate goals and budgets? Are these laid out in any documents? If so, can we get a copy?

Outside of the quantitative goals (e.g., \$, \$/kWh, savings and participation rates), in your own words, what are the key goals and objectives of this program?

9. According to these metrics, has the program met 2009 goals? Why or why not? If yes, have the goals been met on time?

#### Marketing and Promotion

10. Please describe your program marketing campaign in your own words *[If necessary: Do marketing activities vary by prescriptive and custom? By customer size?]*
- What are the marketing channels that were used?
    - (bill inserts, TV, newspaper, radio, community events?)
  - How often does each activity occur?
  - Who is in charge of developing materials?
  - Who is in charge of marketing activities?
  - Do you have a written marketing plan?
11. Can we arrange to get copies of marketing collateral you have used?
12. Do you think the level of marketing and promotion of the program(s) has been appropriate so far? Do you think promotional efforts are successful? Do you think they reach the right audience? *[Probe for differences between customer and trade ally target markets.]*
13. Do you anticipate making any changes to marketing efforts for Program Year 2 (2010)? If so, please describe these changes.

#### Program Participation

We are also trying to learn of any process related issues that may arise from the current design of the program(s).

14. Could you briefly describe the process for participation in the program(s) from the customer perspective?
- a. Who drives participation: customer, trade ally, account managers
  - b. Must all customers and projects submit a pre-approval application
15. Do you have a sense of how satisfied customers are with various aspects of the program (e.g., ease of application, verification process, incentives)?
16. What do customers do if they have questions about the participation process? Is there a systematic process in place for responding to customer inquiries? How quickly are their questions answered? What improvements can be made?
17. What is the target review time between receipt of the pre-approval application and letter of approval? What is the average review time? What, if anything, slows down review time?
18. What percentage of customers who submit pre-approval forms do not complete the program (i.e., the project is canceled or discontinued)? What are the reasons that customers might not submit their final documentation or otherwise complete the program? Is there a process in place for following up with customers between issuing the pre-approval letter and receiving the final documentation? Is there any system in place to track project progress? If so, please describe.



19. What is the target processing time between final documentation and payment? What percent of applications are actually processed within that amount of time? What, if anything, slows down processing time?

#### Trade Allies

20. Is there one staff member that oversees the program trade ally network?
21. How are trade allies recruited for the program(s)? Which types of trade allies are choosing to participate in the program(s) and which are not?
22. Did you have a trade ally registration process in 2009? *[If yes]* Can you describe the application process for program ally registration? *[Probe for qualifications or training requirements.]* What are the main benefits for the trade allies to participate? Do you have a sense of trade allies' satisfaction with their participation in this program?
23. What kind of training is provided to them as part of the registration process? What role do they have in marketing the program(s)? What kind of support, if any, is provided to them for marketing the program(s) to their customers?
24. What is expected of program allies? Are there any specific responsibilities that come with registering? Are trade allies meeting expectations? Why or why not?
25. Have allies requested any other types of support/collateral, etc. If so, what have they requested and how are you responding to their requests?

#### Rebates/Incentives

26. What do you perceive to be the level of satisfaction among program participants with the current rebate amounts and incentive limit caps (50% of total cost). Are the incentive limit caps being checked for all projects?
27. How do trade allies perceive the incentive levels? What specific feedback have they given? Have you heard any feedback from trade allies about the percent of total project cost caps, and if so, what have you heard?

#### Call Center

28. Are customers/contractors making use of the phone number to KEMA listed on the application form? *[Probe for call volume.]* What are the main issues raised by customers/contractors?

#### Data Tracking

29. What systems are in place for data tracking? Who captures the data and how?
30. Can you briefly describe what data are tracked for the program(s)? What about application attachments and calculations? What about review history and revisions to savings or incentive amount?
31. Do you feel all important information is captured and stored in a way to best support program efforts? Is the information accurate and current? Are there additional types of

reports or information that you would find beneficial? Is there a process for requesting additional data?

32. Is the system used for data tracking linked with any other systems such as databases with customer account information or ones that track marketing activities?

#### Quality Assurance and Quality Control

33. Are the quality procedures documented in the KEMA operations manual followed closely?
34. Can you provide a brief description of your quality procedures? What kind of quality procedures are in place to verify equipment quantities and eligibility? Project completion? What is the process for verifying savings?
35. Approximately, what percentage of all projects are pre-inspected and post-inspected? How do you determine if a project requires inspection (both pre and post)? *[Probe for random check guidelines (10% of \$10K or less, 25% of \$10K-\$50K, 100% of \$50K+), geographical location, contractor]*
36. Who conducts pre and post inspections and how are they documented? How can we arrange to obtain these documents?
37. When are on-site measurements conducted as part of the pre and post verification? Which measures and business types?
38. I may have more questions about Quality Assurance and Quality Control procedures once I've had the chance to review the documented quality procedures. Who is the appropriate person (or persons) to contact with future questions?

#### Program Adjustments and Enhancements

39. Have the design of the program(s) or the program processes changed since inception? If so, how? Why were the changes made?
40. Will there be any changes made to the program in Program Year 2 (e.g., program offerings, marketing approach, targets, incentive levels, etc)? If so, please describe these additions or deletions. *[Probe for adding equipment beyond lighting to the eligible measures list.]*
41. Are there elements in design, structure, and/or operation that should be modified to make the program(s) work better? If so, what would you recommend? Why do you think this change is needed?
42. From your perspective, is staffing adequate for this program to meet its goal? (If not): What areas/functions do you feel are not adequately staffed?

#### Success and the Future of These Efforts

43. In your opinion, how successful are the program(s)? Why? What are the strengths? What are the weaknesses? Do you feel that free-ridership is a major concern for the program(s)? *[Please explain.]*
44. Do you think the current economic conditions are affecting the program? If so, how?

Other

45. [AEP-OHIO ONLY] We are also planning on talking with [Charley Budd or Wendy Tobiasson] from KEMA. Are those the best people for us to interview? Are there any additional people with key roles that we should talk to?
46. Do you have any other comments or suggestions for us?

Thank you very much for taking the time in assisting us with this evaluation. Your contribution is a very important part of the process.

We might follow-up with you by phone later, if additional questions arise.

**AEP-Ohio Evaluation**  
**for the Business Lighting Program**  
**Lighting Trade Ally Interview Guide**

February 9, 2010

Name of Interviewee: \_\_\_\_\_ Date: \_\_\_\_\_

Title: \_\_\_\_\_ Company: \_\_\_\_\_

*[Note to Reviewer] The Interview Guide is a tool to guide process evaluation interviews. This guide helps to ensure the interviews include questions concerning the most important issues being investigated in this study. Follow-up questions are a normal part of these types of interviews. Therefore, there will be sets of questions that will be more fully explored with some individuals than with others. The depth of the exploration with any particular respondent will be guided by the role that individual played in the program's design and operation, i.e., where they have significant experiences for meaningful responses. The interviews will be audio taped and transcribed.*

**Introduction**

Hi, may I please speak with [NAME]?

My name is \_\_\_\_ and I'm calling from Navigant Consulting, we are part of the team hired to conduct an evaluation of AEP-Ohio's gridSmart Business Energy Efficiency programs. We're currently in the process of conducting interviews with lighting contractors installers and equipment suppliers to improve our understanding of AEP-Ohio's programs.

Our records show you have been named as a lighting contractor or equipment or service provider by one or more of AEP Ohio business customers that have participated in the Business Prescriptive Lighting Program. At this time we are interested in asking some questions of the person most experienced with the Business Prescriptive Lighting program. [CONFIRM THAT THIS IS THE PERSON MOST KNOWLEDGEABLE AT THEIR BUSINESS OR GET ALTERNATE NAME].

The questions will only take about half an hour. Information you provide will be kept anonymous in our reports. General observations and findings will appear in our final report, but they will not be attributed to any named person or company. Is this a good time to talk? [IF NOT, SCHEDULE A CALL BACK.]

### Introduction

1. Can you briefly describe the company you work for and the type of business it conducts? How many are employed at the company? Who are your primary business customers?
2. Can you briefly summarize your roles and responsibilities at your company? For how long have you carried these out?
3. How would you describe your familiarity with AEP Ohio's Business Prescriptive Lighting program? Have you personally worked with any of your customers who have participated in this program?

### Trade Ally Participation

The following questions are based on the 2009 program.

4. How was your firm recruited to participate in this program?
5. What are the reasons your firm decided to participate in this program?
6. About how many lighting rebate projects for AEP Ohio was your company involved with in 2009? (If few) Is there a reason you have not been involved with more projects?

### [CONFIRM THAT THERE IS A TRADE ALLY REGISTRATION PROCESS]

7. Can you describe the application process for program ally registration? [*Probe for qualifications or training requirements.*] What kind of training is provided as part of the registration process?
8. What is expected of program allies? Are there any specific responsibilities that come with registering? Are there any quality control procedures in place for you? (for example, removing an ally from the program if complaints are received about them)

### Marketing and Promotion to Customers

9. How does your company become involved with projects associated with the program? Do you actively promote participation or do customers bring projects they want to submit for a rebate?
10. How do customers find out about this program? Has your company promoted the program through its own marketing collateral? Who, outside of your company and the customer, has been influential in getting customers to participate?
11. What kind of support, if any, does AEP Ohio provide to you for marketing the program to your customers? Do you distribute utility-produced marketing materials? Have you requested any other types of support/collateral, etc. If so, what have you requested and how has AEP Ohio responded to your requests?

12. Do you think AEP Ohio's level of marketing and promotion of the program has been appropriate so far? Do you think promotional efforts are successful? Do you think they reach the right audience?
13. Do you have suggested changes to AEP Ohio's marketing efforts for Program Year 2? If so, please describe these changes.

#### **Customer Participation**

14. What reasons do customers give for participating in the program?
15. What activities does your company perform to help customers identify opportunities to participate? Do you help them throughout the program process until their incentive check arrives?
16. Have you encountered any challenges in helping customers participate in this program? If so, please describe. Have you had any challenges providing qualifying products?
17. Do customers understand the participation process? How do you get program information to them? What improvements can be made?
18. What are the reasons that customers might not participate in this program? Do customers complain about any particular aspects of the program? Do customers cancel their participation or drop out of this program? If so, why?
19. What is the review time between completing the pre-approval application and letter of approval from AEP Ohio? Has this had any impact on your sales process?
20. Does the timing required for submitting documentation (within 60 days of project completion) present a challenge? How? Does it affect certain types of projects or customers more than others? If so, how and why?

#### **Rebates/Incentives**

21. What is your opinion of the incentive levels and incentive limit caps (50% of total cost)?
22. Are program participants satisfied with the current rebate amounts?
23. Are the incentives effective at encouraging customers to pursue projects they would not have done without the program?

#### **Quality Assurance and Quality Control**

24. Have you had to answer questions or provide additional information as a result of a program-sponsored quality inspection to verify equipment quantities and eligibility? Has any equipment you installed been rejected for an incentive? Why?

**Call Center**

25. Do you know whom to contact for help with this program?
26. Are customers or your company staff making use of the KEMA phone number listed on the application form? At what point during the participation process are calls usually made? What are the main issues raised and are these issues resolved to your satisfaction? Typically, how long does it take to resolve inquiries to the call center?

**Program Adjustments and Enhancements**

27. What type of information could the utility provide you to increase your familiarity and understanding of the program?
28. Are there elements in design, structure, and/or operation that should be modified to make the program(s) work better (e.g., incentive levels, eligible equipment, etc)? If so, what would you recommend? Why do you think this change is needed?

**Success and the Future of These Efforts**

29. In your opinion, how successful are the program(s)? Why? What are the strengths? What are the weaknesses? Do you feel that some customers would be installing the same lighting products even if there were no incentives? *[Please explain.]*
30. Do you think the current economic conditions are affecting the program? If so, how?

**Other**

31. Do you have any other comments or suggestions for us?

Thank you very much for taking the time in assisting us with this evaluation. Your contribution is a very important part of the process.

We might follow-up with you by phone later, if additional questions arise.

Participating Customer Phone Survey

**AEP OHIO BUSINESS PROGRAMS – PRESCRIPTIVE PROGRAM**

**PARTICIPANT SURVEY – LIGHTING PROJECTS**

**INTRODUCTION**

[READ IF CONTACT=1]

**NOTE: EVERYONE IN THIS WAVE WILL HAVE A NAME.**

Hello, this is \_\_\_\_ from DataPrompt International calling on behalf of AEP Ohio. This is not a sales call. May I please speak with <PROGRAM CONTACT>?

Our records show that <COMPANY> purchased Lighting, which was <installed in "INSTALL DATE" OR recently installed> and received an incentive of <INCENTIVE AMOUNT> from AEP Ohio. We are calling to do a follow-up study about <COMPANY>'s participation in this program, which is called the "AEP Ohio Lighting Program". I was told you're the person most knowledgeable about this project. Is this correct? [IF NOT, ASK TO BE TRANSFERRED TO MOST KNOWLEDGABLE PERSON OR RECORD NAME & NUMBER.]

This survey will take about 20 minutes. Is now a good time? [If no, schedule call-back]

[READ IF CONTACT=0]

Hello, this is \_\_\_\_ from DataPrompt International calling on behalf of AEP Ohio. I would like to speak with the person most knowledgeable about recent changes in lighting equipment for your firm at this location.

[IF NEEDED] Our records show that <COMPANY> purchased Lighting, which was <installed in "INSTALL DATE" OR recently installed> and received an incentive of <INCENTIVE AMOUNT> from AEP Ohio. We are calling to do a follow-up study about your firm's participation in this program, which is called the AEP Ohio Lighting Program. I was told you're the person most knowledgeable about this project. Is that correct? [IF NOT, ASK TO BE TRANSFERRED TO MOST KNOWLEDGABLE PERSON OR RECORD NAME & NUMBER.]

This survey will take about 20 minutes. Is now a good time? [If no, schedule call-back]



## SCREENING QUESTIONS

A1. Just to confirm, in 2009 did <COMPANY> participate in AEP Ohio's Lighting Program at <ADDRESS>? (IF NEEDED: This is a program where your business received an incentive for installing one or more energy-efficient lighting products.)

READ CODES 1-3

- 1 Yes, participated as described
- 2 Yes, participated but at another location
- 3 No, did not participate in program
- 97 OTHER, SPECIFY
- 98 DON'T KNOW
- 99 REFUSED

[SKIP A2 IF A1=1,2]

A2. Is it possible that someone else dealt with the energy-efficient lighting installation?

DO NOT READ LIST

- 1 YES, SOMEONE ELSE DEALT WITH IT
- 2 NO
- 97 OTHER, SPECIFY
- 98 DON'T KNOW
- 99 REFUSED

[IF A2=1, ASK TO BE TRANSFERRED TO THAT PERSON. IF NOT AVAILABLE, THANK AND TERMINATE. IF AVAILABLE, GO BACK TO A1]

[IF A1=2,3,97,98,99: THANK AND TERMINATE. RECORD DISPO AS "COULD NOT CONFIRM PARTICIPATION".]

Before we begin, I want to emphasize that this survey will only be about the Lighting you installed and received an incentive for through the AEP Ohio Lighting Program at <ADDRESS> in 2009.

## **LIGHTING MODULE**

PL1 Who was the most influential in specifying the details of the Lighting project you completed through the AEP Ohio Lighting Program?

[DO NOT READ CATEGORIES; SINGLE RESPONSE]

1. ME/RESPONDENT
2. CONTRACTOR
3. ENGINEER
4. ARCHITECT
5. MANUFACTURER
6. DISTRIBUTOR
7. OWNER
97. OTHER, SPECIFY
98. DON'T KNOW
99. REFUSED

PL2 And who identified the opportunity for the AEP Ohio incentive?

[DO NOT READ CATEGORIES; SINGLE RESPONSE]

1. ME/RESPONDENT
2. CONTRACTOR
3. ENGINEER
4. ARCHITECT
5. MANUFACTURER
6. DISTRIBUTOR
7. AEP ACCOUNT MANAGER
8. OWNER/DEVELOPER
9. PROJECT MANAGER
97. OTHER, SPECIFY
98. DON'T KNOW
99. REFUSED

### **Measure Loop**

[LOOP 1: ASK IF MEAS1=1. LOOP 2: ASK IF MEAS2=1. LOOP 3: ASK IF MEAS3=1.]

[FOR LOOP 2, REPLACE "1" AT THE END OF READ-INS WITH "2"; FOR LOOP 3, REPLACE "1" WITH "3".]

[DELAMPING MEASURE DESCRIPTION WILL BE READ IN AS "T8 BALLAST RETROFIT COMBINED WITH DELAMPING"]

The following questions are about the [MEASD1] you installed through the AEP Ohio Lighting Program.

[IF MEASURE1 = NEW CONSTRUCTION, SKIP TO NC1]

**DELAMPING** [ASK IF MEASURE1 = LINEAR, ELSE SKIP TO INSTRUCTIONS BEFORE L6a]

L4 After you installed the energy efficient lighting, did you install additional lighting fixtures to increase the lighting level in the space? More fixtures than before?

DO NOT READ LIST

- 1 YES
- 2 NO
- 8 (DON'T KNOW)
- 9 (REFUSED)

[ASK L5 IF L4=1, OTHERWISE SKIP]

L5 How many of these new fixtures did you install?

[NUMERIC OPEN END, 1 TO 3000; 9998=DON'T KNOW, 9999=REFUSED]

**LAMPS INTO STORAGE** [ASK IF MEASURE1 = CFL, ELSE SKIP TO INSTRUCTIONS BEFORE L7]

L6a What percentage of the CFLs for which you received an incentive was placed in storage?

[NUMERIC OPEN END, 0 TO 100; 998=DON'T KNOW, 999=REFUSED]

L6b And what percentage were installed at another facility?

[NUMERIC OPEN END, 0 TO 100; 998=DON'T KNOW, 999=REFUSED]

**REMOVED EQUIPMENT**

**DOUBT CHECK AND MAKE SURE THESE SKIPS WORK:**

[IF MEASURE = OCCUPANCY SENSOR, SKIP TO OS1]

[IF MEASURE = EXIT SIGNS, SKIP TO EX1]

I'd like to ask you a few questions about the equipment that was removed when you installed the <MEASD1>...

L7 What type of lighting was removed when you installed the <MEASD1>? [READ LIST]

[MULTIPLE RESPONSE, UP TO 3]

- 1 Linear fluorescent lights
- 2 High-Intensity Discharge (HID) Fixtures / Metal Halide
- 3 Compact fluorescent lights
- 4 Incandescent bulbs
- 5 Halogen lights
- 6 Did not replace anything - new equipment
- 97 OTHER, SPECIFY
- 98 DON'T KNOW
- 99 REFUSED

[ASK L7a IF L7=1]

L7a What type of linear fluorescent lights were removed?

[READ LIST]

MULTIPLE RESPONSE, UP TO 3]

- 1 High performance T8 (1" diameter bulbs)
- 2 T8 fluorescent fixtures (1" diameter bulbs)
- 3 T10 fluorescent fixtures
- 4 T12 Fixtures (1.5" diameter bulbs)
- 5 T5 Fixtures (5/8" diameter)
- 97 OTHER, SPECIFY
- 98 DON'T KNOW
- 99 REFUSED

[ASK L7B IF L7A=3, 4]

L7b What types of ballasts were in use on the linear fluorescent fixtures you removed?

READ LIST, MULTIPLE RESPONSE

- 1 Electronic Ballast
- 2 Magnetic Ballast
- 97 OTHER, SPECIFY
- 98 DON'T KNOW
- 99 REFUSED

L9 Was the new lighting equipment installed in an air conditioned (cooled) space?

SINGLE PUNCH

- 1 YES
- 2 NO
- 3 SOME OF THE LIGHTING EQUIPMENT WAS AND SOME WASN'T
- 8 DON'T KNOW
- 9 REFUSED

**OCCUPANCY SENSORS [ASK IF MEASURE1 = OCCUPANCY SENSOR; ELSE GO TO INSTRUCTIONS BEFORE EX1]**

OS1 Roughly what percentage of your lights have occupancy controls on them now?  
[NUMERIC OPEN END; 0 TO 100; 998=DON'T KNOW, 999=REFUSED]

OS2 Before Occupancy Sensors were installed, about how many hours per day were the lights in operation?  
[NUMERIC OPEN END; 0 TO 24; 98=DON'T KNOW, 99=REFUSED]

OS3 After controls were installed, about how many hours per day were the lights in operation?  
[NUMERIC OPEN END; 0 TO 24; 98=DON'T KNOW, 99=REFUSED]

EXIT SIGNS [ASK IF MEASURE1 = EXIT SIGNS; ELSE GO TO INSTRUCTIONS BEFORE NC1]

EX1 What type of exit signs were removed? (READ LIST) [MULTIPLE RESPONSE, UP TO 3]

- 1 Incandescent exit signs
- 2 Compact fluorescent exit signs
- 3 LED exit signs
- 97 Other, specify
- 98 Don't know
- 99 Refused

NEW CONSTRUCTION [ASK IF MEASURE1 = NEW CONSTRUCTION; ELSE GO NEXT LIGHTING LOOP]

NC1 After you installed the energy efficient lighting, did you install additional lighting fixtures to increase the amount of lighting? More fixtures than before?

- 1 YES
- 2 NO
- 8 (DON'T KNOW)
- 9 (REFUSED)

[ASK IF NC1=1, ELSE GO TO NEXT LIGHTING LOOP]

NC2 How many of these new fixtures did you install?

[NUMERIC OPEN END, 1 TO 3000; 9998=DON'T KNOW, 9999=REFUSED]

[END OF MEASURE LOOP; GO TO NEXT LIGHTING MEASURE]

[ASK NET-TO-GROSS MODULE, THEN RETURN]

## SPILLOVER – LIGHTING

Thank you for discussing the new lighting equipment that you received incentives for through AEP Ohio's Lighting program. Next, I would like to discuss any additional lighting equipment your organization might have installed ...

LS1 Since <INSTALL DATE> has your organization purchased and installed any energy efficient lighting equipment WITHOUT an incentive from the AEP Lighting program or another utility program...

a. At this facility

[1=YES, 2=NO, 8=DON'T KNOW, 9=REFUSED]

b. At another facility owned by <COMPANY>

[1=YES, 2=NO, 8=DON'T KNOW, 9=REFUSED]

[ASK LS1c – LS4 IF LS1b=1]

LS1c You said you installed equipment at another facility owned by <COMPANY>. Can you please give me the address? (If more than one, record "multiple")

[OPEN END]

LS2 On a scale of 0 to 10, where 0 means "no influence" and 10 means "greatly influenced," how much did your experience with the AEP Ohio Lighting Program influence your decision to install high efficiency lighting equipment on your own?

[SCALE 0-10; 98=DON'T KNOW, 99=REFUSED]

LS3 Why did you purchase this lighting equipment without the financial assistance available through the AEP Ohio Lighting Program?

DO NOT READ LIST, PROBE IF NECESSARY

[MULTIPLE RESPONSE, UP TO 3]

- 1 Takes too long to get approval
- 2 No time to participate, needed equipment immediately
- 3 The equipment did not qualify
- 4 The amount of the incentive wasn't large enough

- 5 Did not know the program was available
- 6 No program available for the facility's location
- 7 Had reached the maximum incentive amount
- 8 Project was "waitlisted"/program was oversubscribed
- 9 Previous experience with the equipment (have installed before)
- 97 OTHER, SPECIFY
- 98 DON'T KNOW
- 99 REFUSED

[ASK LS3A IF LS3=3]

LS3a Why didn't the equipment qualify? [OPEN END]

[ASK LS4 IF LS2=8,9,10 AND LS3 <> 3, ELSE GO TO LH1A]

LS4What type of lighting equipment was installed without an incentive? Did you install...

READ LIST

[MULTIPLE RESPONSE, UP TO 5]

- 1 T8 fluorescent lighting to replace T12 lighting
- 2 Reduced wattage T8 lamps
- 3 T8 or T5 high bay fixtures
- 4 Compact fluorescent lights (CFLs)
- 5 Occupancy sensors
- 6 LED exit signs
- 7 LED traffic signals
- 97 OTHER, SPECIFY
- 98 DON'T KNOW
- 99 REFUSED



[IF MEASURE1 = TRAFFIC SIGNALS, SKIP TO PROCESS MODULE]

## HOURS OF USE - LIGHTING

Now we'd like to talk about the hours that your lighting equipment is in operation.

LH1a Are you typically open every day, Monday through Friday?

SINGLE PUNCH

- 1 YES
- 2 NO
- 8 DON'T KNOW
- 9 REFUSED

[ASK LH1b IF LH1a=2]

LH1b How many days typically are you CLOSED Monday through Friday?

SINGLE PUNCH

- 1 ONE
- 2 TWO
- 3 THREE
- 4 FOUR
- 5 FIVE
- 8 DON'T KNOW
- 9 REFUSED

[IF LH1b=5, SKIP TO LH4]

LH2 At what time do your indoor lights currently turn on during weekdays (Monday - Friday)? (ENTER 2400 FOR 24-HOUR OPERATION, ENTER 0 FOR NEVER ON; NOON IS 1200 PM )

LH2A ENTER HOURS AND MINUTES, E.G., 0530 FOR 5:30

FORCE XXXX FORMAT

LH2B 1. AM

2. PM

[SKIP LH3 IF LH2=24hr or never]

LH3 At what time do your indoor lights currently turn off during weekdays (Monday - Friday)? (ENTER 2400 FOR 24-HOUR OPERATION, ENTER 0 FOR NEVER ON)

LH3A ENTER HOURS AND MINUTES, E.G., 0530 FOR 5:30

FORCE XXXX FORMAT

LH3B 1.AM

2.PM

LH4 Does the lighting equipment operate on a different schedule on weekends (Saturday and Sunday)?

SINGLE PUNCH

1 YES

2 NO

8 DON'T KNOW

9 REFUSED

[ASK IF LH4=1, ELSE SKIP TO LH9]

LH5 On Saturdays, at what time does the indoor lighting equipment turn on? (ENTER 2400 FOR 24-HOUR OPERATION, ENTER 0 FOR NEVER ON)

LH5A ENTER HOURS AND MINUTES, E.G., 0530 FOR 5:30

FORCE XXXX FORMAT

LH5B 1. AM

2. PM

[SKIP LH6 IF LH5=24hr or never]

LH6 And when does the indoor lighting equipment turn off on Saturdays? (ENTER 2400 FOR 24-HOUR OPERATION, ENTER 0 FOR NEVER ON)

LH6A ENTER HOURS AND MINUTES, E.G., 0530 FOR 5:30

FORCE XXXX FORMAT

LH6B 1. AM

2. PM

LH7 And on Sundays, at what time does the indoor lighting equipment turn on? (ENTER 2400 FOR 24-HOUR OPERATION, ENTER 0 FOR NEVER ON)

LH7A ENTER HOURS AND MINUTES, E.G., 0530 FOR 5:30

FORCE XXXX FORMAT

LH7B 1.AM

2.PM

[SKIP LH8 IF LH7=24hr or never]

LH8 And when does the indoor lighting equipment turn off on Sundays? (ENTER 2400 FOR 24-HOUR OPERATION, ENTER 0 FOR NEVER ON)

LH8A ENTER HOURS AND MINUTES, E.G., 0530 FOR 5:30

FORCE XXXX FORMAT

LH8B 1.AM

2.PM

[SKIP LH9 IF LH1a=1 AND LH2a = 2400 AND LH4 = 2]

LH9 During hours when your business is closed, approximately what percentage of the indoor lights are kept on? [NUMERIC OPEN END, 0 TO 100; 998=DON'T KNOW, 999=REFUSED]

LH10a Are there any months during the year when the operating schedule for the lighting equipment differs significantly from what you just described?

SINGLE RESPONSE

1 YES

2 NO

8 (DON'T KNOW)

9 (REFUSED)

[ASK LH10b-d IF LH10a=1; ELSE SKIP TO PROCESS MODULE]

LH10b How many hours per day does the lighting equipment typically operate during the periods with different operating schedules?

[NUMERIC OPEN END, 0 TO 24; 98=DON'T KNOW, 99=REFUSED]

LH10c And how many days per week?

[NUMERIC OPEN END, 0 TO 7; 8=DON'T KNOW, 9=REFUSED]

LH10d How many months per year does the equipment run on the alternative schedule?

[NUMERIC OPEN END, 0 TO 12; 98=DON'T KNOW, 99=REFUSED]

## **PROCESS MODULE**

I'd now like to ask you a few general questions about your participation in the AEP Ohio Lighting program.

### **Program Processes and Satisfaction**

S0a What were the primary reasons your company participated in the AEP Ohio Lighting Program?

[DO NOT READ CATEGORIES; ACCEPT MULTIPLES]

1. (BECAUSE OF THE INCENTIVES/TO SAVE MONEY ON EQUIPMENT PURCHASE)
2. (TO SAVE ENERGY)
3. (TO SAVE MONEY ON ELECTRIC BILLS)
4. (BECAUSE THE PROGRAM WAS SPONSORED BY A UTILITY)
5. (TO HELP PROTECT THE ENVIRONMENT)
6. (PREVIOUS EXPERIENCE WITH OTHER UTILITY PROGRAMS)
7. (RECOMMENDED BY UTILITY ACCOUNT REPS)
8. (RECOMMENDED BY CONTRACTORS)

9. (PRIOR PARTICIPATION IN SIMILAR PROGRAMS)

97. (OTHER, SPECIFY)

98. (DON'T KNOW)

99. (REFUSED)

S1 Was an initial, pre-approval application submitted for the project?

DO NOT READ LIST, SINGLE PUNCH

- 1. YES
- 2. NO
- 8. DON'T KNOW
- 9. REFUSED

[ASK S1a IF S1=1 ELSE SKIP TO S2a]

S1a. Did YOU fill out the initial, pre-approval application for the project?

DO NOT READ LIST, SINGLE PUNCH

- 1. YES
- 2. NO
- 8. DON'T KNOW
- 9. REFUSED

[ASK S1b IF S1a=1 ELSE SKIP TO S1e]

S1b Did the application form and supporting documents including rules and requirements clearly explain the program requirements and how to participate?

DO NOT READ LIST, SINGLE PUNCH

- 1. YES
- 2. NO
- 3. SOMEWHAT
- 8. DON'T KNOW
- 9. REFUSED

S1c How would you rate the initial application or "pre-approval" process? Please use a scale of 0 to 10 where 0 is "very difficult" and 10 is "very easy".

[SCALE 0-10; 98=DON'T KNOW, 99=REFUSED]

[ASK S1d IF S1c<4]

S1d What is the primary reason you provided a low rating ? [OPEN END]

S1d1 Once you submitted the initial application, how many weeks would you say it took for AEP Ohio to approve it? [OPEN END NUMERIC]

S1d2 How satisfied were you with the time it took for AEP Ohio to approve the initial application? Please use a scale of 0 to 10 where 0 is "very dissatisfied" and 10 is "very satisfied". [SCALE 0-10; 98=DON'T KNOW, 99=REFUSED]

[ASK S1e IF S1a=2]

S1e Who filled out the initial application for the project?

DO NOT READ LIST, SINGLE PUNCH

1. Someone else at the facility
2. Someone else at the company
3. Trade Ally
4. Contractor
97. OTHER, SPECIFY
98. DON'T KNOW
99. REFUSED

S2a Did YOU fill out the final application for the project?

DO NOT READ LIST, SINGLE PUNCH

1. YES
2. NO
8. DON'T KNOW
9. REFUSED

[ASK S2b IF S2a=1 ELSE SKIP TO S2d]

S2b How would you rate the process for submitting the final application? Please use a scale of 0 to 10 where 0 is "very difficult" and 10 is "very easy".

[SCALE 0-10; 98=DON'T KNOW, 99=REFUSED]

[ASK S2c IF S2b<4]

S2c Why did you rate it that way? [OPEN END]

S2c1 Once you submitted the final application, how many weeks would you say it took for AEP Ohio to approve it? [OPEN END NUMERIC]

S2c2 How satisfied were you with the time it took for AEP Ohio to approve the initial application? Please use a scale of 0 to 10 where 0 is "very dissatisfied" and 10 is "very satisfied". [SCALE 0-10; 98=DON'T KNOW, 99=REFUSED]

[ASK S2d IF S2a=2]

S2d Who filled out the final application for the project?

READ LIST, SINGLE PUNCH

1. Someone else at the facility
2. Someone else at the company
3. Trade Ally
4. Contractor
97. OTHER, SPECIFY
98. DON'T KNOW
99. REFUSED

S3 BLANK

CHECK TO SEE IF PROGRAM PARTICIPANTS WERE LIKELY TO CONTACT THE CALL CENTER

S8 During the course of your participation in the program, did you place any calls to an AEP Ohio Call Center?

DO NOT READ LIST, PROBE IF NECESSARY

1. YES - AEP BUSINESS CALL CENTER
2. YES - KEMA AT THE PHONE NUMBER FROM THE APPLICATION FORM
3. NO, NEITHER
8. DON'T KNOW
9. REFUSED

[ASK S8a IF S8=1]

S8a On a scale of 0 to 10, where 0 is "very dissatisfied" and 10 is "very satisfied;" how would you rate your satisfaction with the Call Center's ability to answer your questions?

[SCALE 0-10; 98=DON'T KNOW, 99=REFUSED]

[ASK S8b IF S8a<4]

S8b What is the primary reason you provided that low satisfaction rating? [OPEN END]

S11 On a scale of 0 to 10, where 0 is very dissatisfied and 10 is very satisfied, how would you rate your satisfaction with...

a. The incentive amount

[SCALE 0-10; 96=NOT APPLICABLE, 98=DON'T KNOW, 99=REFUSED]

a2. The time it took to receive the incentives

[SCALE 0-10; 96=NOT APPLICABLE, 98=DON'T KNOW, 99=REFUSED]

b. The communication you had with the AEP Ohio program staff

[SCALE 0-10; 96=NOT APPLICABLE, 98=DON'T KNOW, 99=REFUSED]

c. The measures offered by the program (If needed: this is the equipment that is eligible for an incentive under the program)

[SCALE 0-10; 96=NOT APPLICABLE, 98=DON'T KNOW, 99=REFUSED]

d. The AEP Ohio Lighting program overall [SCALE 0-10; 96=NOT APPLICABLE, 98=DON'T KNOW, 99=REFUSED]

e. AEP Ohio overall

[SCALE 0-10; 96=NOT APPLICABLE, 98=DON'T KNOW, 99=REFUSED]

[ASK S12a IF S11a<4]

S12a. You indicated some dissatisfaction with the incentive amount, why did you rate it this way?

[OPEN END; 98=DON'T KNOW, 99=REFUSED]

[ASK S12a2 IF S11a2 < 4]

S12a2. You indicated some dissatisfaction with the time it took to receive incentives, why did you rate it this way?

[OPEN END; 98=DON'T KNOW, 99=REFUSED]

[ASK S12b IF S11b<4]

S12b. You indicated some dissatisfaction with the communication you had with the AEP Ohio staff, why did you rate it this way?

[OPEN END; 98=DON'T KNOW, 99=REFUSED]

[ASK S12c IF S11c<4]

S12c. You indicated some dissatisfaction with the measures offered by the AEP Ohio Lighting program, what is the primary reason for your dissatisfaction?

[OPEN END; 98=DON'T KNOW, 99=REFUSED]

[ASK S12d IF S11d<4]



S12d. You indicated some dissatisfaction with the AEP Ohio Lighting Program overall, what is the primary reason for your dissatisfaction?

[OPEN END; 98=DON'T KNOW, 99=REFUSED]

[ASK S12e IF S11e<4]

S12e. You indicated some dissatisfaction with AEP Ohio overall, what is the primary reason for your dissatisfaction?

[OPEN END; 98=DON'T KNOW, 99=REFUSED]

S0 How did you first hear about the AEP Ohio Lighting program?

DO NOT READ LIST, SINGLE PUNCH

1. AEP Ohio Account Manager (phone/email/in-person)
2. AEP Ohio Website
3. Workshop / Kickoff evente
4. Contractor/Trade Ally (phone/email/in-person)
5. Email
6. Friend/colleague/word of mouth (phone/email/in-person)
7. Bill Insert
8. Webinar
9. Speaker/Presentation at an event
10. Questline Newsletter
97. OTHER, SPECIFY
98. DON'T KNOW
99. REFUSED

## Marketing and Outreach

MK0 You mentioned that you first heard about the program through [ANSWER IN S0]. Now I'd like to ask you about some other ways you might have seen or heard information about the AEP Ohio Lighting program. Have you ever..."

[FOR EACH STATEMENT: 1=YES, 2=NO, 8=(DON'T KNOW), 9=(REFUSED)]

- a. Received information about the program in your monthly utility bill?
- b. Attended an AEP Ohio customer event where the program was discussed?
- c. Discussed the program with an AEP Ohio Account Manager?
- d. Discussed the program with a Contactor or Trade Ally?
- e. Seen information about the program on the AEP Ohio Web site?
- f. Received information about the program in an Email?
- g. Heard about the program from a colleague, friend or family member?
- h. Attended a meeting, seminar or workshop where the program was presented?
- i. Attended a webinar where the program was discussed?
- j. Read about the program in an AEP Ohio Questline Newsletter?

MK01 Have you heard about the AEP Ohio Lighting program through any other means?

DO NOT READ LIST, SINGLE PUNCH

- 1. YES
- 2. NO
- 8. DON'T KNOW
- 9. REFUSED

[ASK MK02 IF MK01=1]

MK02 How else did you hear about the program? [OPEN END]

MK1b How useful were the program's marketing materials in providing information about the program? Would you say they were...

READ LIST, SINGLE PUNCH

- 1. Very useful
- 2. Somewhat useful
- 3. Not very useful
- 4. Not at all useful
- 98. DON'T KNOW

99. REFUSED

[ASK MK1c IF MK1b=3,4]

MK1c What would have made the materials more useful to you?

READ LIST

[MULTIPLE RESPONSE, UP TO 3]

1. More detailed information
2. Where to get additional information

97. OTHER, SPECIFY

98. DON'T KNOW

99. REFUSED

MK2 In general, what is the best way of reaching companies like yours to provide information about energy efficiency opportunities like the AEP Ohio Lighting program?

DO NOT READ LIST

[MULTIPLE RESPONSE, UP TO 3]

1. Bill inserts
2. Advertisement in trade/professional publication
3. Advertisement in local newspaper
3. E-mail
4. Telephone
5. AEP Ohio Account Manager
6. Webinars/roundtables/events
7. Through trade or professional associations
8. Trade allies/contractors
9. Social networking Internet site (LinkedIn, Twitter, Facebook)

97. OTHER, SPECIFY

98. DON'T KNOW

99. REFUSED

**Benefits and Barriers**

B1a What do you see as the main benefits to participating in the AEP Ohio lighting program?

DO NOT READ LIST

[MULTIPLE RESPONSE, UP TO 3]

1. ENERGY SAVINGS
2. GOOD FOR THE ENVIRONMENT
3. LOWER MAINTENANCE COSTS
4. BETTER QUALITY/NEW EQUIPMENT
5. REBATE/INCENTIVE
6. NO BENEFITS
97. OTHER, SPECIFY
98. DON'T KNOW
99. REFUSED

B1b What do you see as the drawbacks to participating in the program?

DO NOT READ LIST

[MULTIPLE RESPONSE, UP TO 3]

1. PAPERWORK TOO BURDENSOME
2. INCENTIVES NOT HIGH ENOUGH/NOT WORTH THE EFFORT
3. PROGRAM IS TOO COMPLICATED
4. COST OF EQUIPMENT
5. NO DRAWBACKS

97. OTHER, SPECIFY

98. DON'T KNOW

99. REFUSED

B2 What do you think are the reasons companies like yours do not participate in this program?

DO NOT READ LIST

[MULTIPLE RESPONSE, UP TO 3]

1. LACK OF AWARENESS OF THE PROGRAM

2. FINANCIAL REASONS

3. DO NOT BELIEVE CLAIMS OF ENERGY SAVINGS

3. NONE

4. NOT AWARE OF SAVINGS/DON'T REALIZE THE SAVINGS

97. OTHER, SPECIFY

98. DON'T KNOW

99. REFUSED

**Feedback and Recommendations**

R1 Do you plan to participate in the program again in the future?

DO NOT READ LIST, SINGLE PUNCH

1. YES

2. NO

3. MAYBE

8. DON'T KNOW

9. REFUSED

R2 How could the AEP Ohio Lighting Program be improved?

DO NOT READ LIST

[MULTIPLE RESPONSE, UP TO 4]

1. HIGHER INCENTIVES
2. MORE MEASURES
3. GREATER PUBLICITY
4. CONTRACTOR REFERRAL SERVICE
5. NO RECOMMENDATIONS
97. OTHER, SPECIFY
98. DON'T KNOW
99. REFUSED

**Firmographics**

I only have a few general questions left.

F1a What is <COMPANY>'s business sector?

READ LIST IF NECESSARY. SINGLE PUNCH.

1. K-12 SCHOOL
2. COLLEGE
3. GROCERY
4. MEDICAL
5. HOTEL/MOTEL
6. LIGHT INDUSTRY
7. HEAVY INDUSTRY
8. OFFICE
9. RESTAURANT
10. RETAIL/SERVICE
11. WAREHOUSE

- 97. OTHER, SPECIFY
- 98. DON'T KNOW
- 99. REFUSED

F1b And is the facility in which the lighting was installed in the same sector?

DO NOT READ LIST, SINGLE PUNCH

- 1. YES
- 2. NO
- 8. DON'T KNOW
- 9. REFUSED

[ASK F1c IF F1b=2]

F1c What is the sector of the facility?

READ LIST IF NECESSARY. SINGLE PUNCH.

- 1. K-12 SCHOOL
- 2. COLLEGE
- 3. GROCERY
- 4. MEDICAL
- 5. HOTEL/MOTEL
- 6. LIGHT INDUSTRY
- 7. HEAVY INDUSTRY
- 8. OFFICE
- 9. RESTAURANT
- 10. RETAIL/SERVICE
- 11. WAREHOUSE
- 97. OTHER, SPECIFY
- 98. DON'T KNOW
- 99. REFUSED

F2 Which of the following best describes the ownership of this facility?

READ LIST, SINGLE PUNCH

- 1. <COMPANY> owns and occupies this facility
- 2. <COMPANY> owns this facility but it is rented to someone else
- 3. <COMPANY> rents this facility
- 8. DON'T KNOW
- 9. REFUSED

F3 Does <COMPANY> pay the electric bill?

DO NOT READ LIST, SINGLE PUNCH

1. YES
2. NO
8. (DON'T KNOW)
9. (REFUSED)

F4a How old is this facility?

[NUMERIC OPEN END, 0 TO 150; 998=DON'T KNOW, 999=REFUSED]

[ASK F4b IF F4a=998]

F4b Do you know the approximate age? Would you say it is...

READ LIST, SINGLE PUNCH

1. Less than 2 years
2. 2-4 years
3. 5-9 years
4. 10-19 years
5. 20-29 years
6. 30 years or more years
8. (DON'T KNOW)
9. (REFUSED)

F5a How many employees, full plus part-time, are employed at this facility?

[NUMERIC OPEN END, 0 TO 2000; 9998=DON'T KNOW, 9999=REFUSED]

[ASK F5b IF F5a=9998]

F5b Do you know the approximate number of employees? Would you say it is...



READ LIST, SINGLE PUNCH

1. Less than 10
2. 10-49
3. 50-99
4. 100-249
5. 250-499
6. 500 or more
8. DON'T KNOW
9. REFUSED

F6 Which of the following best describes the facility? This facility is...

READ LIST, SINGLE PUNCH

1. <COMPANY>'s only location
2. One of several locations owned by <COMPANY>
3. The headquarters location of <COMPANY> with several locations

**NET-TO-GROSS MODULE**

*VARIABLES FOR THE NET-TO-GROSS MODULE:*

<NTG> (B=BASIC RIGOR LEVEL, S= STANDARD RIGOR LEVEL. ALL QUESTIONS HERE ARE ASKED IF THE STANDARD RIGOR LEVEL IS DESIGNATED. BASIC RIGOR LEVEL IS DESIGNATED THROUGH SKIP PATTERNS)

MEASURE=???

<ACCT\_REP> NAME OF AEP OHIO ACCOUNT MANAGER, FROM PROGRAM TRACKING DATABASE OR PROGRAM FILES IF PRESENT)

<OTHERPTS> (VARIABLE TO BE CALCULATED BASED ON RESPONSES. EQUALS 1-MINUS RESPONSE TO N3P.)

<FINCRIT1> (VARIABLE TO BE CALCULATED BASED ON RESPONSES. EQUALS 1 IF PAYBACK PERIOD WITHOUT INCENTIVE IS SHORTER THAN COMPANY REQUIREMENT. SEE INSTRUCTIONS BELOW.)

<FINCRIT2> (VARIABLE TO BE CALCULATED BASED ON RESPONSES. EQUALS 1 IF PAYBACK PERIOD WITH INCENTIVE IS SHORTER THAN COMPANY REQUIREMENT. SEE INSTRUCTIONS BELOW.)

<MSAME> (FOR PRESCRIPTIVE/STANDARD SURVEY ONLY: EQUALS 1 IF SAME CUSTOMER HAD MORE THAN ONE PROJECT OF THE SAME MEASURE TYPE; FROM PROGRAM TRACKING DATABASE)

<NSAME> (FOR PRESCRIPTIVE/STANDARD SURVEY ONLY: NUMBER OF ADDITIONAL PROJECTS OF THE SAME MEASURE TYPE IMPLEMENTED BY THE SAME CUSTOMER; FROM PROGRAM TRACKING DATABASE)

**VENDOR INFORMATION**

I would like to get some information on the VENDORS that may have helped you with the implementation of this equipment.

[SKIP TO V4 IF NTG=B]

V1 Did you work with a contractor or vendor that helped you with the choice of this equipment?

DO NOT READ LIST, SINGLE PUNCH

- 1 YES
- 2 NO
- 8 DON'T KNOW
- 9 REFUSED

[SKIP TO V4 IF V1=2, 8, or 9]

V2 BLANK

V4 Did your AEP Ohio account manager assist you with the project that you implemented through AEP Ohio Lighting program?

DO NOT READ LIST, SINGLE PUNCH, PROBE IF NECESSARY

IF NO, PROBE "Is that because you don't have an AEP Ohio account manager, or do you have one, but they weren't involved?"

- 1 YES
- 2 NO, DON'T HAVE AN AEP OHIO ACCOUNT MANAGER
- 3 NO, HAVE AN AEP OHIO ACCOUNT MANAGER BUT THEY WEREN'T INVOLVED

8 DON'T KNOW

9 REFUSED

**NET-TO-GROSS BATTERY**

My next set of questions is about the [MEASD1] you installed through the program.

N1 When did you first learn about AEP Ohio's Program? Was it BEFORE or AFTER you first began to THINK about implementing the [MEASD1]? (NOTE TO INTERVIEWER: "this measure" refers to the specific energy efficient equipment installed through the program.)

DO NOT READ LIST, SINGLE PUNCH

1 BEFORE

2 AFTER

8 DON'T KNOW

9 REFUSED

[ASK N2 IF N1=2, 8, 9]

N2 Did you learn about AEP Ohio's Program BEFORE or AFTER you DECIDED to implement the [MEASD1] that was installed? (NOTE TO INTERVIEWER: "the measure" refers to the specific energy efficient equipment installed through the program.)

DO NOT READ LIST, SINGLE PUNCH

1 BEFORE

2 AFTER

8 DON'T KNOW

9 REFUSED

N3 Next, I'm going to ask you to rate the importance of the program as well as other factors that might have influenced your decision to implement the [MEASD1]. Think of the degree of importance as being shown on a scale with equally spaced units from 0 to 10, where 0 means not at all important and 10 means extremely important. Now using this scale please rate the importance of each of the following in your decision to implement the measure at this time.

[FOR N3A-N, RECORD 0 TO 10; 96=NOT APPLICABLE; 98=DON'T KNOW; 99=REFUSED]

(If needed: How important in your DECISION to implement the project was...)

N3a. The age or condition of the old equipment

N3b. Availability of the PROGRAM incentive

[ASK IF <TECH\_ASSIST>=1, ELSE SKIP TO N3d]

N3c. Information provided through the technical assistance you received from AEP Ohio staff

[ASK N3d IF V1=1]

N3d. Recommendation from a lighting vendor or contractor that helped you with the choice of the equipment

N3e. Previous experience with the <MEASD1>

N3f. Recommendation from an AEP Ohio program staff person

N3h. Information from AEP Ohio Lighting Program or AEP Ohio marketing materials

N3j. Standard practice in your business/industry

[SKIP N3k IF V4>1]

N3k. Endorsement or recommendation by an account manager of AEP Ohio

N3l. Corporate policy or guidelines

N3m. Payback on the investment

N3n. Were there any other factors we haven't discussed that were influential in your decision to install this [MEASD]?

DO NOT READ LIST, SINGLE PUNCH

97 [RECORD VERBATIM]

96 NOTHING ELSE INFLUENTIAL

98 DON'T KNOW

99 REFUSED

[ASK N3nn IF N3n=97]

N3nn. Using the same zero to 10 scale, how would you rate the influence of this factor?  
[RECORD 0 TO 10; 98=DON'T KNOW; 99=REFUSED]

SHOW CHECK BOXES 0,1,2,3,4,5,6,7,8,9,10

SINGLE PUNCH

Thinking about this differently, I would like you to compare the importance of the PROGRAM with the importance of other factors in implementing the [MEASD1] project.

[READ IF (N3A, N3D, N3E, N3I, N3J, N3L, N3M, OR N3NN)=8,9,10; ELSE SKIP TO N3p]

You just told me that the following other factors were important:

[READ IN ONLY ITEMS WHERE THEY GAVE A RATING OF 8 OR HIGHER]

(N3A) Age or condition of old equipment,

(N3D) Equipment Vendor recommendation

(N3E) Previous experience with this measure

(N3I) Recommendation from a design or consulting engineer

(N3J) Standard practice in your business/industry

(N3L) Corporate policy or guidelines

(N3M) Payback on investment.

(N3NN) Other factor (READ VERBATIM) < ---VERBATIM TEXT SUBSTITUTION NOT WORKING HERE

N3p If you were given a TOTAL of 100 points that reflect the importance in your decision to implement the lighting project, and you had to divide those 100 points between: 1) the program and 2) these other factors, taken together as whole, how many points would you give to the importance of the PROGRAM?

POINTS GIVEN TO PROGRAM: [RECORD 0 TO 100; 998=DON'T KNOW;  
999=REFUSED]

[CALCULATE VARIABLE "OTHERPTS" AS: 100 MINUS N3p RESPONSE; IF N3p=998, 999,  
SET OTHERPTS=BLANK]

N3o And how many points would you give to other factors? [RECORD 0 TO 100;  
998=DON'T KNOW; 999=REFUSED] [THE RESPONSE SHOULD BE <OTHERPTS>

BECAUSE BOTH NUMBERS SHOULD EQUAL 100. IF RESPONSE IS NOT  
<OTHERPTS> ASK INC1]

INC1 The last question asked you to divide a TOTAL of 100 points between the program and other factors. You just noted that you would give <N3P RESPONSE> points to the program. Does that mean you would give <OTHERPTS> points to other factors?

DO NOT READ LIST, SINGLE PUNCH

1 YES

2 NO

98 (DON'T KNOW)

99 (REFUSED)

[If INC1=2, go back to N3p]

#### CONSISTENCY CHECK ON PROGRAM IMPORTANCE SCORE

[SKIP TO N5 IF N3p=998, 999 OR IF N3p<80 OR IF (N3p>=80 AND ANY ONE OF (N3b, N3c, N3f, N3h, AND N3k)>3 AND <11)]

N4 You just gave <N3p RESPONSE> points to the importance of the program, I would interpret that to mean that the program was quite important to your decision to install this equipment. Earlier, when I asked about the importance of individual elements of the program I recorded some answers that would imply that they were not that important to you. Just to make sure I have recorded this properly, I have a couple questions to ask you.

N4a When asked about THE AVAILABILITY OF THE PROGRAM INCENTIVE, you gave a rating of ...<N3B RESPONSE> ... out of ten, indicating that the program incentive was not that important to you. Can you tell me why the incentive was not that important?

[RECORD VERBATIM]

98 DON'T KNOW

99 REFUSED

[SKIP <TECH ASSIST>=0]

N4b When I asked you about THE INFORMATION PROVIDED THROUGH THE TECHNICAL ASSISTANCE, you gave a rating of ...<N3C RESPONSE> ... out of ten,

indicating that the information provided was not that important to you. Can you tell me why the information provided was not that important?

[RECORD VERBATIM]

98 DON'T KNOW

99 REFUSED

N4c When I asked you about THE RECOMMENDATION FROM AN AEP OHIO PROGRAM STAFF PERSON, you gave a rating of ...<N3F RESPONSE> ... out of ten, indicating that the information provided was not that important to you. Can you tell me why the information provided was not that important?

[RECORD VERBATIM]

98 DON'T KNOW

99 REFUSED

N4d When asked about THE INFORMATION from the AEP Ohio Lighting Program or AEP Ohio MARKETING MATERIALS, you gave a rating of ...<N3H RESPONSE> ... out of ten, indicating that this information from the program or utility marketing materials was not that important to you. Can you tell me why this information was not that important?

[RECORD VERBATIM]

98 DON'T KNOW

99 REFUSED

[SKIP N4e IF V4>1]

N4e When asked about the endorsement or recommendation by your AEP Ohio account manager, you gave a rating of <N3K RESPONSE> ... out of ten, indicating that this Account manager endorsement was not that important to you. Can you tell me why this endorsement was not that important?

[RECORD VERBATIM]

98 DON'T KNOW

99 REFUSED

Now I would like you to think about the action you would have taken with regard to the installation of this equipment if the utility program had not been available.

N5 Using a likelihood scale from 0 to 10, where 0 is "Not at all likely" and 10 is "Extremely likely", if the incentive from the utility program had not been available, what is the likelihood that you would have installed exactly the same equipment?

[RECORD 0 TO 10; 98=DON'T KNOW; 99=REFUSED]

#### CONSISTENCY CHECKS

[ASK N5a-d IF N3b=08,09,10 AND N5=08,09,10]

N5a When you answered ...<N3B RESPONSE> ... for the question about the influence of the incentive, I would interpret that to mean that the incentive was quite important to your decision to install. Then, when you answered <N5 RESPONSE> for how likely you would be to install the same equipment without the incentive, it sounds like the incentive was not very important in your installation decision.

I want to check to see if I am misunderstanding your answers or if the questions may have been unclear. Will you explain in your own words, the role the incentive played in your decision to install this efficient equipment?

[RECORD VERBATIM]

98 DON'T KNOW

99 REFUSED

N5b Would you like for me to change your score on the importance of the incentive that you gave a rating of <N3B RESPONSE> or change your rating on the likelihood you would install the same equipment without the incentive which you gave a rating of <N5 RESPONSE> and/or we can change both if you wish?

DO NOT READ LIST, PROBE IF NECESSARY, SINGLE PUNCH

- 1 CHANGE IMPORTANCE OF INCENTIVE RATING
- 2 CHANGE LIKELIHOOD TO INSTALL THE SAME EQUIPMENT RATING
- 3 CHANGE BOTH
- 4 NO, DON'T CHANGE
- 8 DON'T KNOW



9 REFUSED

[ASK IF N5b=1,3]

N5c How important was... availability of the PROGRAM incentive? (IF NEEDED: in your DECISION to implement the project)

Please use a scale of 0 to 10, where 0 means not at all important and 10 means extremely important.

[98=DON'T KNOW, 99=REFUSED]

[ASK IF N5b=2,3]

N5d If the AEP Ohio program had not been available, what is the likelihood that you would have installed exactly the same equipment? Please use a scale of 0 to 10, where 0 means "Not at all likely" and 10 means "Extremely likely";

[98=DON'T KNOW, 99=REFUSED]

[ASK IF N3j=08,09,10, ELSE SKIP TO N7]

N6 In an earlier question, you rated the importance of STANDARD PRACTICE in your industry very highly in your decision making. Could you please rate the importance of the PROGRAM, relative to this standard industry practice, in influencing your decision to install this [MEASD]. Would you say the program was much more important, somewhat more important, equally important, somewhat less important, or much less important than the standard practice or policy?

DO NOT READ LIST, SINGLE PUNCH

- 1 MUCH MORE IMPORTANT
- 2 SOMEWHAT MORE IMPORTANT
- 3 EQUALLY IMPORTANT
- 4 SOMEWHAT LESS IMPORTANT
- 5 MUCH LESS IMPORTANT
- 8 DON'T KNOW
- 9 REFUSED

[ASK IF N5>0 AND <11, ELSE SKIP TO N8]

N7 You indicated earlier that there was a <N5 RESPONSE> in 10 likelihood that you would have installed the same equipment if the program had not been available. Without the program, when do you think you would have installed this equipment? Would you say...

READ LIST, SINGLE RESPONSE

- 1 At the same time
- 2 Earlier
- 3 Later
- 4 (NEVER)
- 8 (DON'T KNOW)
- 9 (REFUSED)

[ASK N7a IF N7=3]

N7a. How much later would you have installed this equipment? Would you say...

READ LIST, SINGLE PUNCH

- 1 Within 6 months?
- 2 6 months to 1 year later
- 3 1 - 2 years later
- 4 2 - 3 years later
- 5 3 - 4 years later
- 6 4 or more years later
- 8 DON'T KNOW
- 9 REFUSED

[ASK N7b IF N7a=6]

N7b. Why do you think it would have been 4 or more years later?

[RECORD VERBATIM]

98 DON'T KNOW

99 REFUSED

**PAYBACK BATTERY [ASK N8-N10e IF N3m>5 AND <11]**

I'd like to find out more about the payback criteria <COMPANY> uses for its investments.

N8 What financial calculations does <COMPANY> make before proceeding with installation of a MEASD like this one?

READ LIST, MULTIPLE RESPONSE

- 1 Payback
- 2 Return on investment
- 3 Life cycle costing
- 4 Other (SPECIFY)
- 8 DON'T KNOW

9 REFUSED

ASK N9 IF N8 = 1

N9 What is the payback cut-off point <COMPANY> uses (in months) before deciding to proceed with this type of an investment/capital improvement project? Would you say...

READ LIST, SINGLE PUNCH

- 1 0 to 6 months
- 2 7 months to 1 year
- 3 more than 1 year up to 2 years
- 4 more than 2 years up to 3 years
- 5 more than 3 years up to 5 years
- 6 Over 5 years
- 8 DON'T KNOW
- 9 REFUSED

[ASK N26 IF MEAS2=1]

N26 Was it a single decision to complete all of the lighting measures at <ADDRESS> for which you received an incentive from AEP Ohio or did each measure go through its own decision process?

READ LIST, SINGLE PUNCH

- 1 Single Decision
- 2 Each measure went through its own decision process
- 97 OTHER, SPECIFY
- 98 (DON'T KNOW)
- 99 (REFUSED)

[ASK N27 IF MSAME=1]

Our records show that <COMPANY> also received an incentive from AEP Ohio for <NSAME> (number) other [ENDUSE] project(s).

N27 Was it a single decision to complete all of those lighting projects for which you received an incentive from AEP Ohio or did each project go through its own decision process?

READ LIST, SINGLE PUNCH

- 1 Single Decision
- 2 Each project went through its own decision process
- 97 OTHER, SPECIFY
- 98 (DON'T KNOW)
- 99 (REFUSED)

## 6.2 Other Appendices

### PY 2009 Program Application Forms

The application forms for the PY 2009 program are provided in the Operations Manual in Appendix B.

Application forms and additional information can be downloaded at: [www.gridsmartohio.com](http://www.gridsmartohio.com)

**F**



**AEP Ohio  
Energy Efficiency/  
Demand Response Plan  
Plan Year 1 (1/1/2009-12/31/2009)  
Program Year 2009 Evaluation Report:  
Business Custom Program**

**Presented to**

**AEP Ohio**

**March 9, 2010**

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## Section 1. Executive Summary

### 1.1 *Evaluation Objectives*

The goal of this report is to present a summary of the findings and results from the evaluation of the 2009 Business Custom program<sup>1</sup> launched by AEP Ohio on June 1, 2009 under the gridSMARTohio (gridSMART) program umbrella. The primary objectives of this evaluation are to quantify savings impacts and to determine key process-related program strengths and weaknesses and identify ways in which the program can be improved.

Ohio recently passed comprehensive energy legislation, which includes an advanced energy portfolio standard ("AEPS"), 2008 Senate Bill ("SB") 221, signed into law by Governor Ted Strickland on May 1, 2008.<sup>2</sup> The law directs Ohio utilities to implement programs to help their customers use electricity more efficiently, and requires electric utilities to achieve energy savings of 22.2% by the end of 2025 through energy efficiency programs. Utilities must also implement programs to reduce peak energy demand one percent beginning in 2009, and an additional 0.75% per year through 2018, for a total of 7.75%.

In response to the new legislative requirements, AEP Ohio is launching a set of Energy Efficiency/Peak Demand Reduction ("EE/PDR") programs in 2009-2011 under a three-year action plan with oversight by the Public Utilities Commission of Ohio. The 2009 Business Custom program was one of three program elements available to non-residential customers of AEP Ohio's two operating companies, Ohio Power and Columbus Southern Power during 2009:

- » The **Prescriptive program** provides an expedited application approach for nonresidential customers interested in purchasing efficient technologies. The 2009 program targeted discrete new construction, retrofit, and replacement opportunities in lighting. A streamlined incentive application and quality control process is intended to facilitate ease of participation. Relationships with trade allies are a key strategy for promoting prescriptive incentive availability to customers. After 2009, AEP Ohio intends to expand the program to additional end-uses such as HVAC, motors, and refrigeration systems. The program targets projects installed within and after the current program year.
- » The **Custom program** offers incentives to customers for less common or more complex energy-saving measures installed in qualified retrofit and equipment replacement projects. The program targets projects installed within and after the current program year.

---

<sup>1</sup> Program Year 2009 (PY 2009) began June 1, 2009 and ended December 31, 2009.

<sup>2</sup> [http://www.legislature.state.oh.us/bills.cfm?ID=127\\_SB\\_221](http://www.legislature.state.oh.us/bills.cfm?ID=127_SB_221)

- » The **Self-Direct program** rewards qualifying customers who submit previously installed projects through one of two energy efficiency credit options: an energy efficiency credit payment of 75% of the calculated incentive amount under the Prescriptive or Custom program; or an exemption from the Energy Efficiency/Peak Demand Reduction (EE/PDR) rider for a specified number of months. The 2009 program targeted projects installed after January 1, 2006 and prior May 31, 2009.

Some tasks within the Prescriptive, Custom, and Self-Direct program evaluations involved close coordination between the efforts, but the evaluations were otherwise conducted through separate approaches. The Prescriptive, Custom and Self-Direct programs have evaluation results reported separately.

## **1.2    *Evaluation Methods***

Project-specific impact review was completed for a census of 2009 projects in order to assess the impacts achieved by the program. A census was possible because only two projects had paid incentives in 2009. Even though several other projects were in the process of final review, their impacts are not included in the 2009.

Table 1.1 provides a summary of the principal data sources contributing to the evaluation of the 2009 Custom program. For each data element listed the table provides the targeted population, the sample frame, sample size and timing of data collection.

Table 1.1. Principal Data Sources Contributing to the 2009 Evaluation

Data Collection Type	Targeted Population	Data Source	Sampling Design	Sample Size	Timing
Tracking Data Analysis	Custom program customers, projects and measures	AEP Ohio Tracking Database	-	All	Ongoing
Application Records Analysis	Custom program customers, projects and measures	File Copies	-	All	As Needed
In-depth Phone Interviews	AEP Ohio Custom Program Staff and KEMA, Inc. Program Implementer	Contact from AEP Ohio	Custom Program Manager	3	February 2010
Project Application File Review	Custom Program Participants	Tracking Database	Census of Custom Program Participants	All	February 2010

### 1.3 Key Findings

Table 1.2 and Table 1.3 provide a summary of reported ex-ante savings from the AEP Ohio tracking system, and evaluation-adjusted savings impacts for the Custom program. Annual savings reflect estimates had the projects been installed for a full year. Estimates for 2009 Savings reflect the fraction of the year that the projects were actually installed. The realization rate is determined with the following equation:

$$\text{realization rate} = \text{ex-post savings} / \text{tracking system savings}$$

Table 1.2. Impact & Realization Rate Results for the Custom Program – Annualized

Application ID	Utility Company	Baseline kWh	Baseline kW	2009 kWh	2009 kW	2009 Realization Rate	2009 Realization Rate
1	CSP	14,547	1.9	11,638	1.7	80%	87%
2	OPCo	126,170	25.0	131,522	24.8	104%	99%
Total	AEP Ohio	140,717	27.0	143,160	26.5	102%	98%

Table 1.3. Impact Realization Rate Results for the Custom Program – 2009

Application ID	Utility Company	Baseline kWh	Baseline kW	2009 kWh	2009 kW
1	CSP	14,547	1.9	2,909	0.4
2	OPCo	126,170	25.0	43,840	8.3
Total	AEP Ohio	140,717	27.0	46,750	8.7

### 1.3.1 Key Impact Findings

- » Very few projects could be counted as complete for the 2009 program year even though there is a relatively high volume of applications that has at least progressed to the pre-approval status for 2010. The project documentation that was reviewed generally presents a reasonably clear description of how a given project saves energy, the energy efficiency measures included in the program all appear to have a reasonable basis for claiming energy savings, and the baseline condition selected for the impact calculations was generally reasonable. In some cases the underlying assumptions could be more conservative.
- » A clear approach to interactive impacts should be documented and used. The Operations Manual<sup>3</sup> discusses interactive effects, but both lighting projects evaluated for 2009 did not claim interactive savings, even though it seems they could have done so.

<sup>3</sup> AEP GridSmart KEMA Operations Manual, January 25, 2010, KEMA, Inc.

More information regarding HVAC system type will need to be collected to accurately estimate interactive effects.

### 1.3.2 Key Process Findings

#### Program Participation

Program participation was low for 2009. Only two projects are considered complete and paid, though several were near the "paid" status at year's end. Lower participation is due to the mid-year start for the program and the somewhat long lead times required for implementing more complex custom efficiency projects. Also, there was a rush to complete projects at the end of the year and not all administrative tasks were completed. Participation will have to rise in coming years to meet overall goals. This will require more effective and broadened marketing efforts. Examination of paths to participation will be an evaluation objective for the next evaluation cycle to ensure continuing success.

#### Incentives

The program design included a 50% of total project cost incentive cap in 2009. This cap was seldom invoked and should remain in place. A high concentration of incentive money in a single customer or project carries risk for the program and program savings.

#### Implementation

The assigned program staff targeted their efforts at core activities related to processing applications, participant implementation assistance, marketing, application reviews and inspections. Future growth of the program and attainment of program goals will require additional resources (staff and dollars) to expand the depth and breadth of program activities.

#### Marketing and Outreach

In 2009, AEP Ohio focused on existing relationships (account managers and participating contractors) to meet the overall Business sector savings goals primarily through Self-Direct projects. Future years will need a much wider base of trade-allies to market and deliver the Custom program and more outreach to consumer participants to raise awareness of program benefits. To this end, both KEMA and AEP Ohio are increasing marketing staff for the Custom program.

## Section 2. Introduction to the Program

This evaluation report covers the Custom program element of the GridSmart Ohio Energy Business programs offered by AEP Ohio and its retail subsidiaries Ohio Power Company (OPCo) and Columbus Southern Power (CSP).

### 2.1 Program Description

AEP Ohio offers energy efficiency incentives to business customers in its service territory through three programs: Prescriptive, Custom and Self-Direct. All three programs are co-branded with the GridSmart Ohio name and each provides incentives to AEP Ohio customers who upgrade their facilities with energy efficient equipment. The Custom program incentives are available to customers for less common or more complex energy-saving measures installed in qualified retrofit and equipment replacement projects. Custom incentives are available based on the project's kWh savings assuming the project meets all program requirements.

Eligible equipment includes lighting retrofits, HVAC measures such as VFDs, equipment controls, coil replacement and adding pipe insulation and other miscellaneous measure installations. Some of these measure installations are "True Custom" measures in the sense that simple deemed savings and/or simple-to-apply algorithms do not already exist for this homogenous measure segment of the program population. However, lighting projects are also eligible and these projects comprise the entire 2009 *ex-ante* energy savings claim.

AEP Ohio uses internal staff to manage the program and has hired a third-party implementation contractor, KEMA Services, Inc. to run the program, including assistance with marketing, day-to day operations, project review, incentive verification and data management.

The overall savings goal for the Business sector programs was 107 GWh annual savings, split between the two retail companies with CSP at 45 GWh and OPCo at 62 GWh. The Custom program targets for 2009 are 15.7 GWh for CSP and 21.9 GWh for OPCo. Due to the June 2009 start for the programs, AEP Ohio managers saw that the immediate strength of the Business sector offerings was the Self-Direct program which had projects cued up and ready for 2009. Thus AEP Ohio focused on the Self-Direct participants to meet 2009 savings goals.

## Section 3. Evaluation Methods

This section discusses the questions the evaluation sought to answer, the methods, sample design, and data sources used to answer those questions.

### 3.1 Evaluation Questions

The evaluation sought to answer the following key researchable questions:

#### 3.1.1 Impact Questions

1. Were the impacts reported by the program achieved?
2. Did the program meet its energy and demand goals? If not, why not?

#### 3.1.2 Process Questions

The process evaluation questions focused on five key areas:

1. Effectiveness of program implementation
2. Effectiveness of program design and processes
3. Customer and program partner experience and satisfaction with the program
4. Opportunities for program improvement
5. Program awareness and potential market effects

The full list of researchable questions can be found in the Evaluation Plan.

### 3.2 Evaluation Approach

Participants consist of both OPCo and CSP utility customers', and the evaluation was planned and completed in such a way that it supports a both individual retail utilities and overall AEP Ohio results.

- » There were a total of eight projects that were completed or were nearing completion<sup>4</sup> by the end of the 2009 calendar year, but because of final approval tasks, including application review, on-site post-installation verification and administrative tasks only two projects were paid incentives in 2009; one for CSP and one for OPCo.
- » The two projects comprised ex-ante savings of 140.7 MWh and 27 kW.

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<sup>4</sup> Project tracking status codes: paid and pending final review.

The 2009 evaluation plan precluded on-site visits and detailed monitoring and verification (M&V) due to the short window allowed for evaluation tasks. The small number of completed projects permits review of a census of projects.

- » Telephone surveys with participants supported the impact approach
- » Data were also collected in the survey described above to support the process evaluation.

The sections that follow provide greater detail on the methods deployed.

### 3.3 *Analytical Methods*

#### 3.3.1 Program Savings

The objective of this element of the impact evaluation is to verify the 2009 *ex-ante* savings estimates in the Custom program tracking system for the program population. The savings reported in KEMA's tracking system was evaluated using the following steps:

1. Develop a site-specific document review plan for each program project.
2. Complete ex-post engineering-based estimates of annual energy (kWh) and summer peak demand (kW) impact for each project. A site specific analysis is performed for each point in the impact sample. The engineering analysis methods depends on the complexity of the measures installed, the size of the associated savings and the availability and reliability of existing data.

A realization rate (which is the ratio of the ex-post savings-to-reported tracking savings) was then estimated for program. The result is an ex-post estimate of savings for the Custom program in 2009.

#### Review Applications and Prepare Analysis Plans

For each selected application, an in-depth application review is performed to assess the engineering methods, parameters and assumptions used to generate all ex-ante impact estimates. Application review serves to familiarize the assigned engineer with the impact approach applied in the program calculations.

Each review results in an analysis plan. Each plan explains the general impact approach used, provides an analysis of the current inputs (based on the application and other available sources at that time), and identifies sources that will be used to verify data or obtain newly identified inputs for the ex-post impact approach.

Each engineering analysis is based on engineering models that make use of hard copy application review and additional data gathered surrounding the equipment installed through the program (and the operation of those systems). Energy savings calculations are accomplished



using methods that include short-term monitoring-based assessments, simulation modeling (e.g., DOE-2), bin models, application of ASHRAE methods and algorithms, analysis of pre- and post-installation billing and interval data, and other specialized algorithms and models.

### 3.4 Data Sources

Table 3.1 provides a summary of the principal data sources contributing to the evaluation of the 2009 Custom program. For each data element listed table provides the targeted population, the sample frame, sample size and timing of data collection. In addition the evaluation team reviewed program materials developed by KEMA and AEP Ohio, including program guidelines, and program application forms.

Table 3.1. Principal Data Sources Contributing to the 2009 Evaluation

Data Collection Type	Targeted Population	Sample Frame	Sample Design	Sample Size	Timing
Tracking Data Analysis	Custom program customers, projects and measures	AEP Ohio Tracking Database	-	All	Ongoing
Application Records Analysis	Custom program customers, projects and measures	File Copies	-	All	As Needed
In-depth Phone Interviews	AEP Ohio Custom Program Staff and KEMA, Inc. Program Implementer	Contact from AEP Ohio	Custom Program Manager	3	February 2010
Project Application File Review	Custom Program Participants	Tracking Database	Census of Custom Program Participants	All	February 2010

#### Tracking Data

The tracking data for this evaluation consists of an Excel spreadsheet that KEMA periodically extracts from its tracking database. Program samples were drawn from the version sent by AEP Ohio dated January 28, 2010.

### Project Application File Review

To support Final Application file review and the development of critical evaluation data not supported by the tracking system, project documentation was obtained from AEP Ohio files for each project in the population. Documentation included application forms and supporting documentation from the applicant (ex-ante impact calculations, invoices, measure specification sheets, vendor proposals), pre-inspection reports and photos (when required), post inspection reports and photos (when conducted), and important email and memoranda.

### Program and Implementer Staff Interviews

Three in-depth interviews with key program representatives were conducted as part of this evaluation. The AEP Ohio Custom Program Manager was interviewed solely about the Custom program. The AEP Ohio Manager, Business Programs, and a member of the KEMA Services, Inc. implementation staff were interviewed for the Prescriptive and Custom programs, combined. The interviews were completed over the phone in February of 2010. The interviews focused on program processes to better understand the goals of the program, how the program was implemented, the perceived effectiveness of the program, and also verified evaluation priorities. The interview guide used for the interview is included in Appendix 5.1.1.

### Participant Phone Survey

Telephone surveys were conducted with one Custom program participant. This survey focused on questions to estimate the program impacts and to support the process evaluation. Originally planned as a Computer Assisted Telephone Interview (CATI) survey, the evaluation team conducted these surveys directly. One participant did not respond to interview requests.

## 3.5 Sampling

The tracking data delivered for this evaluation was provided as an Excel spreadsheet by AEP Ohio on January 28, 2010. The tracking data showed only two projects complete for 2009 therefore the evaluation is based on a census of these projects.

### Profile of Population

The two completed custom projects in 2009 were both lighting projects. While lighting projects are included in the Custom program they are not the sole end-use addressed by the program. In fact, among the six projects that were status "final review" at the end of the program year, at least two projects and more than half of the overall *ex-ante* savings for those projects were from non-lighting measures – ammonia chillers and variable frequency drives.

Table 3.2. 2009 Custom Participation by Project Application Submitted

Application ID	Measure Description	Estimated Savings (\$/yr)	Number of Applications	Total Savings (\$/yr)
1	Retrofit chandelier lights with LEDs	14,547	10	\$1,364
2	Lighting re-design in retail building	126,170	90	\$12,498

Source: Evaluation analysis of tracking savings.

### 3.5.1 Telephone Survey

A telephone survey was implemented with the 2009 Custom program participants. This survey focused on questions to estimate program impacts and to support the process evaluation. All surveys were completed in February 2010.

## Section 4. Program Level Results

This section presents the Custom Incentive program impact and process evaluation results.

### 4.1 Impact

#### 4.1.1 Verification and Due Diligence

This section provides a summary of the results of Task 3, Verification and Due Diligence. Under this task, the quality assurance and verification activities currently carried out by program staff are explored. Navigant Consulting compared these activities to industry best practices<sup>5</sup> for similar business programs to determine:

1. If any key quality assurance and verification activities that should take place are currently not being implemented.
2. If any of the current quality assurance and verification activities are biased (i.e., incorrect sampling that may inadvertently skew results, purposeful sampling that is not defensible, etc.).
3. If any of the current quality assurance and verification activities are overly time-consuming and might be simplified or dropped.

This assessment primarily relied on in-depth interviews with program staff and documentation of current program processes as outlined in the Program Operations Manual.

#### Summary and Recommendations for the AEP Ohio Custom Program

Overall, the quality control and verification procedures for the Custom program were good for 2009. The AEP Ohio GridSmart Operations Manual<sup>6</sup> prepared by KEMA documents the program procedures and quality control steps to be implemented by the program.

KEMA, which is pivotal to the quality control steps, faced expanding responsibilities during the program year 2009. Originally, KEMA was to manage the Lighting program only; however, later that role was expanded to include the Custom and Self-Direct programs. Key program personnel expect that large Self-Direct program projects will diminish in scope in future years which will put additional pressure on the Custom and Prescriptive programs to meet Business sector goals. Custom program staff will face increased workloads. The Custom program

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<sup>5</sup> See the Best Practices Self Benchmarking Tool developed for the Energy Efficiency Best Practices Project: <http://www.eebestpractices.com/benchmarking.asp>.

<sup>6</sup> AEP GridSmart KEMA Operations Manual, January 25, 2010, KEMA, Inc.

administration is strongest in the area of administrative review and data tracking. Existing program procedures are adequate to handle the expected volume, if fully staffed.

Table 4.1 summarizes the quality assurance and verification activities currently carried out by the AEP Ohio Custom program.

Table 4.1. Summary of Quality Assurance Activities in Place

#### Quality Assurance Activities in Place

##### Pre-Approval

- Customer eligibility and application completeness checks
- Measure eligibility review
- Secondary review by senior staff especially for all projects focusing on large and complex projects.
- Pre-Inspection sites determined using a formal criteria for selecting projects
- Pre-inspections using a standardized form

##### Final Approval

- Customer eligibility and application completeness checks
- Measure eligibility review
- Secondary review by senior staff especially for all projects focusing on large and complex projects
- Post-inspections using a standardized form
- Targeted number of post-inspections based on project size

#### 4.1.2 Tracking System Review

Navigant Consulting reviewed the Custom program data in the AEP Ohio tracking database designed and maintained by KEMA. Project data were reviewed for outliers and missing information, obvious errors and general usefulness for reporting accomplishments and conducting evaluation activities. Navigant Consulting also assessed basic functionality of the tracking system for use in recording, tracking and reporting impact data.

The tracking data for this evaluation consisted of an Excel spreadsheet file that KEMA updates and delivers on a periodic basis. The review is based on a version sent by KEMA dated January 28, 2010. The file includes project level details including measures, incentives, milestone dates and savings for each participating project, plus data surrounding the applicants (including project identifiers, customer identifiers and more).

KEMA uses this spreadsheet as the tracking system for the Custom Incentives program. The spreadsheet is used to track savings and incentives for each project, and basic implementation milestones. Participant data and project details from the application package are retained in hard copy files.

Measure description information was mostly populated in the tracking system, though there are gaps in the data. There is also room for improvement in consistently labeling individual measures. Applications involving more than one measure appear as a single record and therefore the measure descriptions tend towards a mixture of rough information concerning the measures installed. This is particularly important for Custom program applications that can include multiple end-use technologies in a single application. KEMA should consider tracking modifications that would at least flag each end-use technology in each application. With these improvements in place it would be possible to provide end-use-based summary statistics and track program accomplishments.

#### 4.1.3 Program Impact Parameter Estimates and Results

Ex post program impacts were developed for this evaluation based on detailed review of both applications completed in 2009. Realization rates are determined as the ratio between ex-ante (application) and ex-post (evaluated) savings.

##### Realization Rates for the Program

Because a census of projects was reviewed for this evaluation, there is no need to extrapolate the results to other applications or estimate confidence intervals around the realization rate estimates. The results below show the *direct* savings from installed measures. Because a majority of the lighting measures installed in these two projects were within the conditioned space, it is possible that interactive effects with the heating, ventilation and cooling systems also should be added to the total savings. Provisions for applying interactive effects are included in the Program Operations Manual<sup>7</sup>, but it does not appear that these effects were included, nor was sufficient data included for the evaluation to include these impacts. The application of interactive effects should be situation-specific including the heating and cooling type and efficiency. The Custom program review and analysis procedures should be able to capture these effects correctly.

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<sup>7</sup> Page 19-19 of the Operations Manual and referenced Appendix A, page 7. Interactive effects listed in Appendix A are based on the California Database of Energy Efficient Resources (DEER) and do not cite HVAC type or climate zone used for factor determination.

Table 4.2. Impact & Realization Rate Results for the Custom Program – Annualized

Application ID	Utility Company	Pre-Approval kWh	Pre-Approval kW	Final Approval kWh	Final Approval kW	Realization Rate	Realization Rate
1	CSP	14,547	1.9	11,638	1.7	80%	87%
2	OPCo	126,170	25.0	131,522	24.8	104%	99%
Total	AEP Ohio	140,717	27.0	143,160	26.5	102%	98%

The lower realization rate for application 1 is due to a changed baseline lamp wattage between the pre-approval and final approval applications and failure to include that the baseline system was dimmable. Because the projects were not complete at the beginning of the calendar year, AEP Ohio and its retail subsidiaries are also reporting the part-year savings for these projects based on the proportion of the year they were installed, three months and four months, respectively.

Table 4.3. Partial Year Impact Results for the Custom Program – 2009

Application ID	Utility Company	Pre-Approval kWh	Pre-Approval kW	Final Approval kWh	Final Approval kW
1	CSP	14,547	1.9	2,909	0.4
2	OPCo	126,170	25.0	43,840	8.3
Total	AEP Ohio	140,717	27.0	46,750	8.7

## 4.2 Process

The process component of the AEP Ohio Custom program evaluation focused on program implementation, program design and processes, marketing and outreach, and participant satisfaction. Data sources for the process component include a review of program materials, three in-depth interviews with key program personnel, and a telephone survey with two program participants.

### 4.2.1 Program Design and Processes

AEP Ohio's Custom program offers incentives designed to encourage implementation of energy-efficiency measures including lighting, compressed air, motors, non-HVAC variable-speed drives, and other non-standard equipment.

Overall, participants appear to be satisfied with the program and the processes in which they are involved.

#### Application Process

The application process includes both a pre-approval and final approval application. Program guidelines stipulate that projects must be completed within 90 days of pre-approval. However, this deadline is not strictly enforced. Upon acceptance of the pre-approval application, a "hold" is placed on the incentive funds. This hold can be extended by agreement between the implementer, KEMA, and customer. KEMA confirms the status of projects that are nearing the end of the hold period to determine whether funds should continue to be held or freed for other participants. About 10% of projects are canceled before implementation.

Program participants had to submit the final approval application within 60 days of project completion, which, according to the program manager, did not pose any problems.

#### Incentives

During 2009, the maximum incentive rate for custom projects was \$0.08/kWh plus \$100 per peak kW. Incentives are also capped at 50% of the total project costs. According to the program manager and implementation contractor, this rate was deemed appropriate from their perspective and the perspectives of trade-allies and participants.

#### Customer Service

The Implementation Contractor, KEMA, fields any program-related questions from participants. KEMA staffs a call center and reports a current call volume of ten to fifteen calls per day. Participants who called the GridSmart Ohio call center were satisfied with the answers they received to their questions.

#### 4.2.2 Program Implementation

KEMA is responsible for day-to-day operation of the program. KEMA personnel work directly with participants, trade-allies and account managers to enroll participants and keep projects progressing to completion. Close coordination is maintained with AEP Ohio. AEP and KEMA personnel report that communication is open and responsive between parties.



### Account Managers

AEP Ohio account managers are a valuable resource for a successful custom program as they have established relationships with targeted customers. Account Managers are key for introducing customers to the Custom program. During 2009 AEP Ohio hosted several seminars around the service territory including Account Managers and their invited customer guests. KEMA and AEP Ohio estimate that these seminars led to much of the 2009 program participation.

### Trade Ally Networks

The 2009 Custom program relied to a lesser extent on trade allies to promote the programs to their customers. Contractors already participating with Self-Direct customers were the most involved in the 2009 Custom program. AEP Ohio is working to leverage the relationship between contractors and customers in 2010. Recent marketing efforts have included presentations to electrical contractors and distributors. KEMA is also working with AEP Ohio to reach out to trade allies. This push is new in 2010 and should be pursued more.

#### 4.2.3 Program Marketing and Outreach

The level of marketing activity conducted in 2009 centered mostly on the Account Manager seminars mentioned above. These crucial meetings were used to introduce the Business programs to a wider audience. Coupled with the GridSmart Ohio web-site, the Account Manager seminars made up the bulk of the marketing effort put forward by AEP Ohio. There was no mass-market promotion and no media campaign to promote the programs. This emphasis is partly a result of AEP Ohio's reliance on Self-Direct projects to meet 2009 goals. In order to achieve goals going forward there will need to be more marketing effort to a wider audience.

To those ends the marketing plan calls for more effort with trade-allies and more program seminars to trade association groups. Consumer groups could also be considered, for example, the Building Owners and Managers Association (BOMA), the Ohio Manufacturers Association (OMA), retailer associations and professional organizations such as ASHRAE and AIA. AEP Ohio has brought more marketing talent into the mix as well with additional staff. KEMA also reports that they are hiring more to reach a broader business customer market.

#### 4.2.4 Barriers to and Benefits of Participation

Both KEMA and AEP Ohio staff mention that the main barriers to participation are financial. Internal funding problems have caused some customers to cancel participation and the same issue is assumed to be a factor for initiating participation as well. The financial barrier is also structural to the program. If the simple payback is less than one year, the implementation contractor is supposed to deny the application on the basis that free-ridership would be high. Simple paybacks greater than seven years are also denied with the current program guidelines.

A full assessment of barriers to participation was not possible for this evaluation as interviews with non-participants and market actors were not conducted.

#### 4.2.5 Participant Satisfaction

Both KEMA and AEP Ohio staff mention that the Participants are satisfied with most aspects of the program. AEP Ohio staff noted that customers are somewhat frustrated by perceived long delays for payment, and a lot of 2009 projects remain to be finished.

#### 4.2.6 Trade Ally Satisfaction

Like the participants, KEMA and AEP Ohio report that trade allies are mostly pleased with the program. Some reported to KEMA increased business due to participation with the program.

### 4.3 Cost Effectiveness Review

This section addresses the cost effectiveness of the Business Custom program. Cost effectiveness is assessed through the use of the Total Resource Cost (TRC) test. Table 4.4 summarizes the unique inputs used in the TRC test.

Table 4.4. Inputs to Cost-Effectiveness Model for Business Custom Program

Item	CSP	OPCo	Combined
Measure Life	8.0	8.0	-
Participants	1	1	2
Annual Energy Savings	11,638	131,522	143,160
Coincident Peak Savings	2	25	27
Third Party Implementation Costs	\$5,779	\$6,354	\$12,133
Utility Administration Costs	\$9,234	\$7,723	\$16,957
Utility Incentive Costs	\$1,078	\$12,499	\$13,576
Participant Contribution to Incremental Measure Costs	\$1,078	\$37,321	\$38,399

The 2009 Custom program includes the savings for only two projects; however, the program costs are associated with program activities for numerous projects that were initiated in 2009 and which are still in the approval process. As a result, conducting a benefit-cost analysis of the Custom program is premature. However, the savings and total program costs for the two projects in 2009 are included in the cost-effectiveness analysis of the 2009 Portfolio.

At this time, additional benefits related to reduction of greenhouse gas emissions have not been quantified in the calculation of the TRC. These additional benefits would increase the given TRC benefit/cost ratio.

## **Section 5. Conclusions and Recommendations**

This section highlights the findings and recommendations from the 2009 evaluation of AEP Ohio's Custom program. The primary evaluation objectives includes quantify the energy impacts resulting from the rebated measures and assessing program theory, design, and delivery. Below are the key conclusions and recommendations.

### **5.1 Program Impacts**

#### **Tracking System**

Measure description information was populated in the tracking system for most Custom program applications, but there is room for improvement in consistently labeling individual measures. Currently applications involving more than one measure appear as a single record and therefore the measure descriptions tend towards a mixture of rough information concerning the measures installed. AEP Ohio and KEMA should consider tracking modifications that would isolate individual records for each measure installed and achieve greater levels of consistency in reporting variables that describe measures and end-uses affected. With these improvements in place it would be possible to provide measure-based summary statistics and track program accomplishments. Given current measure labeling practices such evaluation efforts were not deemed reasonable to produce.

No data are collected regarding the potential for interactive effects between, say, lighting and heating and cooling systems. Though included in the Operations Manual sufficient data are not collected and entered into the database to make a determination of interactive savings. Data required include whether interactive effects are claimed, and the type and/or efficiency of equipment indirectly affected by the custom measure.

### **5.2 Program Processes**

#### **Program Participation**

The GridSmart Ohio Custom program was well received in 2009. Even though only two projects were completed before December 31, 2009, fifty-nine had turned in documents for pre-approval before December 1, 2009 and an additional 55 projects were submitted during the month of December. The program is building a good foundation for future program years. This is especially impressive given the limited marketing effort to date.

#### **Customer Satisfaction**

Customer satisfaction with various processes and components of the program is high and participants did not report encountering problems during their participation.

### Trade Ally Networks

AEP Ohio leveraged its Self-Direct program trade ally networks in 2009. Further trade-ally recruiting and more frequent communication with trade allies will help engage the network over coming years. Since contractors play an important role in promoting the Custom program, successful use of a trade ally network is key to the growth of the program.

### Account Managers

AEP Ohio recognizes that utility account managers play a key role in successful custom programs as they have established relationships with targeted customers. Custom program participants cite their Account Manager as an information resource and as providing assistance during the participation process. During 2009, outreach to utility account managers included outreach in the program start-up phase and ongoing fielding of telephone calls.

### Marketing and Outreach

The marketing activity conducted in 2009 had targeted outreach that did not reach the full Business sector. The 2009 strategies focused on existing relationships to get Self-Direct projects completed to meet goals. Future efforts will need to reach out to more trade allies and consumer organizations. Additional staff at KEMA and AEP Ohio has been assigned to this task.

## Section 6. Appendices

### 6.1 Data Collection Instruments

#### 6.1.1 Interview Guide

## AEP-Ohio Evaluation for C&I Custom Program

### Program Staff and Implementer In-Depth Interview Guide

AEP-Ohio Program Manager: Ron Davis (Custom)

AEP-Ohio Business Programs Manager: Mark Garrison

KEMA: ??

February 9, 2010

Name of Interviewee: \_\_\_\_\_ Date: \_\_\_\_\_

Title: \_\_\_\_\_ Company: \_\_\_\_\_

*[Note to Reviewer] The Interview Guide is a tool to guide process evaluation interviews with utility staff and implementation contractors. The guide helps to ensure the interviews include questions concerning the most important issues being investigated in this study. Follow-up questions are a normal part of these types of interviews. Therefore, there will be sets of questions that will be more fully explored with some individuals than with others. The depth of the exploration with any particular respondent will be guided by the role that individual played in the program's design and operation, i.e., where they have significant experiences for meaningful responses. The interviews will be audio taped and transcribed.*

#### Introduction

Hi, may I please speak with [NAME]?

My name is \_\_\_\_ and I'm calling from Navigant Consulting, we are part of the team hired to conduct an evaluation of AEP-Ohio's gridSmart Business Energy Efficiency programs. We're conducting interviews with program managers and key staff in order to improve our understanding of AEP-Ohio's programs. At this time we are interested in asking you some questions about the Commercial & Industrial Custom programs. The questions will only take about an hour. Is this a good time to talk? [IF NOT, SCHEDULE A CALL BACK.]

[READ FOR IMPLEMENTER ONLY] Ok, great. I would like to talk to you about your involvement in both the custom and prescriptive programs. First, I'll ask you a set of questions about the Prescriptive Program, then I will ask you questions about the Custom program. Does that sound good? Great, let's start with the Prescriptive Program [go to Prescriptive questionnaire].

#### Roles and Protocols

1. Can you briefly summarize your role and responsibilities in the C&I Custom program? For how long have you carried these out? Has your role changed over time?

Can you explain who is involved in the program(s) implementation, what their roles are and how they interact? *[Probe for all significant actors with responsibility in program delivery including implementer, account managers, and program allies involved in application screening and pre-/post-inspections.]* Who is responsible for marketing and outreach, and training activities? *[Probe if characterization is different from current understanding.]*

2. What are the formal and informal communication channels between these groups (between AEP and KEMA; between AEP and OP/CSP; within AEP)? Do you feel information is shared in a timely manner?
3. Are there any documents other than the operations manual that outline the roles and responsibilities of program staff? How can we arrange to obtain copies?

#### Overall Goals and Objectives

4. Can you describe the goals of the program? Are these laid out in any documents? If so, can we get a copy?
5. What performance metrics are you currently using to measure the performance of the program(s)? According to these metrics, have the program(s) met their goals? *[If necessary, probe for number of rebate applications, energy savings realized.]* Why or why not? If yes, have the goals been met on time?

#### Program Theory

6. In your own words, what are the market barriers addressed by the program(s), the program intervention strategies to address these barriers, and the program delivery steps? (We are looking for cause-effect relationships between proposed intervention and actions taken for all steps in the chain of program delivery steps.)

#### Marketing and Promotion

7. Have there been any marketing and promotional efforts for the program(s)? Please describe the program marketing campaign in your own words *[If necessary: Do marketing activities vary by prescriptive and custom? By customer size?]* How often do marketing activities occur?

Can we arrange to get copies of your marketing plan and all marketing collateral you have used?

8. Do the marketing and promotional efforts address all measure end-use categories (i.e. lighting, HVAC, refrigeration, motors)?
9. Do you think the level of marketing and promotion of the program(s) has been appropriate so far? Do you think promotional efforts are successful? Do you think they reach the right audience? *[Probe for differences between customer and trade ally target markets.]*
10. Do you anticipate making any changes to marketing efforts for Program Year 2? If so, please describe these changes. Do you have documentation of these changes? If so, how can we arrange to obtain copies?

#### Program Participation

We are also trying to learn of any process related issues that may arise from the current design of the program.

11. Could you briefly describe how customers participate in the program?
12. Do you have a sense of how satisfied customers are with various aspects of the program (e.g., ease of application, verification process, timing of incentives)?
13. What do customers do if they have questions about the participation process? Is there a systematic process in place for responding to customer inquiries? How quickly are their questions answered? What improvements can be made?
14. What is the target processing time for the technical screening and approval of pre-approval forms? What is the average processing time? What, if anything, slows down processing time?
15. What percentage of customers who submit pre-approval forms do not complete the program (i.e., the project is canceled or discontinued)? What are the reasons that customers might not submit their final documentation or otherwise complete the program? Is there a process in place for following up with customers between issuing the pre-approval letter and receiving the final documentation? Is there any system in place to track project progress? If so, please describe.
16. What is the target processing time between final documentation and payment? What percent of applications are actually processed within that amount of time? What, if anything, slows down processing time?

#### Quality Assurance and Quality Control

17. The AEP-Ohio Business Programs operations manual shows a quality step in the administration responsibilities for nearly all of the program processes – are the quality procedures documented anywhere? If so, how can we arrange to obtain a copy? Can you provide a brief description of these quality procedures?
18. What kind of quality assurance and quality control procedures are in place to evaluate project completion? What is the process for verifying savings?



19. Approximately, what percentage of all projects are pre-inspected and post-inspected? How do you determine if a project requires inspection (both pre and post)? *[Probe for custom projects, random check guidelines (10% of \$10K or less, 25% of \$10K-\$50K, 100% of \$50K+), geographical location, contractor]*
20. Who conducts pre and post inspections and how are they documented? How can we arrange to obtain these documents?
21. When are on-site measurements conducted as part of the pre and post verification? Which measures and business types? How can we arrange to obtain documentation of measurement results?
22. We will likely have more questions about Quality Assurance and Quality Control procedures once we've had the chance to review the documented quality procedures. Who is the appropriate person (or persons) to contact with future questions?

#### Trade Allies

23. Can you describe the application process for program ally registration? *[Probe for qualifications or training requirements.]* Is there one staff member that oversees the program ally network?
24. How are program allies recruited for the program(s)? Which types of trade allies participate in the program(s) and which are not? What are the main benefits for the trade allies to participate? Do you have a sense of trade allies' satisfaction with their participation in this program?
25. What kind of training is provided to them as part of the registration process? What role do they have in marketing the program(s)? What kind of support, if any, is provided to them for marketing the program(s) to their customers?
26. What is expected of program allies? Are there any specific responsibilities that come with registering? Are there any quality control procedures in place for them (e.g., removing an ally from the program if complaints are received about them)? Are trade allies meeting expectations? Why or why not?
27. Have allies requested any other types of support/collateral, etc. If so, what have they requested and how are you responding to their requests?

#### Rebates/Incentives

28. Are program participants satisfied with the current rebate amounts and incentive limit caps (50% of total cost)? Are the incentive limit caps being checked for all projects?
29. How do trade allies perceive the incentive levels and the minimum or maximum payback caps? What specific feedback have they given? Have you heard any feedback from trade allies about the percent of total project cost caps, and if so, what have you heard?
30. Are you planning any changes to incentive levels for the next program year? If yes, what is the rationale behind the change?

#### Call Center

31. Are customers/contractors making use of the phone number listed in the application form?  
*[Probe for call volume.]* What are the main issues raised by customers/contractors?

#### Data Tracking

32. Can you briefly describe the process for tracking program data? Do you feel all important information is captured and stored in a way to best support program efforts? Is the information accurate and current? Are there additional types of reports or information that you would find beneficial? Is there a process for requesting additional data?
33. Who captures the data and how? *[Probe for: How do you get access to the data you need for daily program management?]*
34. Is the system used for data tracking linked with any other systems such as databases with customer account information or ones that track marketing activities?

#### Program Adjustments and Enhancements

35. (For Custom) Based on your experience with implementing the program and communicating with customers, why was interest in the program so low? Do you expect the same result in Program Year 2? Why/Why not?
36. Have the design of the program(s) or the program processes changed since inception? If so, how? Why were the changes made? Do you have documentation of the program design or processes before and after the changes? If so, how can we arrange to obtain these documents?
37. Will there be any changes made to the program offerings in Program Year 2 (e.g., program offerings, marketing approach, targets, incentive levels, etc)? If so, please describe these additions or deletions.
38. Are there elements in design, structure, and/or operation that should be modified to make the program(s) work better? If so, what would you recommend? Why do you think this change is needed?
39. From your perspective, is staffing adequate for this program to meet its goal? (If not): What areas/functions do you feel are not adequately staffed?

#### Success and the Future of These Efforts

40. In your opinion, how successful are the program(s)? Why? What are the strengths? What are the weaknesses? Do you feel that free-ridership is a major concern for the program(s)?  
*[Please explain.]*
41. Do you think the current economic conditions are affecting the program? If so, how?

Other

42. [AEP-OHIO ONLY] We are also planning on talking with Andy Bratz and Wendy Tobiasson from KEMA. Are those the best people for us to interview? Are there any additional people with key roles that we should talk to?
43. Do you have any other comments or suggestions for us?

Thank you very much for taking the time in assisting us with this evaluation. Your contribution is a very important part of the process.

We might follow-up with you by phone later, if additional questions arise.

6.1.2 Phone Survey

**AEP-Ohio Evaluation  
for the Custom Program  
Customer Participant In-Depth Interview Guide**

March 2, 2010 DRAFT

Name of Interviewee: \_\_\_\_\_ Date: \_\_\_\_\_

Title: \_\_\_\_\_ Company: \_\_\_\_\_

Interviewer: \_\_\_\_\_ Project Number: \_\_\_\_\_

*The interviews will be audio taped and transcribed.*

***Identify Appropriate Respondent***

**Q1a**

Hello, this is <INTERVIEWER NAME> calling from Navigant Consulting on behalf of AEP Ohio. This is not a sales call. May I please speak with <CONTACT> ?

[IF NEEDED]: my understanding is that <CONTACT> is responsible for making energy-related decisions for your firm at <SERVICE ADDRESS> and was listed as the primary contact when <Company> participated in AEP Ohio's Custom Program. May I please speak with him/her?

1 No, this person no longer works here → Is there someone else that is involved with facility improvements or building operations that might be familiar with <company>'s participation in AEP Ohio's Custom program? [Repeat introduction with new contact]

2 No, this person is not available right now [Ask when available or leave message.] CALL BACK LATER

3 Yes – SKIP to Q2

97 No, other reason (THANK & TERMINATE)

**Q2**

Hello, my name is <INTERVIEWER NAME> calling from Navigant Consulting on behalf of AEP Ohio. We're calling to do a follow-up survey about your firm's participation in the Custom program. Do you recall participating in the Custom Program on or about <PROGRAM

DATE>?

1 Yes → continue to Q3

2 No → [Describe program and ask if they were involved. If still no recall → Can I speak with someone who is likely to be responsible for facility improvements?]

3 There is no one here with information on that address/wrong address – THANK & TERMINATE

[IF NEEDED] Navigant Consulting is an independent consulting firm hired by AEP Ohio to learn about customer experiences with its Custom program and to help AEP Ohio improve its programs for the future.

[IF NEEDED] This is a very important fact-finding survey with companies that have recently participated in an energy efficiency program sponsored by AEP Ohio. We are NOT interested in selling anything, and we are primarily interested in gaining your feedback on the Custom program to help AEP Ohio improve the services it provides to its customers in the future. Your responses will not be connected with your firm in any way and will be summarized with responses we get from other businesses that we talk with.

Q3.

Great. Are you the person responsible or were you involved with your company's decision to participate in the program, or were you the main point of contact with AEP Ohio?

1 Yes → Great. We would like to ask you some questions about this program, which should only take about 15 to 20 minutes. Is now a good time, or is there a time we can call you back tomorrow?

2 No → Ask for contact name and repeat introduction in Q2.

Now I'd like to ask you about the project you submitted.

R1

Do you remember how you first learned about the financial incentives available through the Custom program?

R2

What were the circumstances surrounding your decision to participate?

[PROBES: Who was involved in the decision to move forward with this project and submit an application?]

R3

Can you spend just a few minutes and describe the process that you went through to complete and submit the required application? I'm particularly interested in who took the lead in the project, the ease/difficulty you experienced in completing the required forms, what resources were utilized to complete the application, etc.

[PROBES: Did you encounter any difficulty completing the application? Did you consult any resources such as the AEP Ohio website, program materials, the spreadsheet calculator, or an account representative to complete the application?]

R4

Who was primarily responsible for preparing the incentive application (including the required supporting documentation)?

[PROBE: If not the respondent, ask if person was employed by the company, was a consultant contractor (and what type), etc.]

R5

Did [you/they] experience any difficulties or unreasonable delays in preparing/submitting the incentive application? Please elaborate – What was the source of difficulty/delay?

[PROBES: Were the forms easy to understand? Was it clear to you what you needed to submit? What was the respondent's recollection of the ease eligible project selection, level of support provided by AEP Ohio, simplicity of application procedures, etc.]

R6

The program offers your company the option to receive a direct incentive payment or an exemption from the EE/PDR rider. Has your company decided which option it will select once the project is approved? Who is primarily responsible for choosing the option?

[PROBES: Why was that option chosen? (If incentive option chosen) Will the incentive payment be used to conduct future energy efficiency projects?]

R7

Are there elements in design, structure, and/or operation that should be modified to make the Custom program work better? If so, what would you recommend? Why do you think this change is needed?

[PROBES: Are you satisfied with the amount of incentives offered through the Custom program? Are you satisfied with the response time of the program?]

*Awareness of Other EE Programs*

**AP1**

Aside from the program[s] we have been discussing today, are you aware of other programs or resources that are designed to promote energy efficiency for businesses like yours?

**AP2**

What types of programs or resources can you recall?

[PROBES: Do you know what organization/company administers that program? After each response prompt with "Can you recall any others?"]

**AP3 - IF HAS NOT PARTICIPATED IN AEP OHIO BUSINESS LIGHTING PROGRAM OR CUSTOM PROGRAM AND DID NOT MENTION THE PROGRAMS ABOVE in AP2**

Are you aware of AEP Ohio's Business Lighting Rebate Program? [PROBE – describe program if necessary.]

Are you aware of AEP Ohio's Business Custom Rebate Program? [PROBE – describe program if necessary.]

### *Customer Background*

We are almost finished. I'd just like to get some general background information about <COMPANY> and your responsibilities there.

C1

Can you briefly summarize your role at your company? What are your main responsibilities?

C2

What is <COMPANY>'s primary business activity at this particular facility (<SERVICE ADDRESS>)? [RECORD ONE]

- 1 Office
- 2 Retail (non-food)
- 3 College/University
- 4 School
- 5 Grocery Store
- 6 Restaurant
- 7 Health Care
- 8 Hospital
- 9 Hotel or Motel
- 10 Warehouse/Distribution
- 11 Construction
- 12 Community Service/Church/Temple/ Municipality
- 13 Industrial Process/ Manufacturing/ Assembly – type?
- 14 Condo Assoc./Apartment Mgmt.
- 15 Other (Please specify) \_\_\_\_\_
- 98 Refused
- 99 Don't Know



C3

About how many full-time employees work at this location?

&EMP # of employees

98 Refused

99 Don't Know

C4

Does <COMPANY> own or lease this facility?

1 Own

2 Lease

98 Refused

99 Don't Know

C5

Is the company headquarters in Ohio or elsewhere?

1 HQ in Ohio

2 HQ elsewhere, outside of OH

98 Refused

99 Don't Know

*End Survey*

One last question...

E1.

What types of services, information, or other support would you like to receive from AEP Ohio in the future?

That's all of the questions I have for you today. Thank you so much for your time, your insights are extremely valuable to AEP Ohio. Have a great day!

#### Program Adjustments and Enhancements

1. Have the design of the program(s) or the program processes changed since inception? If so, how? Why were the changes made?
2. Will there be any additions or deletions to program offerings in Program Year 2? If so, please describe these additions or deletions.
3. Will there be any changes to the marketing approach, targets, or level of marketing?

#### Success and the Future of These Efforts

4. In your opinion, how successful are the program(s)? Why? What are the strengths? What are the weaknesses? Do you feel that free-ridership is a major concern for the program(s)? *[Please explain.]*
5. How are the current economic conditions affecting the program?

#### Other

6. Is there anything that was not included in the program(s) launch (due to the fast tracking or otherwise) that you feel should be included in the Program Year 2 or 3 efforts other than the changes that have already been made?
7. What are the key process-related issues you would like to see explored in this evaluation?
8. Are there any additional people with key roles that we should talk to?
9. Do you have any other comments or suggestions for us?

Thank you very much for taking the time in assisting us with this evaluation. Your contribution is a very important part of the process.

We might follow-up with you by phone later, if additional questions arise.

#### 6.2 Other Appendices

##### 2009 Program Application Forms

The application forms for the PY 2009 program are provided in the Operations Manual in Appendix B.

Application forms and additional information can be downloaded at: [www.gridsmartohio.com](http://www.gridsmartohio.com)

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**AEP Ohio  
Energy Efficiency/  
Demand Response Plan  
Plan Year 1 (1/1/2009-12/31/2009)  
Program Year 2009 Evaluation Report:  
Business Self-Direct Program**

**Presented to**

**AEP Ohio**

**March 9, 2010**

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## Section 1. Executive Summary

### 1.1 Evaluation Objectives

The goal of this report is to present a summary of the findings and results from the evaluation of the 2009 Business Self-Direct program<sup>1</sup> launched by AEP Ohio on June 1, 2009 under the gridSMARTohio (gridSMART) program umbrella. The primary objectives of this evaluation are to quantify savings impacts and to determine key process-related program strengths and weaknesses and identify ways in which the program can be improved.

Ohio recently passed comprehensive energy legislation, which includes an advanced energy portfolio standard ("AEPS"), 2008 Senate Bill ("SB") 221, signed into law by Governor Ted Strickland on May 1, 2008.<sup>2</sup> The law directs Ohio utilities to implement programs to help their customers use electricity more efficiently, and requires electric utilities to achieve energy savings of 22.2% by the end of 2025 through energy efficiency programs. Utilities must also implement programs to reduce peak energy demand one percent beginning in 2009, and an additional 0.75% per year through 2018, for a total of 7.75%.

In response to the new legislative requirements, AEP Ohio is launching a set of Energy Efficiency/Peak Demand Reduction ("EE/PDR") programs in 2009-2011 under a three-year action plan with oversight by the Public Utilities Commission of Ohio. The 2009 Business Self-Direct Program was one of three program elements available to non-residential customers of AEP Ohio operating units Ohio Power and Columbus Southern Power during 2009.

- » The **Prescriptive program** provides an expedited application approach for nonresidential customers interested in purchasing efficient technologies. The 2009 program targeted discrete new construction, retrofit, and replacement opportunities in lighting only and is commonly referred to by customers and trade allies as the "Lighting Program." A streamlined incentive application and quality control process is intended to facilitate ease of participation. Relationships with trade allies are a key strategy for promoting prescriptive incentive availability to customers. After 2009, AEP Ohio intends to expand the program to additional end-uses such as HVAC, motors, and refrigeration systems. The program targets projects installed within and after the current program year.
- » The **Custom program** offers incentives to customers for less common or more complex energy-saving measures installed in qualified retrofit and equipment replacement

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<sup>1</sup> Program Year 2009 (PY 2009) began June 1, 2009 and ended December 31, 2009. The 2009 Self-Direct Program targeted projects installed after January 1, 2006 and prior to May 31, 2009.

<sup>2</sup> [http://www.legislature.state.oh.us/bills.cfm?ID=127\\_SB\\_221](http://www.legislature.state.oh.us/bills.cfm?ID=127_SB_221)

projects. The program targets projects installed within and after the current program year.

- » The **Self-Direct program** rewards qualifying customers who submit previously installed projects through one of two energy efficiency credit options: an energy efficiency credit payment of 75% of the calculated incentive amount under the Prescriptive or Custom Program; or an exemption from the Energy Efficiency/Peak Demand Reduction (EE/PDR) rider for a specified number of months. The 2009 program targeted projects installed after January 1, 2006 and prior to May 31, 2009.

Some tasks within the Prescriptive, Custom, and Self-Direct program evaluations involved close coordination between the efforts, but the evaluations were otherwise conducted through separate approaches. The Prescriptive, Custom, and Self-Direct programs have evaluation results reported separately.



## 1.2 Evaluation Methods

The data collected for evaluation of the PY 2009 Self-Direct program was gathered through a number of activities including in-depth phone interviews with program managers and the implementation contractor (KEMA Services Inc.), in-depth phone interviews with participating customers and customers with cancelled projects, engineering review of a sample of projects, and tracking system data review. Table 1.1. Data Collection Activities for PY 2009

Data Collection Type	Targeted Population	Sample Frame	Sample Design	Sample Size	Timing
Tracking Data Review	2009 Self-Direct projects submitted to PUCO by 12/31/2009	AEP Ohio Tracking Database	-	All	January-February 2010
In-depth Phone Interviews	Self-Direct, Custom, and Prescriptive Program Managers	Contact from AEP Ohio	Self-Direct, Custom, and Prescriptive Program Managers	3	February 2010
	Self-Direct Program Implementers	Contact from AEP Ohio	KEMA Program Implementation Staff	1	February 2010
Phone Interviews	2009 Self-Direct Program participants	Tracking Database	Random sample	10 participants, 2 with cancelled projects	February 2010
Engineering Review	2009 Self-Direct projects submitted to PUCO by 12/31/2009	AEP Ohio Tracking Database	Stratified sample with 2 or 3 strata	48	January - February 2010

Table 1.1 provides a summary of these data collection activities including the targeted population, the sample frame, and timing in which the data collection occurred.

Navigant Consulting defined 2009 program savings and 2009 participants as projects submitted to the PUCO by December 31, 2009 or earlier. Payments to Self-Direct customers will occur after January 2010. There were many Self-Direct projects that were submitted to AEP Ohio during 2009 but were in review stages as of December 31, 2009 – these were not counted as 2009 participants for program savings reporting.

This evaluation defines a project based on tracking system assignment of a unique project number. A project typically represents a unique application form listing a single site address. Businesses with multiple sites may submit applications for each site, and customers might submit multiple applications for a single site address. KEMA and AEP Ohio define scope of the project in such cases. A Self-Direct project may consist of multiple sites bundled into a single submittal package.

Part-year kWh savings are defined by counting whole months from the completion date through December 2009. The month for the actual completion date entered in the tracking system is counted as the first whole month. For example, a project with an actual completion date from any day in August 2009 will earn 5 months of part-year savings.

Annualized kWh savings<sup>3</sup> are calculated by dividing the part-year kWh savings by the number of months of part-year savings, and then multiplying by 12.

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<sup>3</sup> Per June 17, 2009 Order in Docket 08-0888, page 9, paragraph 17.

Table 1.1. Data Collection Activities for PY 2009

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### 1.3 Key Findings

As shown in Table 1.2 and **Error! Reference source not found.**, the PY 2009 evaluation found that evaluation-adjusted energy impacts were higher than savings in AEP Ohio's tracking system, as indicated by the realization rates (realization rate = evaluation adjusted / tracking system).

Table 1.2. PY 2009 Self-Direct Program Evaluation Adjusted kWh Savings

Utility	Number of Projects	Ex ante kWh Savings Annualized	Ex post kWh Savings Annualized	kWh Realization Rate	Ex ante kWh Savings	Ex post kWh Savings
OPCo	150	79,185,209	109,643,485	1.38	74,243,861	102,762,136
CSP	162	62,915,372	81,995,737	1.30	58,577,719	76,582,811
<b>AEP Ohio Total</b>	<b>312</b>	<b>142,100,581</b>	<b>191,639,222</b>	<b>1.35</b>	<b>132,821,580</b>	<b>179,344,946</b>

Table 1.3. PY 2009 Self-Direct Program kW Savings Summary

Utility	Number of Projects	Ex ante kW Savings	Ex post kW Savings	kW Realization Rate
OPCo	150	12,985	15,269	1.18
CSP	162	9,315	10,930	1.17
<b>AEP Ohio Total</b>	<b>312</b>	<b>22,300</b>	<b>26,200</b>	<b>1.17</b>

### 1.3.1 Key Impact Findings

- » Currently the Self-Direct program is split into two portions, the Prescriptive Lighting portion and the Custom portion. Because of the nature of the Self-Direct program, it may be better to remove the Prescriptive Lighting portion and just track all of the projects as Custom projects. This approach would potentially allow for more consistency within the program, and would likely result in more accurate savings numbers being derived for all projects.

- » AEP Ohio's lighting default savings values were used by KEMA to calculate Self-Direct impacts when projects involved prescriptive lighting. Navigant Consulting reviewed the lighting default values as part of the Business Prescriptive Program evaluation. Navigant Consulting found that kW and kWh default values are well documented and reasonable for the building types and lighting measures that were reviewed. The program tracks savings using default values that do not vary by building type. Default values are based instead on simple averages of building group specific operating hours, coincidence factors, and HVAC interaction factors.
- » It is recommended that measure specific wattages, operating hours and adjustment factors be used for the Self-Direct Prescriptive Lighting program. The program uses averages even though these measure specific values are already available. This change should be made for upcoming program years.
- » The implementation contractor has documented quality control and verification procedures for the Business Programs. Navigant Consulting reviewed the procedures and found them to be detailed and thorough. Observations from our file review of Self-Direct projects suggest that critical technical review, eligibility checks, and payment approvals were conducted. Navigant Consulting found shortcomings in project documentation, file management, and status tracking, and makes recommendations for improvements.
- » To support the impact evaluation, the evaluation team was given a data export file of KEMA's tracking system database. AEP Ohio also provided copies of project files which included the project applications and supporting documentation. Many of these files were .pdf copies of invoices and application forms. Several inconsistencies were identified throughout the review process between the multiple database sets, as well as the internal file documentation.
- » Navigant Consulting recommend a system be developed which would track when changes to a project savings have been made. This system should also provide for easy reconciliation of the two data sets. If adjustments are made, both parties should inform each other in a timely fashion.
- » A review of the program application should be performed and changes made to allow better tracking of projects. A revised form also would provide for a more streamlined review process, thus saving on program implementation costs.
- » Without access to the tracking database itself, it was difficult to identify how the final numbers were determined where revisions were made to the application savings numbers. If such information is available, more transparency would enhance verification efforts. If such information was not tracked, a better internal paper trail should be developed. If changes to the customer's numbers were made, this should be clearly indicated, and why the numbers were adjusted also should be detailed.
- » The Overview and Commitment sheet is intended to be a brief summary of what was done for a project. Shortcuts taken to keep the sheet brief led to inaccuracies in the measure descriptions. It is recommended that a list of each measure that was implemented be included along with a quantity of each measure implemented.

## Impacts

- » The PY 2009 evaluation found that verified impacts were significantly higher than the savings recorded in AEP Ohio's tracking system. The Ohio Power PY 2009 Self-Direct program had an overall realization rate on tracking system savings of 1.38 for energy and 1.18 for coincident demand reduction. The relative precision at a 90% confidence level for the Ohio Power program kWh Realization Rate is  $\pm 10\%$ , and  $\pm 9\%$  for the kW Realization Rate.
- » The Columbus Southern Power (CSP) PY 2009 Self-Direct program had an overall realization rate on tracking savings of 1.30 for energy and 1.17 for coincident demand reduction. The relative precision at a 90% confidence level for the CSP program kWh Realization Rate is  $\pm 12\%$ , and  $\pm 13\%$  for the kW Realization Rate.
- » As noted in the default savings review, AEP Ohio's default savings assumptions were generally conservative in their savings claims. Through use of data from the engineering review, many of the lighting measures received significant hours of use increases relative to default assumptions.

## Verification Procedures

- » The KEMA Operations Manual, dated January 25, 2010, documents quality control and verification procedures for the Business Programs. Navigant Consulting reviewed the procedures and found them to be detailed and thorough. Putting in place documented procedures is an important early step that will help to ensure high quality projects and tracking data once they are fully adhered to on all projects from application received date through project close-out.
- » Observations from 2009 program evaluation experience suggest that critical technical review, eligibility checks, and payment approvals were conducted. Navigant Consulting found shortcomings in project documentation, file management, and status tracking. Navigant Consulting has not identified quality assurance/quality control (QA/QC) procedures that should be dropped.

### 1.3.2 Key Process Findings

#### Customer Satisfaction

Customer satisfaction with various processes and components of the program was mixed. Such an outcome is not surprising given that all applications still were under review at the Public Utilities Commission of Ohio (PUCO) and no incentives had been processed. However, there appeared to be other program elements causing dissatisfaction, particularly for the less sophisticated customers.

Most customers were very satisfied with the support provided by their account executives and excited about receiving incentives for work they had already undertaken. Some also commented on the high quality of KEMA's phone support. However, a number of participants

cited concerns with communication, including difficulty in understanding which of multiple projects KEMA staff was following up on as well as not receiving timely information on the status of their applications. A more frequently raised issue was related to the challenging nature of the application process – an issue which AEP Ohio and KEMA recognized and took measures to address during the year. Multiple participants commented that they were challenged in providing all the documentation required, some because the content was unclear, others because much was new to them and was either highly technical or financial.

When asked to suggest program improvements, participants most often cited either timelier processing of incentives or delaying program announcement and application solicitation until the bugs were worked out of the program.

#### Program Payment Delay

At the time of the participant interviews all applications were still under review at the PUCO and no customers had received payment. Most customers commented on this delay, and many suggested that they would have preferred that applications not be solicited until kinks in the program were worked out and responses could be prompter. Many also expressed interest in on-going communications regarding the program's status and anticipated incentive timing.

For those anticipating receiving checks, participants commented that once checks are received, they planned both to use the funding for additional energy efficiency projects and to submit additional Self-Direct applications for later years.

#### Marketing and Outreach

AEP Ohio Account Managers dominated the means by which customers became aware of the program. Many customers also commented on how they relied on their Account Managers to clarify requirements and submit their applications as well. Trade allies played a limited role in marketing this program which was restricted to larger customers, including the bigger chains. Luncheon seminars on the program also appeared to play a minor role.

#### Trade Ally Network

During PY 2009, in this admittedly small participant sample, trade allies were relatively invisible in the promotion and communication of the Self-Direct program. Given that the program targets AEP Ohio's larger customers, the relative importance of the account executives in customer outreach and more limited participation of trade allies is reasonable. Nonetheless, going forward it does make sense to assure that trade allies know of the program, and to assist them in any of their marketing efforts to potentially attract additional customers, since they were likely involved in past efficiency projects and can specifically target customers that are likely participants.

## Section 2. Introduction to the Program

This evaluation report covers the Self-Direct program element of the AEP Ohio gridSMART business energy efficiency and peak demand reduction programs.

### 2.1 Program Description

Ohio recently passed comprehensive energy legislation, which includes an advanced energy portfolio standard ("AEPS"), 2008 Senate Bill ("SB") 221, signed into law by Governor Ted Strickland on May 1, 2008.<sup>4</sup> The law directs Ohio utilities to implement programs to help their customers use electricity more efficiently, and requires electric utilities to achieve energy savings of 22.2% by the end of 2025 through energy efficiency programs. Utilities must also implement programs to reduce peak energy demand one percent beginning in 2009, and an additional 0.75% per year through 2018, for a total of 7.75%.

In response to the new legislative requirements, AEP Ohio is launching a set of Energy Efficiency/Peak Demand Reduction ("EE/PDR") programs in 2009-2011 under a three-year action plan with oversight by the Public Utilities Commission of Ohio. The 2009 Business Self-Direct Program was one of three program elements available to non-residential customers of AEP Ohio operating units Ohio Power and Columbus Southern Power during 2009.

- » The **Prescriptive program** provides an expedited application approach for nonresidential customers interested in purchasing efficient technologies. The 2009 program targeted discrete new construction, retrofit, and replacement opportunities in lighting only and is commonly referred to by customers and trade allies as the "Lighting Program." A streamlined incentive application and quality control process is intended to facilitate ease of participation. Relationships with trade allies are a key strategy for promoting prescriptive incentive availability to customers. After 2009, AEP Ohio intends to expand the program to additional end-uses such as HVAC, motors, and refrigeration systems. The program targets projects installed within and after the current program year.
- » The **Custom program** offers incentives to customers for less common or more complex energy-saving measures installed in qualified retrofit and equipment replacement projects. The program targets projects installed within and after the current program year.
- » The **Self-Direct program** rewards qualifying customers who submit previously installed projects through one of two energy efficiency credit options: an energy efficiency credit payment of 75% of the calculated incentive amount under the Prescriptive or Custom

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<sup>4</sup> [http://www.legislature.state.oh.us/bills.cfm?ID=127\\_SB\\_221](http://www.legislature.state.oh.us/bills.cfm?ID=127_SB_221)



Program; or an exemption from the Energy Efficiency/Peak Demand Reduction (EE/PDR) rider for a specified number of months. The 2009 program targeted projects installed after January 1, 2006 and prior to May 31, 2009.

The gridSMART programs are funded on an annual calendar year basis. Funding in any given program year is limited to that year's budgeted amount and, therefore, incentives are paid on a first-come, first-served basis until the program year's incentive funds are exhausted. Funds may be shifted between the three business program elements based on participant response and approval of the Public Utilities Commission of Ohio. The business sector portion of the program is based on three year savings goals as follows in Table 2.1.

Table 2.1. PY 2009 gridSMART Business Programs Planned Savings Goals and Budgets

Business Sector Program	2009	2010	2011	2009-2011 Total
Energy Savings (GWh)	107.2	176.5	249.9	533.6
% Savings of Sector Sales	0.30%	0.50%	0.70%	1.50%
Demand Savings (MW)	24.7	134.5	152.6	220.5
% Savings of Sector Sales	0.36%	0.56%	0.75%	1.65%
Total Cost (\$ millions)	\$16.1	\$32.2	\$40.4	\$88.8

Source: KEMA Operations Manual, January 25, 2010

## 2.2 Program Implementation

AEP Ohio retained KEMA Services Inc. as its program administrator responsible for day-to-day operations of the Business Programs. AEP Prescriptive and Custom Program Managers report to an overall Business Programs Manager who also manages the Self-Direct Program. An AEP Ohio staff person supports outreach and marketing, and other AEP Ohio staff support planning, evaluation, and reporting. Customer Service staff at Ohio Power and Columbus Southern Power promote the Self-Direct program to their accounts. KEMA provides the project and measure tracking system while AEP Ohio maintains systems for program level tracking and reporting. AEP Ohio handles all submission of Self-Direct projects to the PUCO. KEMA handles customer communication regarding application processing and approvals, sometimes working through AEP Ohio Customer Service Representatives.

AEP Ohio has provided the evaluation team with a detailed operations manual developed by KEMA that describes program implementation and administration for the Business programs. Dated January 25, 2010, the operations manual documents and formalizes procedures and policies that have been in place or evolved since program launch.

### **2.3    *Application Form***

The program application form listing eligibility criteria and submittal requirements is provided in the Appendices.

## **Section 3. Evaluation Methods**

This section discusses the questions the evaluation sought to answer, the methods, sample design, and data sources used to answer those questions.

### **3.1 Evaluation Questions**

The evaluation sought to answer the following key researchable questions:

#### **3.1.1 Impact Questions**

1. What are the impacts from this program?
2. Did the program meet its energy and demand goals? If not, why not?

#### **3.1.2 Process Questions**

The process evaluation questions focused on four key areas:

1. Effectiveness of program implementation
2. Effectiveness of program design and processes
3. Customer experience and satisfaction with the program
4. Opportunities for program improvement

The full list of researchable questions can be found in the Evaluation Plan.

### **3.2 Analytical Methods**

#### **3.2.1 Program Savings**

The objective of this element of the impact evaluation is to verify the original savings estimates in the Self-Direct program tracking system.

#### **File Review**

The savings reported in the program tracking system maintained by KEMA have been reviewed for evaluation adjustments using the following steps:

1. Develop a site-specific file review plan for each program project.
2. Complete ex-post engineering-based estimates of annual energy (kWh) and summer peak demand (kW) impact for each project. A site specific analysis is performed for each point in the impact sample. The engineering analysis methods depends on the complexity of the measures installed, the size of the associated savings and the availability and reliability of existing data.

A verified realization rate (which is the verified savings / reported tracking savings) was estimated from the sample and applied to the population of reported tracking savings. The result is a new estimate of verified savings for the program.

#### Default Savings Review

Navigant Consulting conducted a technical review of prescriptive lighting measures with assigned default savings values to assess the reasonableness of underlying algorithms, technology assumptions, and calculated savings values assumed by AEP Ohio. Default savings for the prescriptive lighting measures are documented in Appendix A of the KEMA's January 25, 2010 Operations Manual. A draft technical reference manual was developed by utilities in Ohio in 2009.<sup>5</sup> Since the TRM is not yet final, KEMA relied upon several sources to develop their default savings.

#### Tracking System Savings Review

Under this task, Navigant Consulting conducted a review of Self-Direct program data in the KEMA tracking system, exported on January 14, 2010, January 28, 2010, February 19, 2010, and March 3, 2010 to identify issues that could affect reported savings. A second tracking spreadsheet was provided by AEP Ohio titled "Mercantile-Self-Direct Filings.xlsx" dated January 18, 2010 and updated March 3, 2010. During this review, the evaluation team looked at project data for outliers and missing information.

#### On-Site Verification

On-site verification was not conducted by Navigant Consulting on PY 2009 Self-Direct projects.

### 3.3 Data Sources

The data collected for evaluation of the PY 2009 Self-Direct program was gathered during a number of activities including in-depth phone interviews with program managers and the implementation contractor (KEMA Services Inc.), in-depth phone interviews with participating customers and customers with cancelled projects, engineering review of a sample of projects, and tracking system data review. Table 3.1 provides a summary of these data collection

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<sup>5</sup> *Technical Reference Manual (TRM) for Ohio Senate Bill 221 Energy Efficiency and Conservation Program and 09-512-GE-UNC.* Submitted by The Cleveland Electric Illuminating Company, Columbus Southern Power Company, The Dayton Power and Light Company, Duke Energy Ohio, Ohio Edison Company, Ohio Power Company, and The Toledo Edison Company. October 15, 2009. The October 15, 2009 draft TRM is currently under review by the Ohio Public Utilities Commission.

activities including the targeted population, the sample frame, and timing in which the data collection occurred.

Table 3.1. Data Collection Activities for PY 2009

Data Collection Type	Targeted Population	Sample Frame	Sample Design	Sample Size	Timing
Tracking Data Review	2009 Self-Direct projects submitted to PUCO by 12/31/2009	AEP Ohio Tracking Database	-	All	January-February 2010
In-depth Phone Interviews	Self-Direct, Custom, and Prescriptive Program Managers	Contact from AEP Ohio	Self-Direct, Custom, and Prescriptive Program Managers	3	February 2010
	Self-Direct Program Implementers	Contact from AEP Ohio	KEMA Program Implementation Staff	1	February 2010
Phone Interviews	2009 Self-Direct Program participants	Tracking Database	Random sample	10 participants, 2 with cancelled projects	February 2010
Engineering Review	2009 Self-Direct projects submitted to PUCO by 12/31/2009	AEP Ohio Tracking Database	Stratified sample with 2 or 3 strata	48	January - February 2010

#### Tracking Data

The tracking data delivered for this evaluation was extracted from a program tracking database maintained by KEMA, using extracts dated January 14, January 28, February 19, and March 3, 2010. A second tracking spreadsheet was provided by AEP Ohio titled "Mercantile-Self-Direct Filings.xlsx" dated January 18, 2010 and updated March 3, 2010.

#### Project Documentation

To support the engineering review, AEP Ohio provided project documentation in electronic format for each sampled project. Documentation included some or all of scanned files of hardcopy application forms and available supporting documentation from the applicant (invoices, measure specification sheets, vendor proposals) and KEMA calculation spreadsheets.

Although calculation spreadsheets were included these typically only had final values entered without the actual calculations. This documentation was provided in .zip file format and uploaded to a secure file transfer site.

#### Program and Implementer Staff Interviews

Four in-depth staff interviews were conducted as part of this evaluation. Three of these interviews were conducted with AEP Ohio: Business Programs Manager and Self-Direct Program Manager), the Business Prescriptive Program Manager, and the Custom Program Manager. The fourth interview was conducted with the lead of the KEMA implementation staff. These interviews were completed in February 2010. The interviews with the Program Managers focused on program processes to better understand the goals of the program, how the program was implemented, the perceived effectiveness of the program, and also verified evaluation priorities. The interview with the implementation staff explored the implementation of the program in more detail and also covered areas of data tracking and quality assurance. The interview guides used for these interviews are included in the Appendices.

The evaluation team also reviewed program materials developed by KEMA and AEP Ohio, including: KEMA's operations manual dated January 25, 2010, a technical reference manual documenting prescriptive savings (Appendix A of the operations manual), application forms (Appendix B), forms and checklists (Appendix C), program tracking database documentation, and program materials available from the program Web site ([www.gridsmartohio.com](http://www.gridsmartohio.com)).

#### Participating Customer In-Depth Interviews

Ten in-depth interviews with participating customers were conducted as part of this evaluation to program effectiveness and barriers to participation. The customers were selected randomly from contact information provided on the application forms from the population of 2009 projects. Two of the ten customers had projects that were given a "cancelled" designation in the tracking database.

### 3.4 *Population and Sampling*

Two sets of tracking data were used in this evaluation. The primary dataset was from AEP Ohio's Mercantile-Self-Direct Filings spreadsheet (dated 1/18/2010 and updated March 3, 2010). Navigant Consulting was informed by AEP Ohio that this dataset contains the numbers that were submitted to the PUCO for approval and was therefore used for the baseline ex-ante kWh and kW savings numbers. This dataset also was used to establish the program project list for the 2009 program year evaluation.

In addition to the Mercantile-Self-Direct Filings spreadsheet provided by AEP Ohio, a tracking database export was provided by KEMA (dated 3/3/2010) which included both kWh savings as well as kW savings. The KEMA dataset provided detail on prescriptive and custom measures.

## Profile of Population

The Self-Direct program evaluation team developed an Excel spreadsheet to extract key program participation data from both AEP Ohio's and KEMA's tracking databases. Table 3.2, Table 3.3, Table 3.4, and Table 3.5 provide a profile of PY 2009 program participation. All data was tracked separately between the two utilities of Ohio Power (OPCo) and Columbus Southern Power (CSP). Generally, results are also shown separately except where summary tables are shown which include the combined program participant numbers.

For OPCo, participation is highly concentrated in Heavy Industry business types. This is primarily due to one project which alone accounted for 50% of OPCo's entire program PY 2009 kWh savings. Comparing the number of projects in each business type shows that the program participation was fairly well divided across all industries, with Heavy Industry and Retail/Service industries each accounting for 19% and 20% of the total project count, respectively.

For CSP, participation was more evenly divided across business types. Heavy Industry again accounted for the greatest percentage of kWh savings at 21%, however, this sector only accounted for 6% of the project count total. CSP had very high participation counts in the Retail/Service and Grocery industries at 25% and 27% of total project count respectively. This distribution was primarily due to a few companies with projects at multiple store locations.

Table 3.2. PY 2009 Ohio Power Self-Direct Program Participation by Business Type

Business Type	Project Count	Project %	Savings, Annualized	Savings %	Savings	Savings %
Heavy Industry	29	19%	53,392,915	67%	8,245	63%
Warehouse	10	7%	4,732,650	6%	899	7%
Light Industry	16	11%	5,667,681	7%	1,001	8%
School	14	9%	3,053,446	4%	709	5%
Retail/Service	30	20%	6,432,907	8%	1,160	9%
College/University	7	5%	1,483,656	2%	276	2%
Medical	4	3%	926,068	1%	174	1%
Grocery	25	17%	2,734,097	3%	385	3%
Miscellaneous	5	3%	259,027	0%	47	0%
Office	4	3%	305,340	0%	58	0%
Restaurant	6	4%	197,422	0%	31	0%
Hotel/Motel	0	0%	-	0%	-	0%
<b>Total</b>	<b>150</b>	<b>100%</b>	<b>79,185,209</b>	<b>100%</b>	<b>12,985</b>	<b>100%</b>

Source: Evaluation analysis of tracking savings from AEP Ohio Mercantile-Self-Direct Filings and KEMA Database Export, March 3, 2010.

Table 3.3. PY 2009 Columbus Southern Power Self-Direct Program Participation by Business Type

Business Type	Project Count	Project %	Savings, Annualized	Savings %	Savings	Savings %
Heavy Industry	9	6%	12,993,756	21%	654	7%
Warehouse	11	7%	7,692,912	12%	1,468	16%
Light Industry	5	3%	3,888,257	6%	714	8%
School	4	2%	774,909	1%	151	2%
Retail/Service	40	25%	6,150,880	10%	1,143	12%
College/University	0	0%	-	0%	-	0%
Medical	5	3%	2,603,161	4%	463	5%
Grocery	44	27%	7,235,224	11%	977	10%
Miscellaneous	19	12%	7,200,215	11%	1,487	16%
Office	13	8%	13,829,875	22%	2,168	23%
Restaurant	11	7%	364,008	1%	56	1%
Hotel/Motel	1	1%	182,174	0%	35	0%
<b>Total</b>	<b>162</b>	<b>100%</b>	<b>62,915,372</b>	<b>100%</b>	<b>9,315</b>	<b>100%</b>

Source: Evaluation analysis of tracking savings from AEP Ohio Mercantile-Self-Direct Filings and KEMA Database Export, March 3, 2010.

The Self-Direct program had two components, Self-Direct Prescriptive Lighting and Self-Direct Custom. Table 3.4 and Table 3.5 show the program breakdown for each utility between these two components. For OPCo, the Custom program accounted for over 62% of the kWh savings,



although the Lighting program had higher customer participation rates. For CSP, the Lighting component accounted for both a higher kWh savings and customer participation. CSP did have a large percentage of projects that included portions of both the Prescriptive Lighting and Custom components.

Table 3.4. PY 2009 Ohio Power Self-Direct Program Participation by End Use

Category	Number of Projects	kWh Savings	% of Total kWh Savings	Number of Customers	% of Total Customers
Self-Direct Custom	54	49,371,439	62%	7,364	57%
Self-Direct Lighting	87	26,792,845	34%	5,065	39%
Self-Direct Mixed	9	3,020,925	4%	556	4%
<b>Total</b>	<b>150</b>	<b>79,185,209</b>	<b>100%</b>	<b>12,985</b>	<b>100%</b>

Source: Evaluation analysis of tracking savings from AEP Ohio Mercantile-Self-Direct Filings and KEMA Database Export, March 3, 2010.

Table 3.5. PY 2009 Columbus Southern Power Self-Direct Program Participation by End Use

Category	Number of Projects	kWh Savings	% of Total kWh Savings	Number of Customers	% of Total Customers
Self-Direct Custom	64	21,530,564	34%	1,791	19%
Self-Direct Lighting	82	23,935,720	38%	4,534	49%
Self-Direct Mixed	16	17,449,087	28%	2,989	32%
<b>Total</b>	<b>162</b>	<b>62,915,372</b>	<b>100%</b>	<b>9,315</b>	<b>100%</b>

Source: Evaluation analysis of tracking savings from AEP Ohio Mercantile-Self-Direct Filings and KEMA Database Export, March 3, 2010.

#### 3.4.1 Engineering Review Sample

The sample for the engineering review of PY 2009 paid Self-Direct program projects was selected from data in the AEP Ohio's Mercantile-Self-Direct Filings spreadsheet, dated January 18, 2010 and updated March 3, 2010. Some projects contain both Custom and Prescriptive measures (mixed projects). The projects were separated by operating company.

The program-level Self-Direct savings data was analyzed by utility, measure type, project size, and number of projects by individual companies to inform sample design. After analysis, the sample design selected for the Self-Direct evaluation was stratified by project size, where project size is defined as the sum of all ex-ante kWh for measures installed within an individual project (as defined by unique project IDs assigned by AEP Ohio). Projects were sorted from largest to smallest kWh savings and divided into different strata.

For Ohio Power Company projects were divided into two strata due to one project accounting for 50% of OPCo's entire PY 2009 program savings. Strata 1 contained 66% of the program total kWh savings with Strata 2 accounting for the other 34%. This distribution resulted in 10 projects being assigned to Strata 1 and 140 to Strata 2.

CSP projects were divided into three strata with each strata containing roughly one-third of the program total kWh. Thus, the 4 largest projects comprising one-third of program savings were assigned to Strata 1, the 17 next largest were assigned to Strata 2, and the smallest 141 projects were assigned to Strata 3.

The Self-Direct evaluation plan called for a target sample of 17 OPCo projects and 31 CSP projects to be selected for engineering review. This sample was drawn as follows: in OPCo, all 10 projects in strata 1 were selected, and 7 of 139 projects in strata 2 were randomly selected. In CSP, 3 of 4 projects in strata 1 were selected, 15 of 17 projects in strata 2 were selected, and 13 of 141 projects in strata 3 were randomly selected.

#### Profile of Engineering Review Sample

Table 3.6, Table 3.7, Table 3.8, and Table 3.9 provide a profile of the Engineering Review Sample for the Self-Direct program in comparison with the program population for each utility.

Table 3.6. Ohio Power Profile of the Engineering Review Sample by Strata

Strata	Number of Projects in Strata	Number of Projects in Sample	Program Total kWh	Sample % of Program Total kWh	Number of kWh in Sample	Sample % of Program Total kWh
Strata 1	10	10	52,145,951	66%	7,953	61%
Strata 2	140	7	27,039,258	34%	5,032	39%
Total	150	17	79,185,209	100%	12,985	100%

Table 3.7. Columbus Southern Power Profile of the Engineering Review Sample by Strata

Strata	Number of Projects in Strata	Number of Projects in Sample	Program Total kWh	Sample % of Program Total kWh	Number of kWh in Sample	Sample % of Program Total kWh
Strata 1	4	3	21,914,205	35%	1,779	19%
Strata 2	17	15	19,373,592	31%	3,679	39%
Strata 3	141	13	21,627,574	34%	3,857	41%
Total	162	31	62,915,372	100%	9,315	100%

Table 3.8. Ohio Power Profile of the Engineering Review Sample by Business Type

Business Type	Sample Project Count	Sample Annual kWh Savings, Annualized	Sample Project Green	Sample Project Count	Sample Annual kWh Savings, Annualized	Sample Project Green	Sample Project Count
Heavy Industry	8	46,659,059	87%	29	53,392,915	67%	87%
Warehouse	2	2,633,275	5%	10	4,732,650	6%	56%
Light Industry	3	3,105,647	6%	16	5,667,681	7%	55%
School	0	-	0%	14	3,053,446	4%	0%
Retail/Service	2	560,900	1%	30	6,432,907	8%	9%
College/University	0	-	0%	7	1,483,656	2%	0%
Medical	0	-	0%	4	926,068	1%	0%
Grocery	2	404,372	1%	25	2,734,097	3%	15%
Miscellaneous	0	-	0%	5	259,027	0%	0%
Office	0	-	0%	4	305,340	0%	0%
Restaurant	0	-	0%	6	197,422	0%	0%
Hotel/Motel	0	-	0%	0	-	0%	NA
Total	17	53,363,253	100%	150	79,185,209	100%	67%

Table 3.9. Columbus Southern Power Profile of the Engineering Review Sample by Business Type

Business Type	Sample Project Count	Sample Annual kWh Savings, Annualized	Sample Project Green	Sample Project Count	Sample Annual kWh Savings, Annualized	Sample Project Green	Sample Project Count
Heavy Industry	4	11,562,208	29%	9	12,993,756	21%	89%
Warehouse	7	7,416,622	18%	11	7,692,912	12%	96%
Light Industry	3	2,693,507	7%	5	3,888,257	6%	69%
School	0	-	0%	4	774,909	1%	0%
Retail/Service	4	1,285,853	3%	40	6,150,880	10%	21%
College/University	0	-	0%	0	-	0%	NA
Medical	2	2,058,173	5%	5	2,603,161	4%	79%
Grocery	4	2,029,037	5%	44	7,235,224	11%	26%
Miscellaneous	3	4,573,148	11%	19	7,200,215	11%	64%
Office	3	8,679,994	22%	13	13,829,875	22%	63%
Restaurant	1	30,334	0%	11	364,008	1%	8%
Hotel/Motel	0	-	0%	1	182,174	0%	0%
Total	31	40,328,877	100%	162	62,915,372	100%	64%

## Section 4. Program Level Results

This section presents the results of the impact and process evaluations of the Business Self-Direct program.

### 4.1 *Impact*

#### 4.1.1 Verification and Due Diligence

For the Verification and Due Diligence task, Navigant Consulting explored the quality assurance and verification activities currently carried out by program and implementation staff. Navigant Consulting compared these activities to industry best practices<sup>6</sup> for similar Business programs to determine:

1. If any key quality assurance and verification activities that should take place are currently not being implemented.
2. If any of the current quality assurance and verification activities are biased (i.e., incorrect sampling that may inadvertently skew results, purposeful sampling that is not defensible, etc.).
3. If any of the current quality assurance and verification activities are overly time-consuming and might be simplified or dropped.

This assessment primarily relied on in-depth interviews with program and implementation staff and documentation of current program processes, where available, for the Prescriptive, Custom, and Self-Direct programs. Additional input was derived from our experience in performing the project reviews.

The KEMA Operations Manual, dated January 25, 2010, documents quality control and verification procedures for the Business programs. Navigant Consulting reviewed the procedures and found them to be detailed and thorough. Putting in place documented procedures is an important early step that will help to ensure high quality projects and tracking data once they are fully adhered to on all projects from application received date through project close-out.

Observations from our file review experience from the Self-Direct program suggest that verification of the initial projects after launch were not as detailed as current procedures, but

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<sup>6</sup> See the Best Practices Self Benchmarking Tool developed for the Energy Efficiency Best Practices Project: <http://www.eebestpractices.com/benchmarking.asp>.

that critical technical review, eligibility checks, and payment approvals were conducted. We found shortcomings in project documentation, file management, and status tracking. Going forward, AEP Ohio and KEMA should approach project verification as a continuous improvement process. Navigant Consulting has not identified QA/QC procedures that should be dropped.

Suggested improvements focus on having staff follow all documented procedures; developing an integrated tracking system to serve both KEMA and AEP Ohio; capturing important verification data in the tracking system including dates, electronic files, participant communications, and scanned supporting documentation; and maintaining accurate and complete review histories in the tracking system throughout the various stages application processing. It is important that tracking system entries and updates be made in a timely fashion, and AEP Ohio and KEMA should establish policies that staff follows for timely data entry.

Files were reviewed from Prescriptive and Custom projects submitted into the Self-Direct program. Navigant Consulting had a difficult time confirming that all required verification procedures were followed on a substantial number of projects from 2009. Some projects had complete files and were confirmed quickly, while other projects had minimal supporting documentation. In some cases, project savings were altered from participant supplied information, but the reasons and supporting documentation for the changes were not provided. Some project invoices provided detailed lists of installed equipment, while others were not itemized.

AEP Ohio and KEMA need to document their project reviews so that a third party can request and receive all relevant project files and understand what verification tasks have taken place, what the outcomes were, and any changes to the project's claimed savings.

Table 4.1 summarizes the quality assurance and verification activities currently carried out by the Business Prescriptive and Custom programs. It also features recommended changes to current procedures, as well as suggestions regarding additional activities that AEP Ohio could implement to enhance current quality assurance and verification.

Table 4.1. Summary of Quality Assurance Activities in Place and Recommendations

Quality Assurance Activities in Place	Recommendations for Improvement
<p><b>Pre-Approval</b></p> <ul style="list-style-type: none"> <li>» Eligibility and completeness checks</li> <li>» Technical review</li> <li>» Pre-inspections</li> </ul>	<p><b>Pre-Approval</b></p> <ul style="list-style-type: none"> <li>» Capture all relevant verification data in tracking system including dates, electronic calculation files, participant communications, and scanned supporting documentation</li> <li>» Maintain complete and accurate revision histories of project savings and incentives in the tracking system, supported with documentation</li> <li>» For prescriptive lighting measures, develop a consistent approach for entering tracking system data on existing and new equipment type, quantities, make, and model.</li> <li>» Ensure each project has a complete set of required documents</li> <li>» After the pre-inspection, include a consistency check on incentive and impact data between applicant documentation, pre-review notes, pre-inspection forms, and the tracking system, and document differences.</li> </ul>
<p><b>Final Approval</b></p> <ul style="list-style-type: none"> <li>» Eligibility and completeness checks</li> <li>» Engineering review</li> <li>» Post-Inspections</li> </ul>	<p><b>Final Approval</b></p> <ul style="list-style-type: none"> <li>» After the post-inspection, include a consistency check on incentive and impact data between applicant documentation, review notes, inspection forms, and the tracking system, and document differences.</li> <li>» Maintain updated verification data in tracking system including dates, electronic calculation files, participant communications, and scanned supporting documentation</li> <li>» Maintain complete and accurate revision histories of project savings and incentives in the tracking system, supported with documentation</li> <li>» Segregate and label the documents and spreadsheets that are used to generate the reported savings and final incentive, and ensure each project has a complete set of required documents at closeout.</li> </ul>

#### 4.1.2 Tracking System and Document Review

To support the impact evaluation, the evaluation team was given a data export file of KEMA's tracking system database. AEP Ohio also provided copies of project files which included the project applications and supporting documentation. Many of these files were .pdf copies of invoices and application forms.

As previously stated, the evaluation team worked off of a database export of the tracking system data which was updated a few times during the evaluation process. As part of the evaluation the kWh savings from the database export and AEP Ohio's Mercantile-Self-Direct Filings spreadsheet were compared for each project. This comparison revealed a high percentage of projects with numbers that were inconsistent between the two database sets.

As part of the sample review, Navigant Consulting also compared these two dataset numbers against the project Overview and Commitment sheet provided in each project's file. Navigant Consulting was informed that these sheets were used by AEP Ohio to determine the numbers to file with the PUCO and fill in the Mercantile-Self-Direct Filings spreadsheet. Again, this comparison revealed several inconsistencies between both datasets and the Overview and Commitment sheets, sometimes with all three sources conflicting. During the course of the evaluation, the KEMA database export was updated with new project savings numbers which did eliminate many of the inconsistencies.

A system should be developed which would track when changes to a project savings have been made. This system should also provide for easy reconciliation of the two data sets. If adjustments are made, both parties should inform each other in a timely fashion.

One clear observation in evaluating the files was an overabundance of multiple copies of the same files or forms. In most project files there were usually several copies of all documents in the file. In addition to the multiple copies of individual pages, within the file there was typically at least one, if not two full copies of the entire folder itself as well as a zip file of the entire folder. The file copies did not usually have any discernable difference internally, nor within the file names. This file management can lead to confusion and errors, in addition to wasting hard-drive space. It also creates difficulties in program QA/QC.

File naming convention was also not consistent throughout all the project files. This too leads to confusion. A consistent file naming scheme should be adopted and adhered to which will facilitate better QC and program reviews.

Within each project file itself, there are several documents that each seem to attempt to track or summarize what was included in the project. What was observed during the evaluation was that these separate documents are often not consistent between each other. It seems that each document stands on its own without linking the numbers between them. This leads to errors as each file has to be completed separately. A more streamlined file system should be developed which only requires the reviewer to enter the data one time. This one entry would then

populate all other files. Such a system would reduce the chances for errors to be entered and should reduce the administrative time associated with the current system.

Rather than tracking just the kW reduction, Navigant Consulting recommends tracking both the kW removed and kW added. One way to identify this would be to track the baseline and existing kW and the new and retrofit kW.

Currently the Self-Direct program is split into two portions, the Prescriptive Lighting portion and the Custom portion. Because of the nature of the Self-Direct program, it may be better to remove the Prescriptive Lighting portion and just track all of the projects as Custom projects. This would potentially allow for more consistency within the program, and would likely result in more accurate savings numbers being derived for all projects.

Although the application forms are fairly short and seemingly easy for the customer to complete, these simple forms tended to create more difficulties in tracking than ease of use. The problem was that many of the projects involved multiple measures. However, the forms did not provide means to enter information for each measure. Several customers tried to do this by just writing two items in a given blank with a slash to separate them.

A more detailed form would provide better tracking of each project and a portion that should be filled out for each measure employed would also provide much better tracking. This approach also would put the onus on the customer for detailing what was done for each measure, rather than relying on the reviewer to determine what was done by combing through invoices and customer provided calculation sheets to determine each measure. The current system requires a significant amount of effort for the reviewer to determine what each project actually entailed.

Some recommendations to include in a more detailed form would be as follows:

- Check box indicating if the space is conditioned or not.
- Require measures to be broken down by space type. Some projects included office space, warehouse space and manufacturing space. All the measures should be detailed separately for each space type because they each have different interactive effects on the kWh savings and kW savings.
- Customer to provide detailed description of each measure type including before and after equipment type, quantity, wattage, annual operating hours, and broken down cost if available.

Several projects provided what seemed to be detailed data on before and after fixture types, wattages, quantities, and operating hours. However, what was revealed upon a more detailed review was that these often were internally conflicting and inconsistent with invoices or executive summary sheets and the calculation spreadsheet filled out by the customer. Typically, these did not match the values determined by KEMA either. It is understood that it is often the case where the customer does not have detailed invoices or project documentation on hand, but



there should be an effort made to create a detailed summary of what was included in the project. This is where a more detailed form would also be of benefit in forcing the customer to do such an accounting. At a minimum, if the supporting documentation submitted by the customer has internally conflicting documentation, the customer should be required to provide clarification as to which numbers are more accurate.

From reviewing the application forms it seems unclear whether the customer would always understand that the checkboxes for "Building Type" should refer to the building area that the measures were implemented in rather than what the business itself is. If a customer has a manufacturing business, but the project was done in their offices, it is not clear that this is what should be checked. As mentioned previously, since there is only one area for this to be checked, if a project spans multiple building types, the customer would not always know to check all that apply.

Some project files included spec sheets of the new equipment. This would be a good practice to require because it would reduce the effort required by the reviewer to verify a project meets the program requirements.

There were very few of the sampled projects that Navigant Consulting was able to confirm the equipment quantities and types that were listed in KEMA's Calc sheet. Without access to the tracking database itself it was difficult to identify how some final numbers were determined. More transparency in the tracking process would greatly enhance the ability to verify the final numbers. If such information was not tracked, a better internal paper trail should be developed. If changes to the customer's numbers were made, this should be clearly indicated, and why the numbers were adjusted should also be detailed. As such, this documentation was not provided.

A high number of the projects reported customer specific annual operating hours. In most cases, these were not used in calculating the kWh savings for the project. If the customer reports annual operating hours, using these hours – if they seem reasonable and justified – would result in better overall savings numbers and should be considered.

The Overview and Commitment sheet is intended to be a brief summary of what was done for a project. Shortcuts taken to keep the sheet brief led to inaccuracies in the measure descriptions. Often several measure types were lumped together as one, or several measures were left out of the summary altogether. Because this sheet is such an important record of the project savings, a more thorough effort should be put into filling it out. Specifically, it is recommended that a list of each measure that was implemented be included along with a quantity installed of each measure. Because this information should already be available within the other tracking system documents, this should not add an unreasonable amount of effort for the program implementer.

#### 4.1.3 Default Savings Review

Following is a summary of observations and recommendations from Navigant Consulting's review of the default savings values documented in Appendix A of KEMA's January 25, 2010

Operations Manual. The manual covers lighting, cooling, motors, refrigeration, food service and miscellaneous technologies. Navigant Consulting's review concentrated on the lighting technologies rebated in 2009.

- » The algorithms used are standard approaches for default and deemed savings manuals, incorporating building-type specific annual hours of use, coincident factors, a demand interactive effects factor for cooling, and an energy interactive effects factor for cooling.
- » AEP Ohio's default savings values, both kW and kWh, are well documented and built from reasonable assumptions for the building types and lighting measures that were reviewed. There was a strong reliance on the DEER database from California, although other sources were noted.
- » The program tracking system uses default per unit savings values that do not vary by building type. Tracking system default values are based instead on simple averages of building sector groupings of specific parameters.
- » The use of DEER as a starting data source for coincidence factors is reasonable, and Navigant Consulting supports case-by-case revisions for specific buildings types when a solid case can be made for an alternate source, or as Ohio data becomes available.
- » Navigant Consulting recommends a set of HVAC interaction factors be developed that are specific to Ohio.
- » Lighting default values make assumptions about the base fixture types, wattages, and operation that are reasonable for PY 2009 but need to be confirmed through market research, program results, and evaluation monitoring and verification (EM&V). Although limited in scope, the 2009 Business Prescriptive participant survey indicated that several baseline assumptions should be reviewed in 2010. The default hours of use for industrial lighting should be reviewed in 2010.
- » KEMA should consider using separate demand and energy savings fractions for occupancy sensors, and revisit occupancy off rates after EM&V results. Navigant Consulting also recommends that KEMA not combine the 20% and 50% off rates into a single 28% average off rate. Occupancy sensors are a common measure for schools and industrial storage and warehouses. These building types have per unit impacts that are much different.

With respect to the Self-Direct program, our primary observation noted with the default savings is the use of an average annual operating hours, energy interactive effect, demand interactive effect and coincident diversity factor regardless of building type. This was the area of greatest adjustment for the Self-Direct program and was primarily responsible for the relatively high realization rate. KEMA already has developed the business type default values in the operations manual Appendix A and the business type is entered into the tracking system. Once entered into the system there would be no additional requirements for the project reviewer in determining final savings because the calculations would be automatic.

Navigant Consulting believes the use of building specific parameters will reduce the risks of evaluation adjustments as the program evolves and as building specific assumptions are refined through EM&V and local market research.

#### 4.1.4 Program Impact Parameter Estimates

Navigant Consulting conducted an engineering review of all 48 projects that were selected in the savings review sample for PY 2009. Two forms of adjustments were made for each sample project when supporting data made this possible. The first adjustment was to adjust the tracking database kWh and kW savings for the building type specific operating hours and adjustment factors. This showed how the average hours and factors affected specific projects.

After this initial building sector review, a more detailed file review was done for each project in the sample. For each project in the sample, Navigant engineers attempted to calculate an adjusted savings for each measure (kWh and kW) drawing upon multiple sources of data, but most particularly the project files provided by AEP Ohio.

Navigant Consulting was not provided a file for all projects in the sample set, however, and several of the files that were provided did not have enough supporting documentation to justify any adjustments one way or the other. For both of these cases the projects were then removed from the final sample set realization rate calculations thus reducing the originally planned-for confidence levels and relative precision rates.

A savings realization rate for each of the strata was calculated from the sampled measures, and then applied to the remainder of the population by strata.

The following data sources were used in making impact adjustments to reported measure tracking savings:

- a. Awareness of issues with the potential to affect impacts identified through the default savings review.
- b. Engineering review and analysis of measure savings based on project documentation and tracking system data, supported by standard engineering methods and sources (e.g., ASHRAE data and algorithms).

Navigant Consulting created an Excel Spreadsheet database to record our adjustments for each project reviewed. The database includes project and measure data pulled from AEP Ohio's and KEMA's tracking systems, and adds fields including commentary on the ex-ante savings calculation, a description of the ex-post adjustments, and ex-ante and ex-post kW and kWh.

There were several reasons for adjustments, the most common of which was an annual operating hours and factors adjustment either based on industry specific averages or customer provided numbers. Other reasons for adjustment included existing and new equipment wattages used rather than the prescriptive savings values, verified quantity differences, and calculations based on fixture wattages rather than a prescriptive per lamp savings.

Because the provided KEMA calculation spreadsheet only contained final values rather than the actual calculation algorithms used it was impossible to determine if there were any calculation errors. Given the available supporting documentation however it was generally not possible to replicate the tracking system values.

#### Hours of Use Impact Adjustments

As noted in the default savings review, significant hours of use adjustment was anticipated in the evaluation. Through use of data from the engineering review, many of the Prescriptive-Lighting and Custom lighting measures received significant hours of use increases relative to default assumptions.

It is significant that business types with the greatest contribution to program savings (warehouse, industry, hospital, office and retail) showed significantly higher operating hours of use than KEMA has used in the default assumptions. For many of the projects reviewed the annual operating hours were adjusted up to 8,736 hours from the default of 4,389 hours for non-CFL measures. This adjustment sometimes resulted in a project specific realization rate of two or higher just from an annual operating hours adjustment.

#### Realization Rates for the Engineering Review Sample

There are two basic statistical methods for combining individual realization rates from the sample projects into an estimate of verified kWh savings for the population when stratified random sampling is used. These two methods are called "separate" and "combined" ratio estimation.<sup>7</sup> In the case of a separate ratio estimator, a separate kWh savings realization rate is calculated for each stratum and then combined. In the case of a combined ratio estimator, a single kWh savings realization rate is calculated directly without first calculating separate realization rates by stratum. A separate ratio estimation technique was used to estimate verified kWh savings for the Self-Direct program.

The separate ratio estimation technique follows the steps outlined in the California Evaluation Framework. These steps are matched to the stratified random sampling method that was used to create the sample for the program. The standard error was used to estimate the error bound around the estimate of verified kWh. The results are summarized in Table 4.2, Table 4.3, Table 4.4, Table 4.5, Table 4.6, and Table 4.7.

The realization rates for energy and demand savings vary by utility and stratum, but are all over 1.0. For energy, this is because the main effects from the energy realization rates were an

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<sup>7</sup> A full discussion and comparison of separate vs. combined ratio estimation can be found in Sampling Techniques, Cochran, 1977, pp. 164-169.

increase in hours of use estimates. For the demand savings, the primary adjustment to these were from equipment specific wattage adjustments from averages, as well as industry specific adjustment factors to the coincident peak demand.

To achieve a relative precision of  $\pm 10$  or less for the demand realization rate, the engineering review sample would need to expand beyond the final sample sizes to account for the projects that were not reviewable due to lack of supporting documentation, however, due to the time constraints on this report, an additional round of project reviews was not possible.

Table 4.2. Ohio Power Realization Rates for the Engineering Review Sample

Strata	Ex-ante kWh Savings Annualized	Ex-post kWh Savings Annualized	kWh Realization Rate	Ex-ante kW Savings	Ex-post kW Savings	kW Realization Rate
Strata 1	10,823,591	16,082,923	1.49	1,697	2,002	1.18
Strata 2	1,217,301	1,447,795	1.19	186	217	1.17

Table 4.3. Columbus Southern Power Realization Rates for the Engineering Review Sample

Strata	Ex-ante kWh Savings Annualized	Ex-post kWh Savings Annualized	kWh Realization Rate	Ex-ante kW Savings	Ex-post kW Savings	kW Realization Rate
Strata 1	18,640,802	18,969,238	1.02	1,764	1,921	1.09
Strata 2	13,054,233	19,355,938	1.48	2,604	2,960	1.14
Strata 3	4,093,466	5,861,630	1.43	706	881	1.25

Table 4.4. Ohio Power kWh Realization Rates and Relative Precision at 90% Confidence Level

Strata	kWh Realization Rate	Relative Precision	Relative Precision	Relative Precision
Strata 1	8%	1.37	1.49	1.61
Strata 2	14%	1.02	1.19	1.35
Total kWh Realization Rate	10%	1.25	1.38	1.52

Table 4.5. Columbus Southern Power kWh Realization Rates and Relative Precision at 90% Confidence

Strata	Realization Rate	Relative Precision	Relative Precision	Relative Precision
Strata 1	1%	1.01	1.02	1.03
Strata 2	18%	1.21	1.48	1.76
Strata 3	17%	1.19	1.43	1.67
<b>Total kWh Realization Rate</b>	<b>12%</b>	<b>1.13</b>	<b>1.30</b>	<b>1.47</b>

Table 4.6. Ohio Power kW Realization Rates and Relative Precision at 90% Confidence Level

Strata	Realization Rate	Relative Precision	Relative Precision	Relative Precision
Strata 1	12%	1.04	1.18	1.32
Strata 2	5%	1.11	1.17	1.23
<b>Total kW Realization Rate</b>	<b>9%</b>	<b>1.07</b>	<b>1.18</b>	<b>1.28</b>

Table 4.7. Columbus Southern Power kW Realization Rates and Relative Precision at 90% Confidence Level

Strata	Realization Rate	Relative Precision	Relative Precision	Relative Precision
Strata 1	4%	1.04	1.09	1.14
Strata 2	15%	0.97	1.14	1.31
Strata 3	14%	1.07	1.25	1.43
<b>Total kW Realization Rate</b>	<b>13%</b>	<b>1.02</b>	<b>1.17</b>	<b>1.32</b>

#### 4.1.5 Program Impact Results

Based on the impact parameter estimates described in the previous section, Navigant Consulting estimated the program impacts resulting from the PY 2009 Self-Direct program. The results are provided in Table 4.8, and Table 4.9.

Table 4.8. Ohio Power Parameter and Savings Estimates

Strata	Example kWh Savings Annualized	Example kWh Savings Annualized	Realization Rate	kWh Savings	kWh Savings	Realization Rate
Strata 1	52,145,951	77,484,386	1.49	7,953	9,382	1.18
Strata 2	27,039,258	32,159,099	1.19	5,032	5,887	1.17
Total	79,185,209	109,643,485	1.38	12,985	15,269	1.18

Table 4.9. Columbus Southern Power Parameter and Savings Estimates

Strata	Example kWh Savings Annualized	Example kWh Savings Annualized	Realization Rate	kWh Savings	kWh Savings	Realization Rate
Strata 1	21,914,205	22,300,316	1.02	1,779	1,938	1.09
Strata 2	19,373,592	28,725,858	1.48	3,679	4,181	1.14
Strata 3	21,627,574	30,969,563	1.43	3,857	4,812	1.25
Total	62,915,372	81,995,737	1.30	9,315	10,930	1.17

## 4.2 Process

The process component of the Business Self-Direct program evaluation focused on program implementation, program design and processes, marketing and outreach, and participant satisfaction. Data sources for the process component include a review of program materials, in-depth interviews with three program staff and one implementer, and in-depth interviews with ten participating customers, two with projects shown as cancelled in the tracking system.

### 4.2.1 Program Implementation

The Self-Direct program was introduced in June 2009 and exceeded the combined goals set for all business programs for the year. However, while AEP Ohio's savings goals were met, customers have not received any of the program benefits two months into the following calendar year. This unfortunate circumstance is not due to any fault of AEP Ohio, though, in that the company was required by legislation to achieve certain targeted savings levels in 2009, yet all of the regulatory infrastructure was not yet in place for this program.

The scope of the measures captured in the program was narrower than anticipated, however. The majority of savings applied for related to lighting projects, a relatively simpler project to both implement and document. Future program efforts will be targeted to capturing savings

from more custom initiatives, initiatives which are much more challenging for customers to document in the application process.

#### 4.2.2 Program Marketing

AEP Ohio undertook a multi-faceted marketing and outreach effort that was a major contributor to the Self-Direct program's success. The primary channel of communication was the company's customer service representatives who were provided program fact sheets and training, as well as the opportunity to train as certified energy managers, which about 40 reportedly did. In addition, AEP Ohio held seminars with trade allies and industry associations, such as Ohio Manufacturer's Association and Ohio Hospital Association, and conducted one-on-one meetings with trade allies and customers to promote the program.

In order to assess the current effectiveness of the Self-Direct program processes, thirty-one participants and participants with cancelled projects were contacted in February 2010 and ten were interviewed in depth. These participants included one energy service provider acting for a commercial customer, multiple commercial customers, primarily retail, warehousing providers, one health care provider and several municipalities. Each participant had filed between two and ten projects in the Self-Direct program.

As noted previously in this report, the Self-Direct program had not yet released funds at this time or sent final approvals to customers as the applications for the 2009 program year are still under review by PUCO. Many surveyed participants had submitted applications in June and July of 2009. A number of respondents had difficulty recalling what they had submitted and what their experiences were other than that they had not yet received any rebates.

With the foregoing caveat, the in-depth interviews indicated that the AEP Ohio account executives played a critical role in the Self-Direct program in both marketing and implementation. Most interviewed participants stated that the AEP Ohio account executive outreach made them aware of the program, while a few participants also commented that their account executive was of critical importance in their filing the relevant paperwork. In the case of the energy services contractor, their own research on the Internet reportedly identified the program, while two respondents commented that their lighting contractor may have brought the program to their attention and another pointed to their industry association. Several participants consequently attended a seminar on the program and moved forward from there to submit their applications.

With the exception of the energy services company, all customers contacted mentioned their AEP Ohio Account Executive as important in their participation in (as well as awareness of) this program. Further, customers with issues with some of their applications planned to go to their account executives to get clarification about the issue and how to address it.

Trade ally interviews for the Business Prescriptive program indicated that some lighting contractors had informed their customers about this program. At least one stated that he now



wished that he had not because his customers were very unhappy at not having received a rebate this many months after filing their applications. He felt that AEP Ohio and KEMA had rushed this program forward when it still had too many issues, an opinion echoed by several program participants.

With respect to the marketing of other AEP Ohio energy efficiency programs, all of the interviewed respondents were aware of AEP Ohio's Business Prescriptive program, but several of them were not aware of their Custom program. This suggests that the Account Executive could be more effective in making customers aware of that program. All participants who were not aware of the Custom program expressed interest in learning more about it. An additional outreach opportunity may be in making the energy service providers aware of the program so they can inform their customers about the opportunity.

One customer indicated an interest in being offered other services by AEP Ohio, specifically, financing of energy efficiency projects and support in identifying and jointly applying for grants to make energy efficiency or renewable energy investments.

#### **4.2.3 Program Characteristics and Barriers**

A dominant program characteristic for customers was the fact that applications had not yet been fully processed. Virtually all customers expressed strong interest in receiving their incentive checks. All customers except one indicated that they requested a direct incentive payment, while the one outlier indicated he was waiting to see what was being offered before deciding which he preferred. For those anticipating receiving checks, participants commented that once checks are received, they planned both to use the funding for additional energy efficiency projects and to submit additional Self-Direct applications for later years.

Another dominant theme in the interviews was the complexity of the application process. All but one respondent commented that pulling together the necessary paperwork was a trial, though none could suggest how to make it easier. Issues with finding invoices, getting the correct level of detail in the justification documentation, completing the spreadsheet and finding the forms intimidating were all mentioned. These interviewees managed to get through the process through a combination of help from their account executive, input from KEMA and internal staff support in multiple departments, though two sounded as if they were really frustrated with the process. On the other hand, one more sophisticated participant commented that AEP Ohio's program was much easier to participate in than First Energy's, since First Energy required contracts that brought their lawyers into the process and really slowed matters down.

AEP Ohio staff indicated that the issue of application complexity was identified early on and changes were made to the process during the plan year. The interview sample was not broad enough to test whether the changes achieved the improvements that were intended or if there are still issues.

Several participants commented that it was too long to wait for payments and suggested that the program should not have been marketed until the issues had been ironed out. The energy services contractor that follows up on submissions every three weeks suggested that it would have been better to wait until the program kinks were worked out before launch.

Participants commented that since they had submitted their applications up to eight months ago, had not heard much recently on their applications, and had not yet received any rebates, it was difficult to be satisfied with the program. A few are anxious to go forward with additional projects (both applications and investments) once the funds are received and are frustrated that nothing has happened. Several commented that having on-going communications regarding applications status would have been helpful.

#### 4.2.4 Program Administration and Delivery

Self-Direct program administration was effectively outsourced to KEMA. Participants identified several areas where modifications could be made to make the process run more smoothly with communications being a big issue for many. A couple of participants complained that they had difficulty communicating with KEMA staff because KEMA staff referred to project numbers that they did not have and it was difficult to understand which of their multiple applications was being reviewed. Several participants with multiple projects suggested it would be better for them to have one KEMA contact to deal with so KEMA would be familiar with all their Self-Direct projects and they only had to go to one person instead of three for three Self-Direct projects.

Multiple contacts commented that KEMA should communicate their application status on a regular basis so they knew it was still on track. The first communication notifying receipt of the application should include the project number assigned to it so the participant could discuss an application using the project number KEMA used going forward. This is a particular issue for participants with multiple projects. Given the long lag time since project applications, monthly communications for each project repeatedly indicating that it is pending final review could have made sense.

Some of the identified issues are likely the result of program start up challenges, including staffing and training, and are likely to resolve over time.

Due to the stalled nature of the program there are no fully satisfied customers at the moment. The majority suggested that they expected to be very satisfied once they have their rebate checks in hand.

In general, customer service experiences (other than non-payment) were mixed. One customer was very unhappy with repeated requests for more information that was very difficult and time-consuming to generate from their information system. A second was very upset at what she felt was KEMA's insensitivity to others' schedules in scheduling meetings. She stated that she was informed 24 hours in advance of a meeting with a KEMA representative, not informed

about what application or program was involved (she assumed lighting but it was Self-Direct) and that though she indicated she could not schedule the appropriate people for a meeting the KEMA representative showed up anyway. In contrast, several participants commented on how helpful and knowledgeable the KEMA staff was, while another mentioned repeatedly how happy she was with the support provided by her account executive.

Verification procedures or requirements did not surface frequently as issues other than the difficulties in scheduling mentioned previously and the challenges of a few in providing the correct information for the application. These issues do not appear to be barriers to future applications, however, and customers indicated they considered much of the issue to be learning a new process and they expected future applications to go more smoothly.

### 4.3 Cost Effectiveness Review

This section addresses the cost effectiveness of the Business Self-Direct program. Cost effectiveness is assessed through the use of the Total Resource Cost (TRC) test. Table 4.10 summarizes the unique inputs used in the TRC test.

Table 4.10. Inputs to Cost-Effectiveness Model for Business Self-Direct Program

Item	CSP	OPCo	Combined
Measure Life	11.0	11.0	-
Participants	162	150	312
Annual Energy Savings	81,995,737	109,643,485	191,639,222
Coincident Peak Savings	10,930	15,269	26,200
Third Party Implementation Costs	\$47,392	\$37,159	\$84,551
Utility Administration Costs	\$382,754	\$264,298	\$647,052
Utility Incentive Costs	\$3,384,098	\$2,297,088	\$5,681,186
Participant Contribution to Incremental Measure Costs	\$12,264,837	\$22,071,745	\$34,336,582

Based on these inputs, the TRC ratio for CSP is 2.1 and 1.9 for OPCo, and the program passes the TRC test in each utility and for the program in its entirety. Table 4.11 summarizes the results of the cost-effectiveness tests. Results are presented for the Total Resource Cost test, the Participant test, the Ratepayer Impact Measure test, and the Utility Cost test.

**Table 4.11. Cost Effectiveness Results for Business Self-Direct Program**

<b>Test Results for Prescriptive</b>	<b>TRC</b>	<b>TRC Co</b>
Total Resource Cost	2.1	1.9
Participant Cost Test	6.0	4.5
Ratepayer Impact Measure	0.4	0.5
Utility Cost Test	8.9	17.8

At this time, additional benefits related to reduction of greenhouse gas emissions have not been quantified in the calculation of the TRC. These additional benefits would increase the given TRC benefit/cost ratio.

## **Section 5. Conclusions and Recommendations**

This section highlights the findings and recommendations from the PY 2009 evaluation of AEP Ohio's Business Self-Direct program. The primary objectives of this evaluation were to quantify the energy impacts resulting from the rebated measures and to assess participant satisfaction, program marketing and delivery. Below are the key conclusions and recommendations.

### **5.1 Conclusions and Recommendations**

The data collected for evaluation of the PY 2009 Self-Direct program was gathered through a number of activities including in-depth phone interviews with program staff, program implementers, and participating customers, engineering review of default lighting savings assumptions, and engineering review of project files for a sample of projects. Following are the key conclusions drawn from those activities.

#### **5.1.1 Program Impacts**

##### **Default Savings Review**

AEP Ohio's default savings values, both kW and kWh, are well documented and built from reasonable assumptions for the building types and lighting measures that we reviewed. There was a strong reliance on the DEER database from California, although other sources were noted. The algorithms used are standard approaches for default and deemed savings manuals, incorporating building-type specific annual hours of use, coincidence factors, a demand interactive effects factor for cooling, and an energy interactive effects factor for cooling.

The primary observation noted with the default savings is the use of an average annual operating hours, energy interactive effect, demand interactive effect and coincident diversity factor regardless of building type. This was the area of greatest adjustment for the program and is what yielded a relatively high realization rate.

Navigant Consulting recommends AEP Ohio transition to default values that vary by building type. Navigant Consulting believes the use of building specific parameters will reduce the risks of evaluation adjustments as the program evolves and as building specific assumptions are refined through EM&V and local market research.

It is also recommended that measure specific wattages, operating hours and adjustment factors be used for the Self-Direct Prescriptive Lighting component. The program again uses an average wattage and operating hours rather than measure specific numbers even though these are already available. This change should be made for upcoming program years.

##### **Tracking System**

To support the impact evaluation, the evaluation team was given a data export file of KEMA's tracking system database. AEP Ohio also provided copies of project files which included the

project applications and supporting documentation. Many of these files were .pdf copies of invoices and application forms. Several inconsistencies were identified throughout the review process between the multiple database sets, as well as the internal file documentation.

Navigant Consulting recommends a system be developed which would track when changes to a project savings have been made. This system should also provide for easy reconciliation of the two data sets. If adjustments are made, both parties should inform each other in a timely fashion.

In project folders multiple files should be removed to avoid confusion as to which is the latest, most accurate file as well as to reduce the computing storage and power costs. Along with a more streamlined file system, a consistent file naming scheme should be adopted and adhered to which will facilitate better QC and program reviews.

Within each project file itself, there are several documents that each seem to attempt to track or summarize what was included in the project. What was observed during the evaluation was that these separate documents are often not consistent between each other. A more streamlined file system should be developed which only requires the reviewer to enter the data one time. This one entry would then populate all other files. Such a system would reduce the chances for errors to be entered and should reduce the overhead time associated with the current system.

Rather than tracking just the kWh reduction, Navigant Consulting recommends tracking both the kW removed and kW added. One way to identify this would be to track the baseline and existing kW and the new and retrofit kW.

Currently the Self-Direct program is split into two portions, the Prescriptive Lighting portion and the Custom portion. Because of the nature of the Self-Direct program, it may be better to remove the Prescriptive Lighting portion and just track all of the projects as Custom projects. This would potentially allow for more consistency within the program, and would likely result in more accurate savings numbers being derived for all projects.

A review of the program application should be performed and changes made to allow better tracking of projects. A revised form would also provide for a more streamlined review process thus saving on program implementation costs.

There were very few of the sampled projects that we were able to confirm the equipment quantities and types that were listed in KEMA's Calc sheet. Without access to the tracking database itself it was difficult to identify how the final numbers were determined. More transparency if such information is available would enhance verification efforts. If such information was not tracked, a better internal paper trail should be developed. If changes to the customer's numbers were made, this should be clearly indicated, and why the numbers were adjusted should also be detailed. As such there was no such documentation provided.

The Overview and Commitment sheet is intended to be a brief summary of what was done for a project. Shortcuts taken to keep the sheet brief led to inaccuracies in the measure descriptions. It is recommended that a list of each measure that was implemented be included along with a quantity of each measure implemented.

### Impacts

The PY 2009 evaluation found that verified impacts were significantly higher than the savings recorded in AEP Ohio's tracking system. The Ohio Power PY 2009 Self-Direct program had an overall realization rate on tracking system savings of 1.38 for energy and 1.18 for coincident demand reduction. The relative precision at a 90% confidence level for the Ohio Power program kWh Realization Rate is  $\pm 10\%$ , and  $\pm 9\%$  for the kW Realization Rate.

The Columbus Southern Power (CSP) PY 2009 Self-Direct program had an overall realization rate on tracking savings of 1.30 for energy and 1.17 for coincident demand reduction. The relative precision at a 90% confidence level for the CSP program kWh Realization Rate is  $\pm 12\%$ , and  $\pm 13\%$  for the kW Realization Rate.

As noted in the default savings review, AEP Ohio's default savings assumptions generally were conservative in their savings claims. Through use of data from the engineering review, many of the lighting measures received significant hours of use increases relative to default assumptions.

### Verification Procedures

The KEMA Operations Manual, dated January 25, 2010, documents quality control and verification procedures for the Business Programs. We reviewed the procedures and found them to be detailed and thorough. Putting in place documented procedures is an important early step that will help to ensure high quality projects and tracking data once they are fully adhered to on all projects from application received date through project close-out.

Observations from our 2009 program evaluation experience suggest that critical technical review, eligibility checks, and payment approvals were conducted. Navigant Consulting found shortcomings in project documentation, file management, and status tracking. Navigant Consulting has not identified QA/QC procedures that should be dropped.

#### 5.1.2 Program Processes

##### Customer Satisfaction

Customer satisfaction with various processes and components of the program was mixed. Such an outcome is not surprising given that all applications were still under review at the PUCO and no incentives had been processed. However, there appeared to be other program elements causing dissatisfaction, particularly for the less sophisticated customers.



Most customers were very satisfied with the support provided by their account executives and excited about receiving incentives for work they had already undertaken. Some also commented on the high quality of KEMA's phone support.

However, a number of participants cited concerns with communication, including difficulty in understanding which of multiple projects KEMA staff was following up on and not receiving timely information on the status of their applications. A more frequently raised issue was related to the challenging nature of the application process; an issue which AEP Ohio and KEMA recognized and took measures to address during the year. Multiple participants commented that they were challenged in providing all the documentation required, some because the content was unclear, others because much was new to them and as either highly technical or financial.

When asked to suggest program improvements, participants most often cited either timelier processing of incentives or delaying program announcement and application solicitation until the bugs were worked out of the program.

#### Program Payment Delay

At the time of the participant interviews all applications were still under review at the PUCO and no customers had received payment. Most customers commented on this delay, and many suggested that they would have preferred that applications not be solicited until kinks in the program were worked out and responses could be prompter. Many also expressed interest in on-going communications regarding the program's status and anticipated incentive timing. Efforts, such as those in the luncheon seminars, to manage expectations regarding response timing had some effect, but ongoing communication on this matter would have been useful. Further, customers would likely have been more understanding of the issue if it had been made clearer to them that AEP Ohio was doing its best to deal with legislative requirements for 2009 and not arbitrarily rushing out a new program.

#### Marketing and Outreach

Account managers dominated the means by which customers became aware of the program. Many customers also commented on how they relied on their account managers to clarify requirements and submit their applications as well. Trade allies played a limited role in marketing this program which was restricted to larger customers including the bigger chains. Luncheon seminars on the program were also appeared to play a minor role.

#### Trade Ally Network

During PY 2009, in this admittedly small participant sample trade allies were relatively invisible in the promotion and communication of the Self-Direct program. Because of program delays, many trade allies are likely happy with this state however; trade allies have not yet been interviewed about this program so only limited input on this is available. As the Self-Direct

program picks up steam, trade allies are likely to get more involved and help AEP Ohio reach some customers who have not yet participated. Given that the program targets AEP Ohio's larger customers the relative importance of the account executives in customer outreach and more limited participation of trade allies is reasonable. Nonetheless, going forward it does make sense to assure that trade allies know of the program and assist them in any of their marketing efforts to potentially attract additional customers since they were likely involved in past efficiency projects and can specifically target customers that are likely participants.

## Section 6. Appendices

### 6.1 Data Collection Instruments

#### 6.1.1 Staff and Implementer Interview Guides

# AEP-Ohio Evaluation for the Self Direct Program Program Staff In-Depth Interview Guide

AEP-Ohio Program Manager: [Anyone Else?]

AEP-Ohio Business Programs Manager: Mark Garrison

February 18, 2010

Name of Interviewee: \_\_\_\_\_ Date: \_\_\_\_\_

Title: \_\_\_\_\_ Company: \_\_\_\_\_

*[Note to Reviewer] The Interview Guide is a tool to guide process evaluation interviews with utility staff and implementation contractors. The guide helps to ensure the interviews include questions concerning the most important issues being investigated in this study. Follow-up questions are a normal part of these types of interviews. Therefore, there will be sets of questions that will be more fully explored with some individuals than with others. The depth of the exploration with any particular respondent will be guided by the role that individual played in the program's design and operation, i.e., where they have significant experiences for meaningful responses. The interviews will be audio taped and transcribed.*

### Introduction

Hi, may I please speak with [NAME]?

My name is \_\_\_ and I'm calling from Navigant Consulting, we are part of the team hired to conduct an evaluation of AEP-Ohio's gridSmart Business Energy Efficiency programs. We're conducting interviews with program managers and key staff in order to improve our understanding of AEP-Ohio's programs. At this time we are interested in asking you some questions about the Self Direct program. The questions will only take about an hour. Is this a good time to talk? [IF NOT, SCHEDULE A CALL BACK.]

Ok, great. If you don't mind, I would like to do a voice recording our conversation to speed up the note taking. Is that OK? I'm going to switch you to speaker phone. I am in an enclosed, private office.

### Roles and Responsibilities

1. Can you briefly summarize your role and responsibilities in the Self-Direct program? For how long have you carried these out? Has your role changed over time?
2. Can you explain the roles of those involved in the program implementation? *[Probe for all significant actors with responsibility in program delivery including implementer, account managers, and program allies.]*
3. Can you explain the division of program responsibilities between AEP Ohio and the two operating utilities?
4. What other departments at AEP are involved in the back-office program services?
  - PUCO Application submittal?
  - Manage Data? / Tracking Targets?
  - Planning and oversight
5. Roughly, how many people are assigned to work on this program?
6. What are the formal and informal communication channels between the various groups involved in the program? Do you feel information is shared in a timely manner?
7. We have the KEMA Operations Manual dated January 25 2010. Are there any other documents that outline the roles and responsibilities of program staff for the program?
8. How closely is the KEMA Operations manual followed?

### Overall Goals and Objectives

9. The KEMA manual lays out goals for the total Business Sector. Do you have goals and budgets for the Prescriptive Lighting program? Do the operating utilities have separate goals and budgets? Are these laid out in any documents? If so, can we get a copy?
10. Outside of the quantitative goals (e.g., \$, \$/kWh, savings and participation rates), in your own words, what are the key goals and objectives of this program?
11. What performance metrics are you currently using to measure the performance of the program? According to these metrics, has the program met 2009 goals? *[If necessary, probe for number of rebate applications, energy savings realized.]* Why or why not? If yes, have the goals been met on time?

### Marketing and Promotion

12. Please describe your program marketing campaign in your own words *[If necessary: Do marketing activities vary by prescriptive and custom? By customer size?]*
  - What are the marketing channels for each program component?
    - (bill inserts, TV, newspaper, radio, community events?)
  - How often does each activity occur?
  - Who is in charge of developing materials?

- Who is in charge of marketing activities?
  - Who has been most influential in getting customers to participate? Who else has been influential?
13. Can we arrange to get copies of your marketing plan and all marketing collateral you have used?
14. Do you think the level of marketing and promotion of the program(s) has been appropriate so far? Do you think promotional efforts are successful? Do you think they reach the right audience? *[Probe for differences between customer and trade ally target markets.]*
15. Do you anticipate making any changes to marketing efforts for Program Year 2 (2010)? If so, please describe these changes. Do you have documentation of these changes? If so, how can we arrange to obtain copies?

#### Program Participation

We are also trying to learn of any process related issues that may arise from the current design of the program(s).

16. Could you briefly describe the process for participation in the program from the customer perspective?
17. How do customers identify opportunities to participate in this program? How active are Account managers? Trade allies or ESCO's? KEMA?
18. Do you have a sense of how satisfied customers are with various aspects of the program (e.g., ease of application, verification process, timing of incentives)?
19. What do customers do if they have questions about the participation process? Is there a systematic process in place for responding to customer inquiries? How quickly are their questions answered? What improvements can be made?
20. What is the target review time between receipt of the application and completion of review? What is the average review time? What, if anything, slows down review time?
21. What is the target processing time between completion of review and submission to PUCO? What is the average processing time? What, if anything, slows down this process?
22. What are the reasons that a project is labeled "Does Not Meet Qualifications"? How are customers informed? Is there an "appeal process" for customers?
23. What are the reasons that a project is "CANCELLED"? Are any cancelled projects likely to resubmit?

#### Trade Allies

24. Have trade allies or ESCOs been involved in recruiting customers for the program? Submitting applications at customer's request? Why are they involved? Which types of trade allies are choosing to participate in the program(s) and which are not? Do you have a sense of trade allies' satisfaction with their participation in this program? Are trade allies meeting your expectations?

#### Rebates/Incentives

25. What do you perceive to be the level of satisfaction among program participants with the incentive payment and exemption options? Do customers seem to have a preference for one option or the other? Why is that?
26. Are program participants satisfied with the current rebate amounts (75% of regular program) and incentive limit caps (50% of total cost, 1 to 7 year payback window)? Are these limits being checked for all projects?

#### Call Center

27. Are customers making use of the phone number listed on the application form? *[Probe for call volume.]* What are the main issues raised by customers/contractors?

#### Data Tracking

28. What systems are in place for data tracking? Who captures the data and how?
29. Can you briefly describe what data are tracked for the program(s)? What about application attachments and calculations? What about review history and revisions to savings or incentive amount?
30. Do you feel all important information is captured and stored in a way to best support program efforts? Is the information accurate and current? Are there additional types of reports or information that you would find beneficial? Is there a process for requesting additional data?
31. Is the system used for data tracking linked with any other systems such as databases with customer account information or ones that track marketing activities?

#### Quality Assurance and Quality Control

32. Are the quality procedures documented in the KEMA operations manual followed closely?
33. Can you provide a brief description of your quality procedures? What kind of quality procedures are in place to verify equipment quantities and eligibility? Project completion? What is the process for verifying savings?
34. Approximately, what percentage of all projects are pre-inspected and post-inspected? How do you determine if a project requires inspection (both pre and post)? *[Probe for random check guidelines (10% of \$10K or less, 25% of \$10K-\$50K, 100% of \$50K+), geographical location, contractor]*
35. Who conducts pre and post inspections and how are they documented? How can we arrange to obtain these documents?
36. When are on-site measurements conducted as part of the pre and post verification? Which measures and business types?
37. I may have more questions about Quality Assurance and Quality Control procedures once I've had the chance to review the documented quality procedures. Who is the appropriate person (or persons) to contact with future questions?

38. Do you have a sense of customer satisfaction with the verification process?

**Program Adjustments and Enhancements**

39. Have the design of the program(s) or the program processes changed since inception? If so, how? Why were the changes made?
40. Will there be any changes made to program offerings in Program Year 2010 (e.g., program offerings, marketing approach, targets, incentive levels, etc)? If so, please describe these additions or deletions.
41. Are there elements in design, structure, and/or operation that should be modified to make the program(s) work better? If so, what would you recommend? Why do you think this change is needed?
42. From your perspective, is staffing adequate for this program to meet its goal? (If not): What areas/functions do you feel are not adequately staffed?

**Success and the Future of These Efforts**

43. In your opinion, how successful are the program(s)? Why? What are the strengths? What are the weaknesses?
44. Do you think the current economic conditions are affecting the program? If so, how?

**Other**

45. Is there anything that was not included in the program(s) launch (due to the fast tracking or otherwise) that you feel should be included in the Program Year 2 or 3 efforts other than the changes that have already been made?
46. Are there any additional people with key roles that we should talk to?
47. Do you have any other comments or suggestions for us?

Thank you very much for taking the time in assisting us with this evaluation. Your contribution is a very important part of the process.

We might follow-up with you by phone later, if additional questions arise.

6.1.2 Participating Customer Interview Guide

**AEP-Ohio Evaluation**  
**for the Self Direct Program**  
**Customer Participant In-Depth Interview Guide**

February 3, 2010 DRAFT

Name of Interviewee: \_\_\_\_\_ Date: \_\_\_\_\_

Title: \_\_\_\_\_ Company: \_\_\_\_\_

Interviewer: \_\_\_\_\_ Project Number: \_\_\_\_\_

*The interviews will be audio taped and transcribed.*

***Identify Appropriate Respondent***

**Q1a**

Hello, this is <INTERVIEWER NAME> calling from Navigant Consulting on behalf of AEP Ohio. This is not a sales call. May I please speak with <CONTACT> ?

[IF NEEDED]; my understanding is that <CONTACT> is responsible for making energy-related decisions for your firm at <SERVICE ADDRESS> and was listed as the primary contact when <Company> participated in AEP Ohio's Self Direct Program. May I please speak with him/her?

1 No, this person no longer works here → Is there someone else that is involved with facility improvements or building operations that might be familiar with <company>'s participation in AEP Ohio's Self Direct program? [Repeat introduction with new contact]

2 No, this person is not available right now [Ask when available or leave message.] CALL BACK LATER

3 Yes – SKIP to Q2

97 No, other reason (THANK & TERMINATE)

**Q2**

Hello, my name is <INTERVIEWER NAME> calling from Navigant Consulting on behalf of AEP Ohio. We're calling to do a follow-up survey about your firm's participation in the Self Direct program. Do you recall participating in the Self Direct Program on or about <PROGRAM



DATE>?

1 Yes → continue to Q3

2 No → [Describe program and ask if they were involved. If still no recall → Can I speak with someone who is likely to be responsible for facility improvements?]

3 There is no one here with information on that address/wrong address – THANK & TERMINATE

[IF NEEDED] Navigant Consulting is an independent consulting firm hired by AEP Ohio to learn about customer experiences with its Self Direct program and to help AEP Ohio improve its programs for the future.

[IF NEEDED] This is a very important fact-finding survey with companies that have recently participated in an energy efficiency program sponsored by AEP Ohio. We are NOT interested in selling anything, and we are primarily interested in gaining your feedback on the Self Direct program to help AEP Ohio improve the services it provides to its customers in the future. Your responses will not be connected with your firm in any way and will be summarized with responses we get from other businesses that we talk with.

Q3.

Great. Are you the person responsible or were you involved with your company's decision to participate in the program, or were you the main point of contact with AEP Ohio?

1 Yes → Great. We would like to ask you some questions about this program, which should only take about 15 to 20 minutes. Is now a good time, or is there a time we can call you back tomorrow?

2 No → Ask for contact name and repeat introduction in Q2.

Now I'd like to ask you about the project you submitted.

R1

Do you remember how you first learned about the financial incentives available through the Self Direct program?

R2

What were the circumstances surrounding your decision to participate?

[PROBES: Who was involved in the decision to move forward with this project and submit an application?]

R3

Can you spend just a few minutes and describe the process that you went through to complete and submit the required application? I'm particularly interested in who took the lead in the project, the ease/difficulty you experienced in completing the required forms, what resources were utilized to complete the application, etc.

[PROBES: Did you encounter any difficulty completing the application? Did you consult any resources such as the AEP Ohio website, program materials, the spreadsheet calculator, or an account representative to complete the application?]

R4

Who was primarily responsible for preparing the incentive application (including the required supporting documentation)?

[PROBE: If not the respondent, ask if person was employed by the company, was a consultant contractor (and what type), etc.]

R5

Did [you/they] experience any difficulties or unreasonable delays in preparing/submitting the incentive application? Please elaborate -- What was the source of difficulty/delay?

[PROBES: Were the forms easy to understand? Was it clear to you what you needed to submit? What was the respondent's recollection of the ease/eligible project selection, level of support provided by AEP Ohio, simplicity of application procedures, etc.]

R6

The program offers your company the option to receive a direct incentive payment or an exemption from the EE/PDR rider. Has your company decided which option it will select once the project is approved? Who is primarily responsible for choosing the option?

[PROBES: Why was that option chosen? (If incentive option chosen) Will the incentive payment be used to conduct future energy efficiency projects?]

R7

Are there elements in design, structure, and/or operation that should be modified to make the Self Direct program work better? If so, what would you recommend? Why do you think this change is needed?

[PROBES: Are you satisfied with the amount of incentives offered through the Self Direct program? Are you satisfied with the response time of the program?]

*Awareness of Other EE Programs*

**AP1**

Aside from the program[s] we have been discussing today, are you aware of other programs or resources that are designed to promote energy efficiency for businesses like yours?

**AP2**

What types of programs or resources can you recall?

[PROBES: Do you know what organization/company administers that program? After each response prompt with "Can you recall any others?"]

**AP3 - IF HAS NOT PARTICIPATED IN AEP OHIO BUSINESS LIGHTING PROGRAM OR CUSTOM PROGRAM AND DID NOT MENTION THE PROGRAMS ABOVE in AP2**

Are you aware of AEP Ohio's Business Lighting Rebate Program? [PROBE – describe program if necessary.]

Are you aware of AEP Ohio's Business Custom Rebate Program? [PROBE – describe program if necessary.]

### *Customer Background*

We are almost finished. I'd just like to get some general background information about <COMPANY> and your responsibilities there.

C1

Can you briefly summarize your role at your company? What are your main responsibilities?

C2

What is <COMPANY>'s primary business activity at this particular facility (<SERVICE ADDRESS>)? [RECORD ONE]

1 Office

2 Retail (non-food)

3 College/University

4 School

5 Grocery Store

6 Restaurant

7 Health Care

8 Hospital

9 Hotel or Motel

10 Warehouse/Distribution

11 Construction

12 Community Service/Church/Temple/ Municipality

13 Industrial Process/ Manufacturing/ Assembly – type?

14 Condo Assoc./Apartment Mgmt.

15 Other (Please specify) \_\_\_\_\_

98 Refused

99 Don't Know

C3

About how many full-time employees work at this location?

&EMP # of employees

98 Refused

99 Don't Know

C4

Does <COMPANY> own or lease this facility?

1 Own

2 Lease

98 Refused

99 Don't Know

C5

Is the company headquarters in Ohio or elsewhere?

1 HQ in Ohio

2 HQ elsewhere, outside of OH

98 Refused

99 Don't Know

*End Survey*

One last question...

E1.

What types of services, information, or other support would you like to receive from AEP Ohio in the future?

That's all of the questions I have for you today. Thank you so much for your time, your insights are extremely valuable to AEP Ohio. Have a great day!

#### Program Adjustments and Enhancements

1. Have the design of the program(s) or the program processes changed since inception? If so, how? Why were the changes made?
2. Will there be any additions or deletions to program offerings in Program Year 2? If so, please describe these additions or deletions.
3. Will there be any changes to the marketing approach, targets, or level of marketing?

#### Success and the Future of These Efforts

4. In your opinion, how successful are the program(s)? Why? What are the strengths? What are the weaknesses? Do you feel that free-ridership is a major concern for the program(s)? *[Please explain.]*
5. How are the current economic conditions affecting the program?

#### Other

6. Is there anything that was not included in the program(s) launch (due to the fast tracking or otherwise) that you feel should be included in the Program Year 2 or 3 efforts other than the changes that have already been made?
7. What are the key process-related issues you would like to see explored in this evaluation?
8. Are there any additional people with key roles that we should talk to?
9. Do you have any other comments or suggestions for us?

Thank you very much for taking the time in assisting us with this evaluation. Your contribution is a very important part of the process.

We might follow-up with you by phone later, if additional questions arise.

#### 6.2 Other Appendices

##### PY 2009 Program Application Form

The application forms for the PY 2009 program are provided in the Operations Manual in Appendix B.

Application forms and additional information can be downloaded at: [www.gridsmartohio.com](http://www.gridsmartohio.com)