



Opinion **Dynamics**

**Boston** | Headquarters

617 492 1400 tel  
617 497 7944 fax  
800 966 1254 toll free

1000 Winter St  
Waltham, MA 02451



# PY7 Evaluation Plan for the Illinois Power Agency Residential and Commercial Energy Efficiency Programs

Final

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CADMUS

NAVIGANT

  
**Michaels**Energy



## **Contributors**

**Hannah Arnold**  
**Senior Project Manager, Opinion Dynamics**

**Jane Colby**  
**Principal, The Cadmus Group, Inc.**

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## 1. Introduction

Ameren Illinois Company (AIC) hired the team of Opinion Dynamics, The Cadmus Group, Navigant Consulting, and Michaels Energy to perform impact and process evaluations for the stand-alone Illinois Power Authority (IPA) energy efficiency programs, implemented between June 2014 and May 2015. Specifically, the team will assess the following programs in Program Year 7 (PY7):

- Small Business Direct Install
- Multifamily
- Specialty Lighting
- All-Electric Homes
- Rural Efficiency Kits

This document presents plans for the evaluation of each PY7 program, as well as a number of cross-cutting, non-program specific tasks. As outlined within the sub-sections of this document, we will evaluate the IPA programs using a number of different data collection strategies and analytic techniques to support process and impact analyses. In addition, there are a number of overarching resources and directives guiding our work:

- **Statewide Technical Reference Manual (TRM):** The evaluation team will use the Illinois Statewide TRM for Energy Efficiency Version 2.0 (September 14, 2012) for its impact evaluation efforts, where applicable, because it was the version available at the time that the IPA programs were put out to bid.
- **Net-to-Gross Ratios (NTGRs):** As specified in each program-specific plan, the team will apply NTGRs by program as outlined in the team's net-to-gross (NTG) Recommendations to the Stakeholder Advisory Group (SAG). Data collected as part of the PY7 evaluation for the purpose of developing NTGRs will be applied prospectively for potential IPA programs approved by Illinois Commerce Commission (ICC) in a docketed proceeding for implementation in PY9 (June 1, 2016–May 31, 2017).
- **Evaluation, Measurement, and Verification (EM&V) Coordination:** Where utilities in the state offer similar programs, the evaluation team is in ongoing communication with other Illinois evaluators to discuss evaluation approaches planned for PY7. These discussions ensure that, where appropriate, the evaluation approach is consistent.

The evaluation team will implement the detailed plans contained in this document under a distinct IPA-specific budget. In addition, we will provide a separate IPA-specific Integrated Report at the conclusion of all PY7 evaluation efforts.

## **2. Program-Specific Evaluation Plans**

### **2.1 Small Business Direct Install Program**

#### **2.1.1 Program Description**

The Small Business Direct Install (SBDI) Program began as a pilot in PY5 as part of the AIC ActOnEnergy Business Program and was fully launched in PY6 as an IPA program. The program is implemented by Leidos (the “implementation contractor”) and offers AIC business customers in the DS-2 rate code energy-efficient measures, including CFLs, LED exit signs, occupancy sensors, and T12 to T8 retrofits. In PY7, the SBDI Program is expected to provide 28,699 net MWh in electric savings.

There are three key entities involved in program delivery: small business energy advisors (SBEAs), small business program allies (SBPAs), and lighting distributors. The SBEAs are program staff members who are located throughout AIC’s service territory, conduct outreach to customers, and perform energy assessments for participants. They also work with SBPAs—program-qualified electrical contractors who install eligible measures and in many cases provide turnkey services by performing energy assessments as well. Finally, participating electrical distributors support both SBEAs and SBPAs by ensuring the supply of program measures.

Beginning in PY8, Franklin Energy will take over implementation of the program, and the evaluation team anticipates some program design changes. As a result, the evaluation team will perform a limited PY7 evaluation focused on program impacts and key process changes since PY6.

#### **2.1.2 Research Objectives**

The research objectives for the PY7 SBDI evaluation are to provide estimates of gross and net savings attributable to the program. We will determine gross energy and demand savings in accordance with Commission Orders for IPA programs and will estimate net energy and demand savings using the program’s PY6 NTGR. In particular, the PY7 impact evaluation will answer the following questions:

1. What are the estimated gross energy and demand impacts from this program?
2. What are the estimated net energy and demand impacts from this program?
3. What is the level of non-participant spillover? (for prospective application)

Given that PY7 is the final year of the implementation by Leidos, the team will perform a focused process assessment designed to answer the following research questions.

1. Program Design and Implementation
  - a. What changes, if any, were made to the program’s design and implementation between PY6 and PY7? What was the rationale for these changes?
  - b. Was the program implemented according to plan? If not, what changes were made and why?
  - c. What implementation challenges occurred in PY7, and what was done to address them?

## *Small Business Direct Install Program*

- d. What program marketing and outreach strategies did the program implement in PY7? How did these strategies differ, if at all, from those implemented in PY6?
  - e. Did the role of SBPAs in the assessment process change over the past program year? What effect did these changes have on program implementation and participation?
2. Program Participation
    - a. How many customers participated in the program in PY7? Did participation meet expectations? If not, why not?
    - b. How many SBPAs participated in the program in PY7? What proportion provided turnkey services and conducted energy assessments?
  3. Program Processes
    - a. How satisfied were SBPAs with their participation in the program?
    - b. What effect, if any, did participation in the program have on SBPA business practices and staffing?
  4. Non-Participant Awareness and Barriers
    - a. What is the level of program awareness and familiarity among key sectors targeted by the program?
    - b. What is the level of knowledge of and attitude toward energy efficiency among non-participants?
    - c. What are the barriers preventing customers from participating in the program?

We will explore each of the questions through the activities described in this evaluation plan.

### **2.1.3 Methodology**

Below we provide a summary of the methods planned for the PY7 SBDI Program evaluation.

#### **Data Sources**

#### **Impact Analysis**

To estimate PY7 ex post gross savings for the SBDI Program, we will conduct an engineering review of the program-tracking database and apply values from the Statewide TRM V2.0. For ex post net impacts, we will apply the NTGR from the PY6 evaluation (0.90) to calculate PY7 net impacts.

#### **Process Analysis**

The process analysis will utilize data from three data collection methods: in-depth interviews, a review of program materials and tracking data, and a non-participant survey. In-depth interviews with AIC and implementation contractor staff will provide the evaluation team with a comprehensive understanding of any changes to the program. In addition, interviews with participating contractors will help assess program satisfaction and will provide feedback on program changes involving the energy assessment process. We also

## Small Business Direct Install Program

plan to field a telephone survey with non-participating AIC business customers to gather information about barriers to participation.<sup>1</sup>

### Sampling Plan

#### Non-Participant Survey

The evaluation team will conduct a telephone survey with non-participants in the SBDI Program. The interviews will explore barriers to participation and program awareness among key sectors targeted by the ActOnEnergy Business Program, as well as questions designed to assess non-participant spillover. To ensure that we achieve a representative sample for potential participants in all AIC Commercial and Industrial (C&I) programs, ranging from SBDI to retro-commissioning, we will sample non-participants by their rate class. We plan to conduct a total of 200 interviews, of which at least 70 will be with customers eligible for the SBDI Program. We plan to conduct the survey in July 2015.

#### SBPA Interviews

The team plans to conduct the majority of SBPA interviews with those who completed assessments in PY7 given that the growth in ally involvement in this area represents a substantial shift from PY6. In addition, the team will speak with a small number of SBPAs who completed work orders only (i.e., installed measures) to understand their experience with the program and decision not to participate in the assessment process. The team will randomly select SBPAs from each population.

SBPA Type	Total (N)	Target Completed Interviews (n)
Assessing Allies	51	15
Work Order Allies	56	5
<b>Total</b>	<b>107</b>	<b>20</b>

### Analysis Plan

The PY7 evaluation will include a gross impact, a net impact, and a process evaluation for the SBDI Program. We outline our analysis plan for key impact- and process-related evaluation activities below.

#### Gross Impacts

To determine gross impacts associated with the SBDI Program, we plan to conduct a review of the program-tracking database to ensure the accurate application of the Statewide TRM V2.0.

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<sup>1</sup> This task will be performed in conjunction with the Commercial and Industrial (C&I) Standard, Custom, and Retro-Commissioning programs within the 8-103/8-104 portfolio.



## Net Impacts

We plan to apply the NTGR from the PY6 evaluation (0.90) to calculate net impacts.

## Process Findings

We will present process-related findings based on our analysis of the program materials, databases, non-participant survey research, and interviews with SBPAs. Survey data will generally be presented using descriptive statistics.

### 2.1.4 Tasks

This section outlines the planned evaluation tasks for our PY7 assessment of the SBDI Program.

#### Task 1: Review Program-Tracking Data

The team will review all program materials and tracking data to document the design and implementation of the PY7 program. This includes program marketing and implementation plans, customer and program ally communications, and extracts from the program-tracking database (final data anticipated in May 2015). At this time, the team has received the PY7 implementation plan, as well as a list of participating SBPAs. We will continue to communicate with AIC and the implementation contractor about data needs.

*Deliverable:* Data Requests

*Deliverable Date:* May/June 2015

#### Task 2: Program and Implementation Staff Interviews

We will conduct interviews with AIC and Leidos staff to understand the SBDI Program's design and implementation in PY7. In total, we expect to complete interviews with four program staff members: the Program Manager, the Deputy Program Manager, the Program Coordinator, and the Community Organization Coordinator.

*Deliverable:* Conducted interviews

*Deliverable Date:* May 2015

#### Task 3: SBPA Interviews

Interviews with SBPAs will focus on their role in providing turnkey services, feedback on program processes and satisfaction with the program, and any ongoing barriers to AIC customer participation in the program. We plan to conduct up to 20 in-depth interviews with SBPAs who were active in the program during PY7. We anticipate completing 15 interviews with SBPAs who chose to perform assessments and 5 SBPAs who opted not to do so.

*Deliverable:* Draft and final interview guides

*Deliverable Date:* June 2015

#### Task 4: Non-Participant Survey

As part of a joint effort with the C&I Standard and Custom programs, the team will field a survey to non-participating C&I customers to explore awareness of the ActOnEnergy Business Program, understanding of and interest in program offerings, as well as barriers to participation and non-participant spillover. The evaluation team will provide findings from the survey in a memo and ultimately as an Appendix to the PY7 SBDI report.

*Small Business Direct Install Program*

*Deliverable:* Draft and final survey instrument

*Deliverable Date:* July 2015

**Task 5: Impact Analysis**

As noted throughout the plan, the team will use the Statewide TRM V2.0 to calculate ex post gross savings associated with the measures installed through the program. For net impacts, we will apply a NTGR of 0.90 to the ex post gross savings per the NTGR calculation efforts in PY6.

*Deliverable:* Results provided in annual report

*Deliverable Date:* July 2015

**Task 6: Reporting**

The team will provide an annual evaluation report containing process and impact results for the SBDI Program.

*Deliverable:* Draft report

*Deliverable Date:* July 2015

*Deliverable:* Final report

*Deliverable Date:* August 2015

**2.1.5 Budget and Schedule**

Table 2-1 and Table 2-2 summarize the timing of each evaluation activity, as well as the budget associated with each task. In total, the PY7 budget for the SBDI Program is \$86,800.

**Table 2-1. SBDI Program PY7 Evaluation Timeline**

Task #	Evaluation Activity										
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1	Review Program-Tracking Data										
2	Program and Implementation Staff Interviews										
3	SBPA Interviews										
4	Non-Participant Survey										
5	Impact Analysis										
6	Reporting										

- Data Request
- Create Data Collection Instruments
- Collect Data
- Analyze
- Milestone Deliverables

**Table 2-2. SBDI Program PY7 Evaluation Budget**

<b>Task No.</b>	<b>Task Description</b>	<b>Deliverable Date</b>	<b>Dollars by Task</b>
1	Review Program-Tracking Data	May/June 2015	\$5,000
2	Program and Implementation Staff Interviews	May 2015	\$3,800
3	SBPA Interviews	June 2015	\$11,000
4	Non-Participant Survey	July 2015	\$30,000
5	Impact Analysis	July 2015	\$14,000
6	Reporting	July/August 2015	\$23,000
<b>Total Dollars</b>			<b>\$86,800</b>

## 2.2 Multifamily Program

### 2.2.1 Program Description

The IPA Multifamily Program offers incentives and services that enable energy savings and lower operating costs in market rate multifamily housing. The program has two components: common area lighting and major measures.<sup>2</sup> The common area lighting component focuses on replacement of standard efficiency common area lighting with high-efficiency fluorescent lighting, and incandescent and fluorescent exit signs with LED exit signs. The major measures portion of the program offers more complex measures, such as insulation and air sealing.

Program delivery varies based on the component, but overall involves a hybrid approach that leverages program implementation staff from Conservation Services Group (CSG) and program allies in outreach to customers, as well as measure installation. In particular, CSG account managers market the program to prospective participants and conduct walk-through audits to assess the potential for common area measures. While CSG field staff play a key role in installing lighting measures in common areas, program allies play the central role in the delivery of the major measures component. They identify project leads, perform walk-through audits, and install the program measures.

### 2.2.2 Research Objectives

The objective of the Multifamily Program evaluation is to provide estimates of gross and net electric savings associated with the program. In particular, the PY7 impact evaluation will answer the following questions:

1. What are the estimated gross electric and demand impacts from this program?
2. What are the estimated net electric and demand impacts from this program?

The evaluation team will also explore a number of market and process-related research questions as part of the PY7 evaluation.<sup>3</sup> These questions are aimed at exploring key changes to the program, as well as the remaining market potential for the program in future years.

1. Program Participation
  - a. How many projects were completed? By how many different customers? What types of projects?
  - b. Did customer participation meet expectations? If not, how different was it and why?
  - c. How many customers participated in more than one component?
2. Program Design and Implementation
  - a. Did the program as implemented change compared to PY6? If so, how, why, and was this an advantageous change?
  - b. What implementation challenges occurred in PY7, and how did the program overcome them?

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<sup>2</sup> There is also a Multifamily Program offered by AIC, which focuses on in-unit direct install measures, as well as some common areas and major measures (see the 8-103/8-104 Plan).

<sup>3</sup> The evaluation team will conduct these activities in conjunction with the 8-103/8-014 Multifamily Program.

3. Opportunities for Program Improvement

- a. What changes could the program make to improve the customer experience and generate greater energy savings?

4. Market Characterization

- a. What is the size of the multifamily market in the AIC service territory?
- b. What are the characteristics of multifamily buildings in AIC service territory?
- c. How do property managers and owners make decisions about building improvements?

We will explore each of the questions through the activities described in this evaluation plan.

### 2.2.3 Methodology

Below we provide a summary of the methods planned for the PY7 Multifamily Program evaluation.

#### Data Sources

#### Impact Analysis

The team will estimate ex post gross impacts by reviewing program-tracking data and confirming correct application of the Statewide TRM V2.0. For ex post net impacts, we plan to apply the NTGR from PY5 and PY6 evaluations to calculate PY7 net impacts. Table 2-3 shows the NTGR for PY7 by component.

**Table 2-3. PY7 Multifamily NTGR by Component**

Component	Measure	Electric NTGR			Gas NTGR		
		Free-Ridership	Participant Spillover	NTGR	Free-Ridership	Participant Spillover	NTGR
Common Area Lighting	All measures	0.23	0.06	0.83	N/A	N/A	N/A
Major Measures	Insulation	0.12	0.00	0.88	0.25	0.00	0.75
	Air Sealing	0.04	0.00	0.96	0.19	0.00	0.81

#### Market Characterization

The market characterization will draw on data from a number of primary and secondary data sources. In terms of secondary data, the evaluation team will draw on AIC customer data, as well as publicly available information related to housing types and installed equipment such as the following:

- **The American Housing Survey (2013):** This survey provides data on units, stories, year built, HVAC equipment, fuel type, appliances, and other demographics.
- **The American Community Survey (2009–2013):** This survey provides data about the number of units per multifamily structure, year built, housing tenure, and socio-demographic data on occupants.
- **The Residential Energy Consumption Survey (2009):** This survey provides housing characteristics, including information on fuel type, structural and geographic characteristics, appliances, air conditioning, and space and water heating.

The team will also gather primary data through quantitative surveys with participating and non-participating property managers and through in-depth interviews with participating program allies. The data from these sources will provide valuable information on the services sought and provided to multifamily buildings in the AIC service territory, as well as on the decision-making process and key decision makers.

### Process Analysis

The process analysis will utilize data from two data collection methods: a review of program data and in-depth interviews with program staff and participating contractors. In-depth interviews with AIC and CSG implementation staff will provide the evaluation team with a comprehensive understanding of the program. In addition, we will conduct interviews with participating program allies to understand their satisfaction with the program.

### Sampling Plan

#### Participating Property Manager/Owner Survey

We will conduct a telephone survey with property managers who participated in the Multifamily Program. For this task, we will attempt to survey a census of participating property managers based on our knowledge of past participation, as shown in Table 2-4.

**Table 2-4. Property Manager Survey Sampling Plan**

Component	PY6 Property Manager/ Owner Count*	Sampling Approach
Common Area Lighting	79	Census
Major Measures	3	Census

\* Note: Individual property managers/owners may participate in multiple components.

#### Non-Participating Property Manager/Owner Survey

The team also plans to speak with property managers and owners who have not participated in the Multifamily Program. Overall, we anticipate conducting up to 50 interviews from a list created from AIC’s commercial customers and having discussions with CSG about property managers in the AIC service territory. However, we will explore the sources of property manager and owner names and contact information and provide IPA, AIC, and ICC staff with a detailed memo outlining our sampling approach for this survey effort.

### Process Analysis

We do not anticipate conducting any sampling for the in-depth interviews with program allies given the number participating in the program. At present, there are 10 allies participating in the IPA Multifamily Program and we will attempt to speak with each of them as part of the PY7 evaluation.

### Analysis Plan

The PY7 evaluation will include a gross and net impact evaluation, as well as a market characterization for the Multifamily Program. We outline our analysis plan for key evaluation activities below.

## Gross and Net Impacts

To determine gross impacts associated with the Multifamily Program, we plan to conduct a review of the program-tracking database to ensure accurate application of the Statewide TRM V2.0. We plan to apply the NTGR from PY5 and PY6 evaluations to calculate net impacts.

## Market Characterization

We will base the multifamily market characterization on a review and analysis of AIC customer data, publicly available national studies, and surveys with participating and non-participating property managers and owners. In addition, we may leverage interviews with participating program allies. We will present the analysis of AIC customer data, other secondary data sources, and survey data using descriptive statistics. Depending on the available data, we may also provide maps of key data using geographic information systems (GIS).

## Process Evaluation

We will present process-related findings based on our analysis of the program materials, databases, and survey research. Survey data will generally be presented using descriptive statistics.

### 2.2.4 Tasks

This section outlines the planned evaluation tasks for our PY7 assessment of the Multifamily Program.

#### Task 1: Program and Implementation Staff Interviews

We will conduct interviews with AIC and CSG staff to understand the Multifamily Program design and implementation in PY7. In total, we expect to complete two interviews, one with the AIC program manager and one with the CSG program manager.

*Deliverable:* Conducted interviews

*Deliverable Date:* May 2015

#### Task 2: Review Program-Tracking Data and Materials

The team will conduct a comprehensive review of all program materials and tracking data. This includes program marketing and implementation plans, customer and program ally communications, and extracts from the program-tracking database. We will review all program materials to document the design and implementation of the PY7 program.

*Deliverable:* Data Request

*Deliverable Date:* June 2015

#### Task 3: Program Ally In-Depth Interviews

We will perform up to 10 in-depth interviews with program allies to inform the process assessment and market assessment. The interviews will focus on the services provided by program allies, as well as their role in marketing and implementing the Multifamily Program. We also plan to explore program ally perceptions of barriers to program participation and the program's remaining market potential.

*Deliverable:* Draft and final interview guides

*Deliverable Date:* July 2015

#### **Task 4: Secondary Data Review and Analysis**

We will review the AIC customer database, as well as publicly available data from the American Housing Survey, the American Community Survey, and the Residential Energy Consumption Survey, to assess the size and characteristics of the multifamily market in AIC service territory.

*Deliverable:* Results provided in annual report

*Deliverable Date:* October 2015

#### **Task 5: Participating Property Manager/Owner Survey**

We plan to complete approximately 40 interviews with participating multifamily property managers/owners in AIC's service territory. The interviews will explore the property manager's decision-making process related to performing energy efficiency upgrades, the barriers to performing these upgrades, and barriers to participating in AIC's Multifamily Program.

*Deliverable:* Draft and final interview guides

*Deliverable Date:* July 2015

#### **Task 6: Non-Participating Property Manager/Owner Survey**

We plan to complete up to 50 interviews with non-participating multifamily property managers/owners in AIC's service territory. The interviews will gather information similar to that collected from participating property managers and owners (i.e., the decision-making process, and barriers to participation).

*Deliverable:* Draft and final interview guides

*Deliverable Date:* July 2015

#### **Task 7: Impact Analysis**

The team will use the Statewide TRM V2.0 to calculate ex post gross savings associated with the measures installed through the program in PY7. For net impacts, we will apply the NTGRs listed in Table 2-3. We anticipate conducting this analysis in July and August, depending on when the final program-tracking data become available.

*Deliverable:* Results provided in annual report

*Deliverable Date:* October 2015

#### **Task 8: Reporting**

The team will provide an integrated annual evaluation report containing process, market, and impact results for the Multifamily Program.

*Deliverable:* Draft report

*Deliverable Date:* October 2015

*Deliverable:* Final report

*Deliverable Date:* November 2015

### **2.2.5 Budget and Schedule**

Table 2-5 and Table 2-6 below summarize the timing of each evaluation activity, as well as the budget associated with each task.



**Table 2-5. Multifamily Program PY7 Evaluation Timeline**

Task #	Evaluation Activity	2015									
		Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
1	Program and Implementation Staff Interviews										
2	Review Program-Tracking Data and Materials										
3	Program Ally In-Depth Interviews										
4	Secondary Data Review and Analysis										
5	Participating Property Manager/Owner Survey										
6	Non-Participating Property Manager/Owner Survey										
7	Impact Analysis										
8	Reporting										

	Data Request
	Create Data Collection Instruments
	Collect Data
	Analyze
	Milestone Deliverables

**Table 2-6. Multifamily Program PY7 Evaluation Budget**

Task No.	Task Description	Deliverable Date	Dollars by Task
1	Program and Implementation Staff Interviews	September 2015	\$3,000
2	Review Program-Tracking Data and Materials	June 2015	\$2,000
3	Program Ally In-Depth Interviews	June 2015	\$9,000
4	Secondary Data Review and Analysis	September 2015	\$12,000
5	Participating Property Manager/Owner Survey	June 2015	\$15,000
6	Non-Participating Property Manager/Owner Survey	June 2015	\$15,000
7	Impact Analysis	October 2015	\$9,000
8	Reporting	October/November 2015	\$15,000
<b>Total Dollars</b>			<b>\$80,000</b>

## 2.3 Specialty Lighting Program

### 2.3.1 Program Description

The objective of the Specialty Lighting Program is to increase awareness and sales of ENERGY STAR® (ES) lighting among residential customers. The program provides discounts through a variety of retail channels to reduce the cost of specialty CFLs. Standard CFLs are discounted through the 8-103/8-104 portfolio in PY7. The program is available throughout the entire AIC service territory through retail stores and an online store.

The program seeks to increase awareness of energy-efficient lighting and its benefits through marketing and outreach efforts at participating retailers and the AIC website. The program partners with retailers and lighting manufacturers to sell ES lighting at a discount to bring the cost closer to that of traditional incandescent lighting. The implementer expects the discounts to encourage customers who are reluctant to pay full price for ES lighting to choose energy-efficient lighting over standard lighting.

### 2.3.2 Research Objectives

The main research objectives of the PY7 evaluation will be to estimate gross and net program savings and assess program processes.

We will answer the following impact-related research questions:

1. What are the estimated program gross energy and demand savings from this program?
2. What are estimated program net energy and demand savings from this program?
3. To what extent are AIC customers purchasing and using energy-efficient bulbs incited by programs in neighboring territories? Such bulbs may be “leakage” into the AIC territory.

We will also answer the following process-related research questions:

1. Did the program change its design in PY7? If so, how, why, and were those changes advantageous?
2. Was program implementation effective and smooth?
3. What implementation challenges occurred in PY7, and what was done to address them?
4. What was the format of customer outreach? How often did the outreach occur?

### 2.3.3 Methodology

Below we provide a summary of the methods planned for the PY7 Specialty Lighting Program evaluation.

#### Data Sources

#### Impact Analysis

To estimate PY7 ex post gross savings for the Specialty Lighting Program, we will perform a database review and estimate savings using savings assumptions in the Statewide TRM V2.0. Our database review will include an examination of the CFL baseline wattages used to calculate program ex ante savings to ensure the wattages are consistent with the TRM. We will utilize the carryover savings method outlined in the TRM in which PY7 ex post gross savings is composed of bulbs sold over three years but installed in PY7. That is, PY7 ex post gross

## Specialty Lighting Program

savings will include bulbs sold and installed in PY7, as well as delayed installations of bulbs sold in PY5 and PY6 but not installed until PY7.

We will apply the program leakage rate that we estimated as part of the in-store customer interviews conducted in PY6. We will conduct research in PY7 to estimate a “leakage in” rate that represents the number of energy-efficient bulbs purchased by AIC customers in neighboring territories with lighting programs.

For net savings, we will use the NTGR value estimated in PY5 (0.47).

### Process Analysis

The process analysis will utilize information gained from interviews with program staff and review of program data and materials. The in-depth interviews with AIC and CSG implementation staff will provide the evaluation team with a comprehensive understanding of the program. We will also review marketing materials to understand the messages used promote the sale of efficient lighting.

### Analysis Plan

#### Gross Impacts

For PY7, the baseline wattages for gross energy and demand savings are set by the Statewide TRM V3.0 and are shown in Table 2-7. The evaluation team will use these values and data from the program-tracking database to calculate gross program savings.

**Table 2-7. Baseline Wattages for Calculation of Gross Savings**

Minimum Lumens	Maximum Lumens	Incandescent Equivalent Post-EISA 2007 (Watts <sub>Base</sub> )
5,280	6,209	300
3,000	5,279	200
2,601	2,999	150
1,490	2,600	72
1,050	1,489	53
750	1,049	43
310	749	29
250	309	25

We will use the leakage rate of 15% that we estimated in PY6 through in-store intercepts to represent “leakage out” of the program.

We will conduct a statistical and GIS analysis to estimate leakage of program-discounted bulbs *into* AIC territory. As a first step, we will request store-level leakage results for the sample of stores that were part of in-store intercept studies conducted by ComEd and Ameren Missouri. We will estimate a leakage model to determine the relationship between leakage rates, distance to territory borders, and other store and population characteristics. As a second step, we will request a list of all participating stores and sales from Ameren Missouri and ComEd. We will map all stores in relation to the same characteristics used in the leakage analysis in the first step. Once mapped, we will extrapolate the leakage results to all participating ComEd and Ameren Missouri stores. We will estimate AIC “leakage in” based on the leakage estimates for stores that lie

## *Specialty Lighting Program*

close to AIC borders. We will determine a maximum distance threshold for possible leakage into AIC for each store using the model results conducted in the first step.

We will combine the leakage out and leakage in rates to produce an overall leakage rate that we will apply to gross savings.

### **Net Impacts**

For PY7, we will use the NTGR value estimated in PY5 (0.47).

### **Process Analysis**

We will present process and market-related findings based on our analysis of interviews with program staff, program materials, and databases.

## **2.3.4 Tasks**

To answer the research questions listed above, we will complete the following tasks as part of the PY7 evaluation.

### **Task 1: Program and Implementation Staff Interviews**

The evaluation team will conduct up to four in-depth phone interviews with program and implementation staff involved in the design and administration of the efficient lighting program (i.e., AIC, CSG, CLEAResult, and Energy Federation Incorporated [EFI] staff). These interviews will allow us to fully explore the details of program design and implementation and examine the perspective of the people who are in direct contact with participating retailers. We conduct the interviews over the telephone using experienced Opinion Dynamics analysts. We will record and transcribe all interviews to facilitate analysis.

*Deliverable:* Conducted interviews

*Deliverable Date:* June 2015

### **Task 2: Request and Review Program Materials from Utility**

The evaluation team will conduct a comprehensive review of all program materials. This includes all materials provided to retailers, as well as mass marketing and in-store materials. These activities will inform our process assessment.

We will also request program-tracking data, the program's goals tracker, program marketing materials, and marketing plans (including the dates that materials were used).

*Deliverable:* Data Requests

*Deliverable Date:* June 2015

### **Task 3: Program Database Verification and Savings Analysis**

The evaluation team will review all records in the program database. We will check to ensure that CSG applied the correct savings value for each product type to verify that the database is providing correct information. We will also assess the database to ensure that project data have been recorded sufficiently and correctly. We will resolve any discrepancies found in the database and report on findings.

*Specialty Lighting Program*

To calculate gross savings, we will use the energy and demand savings formulas outlined in the Statewide TRM V3.0.

*Deliverable:* Data Requests

*Deliverable Date:* June 2015

**Task 4: Leakage Analysis**

We will conduct a statistical and GIS analysis to estimate leakage of program-discounted bulbs into AIC territory. The evaluation team will coordinate with the evaluation teams from Ameren Missouri and ComEd to obtain store-level leakage estimates and participating store sales data. We will estimate a statistical model of the characteristics associated with leakage for these two neighboring utilities and extrapolate the results to all participating stores near AIC borders.

*Deliverable:* Results provided in annual report

*Deliverable Date:* September 2015

**Task 5: Reporting**

We will analyze and report the results of our evaluation of program impacts and processes in an annual report.

*Deliverable:* Draft report

*Deliverable Date:* September 2015

*Deliverable:* Final report

*Deliverable Date:* October 2015

**2.3.5 Budget and Schedule**

Table 2-8 provides a schedule of evaluation tasks for PY7.

**Table 2-8. Specialty Lighting Program PY7 Evaluation Timeline**

Task #	Evaluation Task	2015							
		May	June	Jul	Aug	Sep	Oct	Nov	Dec
1	Program and Implementation Staff Interviews								
2	Request and Review Program Materials								
3	Program Database Verification and Savings Analysis								
4	Leakage Analysis								
5	Reporting								

- Data Request
- Create Data Collection Instruments
- Collect Data
- Analyze Data
- Milestone Deliverable

Table 2-9 provides the budget for each evaluation task for PY7.

**Table 2-9. Specialty Lighting Program PY7 Evaluation Budget**

<b>Task No.</b>	<b>Task Description</b>	<b>Deliverable Date</b>	<b>Dollars by Task</b>
1	Program and Implementation Staff Interviews	June 2015	\$1,400
2	Request and Review Program Materials from Utility	June 2015	\$1,000
3	Program Database Verification and Savings Analysis	June 2015	\$5,000
4	Leakage Analysis	September 2015	\$11,100
5	Reporting	September/October 2015	\$14,000
<b>Total Dollars</b>			<b>\$32,500</b>

## 2.4 All-Electric Homes Program

### 2.4.1 Program Description

The All-Electric Homes Program began in PY6 (June 2013–May 2014) as an IPA program. The objective of the All-Electric Homes Program is to increase energy savings in all-electric residences (single-family and multifamily). AIC targets the program to customers with greater-than-average electricity usage.

Program delivery differs for single-family and multifamily customers. For single-family customers, AIC offers an energy assessment with low-cost, energy-saving measures (CFLs, low-flow showerheads, faucet aerators) installed free of charge. AIC offers program incentives for replacement air-source heat pumps (ASHPs) and ductless heat pumps, as well as for air sealing and insulation measures. Multifamily buildings receive referrals to the Multifamily Program for installation of low-cost measures, but ASHPs and ductless mini-split systems installed within multifamily buildings are included as part of the All-Electric Homes Program.

Program implementation staff<sup>4</sup> offer eligible single-family and multifamily customers the high-efficiency improvements at little or no cost. Program staff perform quality assurance inspections of all projects to confirm completion and quality of work and to ensure customer satisfaction. Table 2-10 summarizes the measures offered through the program.

**Table 2-10. All-Electric Homes Program Measures, by Dwelling Type**

Electric Measure	Single Family	Multifamily*
ASHP	✓	✓
Ductless Mini-Split Heat Pump (DMSHP)	✓	✓
Insulation	✓	a
Air Sealing	✓	a
Programmable Thermostat	✓	a
Shower Head	✓	a
Specialty CFL	✓	a
CFL	✓	a
Faucet Aerator	✓	a

\* “a” indicates that the measure is installed through the Multifamily Program.

### 2.4.2 Research Objectives

The research objectives for the PY7 All-Electric Homes Program evaluation are to provide estimates of gross and net electric savings attributable to the program and to assess the effectiveness of the program process and implementation. We will determine gross energy savings and demand reduction in accordance with ICC orders for IPA programs. We will also examine HVAC measure costs through reviewing invoices and interviewing contractors.

In particular, the team will use the PY7 evaluation to answer the following questions:

1. Did the program achieve savings that met the expectations for PY7?

<sup>4</sup> The program is implemented by CSG.

## *All-Electric Homes Program*

2. What are the estimated gross energy and demand impacts from this program?
3. What are the estimated net energy and demand impacts from this program?
4. What are the incremental costs associated with program's HVAC measures?

The team will also explore process-related research questions as part of the PY7 evaluation. To evaluate the program processes, the team will interview program staff, survey trade allies, and review a sample of invoices for projects incented through the program. We will also conduct a program materials review. These activities will provide information to answer the following process questions:

1. How effectively did CSG recruit program trade allies, and how satisfied were they with the program?
  - a. Did trade allies proactively promote the program?
  - b. Did trade allies value the program as a sales tool?
  - c. What did trade allies suggest to improve program processes or program uptake by their customers?
2. How did the program attract customers?
  - a. Was the program effectively marketed?
    - i. How did customers learn about the program?
    - ii. What messaging was most persuasive to customers?
  - b. Was the program more successful with single-family or multifamily customers?

We will explore each of these questions through the activities described in this evaluation plan.

### **2.4.3 Methodology**

Below we provide a summary of the methods planned to conduct the PY7 All-Electric Homes Program evaluation.

#### **Data Sources**

#### **Impact Analysis**

To estimate PY7 ex post gross savings, we will apply the PY6 realization rate. We will use these data in conjunction with algorithms in the Statewide TRM V2.0, along with the assumptions and NTGRs provided by AIC. Process Analysis

To conduct the process analysis, the evaluation team will use data from several sources: marketing and materials review, stakeholder interviews, trade ally surveys, and a review of contractor invoices. Interviews with trade allies will provide the evaluation team with a comprehensive understanding of their program experience, obstacles to their participation, and suggestions for program improvement. The team will review invoices to ensure that trade allies are adhering to program guidelines and to establish the total cost of measures. The marketing review will cut across all these activities, allowing us to assess the effectiveness of program outreach and marketing activities.



## Sampling Plan

### Trade Allies

AEH Program Trade Allies are responsible for the majority of lead generation for the AEH program. There are two types of AEH trade allies: heating and cooling, and building envelope contractors. The majority of these contractors already have relationships with CSG and participate in other AIC programs, such as the HVAC and Home Performance Program. The evaluation team will be conducting interviews and surveys with these contractors through our evaluations of other programs, and as such, the AEH evaluation team will add a short survey battery to these other research efforts to avoid duplicating calls to the same stakeholders.

### Invoice Review

The evaluation team will request a random sample of invoices to review for each of the following types of equipment.

- ASHP for Single Family (35 projects)
- ASHP for Multifamily (35 projects)
- DMSHP for Single Family (Census)
- DMSHP for Multifamily (35 projects)

## Analysis Plan

The evaluation team will conduct a comprehensive process and impact evaluation of the All-Electric Homes Program in PY7. Our approach, detailed below, recognizes the high savings expected from this program, as well as the unique program design.

### Gross Savings

In PY7, the evaluation team will determine gross impacts by multiplying the number of measures listed in the program-tracking database and applying algorithms from the Statewide TRM V2.0.

### Net Savings

We will apply the SAG approved NTGR to the gross savings to obtain net program savings.

## 2.4.4 Tasks

This section outlines the planned evaluation tasks for our PY7 assessment of the All-Electric Homes Program.

### Task 1: Request and Review Utility Data

The team will conduct a comprehensive review of all program materials and tracking data. This includes program marketing and implementation plans, customer- and contractor-facing communications, and extracts from the program-tracking database. We will request a final extract of the program-tracking database in June 2015 for our impact analysis and conducting the participant survey.

*Deliverable:* Data request

*Deliverable Date:* June 2015 and August 2015.

## Task 2: Marketing Review

The team will review all customer- and contractor-facing marketing materials for accuracy, clarity, appearance, and appropriate messaging. In addition, the team will leverage the trade ally interviews and participant surveys to investigate marketing practices and comparison with best practices and alignment with program design.

*Deliverable:* Analysis included in final report

*Deliverable Date:* September–October 2015

## Task 3: Program and Implementation Staff Interviews

We will conduct telephone interviews with program managers from both AIC and the implementer. We will focus interview questions on the impact of changes implemented in the PY7 program, lessons learned, and plans for the program in PY8 (if approved for implementation in the 2015 IPA Docket 13-0546).

*Deliverable:* Conducted interviews

*Deliverable Date:* June 2015

## Task 4: Trade Ally Interviews

We will conduct telephone interviews with up to 15 program trade allies to assess their program experience, satisfaction, perceived value of participation, and suggestions for improvements.

*Deliverable:* Draft and final interview guides

*Deliverable Date:* July 2015

## Task 5: Review of Trade Ally Invoices

The evaluation team will work with the implementer to request copies of customer invoices. We will review these invoices to identify the incremental measure costs associated with program-eligible measures. The team plans to review 30 invoices per eligible HVAC measure.

*Deliverable:* Analysis included in final report

*Deliverable Date:* September–October 2015

## Task 6: Impact Analysis

The evaluation team will conduct the following tasks to determine gross and net savings:

- Analyze tracking database at the end of PY7
- Analyze metering results from PY6 for ASHPs and ductless mini-split systems
- Determine realization rate via surveys and PY6 metering study
- Apply unit savings to verified participation numbers to develop gross savings
- Apply the NTGR developed based on the participant surveys

*Deliverable:* Analysis included in final report

*Deliverable Date:* September–October 2015

### Task 7: Reporting

The evaluation team will write a draft report of all our PY7 findings. The report will contain detailed information on our research objectives, methodology, and findings, as well as conclusions and recommendations for PY8. We will then submit a final report, incorporating comments from AIC and other stakeholders.

Deliverable: Draft report

Deliverable Date: October 2015

Deliverable: Final report

Deliverable Date: November 2015

### 2.4.5 Budget and Schedule

Table 2-11 summarizes the timing of each evaluation activity, and Table 2-12 shows the PY7 budget associated with each All-Electric Homes Program task, for a total of \$142,000.

**Table 2-11. All-Electric Homes Program PY7 Evaluation Timeline**

Task #	Evaluation Activity	2015							
		May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	Request and Review Utility Data		■						
2	Conduct Marketing Review		■	■	■	■			
3	Program and Implementation Staff Interviews		■	■	■				
4	Trade Ally Interviews			■	■	■			
5	Review of Trade Ally Invoices		■	■	■	■			
6	Impact Analysis		■	■	■	■			
7	Reporting					■	■		

■	Data Request
■	Create Data Collection Instruments
■	Collect Data
■	Analyze Data
■	Milestone Deliverables

Table 2-12. All-Electric Homes Program PY7 Evaluation Budget

Task No.	Task Description	Deliverable Date	Dollars by Task
1	Request and Review Utility Data	June and August 2015	\$1,000
2	Conduct Marketing Review	September–October 2015	\$16,000
3	Program and Implementation Staff Interviews	June 2015	\$1,000
4	Trade Ally Interviews	July 2015	\$17,000
6	Review of Trade Ally Invoices	September–October 2015	\$8,000
7	Impact Analysis	September–October 2015	\$36,000
8	Reporting	October/November 2015	\$19,000
<b>Total Dollars</b>			<b>\$98,000</b>

## 2.5 Rural Efficiency Kits Program

### 2.5.1 Program Description

AIC implemented the Residential Rural Efficiency Kits Program for the first time in PY6 as a part of an IPA program for school kits. Through the program, AIC provides kits containing energy-efficient items to AIC electric customers who are likely to have an all-electric home, based on customer billing research that identifies high electric-use homes. The program goal is to increase sales and awareness of ES-qualified lighting products, along with other AIC energy efficiency offerings, as well as to reduce energy consumption.

AIC uses CSG and EFI to deliver the program and achieve program energy-savings goals. CSG implements the program and EFI mails branded kits and marketing materials directly to customers. In addition, AIC collaborates with the implementers to market the program and educate customers, using energy usage and geographic regions to target the direct mail customers who opted to receive the kits when recruited by phone and email. Each kit is branded with AIC and ActOnEnergy logos and contains installation and usage instructions. CSG uses web surveys to verify kit item installations, assess satisfaction, and collect home characteristics.

### 2.5.2 Research Objectives

The objective of the PY7 Rural Efficiency Kits Program evaluation is to estimate gross and net electric and natural gas savings associated with the program. The team will use the PY7 impact evaluation to answer the following questions:

1. What are the estimated gross energy and demand impacts from this program?
2. What are the estimated net energy and demand impacts from this program?

The evaluation team will also conduct a process evaluation to explore how the program performed in its second year and to answer the following process-related questions:

1. Program Participation
  - a. How many kits were distributed to participants through each of the delivery channels?
  - b. What participation challenges existed for customers?
  - c. What were the installation rates for each measure?
  - d. What additional actions were taken?
2. Program Design and Implementation
  - a. How did the program change since PY6?
  - b. What implementation challenges occurred in PY7?
  - c. How did AIC, CSG, and EFI market the program?
  - d. What changes could AIC make to improve program effectiveness?

### **2.5.3 Methodology**

Below we provide a summary of the methods planned for the PY7 Rural Efficiency Kits Program evaluation.

#### **Data Sources**

##### **Impact Analysis**

The evaluation team will use the program-tracking database to estimate PY7 ex post gross savings for the program. We will review all data in the program-tracking database, determine electric water heater saturation, apply the Statewide TRM V2.0 to estimate gross savings and installation rates, and apply deemed NTGRs to participants.

##### **Process Analysis**

For the process evaluation, the team will draw on additional data sources, using data gathered from interviews with program management and administration staff, a review of the program-tracking database, the results of the web-based verification surveys conducted by the implementers, participant surveys, and a review of program materials and marketing documents.

#### **Sampling Plan**

##### **Impact Analysis**

The team will analyze the census of records provided in the program-tracking database.

##### **Process Analysis**

The evaluation team has not yet determined the PY7 participation rate. Our target sample is 70 participants from PY7; however, we may need to adjust this number based on the total number of program participants.

#### **Analysis Plan**

The evaluation team will conduct impact and process evaluations of the Rural Efficiency Kits Program. Our analysis plan is outlined below.

##### **Gross Savings**

The team will use the program-tracking database to verify participation and self-response data from participant surveys, and determine electric water heater saturation and measure installations. We will calculate gross impacts by multiplying the number of verified measures (identified through the tracking database) by the deemed unit savings for each measure as indicated in the Statewide TRM V2.0. We will use telephone surveys to verify measure installations, and then will adjust the number of measures counted toward the program.

##### **Net Savings**

To develop net savings for PY7, the evaluation team will apply the deemed NTGRs values listed in Table 2-13 to ex post gross savings. We will also estimate the NTGR, including free-ridership and participant spillover, for use in future planning.

Table 2-13. PY7 Residential Rural Efficiency Kits Program NTGRs

Measure	NTGR
60w replaced by 14w CFL	0.880
75w replaced by 19w CFL	0.880
100w replaced by 23w CFL	0.880
Shower Head - 1.75 gpm	0.820
Faucet Aerator	0.730
Water Heater Temperature Adjustment	1.000

### Process Analysis

For the process evaluation, we will summarize information gathered from the program staff interviews, as well as data collected through the participant surveys, including experience with the program, preferred methods for receiving energy efficiency information, actions taken, key demographics, household characteristics, and installation of measures (i.e., number of measures received and installed).

## 2.5.4 Tasks

This section describes the team’s planned evaluation tasks assessing the PY7 Rural Efficiency Kits Program.

### Task 1: Request and Review Utility Data

We will include all program documents in our review, including records of marketing and outreach efforts, instructional materials, results of the web-based verification surveys, and all other paperwork. Our data request will include critical program documentation, such as:

- Program-tracking database (all available data), including participant contact information
- Verification and installation rate results from the web-based surveys conducted by implementers
- Specification sheets for each item included in the energy-efficient kits
- Program instructional materials
- All program marketing materials
- Any documentation of the implementation process

The evaluation team will review program materials, information from program staff interviews, and results from the implementer-conducted surveys, and will integrate these findings into the final report.

*Deliverable:* Data requests

*Deliverable Date:* June 2015

## Task 2: Program and Implementation Staff Interviews

The evaluation team will perform qualitative interviews with AIC program staff, implementation contractors, and other relevant program stakeholders, focused on assessing program goals and progress toward meeting these goals. Additionally, the evaluation team will explore:

- Program changes since PY6
- Program design versus program implementation
- Program strengths and weaknesses
- Outreach and marketing

*Deliverable:* Conducted interviews

*Deliverable Date:* June 2015

## Task 3: Participating Customer Survey

The evaluation team will design a participant survey to assess free-ridership, spillover, and the program participation process, including participant awareness, decision making, and satisfaction. Based on the survey results, we will verify the installation and retention of measures, calculate a NTGR, and analyze feedback from respondents. The team will review the program database and savings documentation to develop the customer survey call list and survey instrument.

*Deliverable:* Draft and final participant surveys

*Deliverable Date:* July 2015

## Task 4: Impact Analysis

The evaluation team will conduct the following tasks to determine gross and net savings:

- Analyze tracking database at the end of PY7
- Determine realization rate via survey responses
- Apply Statewide TRM V2.0 unit savings to verified participation numbers to develop gross savings
- Apply the PY7 agreed-upon NTGR to calculate net savings

*Deliverable:* Analysis included in final report

*Deliverable Date:* September–October 2015

## Task 5: Reporting

We will summarize and report on data from the PY7 evaluation activities, providing a draft report for stakeholder review, and then incorporating related comments into the final report.

*Deliverable:* Draft report

*Deliverable Date:* October 2015

*Deliverable:* Final report

*Deliverable Date:* November 2015



### 2.5.5 Budget and Schedule

Table 2-14 summarizes the timing of each evaluation activity, and Table 2-15 shows the PY7 budget associated with each Rural Efficiency Kits Program task, for a total of \$38,000.

**Table 2-14. Rural Efficiency Kits Program PY7 Evaluation Timeline**

Task #	Evaluation Activity	2015							
		May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1	Request and Review Utility Data		■	■					
2	Program and Implementation Staff Interviews		■	■	■				
3	Participating Customer Survey		■	■	■	■			
4	Impact Analysis		■	■	■	■			
5	Reporting						■	■	

■	Data Request
■	Create Data Collection Instruments
■	Collect Data
■	Analyze Data
■	Milestone Deliverables

**Table 2-15. Rural Efficiency Kits Program PY7 Evaluation Budget**

Task No.	Task Description	Deliverable Date	Dollars by Task
1	Request and Review Utility Data	June 2015	\$1,000
2	Program and Implementation Staff Interviews	June 2015	\$2,000
3	Participating Customer Survey	July 2015	\$22,000
4	Impact Analysis	September–October 2015	\$5,000
5	Reporting	October/November 2015	\$8,000
<b>Total Dollars</b>			<b>\$38,000</b>

### 3. Non-Program Evaluation Tasks

As part of the PY7 evaluation of the stand-alone IPA programs, the evaluation team will perform a number of cross cutting, non-program activities. The team will conduct these activities, which we describe in detail below, in conjunction with the 8-103/8-104 portfolio of energy efficiency programs administered by AIC.

#### 3.1 Statewide Technical Reference Manual

The team will continue its involvement in the Illinois Statewide Technical Reference Manual (TRM) process, including participation in Technical Advisory Committee (TAC) meetings and NTG Methodology Working Group meetings. For the former, this will include participation in weekly calls, as well as reviewing and commenting on TRM update items presented to the TAC. For the latter, this includes participation in bi-monthly and monthly calls with working group members, as well as drafting methodological protocols for inclusion in the TRM.

#### 3.2 Cost-Effectiveness Analysis

As in prior program years, the evaluation team will work with AIC and the IPA implementers, as needed, to audit their cost-effectiveness analysis based on PY7 program results. As part of this process, we will first prepare the model inputs, which consist of evaluated program savings as determined through the PY7 evaluation effort. Next, we will review AIC's assumptions for avoided costs, discount rates, measure cost information, administrative costs, and other relevant data. For a detailed discussion of the Total Resource Cost (TRC) test used by AIC, please see the PY7 AIC Evaluation Plan for the 8-103/8-104 programs.

#### 3.3 Residential Cross-Cutting Research Activities

##### 3.3.1 General Population Surveys

AIC is currently in its seventh year of program operation and conducts general marketing and education in addition to providing incentives. This marketing and education, over time, can create spillover. In PY7, we will conduct a general population survey to quantify spillover and collect additional general information that may be beneficial (marketing preferences, existing saturations, etc.).

Since spillover is usually very small in the general population, we will need a large sample of approximately 350 to ensure a high level of confidence and precision (e.g., 95% and  $\pm 5\%$ ). The team will draw the general population sample from AIC's residential customer database, using customer identification numbers to remove those who have participated in any of AIC's energy efficiency programs (including behavioral modification).

The general population surveys will contain modules with questions about all of AIC's residential energy efficiency programs. The team will ask residential respondents individual program module questions to determine whether they have made any upgrades offered through the program, then determine why they did not participate in that program. In addition, we will identify installed energy efficiency measures that are not part of AIC's programs, and collect information to enable reliable savings estimates. For any potential spillover measures installed, we will ask the consumer about the importance of AIC's general marketing and education in their decision to install the measure. The team will only include measures as spillover that consumer rated AIC's involvement with as very important.

## QA/QC Collaboration

We will also use the surveys as an opportunity to identify customer motivators and barriers, preferred communications channels, and existing levels of awareness, satisfaction with AIC, and likelihood to recommend an AIC program to a friend.

If AIC uses customer segments to target its marketing messages, the team will request that the residential database include tags for these segments. Then we will select a stratified random sample, which will provide results at the segment level and allow us to understand how these customer segments behave in the energy efficiency market. In addition, the survey responses will help us identify residential market segments that are least likely to participate in AIC's energy efficiency programs and the barriers to participation for these market segments.

Once the surveys are complete, the evaluation team will analyze and report on the data in the PY7 draft and final reports.

### 3.3.2 Market Transformation and Market Effects Analysis

To qualitatively assess the likelihood of program market effects, the evaluation team will review previous program evaluations to identify the most appropriate indicators of market transformation across and within each of the residential programs. We will select indicators that we have consistently collected over time through survey response and program tracking data. The evaluation team will then benchmark the historical trends for the indicators chosen and recommend those for continued monitoring. Market transformation indicators may include:

- Product saturation
- Trade ally participation
- Trade ally and consumer product familiarity
- Trade ally stocking
- Product availability
- Existing equipment age/efficiency
- Baseline technology

## 3.4 QA/QC Collaboration

Per our contract, the team must hire a separate entity for QA/QC review, and work collaboratively with this entity to ensure the quality of our evaluation plans, analysis, and reporting. Since PY4, the team has worked with Dr. Richard Ridge, who has a long and illustrative history in energy efficiency evaluation. In recent years, Dr. Ridge has used his expertise to help write evaluation protocols and oversee other firms in their evaluation efforts, as well as continuing to perform evaluations across the country. For several years, Dr. Ridge was a consultant to the California Public Utility Commission (CPUC) evaluation staff, where he worked with them to understand evaluation needs, review contractor plans, and participate in many aspects of a multi-million dollar evaluation effort.

As part of the PY7 evaluation effort, Dr. Ridge will continue to:

- Discuss portfolio evaluation plans with the evaluation team, providing advice as needed

## *QA/QC Collaboration*

- Participate in ongoing sampling and evaluation design efforts as requested. The team will meet with Dr. Ridge at least once a quarter to discuss ongoing activities
- Review draft evaluation reports to assure quality and accuracy
- Provide the ICC with a report on the efforts in which he was involved. Dr. Ridge will provide this report as soon as the team has finalized all PY7 reports

## 4. Evaluation Budget

The following table outlines the expected budget per program to execute the evaluation plans presented above. Note that some of the budgeted activities have already begun and been invoiced.

**Table 4-1. PY7 IPA Evaluation Budget**

<b>Program/Task</b>	<b>Estimated Budget</b>
<b>Program-Specific Activities</b>	
Small Business Direct Install	\$86,800
Multifamily	\$80,000
Specialty Lighting	\$32,500
All Electric Homes	\$98,000
Rural Efficiency Kit Distribution	\$38,000
<b>Total Program-Specific Efforts</b>	<b>\$335,300</b>
<b>Non-Program Activities</b>	
Statewide Technical Reference Manual	\$60,000
Cost Effectiveness Analysis	\$12,180
Residential Cross-Cutting Research Activities	\$23,200
QA/QC Coordination	\$10,150
Other Non-Program Activities	\$81,200
<b>Total Non-Program Efforts</b>	<b>\$195,430</b>
Contingency	\$41,315
<b>TOTAL</b>	<b>\$572,045</b>

**For more information, please contact:**

**Hannah Arnold**  
**Senior Project Manager**

510 444 5050 tel  
510 444 5222 fax  
harnold@opiniondynamics.com



**Boston | Headquarters**

617 492 1400 tel  
617 497 7944 fax  
800 966 1254 toll free

1000 Winter St  
Waltham, MA 02451

**San Francisco Bay**

510 444 5050 tel  
510 444 5222 fax

1999 Harrison St  
Suite 1420  
Oakland, CA 94612

**Madison, WI**

608 819 8828 tel  
608 819 8825 fax

2979 Triverton Pike  
Suite 102  
Fitchburg, WI 53711

**Orem, UT**

510 444 5050 tel  
510 444 5222 fax

206 North Orem Blvd  
Orem, UT 84057