

To: Vincent Gutierrez
CC: Jennifer Morris, ICC Staff; Randy Gunn, Jeff Erickson, Nishant Mehta
From: Mack Shaughnessy, Laura Agapay-Read
Date: August 24, 2018
Re: Spillover Research Results from PY9 for the ComEd Appliance Rebates Program

INTRODUCTION

This memo presents the PY9 spillover research results for ComEd's Appliance Rebates Program (ARP). Navigant recommends the researched spillover rates of 0.37 for kWh and 0.45 for kW for use in CY2019¹. Table 1 summarizes the PY9 spillover research results calculated using Illinois TRM version 6.0².

Table 1. PY9 ARP Spillover Research Results Summary

kWh Spillover Rate	kW Spillover Rate	Sample Size (N)
.037	.045	75

Source: PY9 Appliance Rebates Program Spillover Survey data, program tracking data, and Navigant team analysis.

PY9 SPILLOVER RESEARCH

The evaluation team conducted PY9 spillover research via telephone interviews in the fall of 2017. A randomized sample of 741 PY9 participants were contacted, and 75 participants completed a telephone interview. Of the 75 participants that completed the telephone interview, 14 said that they made additional energy efficient improvements since participating in the ARP, and five qualified for the spillover analysis. Table 2 outlines the measures these customers installed and how they contributed to total program spillover. The spillover rates were calculated by dividing the kWh and kW spillover by the ARP savings for the 75 customers that completed the spillover phone interview, 14,293.3 kWh and 3.76 kW, respectively.

Table 2 PY9 ARP Spillover Research Results by Measure

Measure	Spillover kWh	Spillover Rate for kWh	Spillover kW	Spillover Rate For kW	Participants Contributing to Spillover (N)
LEDs	325.7	2.3%	0.03	0.8%	2
Central Air Conditioning	135.3	0.9%	0.14	3.6%	1
Air Sealing	71.7	0.5%	<0.01	<0.1%	2
Total	532.6	3.7%	0.17	4.5%	5

Source: PY9 Appliance Rebates Program Spillover Survey data, program tracking data, and Navigant team analysis.

¹ Navigant will submit free ridership recommendations for the program in the summer of 2019 for use in CY2020 as the current sample size for free ridership research is too low to yield statistically significant results.

² Illinois Statewide Technical Reference Manual for Energy Efficiency, Version 6.0, Volume 4: Cross-Cutting Measures and Attachments, effective January 1st, 2008

Table 2 shows the distribution of electric spillover savings among the five respondents. About 60% of the savings was achieved by the installation of LED lighting by two respondents; the remainder was achieved by the installation of high efficiency central air conditioning and by having air sealing measures done.

Table 3. PY9 ARP Spillover Research Results by Respondent

Participant	Measure Installed	Spillover kWh	Proportion of Total kWh Spillover	Spillover kW	Proportion of Total kW Spillover
Respondent 1	LED	191.48	35.9%	0.02	11.1%
Respondent 2	LED	134.19	25.2%	0.01	7.6%
Respondent 3	Central Air Conditioning	135.29	25.4%	0.14	81.3%
Respondent 4	Air Sealing	71.68	13.5%	0.00†	0.0%
Respondent 5	Air Sealing	0.00*	0.0%	0.00†	0.0%
Total	-	532.6	-	0.17	-

* This respondent had gas heating, so spillover savings are attributed to as savings.

† Air Sealing does not produce demand savings.

Source: PY9 Appliance Rebates Program Spillover Survey data, program tracking data, and Navigant team analysis.

Spillover from these participants accounted for 3.7% and 4.5% of sample kWh and kW savings, respectively. Navigant recommends these values for use in CY2019. Telephone interview participants were identified for the spillover analysis based on the following primary questions from the interview:

1. Since the time you participated in the Appliance Rebate Program, have you purchased and made additional energy efficiency improvements through a utility program?
2. Did the Appliance Rebate Program influence you in any way to make additional energy efficiency improvements?
3. How important was your participation in the Appliance Rebate Program on your decision to make additional energy efficiency improvements outside of a utility program? Please rate on a scale of 0 to 10, where 0 is not at all important and 10 is extremely important. **[Attribute 1]**
4. If you had not participated in the Appliance Rebate Program, how likely is it that you would have made additional energy efficiency improvements? Please rate on a scale of 0 to 10, where 0 means you definitely would not have made additional energy efficiency improvements and 10 means you definitely would have made them, if you had not participated in the Appliance Rebate program. **[Attribute 2]**
5. What were the details of the energy efficiency improvements (equipment, efficiency level, quantity, etc.)

Questions three and four represent the values for attributes one and two, respectively. Attribution score was then calculated using the following equation:

$$\text{attribution score} = (\text{attribute 1} + (10 - \text{attribute 2}))/2$$

Attribution scores that exceeded 5.0 qualified the participant for the spillover analysis.

APPENDIX: APPLIANCE REBATES PROGRAM NTG HISTORY

	Energy Star Rebate (Appliances)
PY8	<p>Clothes Washer = 0.68 based upon ComEd PY5 Evaluation Report</p> <p>Refrigerator = 0.86 based upon MA 2012 Home Energy Services Evaluation</p> <p>Air Purifier = 0.78 based upon Ameren IL Residential EE Products PY5</p> <p>Learning Thermostats = 0.90 Navigant researched value for Residential Programs</p> <p>Freezers = 0.86 based upon MA 2012 Home Energy Services Evaluation for refrigerators.</p> <p>Heat Pump Water Heater = 0.86 based upon Ameren IL Res EE Products PY5</p> <p>Clothes Dryer = 0.68 based upon ComEd Clothes Washer PY5 Evaluation Report</p>
PY9	<p>Clothes Washer = 0.68 – based upon ComEd PY5 Evaluation Report</p> <p>Refrigerator = 0.86 – based upon MA 2012 Home Energy Services Evaluation</p> <p>Air Purifier = 0.78 – based upon Ameren IL Residential EE Products PY5</p> <p>Learning Thermostats = 0.90 – Navigant researched value for Residential Programs</p> <p>Freezers = 0.86 – based upon MA 2012 Home Energy Services Evaluation for refrigerators.</p> <p>Heat Pump Water Heater = 0.86 – based upon Ameren IL Res EE Products PY5</p> <p>Clothes Dryer = 0.68 – based upon ComEd Clothes Washer PY5 Evaluation Report</p> <p>Dehumidifier = 0.78 – based upon Ameren PY4 researched value of 0.78</p> <p>Advanced Power Strips = 0.86 – Ameren primary research in PY4</p> <p>Dishwasher = 0.92 – based upon recent CO study; will be provided to SAG once it is public</p> <p>Pool Pump = 1.00 – based upon recent CO study; will be provided to SAG once it is public</p> <p>Bathroom Exhaust Fan = 0.80 – default value (secondary research didn't support a recommendation)</p> <p>Water Cooler = 0.80 – default value (secondary research didn't support a recommendation)</p> <p>Window AC = 0.80 – default value (secondary research didn't support a recommendation)</p> <p>NTG Source: Based upon EPY8 Recommendations for existing measures and secondary research for new measures.</p>
PY10	<p>Clothes Washer = 0.58</p> <p>Refrigerator = 0.57</p> <p>Air Purifier = 0.74</p> <p>Freezers = 0.54</p> <p>Heat Pump Water Heater = 0.74</p> <p>Clothes Dryer = 0.62</p> <p>Bathroom Exhaust Fan = 0.66</p> <p>Water Cooler = 0.83</p> <p>Window AC = 0.63</p> <p>Dehumidifier = 0.78 – based upon Ameren PY4 researched value of 0.78</p> <p>Advanced Power Strips = 0.86 – Ameren primary research in PY4</p> <p>Dishwasher = 0.80 – default value</p> <p>Pool Pump = 0.80 – default value</p> <p>Learning Thermostats = NA. The savings value in the IL TRM is based on regression analysis on consumption data and thus is a net savings number.</p> <p>NTG Source: Based upon EPY8 participant self-report survey unless noted otherwise.</p>

Source: http://ilsagfiles.org/SAG_files/NTG/2017_NTG_Meetings/Final/ComEd_NTG_History_and_PY10_Recommendations_2017-03-01.pdf