Impact and Process Evaluation of 2016 (PY9) Ameren Illinois Company Appliance Recycling Program

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CADMUS

NAVIGANT

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Table of Contents

Table of Tables

Table of Figures

1.   Executive Summary

This report presents results from the Program Year 9 (PY9) Appliance Recycling Program (ARP), implemented from June 1, 2016, to August 25, 2016. PY9 represents the ninth year of program operation. Program design and implementation did not change between PY8 and PY9, apart from discontinuing marketing efforts as the program ended part-way through the program year. Ameren Illinois Company (AIC) offered customers a $50 incentive to pick up and recycle (free of charge) refrigerators and freezers directly from AIC electric customer's homes. Leidos Engineering managed the program and helped to oversee its discontinuation. Appliance Recycling Centers of America (ARCA), a subcontractor to Leidos Engineering, implemented the program, which included scheduling, pick-up, recycling the appliances, and customer service. Given AIC's plans to shut down the program during PY9, the program manager focused on successfully exiting the program.

The evaluation team conducted a process and impact assessment of the PY9 ARP. The process evaluation included a review of program tracking data and materials, and interviews with implementation staff to gauge program performance. The impact evaluation involved applying deemed values from the Illinois Statewide Technical Reference Manual for Energy Efficiency Version 5 (IL-TRM V5) to calculate gross impacts. To calculate net impacts, the evaluation team applied the Illinois Stakeholder Advisory Group (SAG)-approved, measure-level net-to-gross ratios (NTGR) for freezers and refrigerators. Key findings from the PY9 evaluation are presented below.

Program Impacts

Table 1 summarizes net electricity and demand savings from the PY9 ARP. The evaluation team calculated ex post gross savings by applying IL-TRM V5 algorithms to verified measure quantities from the program tracking database. The program achieved ex ante gross savings of 1,963 MWh and ex post gross savings of 2,047 MWh, which resulted in a 104% gross realization rate. We then applied the SAG-approved PY9 NTGR for the program (based on PY6 participant survey responses): the NTGR of 62% for freezers and the NTGR of 52% for refrigerators. The gross savings-weighted average NTGR was 54%.

Table 1. PY9 Net ARP Impacts

Savings Type	Ex Ante Gross	Realization Rate	Ex Post Gross	NTGR	Ex Post Net*
Energy Savings (MWh)					
Total MWh	1,963	104%	2,047	54%	1,099
Demand Savings (MW)					
Total MW	0.24	104%	0.25	54%	0.134

*The evaluation team determined ex post net savings by applying NTGR, verified participation, and verified per-unit savings.

Key Findings and Recommendations

AIC offered the ARP only through the first three months of PY9, recycling 2,234 units resulting in 1,099 MWh net energy savings achieved.

AIC discontinued the ARP partway through PY9 because increased efficiency in the appliance stock resulted in decreased energy savings and avoided costs were lower than in the previous plan. Once the decision was made to discontinue the program, AIC revised the program's energy savings and participation goals for PY9 to reflect the shorter time frame and developed an exit strategy. The implementation plan stated the revised net

energy savings goal as 1,072 MWh and 2,218 appliances recycled.[1] The program reached 103% of the revised PY9 goal of 1,072 MWh through recycling 2,234 units.

AIC plans to relaunch ARP, and customers will be able to participate again starting January 1, 2018. Upon further review of the program, AIC decided to relaunch the program because customers are highly satisfied with it; and despite lower per-unit savings, the program helps AIC meet its energy savings goals because it achieves high participation with minimal marketing effort.

Conclusions and Recommendations

The evaluation team provides the following conclusions and recommendations:

- **Key Finding #1:** AIC's program manager and Leidos' program manager reported that the program closed down successfully due to a combination of increased communication between implementation staff, effective program marketing to customers, and the commitment to picking up appliances for all scheduled appointments.

- **Key Finding #2:** AIC plans to relaunch the program and customers will be able to participate again starting January 1, 2018. In 2018, AIC is not planning for any major changes to program design from past years. However, AIC has not completed the request for proposal process for an implementation contractor and, pending final selection, may make changes to future program implementation.

  - **Recommendation:** The program may have a new implementation subcontractor responsible for scheduling, collecting appliances, and processing customer incentives. As a result, it is important to set clear key performance indicators for the subcontractor so that AIC will be able to determine, in a timely manner, if there have been any negative changes to program delivery such as customer wait time for pick up and escalated customer complaints. In addition, it will be important to manage customer expectations as some customers may be frustrated by the discontinuation and then continuation of the program. To mitigate this AIC should focus marketing messaging on AIC's commitment to meeting customer needs.

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[1] Ameren Illinois. *Program Year Nine Implementation Plan Sec. 8-103/8-104*. Revised Submission Date November 4, 2016.

2. Evaluation Approach

This chapter describes the process and impact research objectives and methods the evaluation team applied to conduct the PY9 ARP evaluation, as well as the identification and mitigation of potential sources of error in data collection.

2.1 Research Objectives

For PY9, the evaluation team explored the following process-related research question:

- Did program implementation change since PY8? If so, how and why, and was this change advantageous?

In addition, the evaluation team estimated electric savings attributable to the program. In particular, the study focused on the following research questions:

- What are the estimated gross energy and demand impacts from this program?

- What are the estimated net energy and demand impacts from this program?

2.2 Evaluation Tasks

Table 2 summarizes the PY9 evaluation activities conducted for the ARP.

Table 2. PY9 ARP Evaluation Methods

Activity	PY9 Process	PY9 Impact	Forward Looking	Details
Program Staff In-Depth Interviews	✓		✓	Interviewed the AIC program manager and Leidos program manager to gain insights into program design and delivery.
Review of Program Materials and Database	✓	✓		Reviewed all program materials and the program database.
Gross Savings and Net Savings Calculations		✓		Applied the IL-TRM V5 algorithm to calculate gross savings and the SAG-approved NTGRs to determine net savings.

2.2.1 Program Staff Interviews

The evaluation team conducted interviews with AIC's program manager and Leidos' program manager.[2] The interviews focused on program design, implementation, delivery, and discontinuation.

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[2] The program staff interview guide is included in Appendix A.

2.2.2   Review of Program Materials and Database

The evaluation team conducted a review of the following materials to understand the program's performance in PY9 and document any key changes from previous program years:

- The program database

- Customer outreach materials related to the program discontinuation

- Implementation Plan

2.2.3   Impact Analysis

Gross Impacts

The evaluation team estimated PY9 gross impacts using the following three steps:

1. Reviewed program tracking data to determine the number of appliances and summarized the average appliance characteristics for the IL-TRM V5 algorithm.

2. Applied the IL-TRM V5 algorithm to the summarized tracking data from PY9 (age, size, configuration) and PY6 survey responses for inputs not captured in the tracking data (primary/secondary use, location of use for previous year) to estimate per-unit consumption.

3. Applied the verification rate (100%) and part-use factors (0.91 refrigerators, 0.86 freezers) by measure from PY6 participant survey to get verified per-unit savings.

Table 3 shows the ex post, per-unit gross savings by measure.

Table 3. Ex Post Per-Unit Net Savings

Measure	Ex Post Gross Per-Unit Savings (kWh)
Refrigerator	942
Freezer	809

Net Impacts

To determine PY9 net savings, the team used SAG-approved NTGRs for refrigerators and freezers (Table 4).

Table 4. PY9 NTGRs

Measure Description	Electric NTGR
Refrigerator	0.52
Freezer	0.62

Table 5 shows the ex post, per-unit net savings by measure.

Table 5. Ex Post Per-Unit Net Savings

Measure	*Ex Post* Net Per-Unit Savings (kWh)
Refrigerator	490
Freezer	501

2.3 Sources and Mitigation of Error

Table 6 summarizes possible error sources associated with data collection for the ARP evaluation.

Table 6. Possible Sources of Error

Research Task	Survey Error		Non-Survey Error
	Sampling Error	Non-Sampling Error	
Gross Impacts	N/A	N/A	Data Processing Errors
Net Impacts	N/A	N/A	Data Processing Errors

Throughout planning and implementing the PY9 evaluation, the evaluation team took a number of steps to mitigate against potential sources of error.

Non-Survey Error

- **Data Processing Errors**: The evaluation team applied the IL-TRM V5 calculations to participant data in the tracking database to calculate gross impacts. We also applied the SAG-approved NTGR to estimate the program's net impacts. To minimize data processing errors, different evaluation team members reviewed all calculations to verify their accuracy.

3. Detailed Evaluation Findings

3.1 Program Description

The ARP encourages residential customers to retire working, primary and secondary, inefficient refrigerators and freezers. Leidos managed the program, providing program reporting and quality control (including handling customer complaints). ARCA (the program implementer) was responsible for scheduling and collecting appliances, recycling units in an environmentally sound manner, and processing customer incentives.

3.2 Process Findings

3.2.1 Program Delivery

During PY9, AIC offered a $50 incentive to customers who signed up to have a refrigerator or freezer recycled through the program. Participants could sign up for the program by phone, through the program website, or through participating retail partners when purchasing a new appliance.

In PY9, the ARP was available in June, July, and August, after which it was discontinued. According to the implementation plan, AIC discontinued the ARP due to low benefit-cost ratio.[3] Given the short run time of the program in PY9, the program manager focused on successfully discontinuing the program by retrieving all appliances scheduled for pick-up and ensuring customers were aware of the discontinuation

On July 25, 2016, AIC informed ARCA that the program would be discontinued. The final appliance pick-up occurred one month later on August 25, 2016. Once AIC made the decision to discontinue the program, the implementation team revised the program's energy savings and participation goals for PY9 to reflect the shorter time frame and developed an exit strategy (shifting the remainder of the PY9 energy savings goal and budget to other programs in the portfolio). According to program staff, PY9 ARP performance met expectations. In PY9, the program manager and program implementation staff monitored the customer waiting list closely to make sure that all customers who had scheduled pick-ups within the allotted timeframe received service.

The program design and implementation did not substantially change between PY8 and PY9, apart from ceasing marketing activities. AIC's program manager and Leidos' program manager facilitated the program exit by terminating all advertising, crafting messaging for the AIC and ARCA websites to inform customers of the change, and providing scripts to each of the respective call centers to help staff respond to customer inquiries. Once the ARCA call center discontinued service, the implementation team rerouted all calls to AIC's residential program call center.

AIC's program manager and Leidos' program manager reported that the program was successfully discontinued. AIC's program manager said they ramped up their communication with Leidos and ARCA to keep a pulse on which customers still needed their appliances picked up. Leidos' program manager said that, while it can be difficult to close a popular program such as ARP, the close-out efforts went smoothly. Leidos' program

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[3] Ameren Illinois. *Program Year Nine Implementation Plan Sec. 8-103/8-104*. Revised Submission Date November 4, 2016. The benefit-cost test that was used was the Total Resource Cost Test (TRC).

manager attributed the successful program discontinuation to the positive marketing message and ARCA's commitment to retrieve all appliances scheduled for pick-up.

3.2.2 Program Communication and Marketing

Marketing efforts for ARP ceased in PY9 as the program implementation staff focused on how to communicate program discontinuation to customers. The AIC program manager met with the AIC communications team to develop positive messaging regarding the discontinuation of the program. AIC and ARCA added the messaging to their websites and gave the agreed upon script to their respective call centers. The main message communicated to customers was one of success: "The program has surpassed its ultimate goal of recycling 75,000 refrigerators and freezers." The website message thanked participating customers and told readers that the program saved 285 million kWh since it began in 2008 (Figure 1). The call centers were given a script with answers to additional questions including other ways for AIC customers to recycle their refrigerator or freezer and how to learn about further opportunities to become more energy efficient through AIC programs.

Figure 1. Ameren Illinois Website ARP Discontinuation Messaging[4]
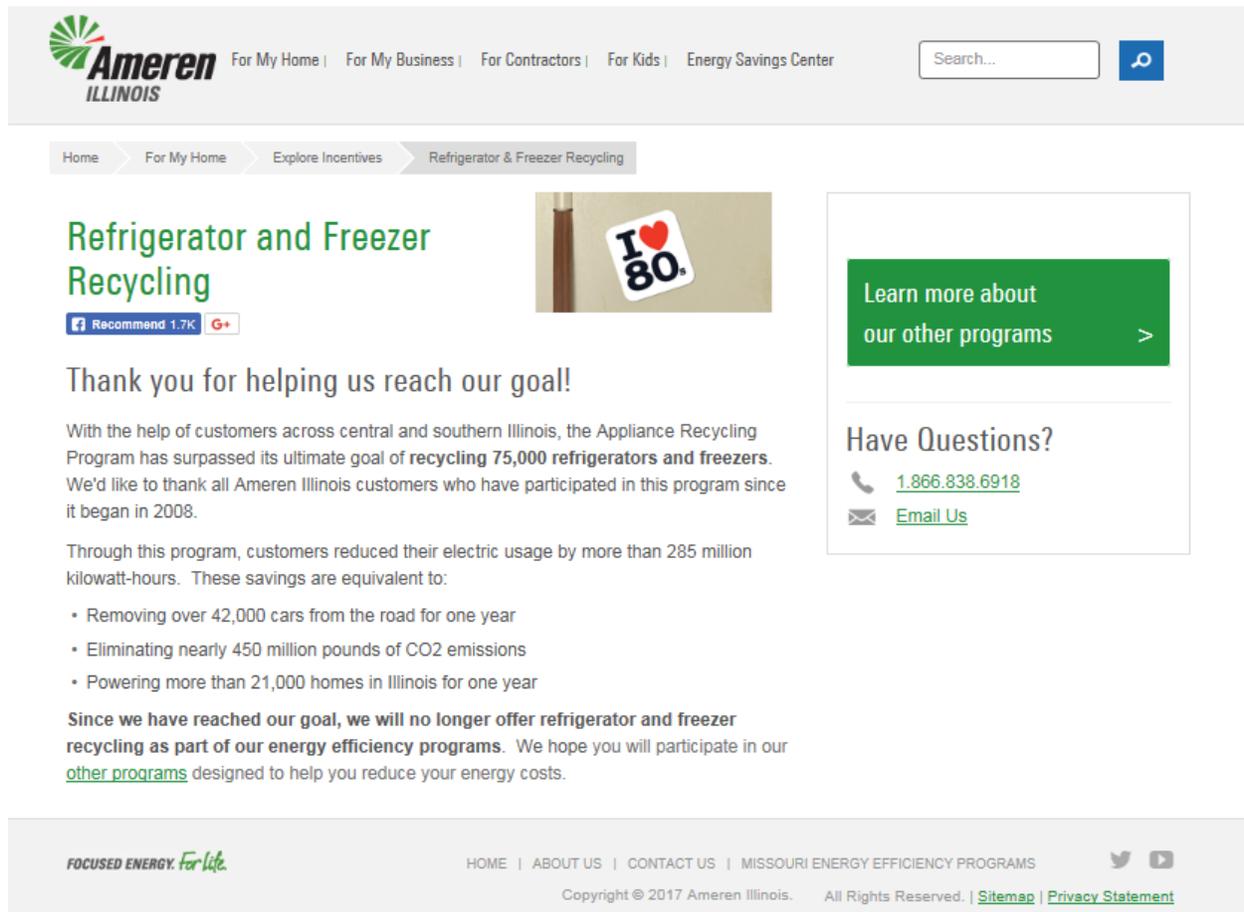
3.2.3   2018 Program Relaunch

The AIC program manager reported that AIC plans to relaunch the program and customers will be able to participate again starting January 1, 2018. Currently, AIC staff are completing the request for proposal process to acquire a new implementer that can provide the recycling and management services formerly provided by ARCA.

 AIC decided to relaunch the program because customers are highly satisfied with it; and despite lower per-unit savings, the program helps AIC meet its energy savings goals because it achieves high participation with minimal marketing effort. In 2018, AIC is not planning for any major changes to program design from past years. However, AIC has not completed the request for proposal process for an implementation contractor and, pending final selection, may make changes to future program implementation.

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[4] Ameren Illinois. *Refrigerator and Freezer Recycling*. Accessed July 25, 2017. http://amerenillinoissavings.com/for-my-home/explore-incentives/refrigerator-freezer-recycling

3.3 Impact Assessment

As shown in Table 7, the evaluation team applied the verification rate determined in the PY6 participant survey (100%) to the reported units in the program tracking data.

Table 7. Summary of PY9 Participant Verification Results

Recycling Measure	Participants	Verification Rate	Verified Participants
Refrigerator	1,807	100%	1,807
Freezer	427	100%	427
Total	**2,234**	**100%**	**2,234**

3.3.1 Ex Post Gross Impacts

Using PY9 tracking data, PY6 participant survey data, and algorithms specified in the IL-TRM V5, the evaluation team calculated ex post gross savings.

Estimated Annual Consumption

The IL-TRM V5 algorithm provides coefficients to calculate energy consumption of recycled appliances based on a collaborative metering study conducted for Commonwealth Edison Company, Consumers Energy, and DTE Energy in Michigan for PY4. Holding all other variables constant, the coefficient of each independent variable indicates the influence of that variable on annual consumption as follows:

- A positive coefficient indicates an upward influence on consumption

- A negative coefficient indicates a downward influence on consumption

The coefficient value indicates the marginal impact of a one-point increase in the independent variable on the unit energy consumption (UEC). For instance, a single cubic-foot increase in refrigerator size results in a 27.15 kWh increase in average annual consumption. For dummy variables, the coefficient value represents the difference in consumption if a given condition holds true. For example, the 161.86 coefficient for the dummy variable "Primary Usage Type" indicates the customer used the refrigerator as a primary unit; all else equal, this means a primary refrigerator annually consumed 161.86 kWh more than a secondary unit.

Table 8 lists the IL-TRM V5 coefficients for refrigerators.

Table 8. UEC Refrigerator Regression Algorithm

Independent Variables	Estimate Coefficient
Intercept	83.32
Age (years)	3.68
Pre-1990 (= 1 if manufactured pre-1990)	485.04
Size (cubic feet)	27.15
Dummy: Side-by-Side (= 1 if side-by-side)	406.78
Dummy: Primary Usage Type (in the program's absence) (= 1 if primary unit)	161.86
Interaction: Located in Unconditioned Space x CDD/365.25	15.37
Interaction: Located in Unconditioned Space x HDD/365.25	-11.07

Table 9 lists the regression coefficients for freezers from the IL-TRM V5.

Table 9. UEC Freezer Regression Algorithm

Independent Variables	Estimate Coefficient
Intercept	132.12
Age (years)	12.13
Pre-1990 (= 1 if manufactured before 1990)	156.18
Size (cubic feet)	31.84
Chest Freezer Configuration (= 1 if chest freezer)	-19.71
Interaction: Located in Unconditioned Space x CDD/365.25	9.78
Interaction: Located in Unconditioned Space x HDD/365.25	-12.76

Extrapolation

Using the PY9 tracking database, the evaluation team determined the corresponding characteristics (i.e., independent variables) for participating appliances that were then entered into the IL-TRM V5 algorithm. Table 10 summarizes program averages or proportions for each independent variable.

Table 10. PY9 Mean Explanatory Variables

Appliance	Independent Variables	Participant Population Mean Value PY9
Refrigerator	Age (years)	23.72
	Pre-1990 (= 1 if manufactured pre-1990)	0.36
	Size (cubic feet)	19.22
	Dummy: Side-by-Side (= 1 if side-by-side)	0.23
	Dummy: Primary Usage Type (in the program's absence) (= 1 if primary unit)	0.67
	Interaction: Located in Unconditioned Space x CDD/365.25	1.074
	Interaction: Located in Unconditioned Space x HDD/365.25	4.788
Freezer	Age (years)	29.38
	Pre-1990 (= 1 if manufactured pre-1990)	0.61
	Size (cubic feet)	15.63
	Chest Freezer Configuration (= 1 if chest freezer)	0.42
	Interaction: Located in Unconditioned Space x CDD/365.25	2.674
	Interaction: Located in Unconditioned Space x HDD/365.25	12.170

To determine annual and average-annual per-unit energy consumption using the IL-TRM V5 algorithm and PY9 AIC tracking data, the evaluation team applied average participant refrigerator and freezer characteristics to the regression model coefficients. This approach ensured we based the resulting UEC on specific units recycled through AIC's program in PY9, rather than on a point estimate based on a secondary data source.

Table 11 shows the annual UEC for refrigerators and freezers AIC recycled in PY9 and per-unit demand savings.

Table 11. PY9 ARP Unit Energy Savings (without part-use)

Recycling Measure	Unit Energy Savings (kWh)	Unit Demand Savings (kW)
Refrigerator	1,032	0.116
Freezer	944	0.111

The evaluation team calculated demand savings by applying the following formula from the IL-TRM V5 for refrigerators and freezers:

$$\text{Unit Demand Savings} = \Delta\text{kW} = \frac{\text{kWh}}{8,760} * Coincidence\ Factor$$

Where:

Coincidence factor = 1.081 for refrigerators and 1.028 for freezers.

Part-Use

The part-use factor accounts for appliances not plugged in year-round prior to participation. For PY9, the evaluation team applied a part-use factor of 0.91 for refrigerators and 0.86 for freezers, estimated using PY6 survey responses, as specified in the IL-TRM V5.

We applied part-use factors to the modeled annual consumption value listed in Table 11 to calculate average per-unit gross energy savings for PY9. As shown in Table 12, the verified per-unit values for refrigerators and freezers were 942 kWh and 809 kWh, respectively.

Table 12. PY9 Evaluated Gross Energy Savings (Per-Unit)

Recycling Measure	Energy Savings (kWh)		Percent Difference
	Ex Ante	Ex Post	
Refrigerator	895	942	5%
Freezer	812	809	-0.4%

Table 12 also compares ex ante and ex post gross savings. The ex ante savings are estimates generated by Leidos using the IL-TRM V5 algorithm. The discrepancy between ex ante and ex post savings is because Leidos used the program tracking data to determine which units were primary and which were secondary, whereas the evaluation team used the PY6 participant surveys to determine the proportion of primary units. Using the PY6 survey responses is consistent with past evaluation methodology and specifically asks how appliances were used for the entire year prior to being recycled.

Since the most recent survey data was collected in PY6, the evaluation team reviewed the locations in the tracking data and compared them against the reported use to determine if the program tracking data would be a reliable source for determining how appliances were used prior to recycling. The evaluation team found that tracking results were not useful because the unit location was inconsistent with the reported primary or secondary status in the tracking data.

As shown in Table 13, for primary refrigerators, only 34% were reported to have been in use in a location that would be consistent with a primary refrigerator—located either on the first or second floor. Most units were located in the garage, driveway, or other location that would be unlikely for a primary refrigerator. It appears the tracking data recorded location at the time of pickup rather than location during the previous year of operation. Given these inconsistencies, the evaluation team applied the share of primary units determined in the PY6 participant surveys and will conduct participant surveys in PY10 to update data.

Table 13. Tracking Data Reported Use and Location

Primary/Secondary	Reported Location	Likely Primary	Percent of Units
Primary	1st Fl	Yes	33%
	2nd Fl	Yes	1%
	Basement	No	2%
	Driveway	No	10%
	Garage	No	37%
	Other	No	3%
	Outbuilding	No	3%
	Porch	No	8%
	Yard	No	4%
Secondary	1st Fl	Yes	8%
	2nd Fl	Yes	0%
	Basement	No	11%
	Driveway	No	8%
	Garage	No	61%
	Other	No	3%
	Outbuilding	No	3%
	Porch	No	4%
	Yard	No	2%

Overall, there was little discrepancy in per-unit savings, with ex post gross refrigerator savings 5% higher than ex ante savings and ex post gross freezer savings 0.4% lower than ex ante savings.

3.3.2   Net Impacts

The program's NTGR, as calculated in PY6 from participant survey data, drew on the self-report approach methodology established in the Uniform Methods Project protocol for evaluation of appliance recycling programs and was consistent with the Illinois NTGR framework. As shown in Table 14, we applied the SAG-approved NTGR for refrigerators and freezers.

Table 14. Ex Post Per-Unit Net Savings

Measure	Ex Post Gross Per-Unit Savings (kWh)	NTGR	Ex Post Net Per-Unit Savings (kWh)
Refrigerator	942	52%	490
Freezer	809	62%	501

4.   Conclusions and Recommendations

The evaluation team provides the following conclusions and recommendations:

- ■ **Key Finding #1:** AIC's program manager and Leidos' program manager reported that the program closed down successfully due to a combination of increased communication between implementation staff, effective program marketing to customers, and the commitment to picking up appliances for all scheduled appointments.

- ■ **Key Finding #2:** AIC plans to relaunch the program and customers will be able to participate again starting January 1, 2018. In 2018, AIC is not planning for any major changes to program design from past years. However, AIC has not completed the request for proposal process for an implementation contractor and, pending final selection, may make changes to future program implementation.

  - ■ **Recommendation:** The program may have a new implementation subcontractor responsible for scheduling, collecting appliances, and processing customer incentives. As a result, it is important to set clear key performance indicators for the subcontractor so that AIC will be able to determine, in a timely manner, if there have been any negative changes to program delivery such as customer wait time for pick up and escalated customer complaints. In addition, it will be important to manage customer expectations as some customers may be frustrated by the discontinuation and then continuation of the program. To mitigate this AIC should focus marketing messaging on AIC's commitment to meeting customer needs.

Appendix A.   Data Collection Instruments

Please click on the Stakeholder Guide icon below to open an embedded copy of the interview guide:

■   Program staff interview guide

PY9 Stakeholder
Interview Guide App

Appendix B.   ARP Assumptions and Algorithms

Refrigerators and Freezers

The evaluation team used the following algorithms from the IL-TRM V5 to estimate average UEC, energy savings, and demand savings for refrigerators and freezers recycled through the ARP.

Equation 1.. Refrigerator and Freezer Demand Algorithm

$$\text{Unit Demand Savings} = \Delta\text{kW} = \frac{\text{kWh}}{8{,}760} * Coincidence\ Factor$$

Table 15 provides the regression algorithm from the IL-TRM V5 that we used to estimate average UEC for refrigerators recycled through the ARP.

Table 15. UEC Refrigerator Regression Algorithm

Independent Variables	Estimate Coefficient
Intercept	83.32
Age (years)	3.68
Pre-1990 (= 1 if manufactured before 1990)	485.04
Size (cubic feet)	27.15
Dummy: Side-by-Side (= 1 if side-by-side)	406.78
Dummy: Primary Usage Type (in the program's absence) (= 1 if primary unit)	161.86
Interaction: Located in Unconditioned Space x CDD/365.25	15.37
Interaction: Located in Unconditioned Space x HDD/365.25	-11.07

Table 16 provides the regression algorithm from the IL-TRM V5 that we used to estimate average UEC for freezers recycled through the ARP.

Table 16. UEC Freezer Regression Algorithm

Independent Variables	Estimate Coefficient
Intercept	132.12
Age (years)	12.13
Pre-1990 (= 1 if manufactured before 1990)	156.18
Size (cubic feet)	31.84
Chest Freezer Configuration (= 1 if chest freezer)	-19.71
Interaction: Located in Unconditioned Space x CDD/365.25	9.78
Interaction: Located in Unconditioned Space x HDD/365.25	-12.76

Table 17 provides assumptions used to estimate ex post savings for refrigerators and freezers.

Table 17. Ex Post Assumptions for Refrigerators and Freezers

Parameter	Value	Units	Notes/Reference
Coincidence Factor (Refrigerator)	1.081	N/A	Summer peak coincidence factor for refrigerator (IL-TRM V5)
Coincidence Factor (Freezer)	1.028	N/A	Summer peak coincidence factor for freezer (IL-TRM V5)
Part Use Factor (Refrigerator)	0.91	N/A	Calculated based on PYt-2* participant surveys
Part Use Factor (Freezer)	0.86	N/A	Calculated based on PYt-2* participant surveys
CDD	Location Dependent (See Table 18)	Days	Cooling degree days (IL-TRM V5)
HDD	Location Dependent (See Table 19)	Days	Heating degree days (IL-TRM V5)

*Where PYt is the current program year

Table 18. Cooling Degree Days

Climate Zone (City based upon)	CDD 65	CDD/365.25
1 (Rockford)	820	2.25
2 (Chicago)	842	2.31
3 (Springfield)	1,108	3.03
4 (Belleville)	1,570	4.30
5 (Marion)	1,370	3.75

Table 19. Heating Degree Days

Climate Zone (City based upon)	HDD 65	HDD /365.25
1 (Rockford)	6,569	17.98
2 (Chicago)	6,339	17.36
3 (Springfield)	5,497	15.05
4 (Belleville)	4,379	11.99
5 (Marion)	4,476	12.25

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