Evaluation of Illinois Energy Now Green Nozzle and Savings Through Efficient Products Programs

June 2012 through May 2013

Prepared for:
Illinois Department of Commerce and Economic Opportunity

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Table of Contents

List of Tables

Executive Summary

This report presents the results of measurement and verification efforts (M&V) for the Illinois Department of Commerce and Economic Opportunity (DCEO) Green Nozzle and Savings Through Efficient Products (STEP) Programs implemented in Illinois during electric program year five (EPY5) and natural gas program year two (GPY2), from June 2012 to May 2013. The Green Nozzle Program is free to participate in, and provides low-flow pre-rinse spray valves ("Green Nozzles") to large institutions with cafeterias. The low-flow pre-rinse spray valves result in energy savings through reduced hot water consumption. The STEP Program is a modified direct install program that provides free energy-saving measures to schools, such as LED exit signs and lamps, CFLs, low-flow showerheads, faucet aerators, low-flow pre-rinse spray valves, occupancy sensors, and vending machine controls.. The program differs from a traditional direct install program in that the equipment is self-installed by the participants. Both programs are geared toward increasing awareness and use of energy efficient products in the public sector.

Overall, the Green Nozzle Program distributed 549[1] low-flow pre-rinse spray valves during EPY5/GPY2. The STEP Program distributed a total of 2,614[2] measures during the program year. Table ES-1 shows the breakdown of measures distributed and the number of participants in each program during EPY5/GPY2.

Table ES-1. Breakdown of Measures Distributed

Program	*Total Number of Measures Distributed*	*Total Number of Participants*
Green Nozzle	549	147[3]
STEP	2,614	74[4]

[1] 1 Energy Resources Center indicated that 555 Green Nozzles were distributed during EPY5/GPY2. ADM found 4 errors within the tracking data. Energy Resources Center and ADM agreed that the correct total number of nozzles distributed during EPY5/GPY2 was 549.

[2] MEEA originally reported 2,669 measures as being distributed during EPY5/GPY2. After further review it was discovered that no modlets were distributed. Without the modlets, the total measures distributed was 2,614.

[3] Total number of participants who applied for the program was 147. Total participants who received measures from the program was 145. During the evaluation process, ADM discovered that certain facilities had not yet installed nozzles. It was agreed by ADM and Energy Resources Center that certain EPY5 participants would be re-surveyed in EPY6 to see if the nozzles had been installed. If they had, these savings will be added to the EPY6 program savings.

[4] For the EPY5/GPY2 evaluation, the STEP program had a total of 74 participants, 71 of whom received measures. Three schools had audits performed but required no measures. During the evaluation process, ADM discovered that a majority of schools (85%) had not yet installed any measures, as most schools received their orders of measures within the last two weeks of the program year (program year ended May 31, 2013). Due to this discovery, ADM and MEEA agreed that EPY5/GPY2 program savings would be calculated only for schools that had received their orders prior to March 2013; the rationale for this decision was predicated on the fact that, by the

The realized gross therm savings for the Green Nozzle Program during EPY5/GPY2 are summarized in Table ES-2. During this period, realized gross energy savings totaled 242,702.91 therms. Realized net energy savings totaled 242,702.91 therms. The net-to-gross ratio is 100%. The annual gallons saved totaled 31,217,238 (not shown in table).

Table ES-2. Summary of Gross Savings for Green Nozzle Program

Utility	*Expected Therm Savings*	*Realized Gross Therm Savings*	*Gross Realization Rate*	*Realized Net Therm Savings*	*Net to Gross Ratio*
Ameren	-	127,761.64	-	127,761.64	100%
Nicor	-	111,846.70	-	111,846.70	100%
North Shore	-	442.08	-	442.08	100%
Peoples	-	2,652.49	-	2,652.49	100%
Total	302,908.79	242,702.91[5]	80%	242,702.91	100%

The variance between ex ante and ex post gross therm savings estimates is attributable to an overestimation of installation rates prior to the program beginning and to three participants receiving fewer low-flow pre-rinse spray valves than was shown in the dataset.

The realized gross kWh savings for the STEP Program during EPY5/GPY2 are summarized in Table ES-3. During this period, realized gross energy savings totaled 113,580.14 kWh. Realized net energy savings totaled 113,580.14 kWh. The net-to-gross ratio is 100%.

The difference between expected and realized gross kWh savings is attributable to an ex ante underestimation of the change in wattage of LED screw-in bulbs as a result of the program and of installation rates of program-offered products. Hours of operation and installation rates of energy efficient measures installed were calculated based on information obtained from telephone surveys of participants and on-site visits.

During this period, the STEP Program realized net energy savings totaled 113,580.14 kWh.

Table ES-3. Summary of kWh Savings for STEP Program

Utility	*Expected kWh Savings*	*Realized Gross kWh Savings*	*Gross Realization Rate*	*Realized Net kWh Savings*	*Net to Gross Ratio*
Ameren	-	29,707.19	-	29,707.19	100%
ComEd	-	83,872.95	-	83,872.95	100%

time the program year ended, there would have been enough time for the school to install the measures. From this decision, ADM compiled a list of 11 schools that were able to have savings calculated for the EPY5/GPY2 STEP Program. The remaining 60 schools will have their savings evaluated for the EPY6/GPY3 STEP Program evaluation.

[5] Savings are based on the 549 nozzles distributed during EPY5/GPY2.

Utility	*Expected kWh Savings*	*Realized Gross kWh Savings*	*Gross Realization Rate*	*Realized Net kWh Savings*	*Net to Gross Ratio*
Total	131,744.30	113,580.14[6]	86%	113,580.14	100%

The realized gross peak kW savings for the STEP Program during EPY5/GPY2 are summarized in Table ES-4. During this period, realized gross peak energy savings totaled 7.30 kW. Realized net peak energy savings totaled 7.30 kW. The net-to-gross ratio is 100%.

Table ES-4. Summary of Peak kW Savings for STEP Program

Utility	*Expected kW*	*Realized Gross kW*	*Gross Realization Rate*	*Realized Net kW Savings*	*Net to Gross Ratio*
Ameren	-	2.08		2.08	100%
ComEd	-	5.22		5.22	100%
Total	8.38	7.30	87%	7.30	100%

The realized gross therm savings for the STEP Program during EPY5/GPY2 are summarized in Table ES-4. During this period, realized gross energy savings totaled 3,165 therms. Realized net energy savings totaled 3,165 therms. The net-to-gross ratio is 100%.

Table ES-5 Summary of Therm Savings for STEP Program

Utility	*Expected Therm Savings*	*Realized Gross Therm Savings*	*Gross Realization Rate*	*Realized Net Therm Savings*	*Net to Gross Ratio*
Ameren	-	731.67	-	731.67	100%
Nicor	-	2,433.10	-	2,433.10	100%
Total	3,502.67	3,164.77	90%	3,164.77	100%

The following presents a selection of key findings from the EPY5/GPY2 program year:

- **Green Nozzle and STEP Program Participants Satisfied with Program and Measures:** Participants in both of the programs were generally satisfied with the program and the equipment they received. All of the STEP Program survey respondents indicated that they were either satisfied or very satisfied with their overall program experience. Additionally, STEP participants indicated that program equipment received was functioning and that the

[6] For the EPY5/GPY2 evaluation, the STEP program had a total of 74 participants, 71 of whom received measures. During the evaluation process, ADM discovered that a majority of schools (85%) had not yet installed any measures, as most schools received their orders of measures within the last two weeks of the program year (program year ended May 31, 2013). Due to this discovery, ADM and MEEA agreed that EPY5/GPY2 program savings would be calculated only for schools that had received their orders prior to March 2013; the rationale for this decision was predicated on the fact that, by the time the program year ended, there would have been enough time for the school to install the measures. From this decision, ADM compiled a list of 11 schools that were able to have savings calculated for the EPY5/GPY2 STEP Program. The remaining 60 schools will have their savings evaluated for the EPY6/GPY3 STEP Program evaluation.

installation went well. Only one of the Green Nozzle Program survey respondents indicated that he or she was dissatisfied with the program, while 74% of respondents stated that they were satisfied or very satisfied. However, a few participants in the Green Nozzle program noted that they did not like the low-flow spray-valves because they did not perform as well as the baseline equipment or that they had difficulty installing the spray valves.

- **STEP Program Allowance of Six Months for Measure Installation May Impact Cost Effectiveness:** The STEP modified direct install program allows participants six months to install the measures after receiving them. This allowance causes costs to incur in the year prior to when many of the measures are implemented and generate savings. Because of this timing, program costs may exceed realized benefits during the first year. In subsequent years the cost effectiveness of the program should improve. However, the cost effectiveness of the program will be impacted in future years if there is a large increase in program activity during a given year.
- **Potential for Improvement to Green Nozzle and STEP Program Data:** There were some limitations to the program tracking data provided by the Green Nozzle and STEP Programs. These issues generally pertained to additional data that would be beneficial to collect or missing data. The issues were resolved through consultations with implementation staff.
- **Installation Problems Noted in Green Nozzle and STEP Programs:** Some participants in both programs reported equipment installation problems. Participants in the Green Nozzle Program who encountered installation problems reported that they did not know how to install the low-flow or pre-rinse spray valves or that the spray valves did not fit their plumbing fixtures. As a result of these issues, some of the spray valves distributed through the program were not yet installed. Similarly, several participants in the STEP Program also reported that the equipment did not fit their existing fixtures or was incompatible with the building's wiring.

The following recommendations are offered in the interest of continuing to develop the program's strategic advantages during coming program years.

- **Green Nozzle Program Should Collect Additional Data:** Green Nozzle Program staff should collect information including participants' hot water fuel type, participant email address, and utility service provider when participants apply for the program. Information on water heating fuel type will be needed for estimating expected savings should participants with electric water heating participate in the program at a later date. The utility information is needed for meeting reporting requirements.
- **Potential Improvements to the Green Nozzle Program Distribution Process and Program Guidelines:** The large number of participants who reported that they have not yet installed the low-flow pre-rinse spray valves suggests that some improvements could be made to the program participation process. One improvement is to verify that the low-flow pre-rinse spray valves will fit participants' kitchen plumbing fixtures when the spray valves are requested. Additionally, because some participants reported that they did not know how to install the fixtures, the program should consider providing materials explaining how to

install the spray valves. This information could be provided through the use of an online video similar to the one used to promote the program.

Program staff should consider developing an online form for participants to use when requesting spray valves. An online form would conserve staff resources and add consistency to the data collected from participants. Similarly, after the spray valves are distributed, staff should consider directing participants to a second online form that would verify that the participant has received and installed the spray valves. Follow-up contacts to verify installation could then be limited to participants who do not complete this form in a timely manner.

- **Potential Improvements to STEP Program Data:** The STEP Program should begin to collect and include the site address in the measure level data and to use consistent participant entity names across data files. Program staff should consider assigning a project number for each site that can be used to link information across multiple files. These changes will facilitate the program evaluation process and reduce its cost.
- **Consider a Different Installation Period Requirement for STEP Program:** Currently the program allows participants six months to install the equipment distributed through the STEP Program. Although this period provides substantial flexibility to the participants, it can also complicate program budgeting. With the extended installation period, costs for the distribution of the measures often accrue in one year while benefits accrue in another year. Additionally, the lengthy period increases the likelihood that equipment will be lost, forgotten, or placed into storage and remain uninstalled. For example, a change in staffing during the six month time frame could result in the organization losing interest in installing the equipment.

  Program staff should consider limiting the installation period or requiring the installation of the equipment by the end of the program year. Either change will allow the program to claim savings for a larger share of the equipment for the year it is distributed in. The former change may also result in a higher overall installation rate.

  Moving towards a more traditional direct install model, in which the equipment is installed for program participants rather than relying on self-installation, should also be considered. This change would likely result in an in-service greater than the 85% realized during the program year.
- **Consider Changes to Data Collected during STEP Program Walk-Throughs:** Some program participants reported that they received equipment that they were unable to install due to conditions that prevented the installation (e.g., low flow devices not fitting plumbing fixtures). It may be possible for program staff to improve the walk-through process by collecting additional information related to the installation of the efficiency measures. This information would include plumbing fixture size for low-flow equipment and wiring requirements for occupancy sensors.

1. Introduction

This report presents the results of the impact and process evaluations of Illinois's Green Nozzle and STEP Programs offered by the Illinois Department of Commerce and Economic Opportunity (DCEO). This report presents results for activity from both programs during electric program year five (EPY5) and natural gas program year two (GPY2), from June 2012 to May 2013.

1.1 Description of Programs

1.1.1 Green Nozzle Program

The Green Nozzle Program is funded by DCEO and is administered by the Energy Resources Center located at the University of Illinois at Chicago The program provides low-flow pre-rinse spray valves ("Green Nozzles") to large institutions with cafeterias at no cost to the participants. At a typical cafeteria, the dishwashing operation consumes over two-thirds of all water used by the establishment. Moreover, nearly one-half of the water used in dishwashing is consumed through the use of spray valves. The installation of low-flow pre-rinse spray valves helps participating institutions save water and energy while maintaining equivalent cleaning performance to recent baseline models. The water and energy savings potential of low-flow pre-rinse spray valves makes them an attractive efficiency measure to both efficiency programs and consumers.

During EPY5/GPY2, 549 low-flow pre-rinse spray valves were distributed to 145 program participants.

1.1.2 Savings Through Efficient Products (STEP) Program

The Savings Through Efficient Products Program offers qualified public facilities energy-saving equipment at no cost. The program was originally offered as a direct install component of the Lights for Learning Program® but has since been renamed and established as a separate program. Some of the products offered through the STEP Program include: LED exit signs, low-flow faucet aerators, low-flow showerheads, low-flow pre-rinse spray-valves, CFLs, vending machine Controls, occupancy sensors, and exterior LED bulbs.

The participation process is as follows:

- STEP begins with a free onsite facility energy assessment to identify opportunities for upgrades.
- Midwest Energy Efficiency Alliance (MEEA) orders applicable products and provides a comprehensive report outlining the free upgrades and other relevant information about additional statewide energy savings programs.
- Facility maintenance staff members install the energy-saving products within six months of delivery, resulting in energy and cost savings for the facility.

The STEP Program is funded by DCEO and administered by the Midwest Energy Efficiency Alliance (MEEA), with assistance from their implementation partners, Applied Proactive

Technologies, Inc. and the Energy Resources Center. Order fulfillment was handled by Green Home Experts, Inc.

The program distributed 2,614 measures in EPY5/GPY2; a breakdown of the measures is shown in Table 1-1 below.

Table 1-1 Total Measures Distributed By Type

Measure	*Number Distributed*
CFL	44
LED Exit Sign	516
LED Exit Sign Retrofit Kit	105
Aerator	936
Kitchen Aerator	81
Vending Machine Controls	36
Green Nozzle	12
Occupancy Sensor	760
Screw-in LED	60
Showerhead	20
Window Timers for AC units	21
Power Strips	23
Total Measures	2,669

1.2 Overview of Evaluation Approach

The overall objective for the impact evaluation of the Green Nozzle and STEP Programs was to determine the EPY5/GPY2 gross and net electric energy savings, peak demand reductions, and natural gas savings resulting from the measures distributed by the programs.

The approach for the impact evaluation was based on the following features:

- Available documentation (e.g., program reports, savings calculation work papers, etc.) was reviewed, with particular attention given to the calculation procedures and documentation for savings estimates;
- An analytical desk review was performed to estimate gross savings; and
- A participant survey was conducted with a sample of program participants to gather information on their decision-making and other factors to estimate net savings.

1.3 Organization of Report

This report on the impact and process evaluation of the Green Nozzle and STEP Programs for EPY5/GPY2 is organized as follows:

- Chapter 2 presents and discusses the analytical methods and results of estimating gross savings for measures installed under each program.
- Chapter 3 presents and discusses the analytical methods and results of estimating net savings of each program.

- Chapter 4 presents and discusses the analytical methods and results of the process evaluation of each program.
- Appendix A provides a copy of the questionnaire used for the survey of participants in the Green Nozzle Program.
- Appendix B provides the results of the surveys used for Green Nozzle Program participants.
- Appendix C provides a copy of the questionnaire used for the survey of participants in the STEP Program.
- Appendix D provides the results of the surveys used for STEP Program participants.

2. Estimation of Gross Savings

This chapter discusses the estimation of gross electric and natural gas energy savings resulting from measures installed through the Green Nozzle and STEP Programs during EPY5/GPY2, the period from June 2012 through May 2013. Section 2.1 describes the methodology used for estimating gross savings. Section 2.2 presents the results from the calculation of savings for measures distributed through the programs.

2.1 Methodology for Estimating Gross Savings

2.1.1 Green Nozzle Program

The M&V approach for the Green Nozzle Program is aimed at the following:

- Verifying the number of low-flow pre-rinse spray valves distributed as a result of the program;
- Determining the percentage of distributed low-flow pre-rinse spray valves that are installed; and
- Estimating the extent to which installed low-flow pre-rinse spray valves are used.

Table 2-1 below summarizes the inputs used for gross savings calculations and the source of each input.

Table 2-1 Sources for Gross Impact Parameters

Parameter	*Source*
Quantities & Specifications	Program tracking data
Location of Installation	Telephone follow-up surveys with program participants
Hours of Use Per Day	Illinois Statewide Technical Reference Manual
Installation Rate	Telephone follow-up surveys with program participants
Baseline Flow Rate	Illinois Statewide Technical Reference Manual
Water Heater Outlet Water Temperature	70 degrees
Inlet Water Temperature	54.1 degrees

2.1.1.1. Review of Documentation

The program implementation team at the Energy Resources Center (ERC) of the University of Illinois at Chicago provided in-depth documentation pertaining to low-flow pre-rinse spray valves distributed through the program. The first step in the evaluation effort was to review this documentation and other relevant program materials.

For each energy efficient low-flow pre-rinse spray valve distributed, the available documentation was reviewed, with particular attention given to the calculation procedures and documentation for savings estimates.

Each report of program activity was reviewed to determine whether the following types of information had been provided:

- Documentation for the measures distributed at trade shows;
- Documentation for the measures distributed to program participants; and
- Information about the savings calculation methodology, including (1) what methodology was used, (2) specifics on the assumptions used and the sources of those assumptions, and (3) the accuracy of calculations.

2.1.1.2. Analytical Desk Review

ADM reviewed the energy savings algorithm used by program staff to estimate gross therm savings for the measures distributed through the program. This review was performed to verify that the assumptions were reasonable and that the algorithms used were correct. The assessment of reasonableness of the calculations was based on the procedures outlined in the Illinois Statewide TRM. Expected savings calculations were checked to verify that calculation errors were not made and that the reported results could be replicated.

2.1.1.3. Data Collection

A telephone survey was administered to a sample of program participants. The telephone survey provides useful data, including:

- The types of low-flow pre-rinse spray valves that were distributed;
- How many low-flow pre-rinse spray valves are still installed;
- Participants' decision-making considerations for participating in the program;
- Changes in participant behavior after participating in the program; and
- General participant feedback on the program.

2.1.1.4. Procedures for Estimating Savings from Measures Installed through the Green Nozzle Program

Gross savings estimates based on the procedures outlined in the Illinois TRM for the Green Nozzle Program require the following parameters:

- Baseline flow rate;
- Flow rate of low-flow pre-rinse spray valves;
- Percentage of low-flow pre-rinse spray valves still in use;

- Percentage of participants with natural gas heating;
- Water heater outlet water temperature;
- Water heater inlet water temperature; and
- Hours of use.

For this evaluation, the installation rate parameter is determined through the telephone survey with program participants. The percentage of participants with natural gas heating parameters was provided by ERC.[7] The remaining parameters were determined through use of the Illinois Statewide Technical Reference Manual. ADM and ERC agreed to treat all participants as "large institutional establishments."

Equations used to determine savings for all low-flow pre-rinse spray valves distributed through the program are listed below. Table 2-2 describes each parameter used in the equations.

The equation used to calculate gallons saved is: [(FLObase – FLOeff)gal/min × 60 min/hr × HOURSday × DAYSyear]

The equation used to calculate gross annual Therm savings is: ΔTherms = [GALLONS × 8.33 × 1 × (Tout-Tin) × (1/EFF) / 100,000 Btu]

Table 2-2 Gross Impact Parameters

Parameter	*Description*
FLObase	Base case flow in gallons per minute
FLOeff	Efficient case flow in gallons per minute
HOURSday	Hours that Green Nozzle is in use per day
DAYSyear	Days that Green Nozzle is used per year
Tout	Water Heater Outlet Water Temperature
Tin	Inlet Water Temperature
EFF	Efficiency of gas water heater supplying hot water to pre-rinse spray valve
ISR	In service rate of Green Nozzle dependent on install method

The Green Nozzle Program distributed 0.65 gpm spray valves during the EPY5/GPY2 program year to participants with natural gas water heating.

[7] ADM will include this question in EPY6/GPY3's survey to be administered with program participants.

Table 2-3 shows TRM values used for each calculation parameter.

Table 2-3 Gross Impact Parameters with Values Used

Parameter	*Description*	*Value Used*
FLObase	Base case flow in gallons per minute	1.9
FLOeff	Efficient case flow in gallons per minute	0.65
HOURSday	Hours that Green Nozzle is in use per day	3
DAYSyear	Days that Green Nozzle is used per year	312
Tout	Water Heater Outlet Water Temperature	70
Tin	Inlet Water Temperature	54.1
EFF	Efficiency of gas water heater supplying hot water to pre-rinse spray valve	75%

2.1.2 Savings Through Efficient Products (STEP) Program

The M&V approach for the STEP Program is aimed at the following:

- Verifying the number of program participants;
- Verifying the number of program participants with eligible savings for the EPY5/GPY2 program year;
- Verifying the number of measures distributed as a result of the program;
- Determining the percentage of measures that are currently installed; and
- Estimating the extent to which installed measures are used.

Table 2-4 below summarizes the inputs needed for gross savings calculations and the source of each input.

Table 2-4 Sources for Gross Impact Parameters

Parameter	*Source*
Project Details	Program Tracking Data
Energy Efficient Equipment Specifications	Manufacturers' Literature
Lighting Hours of Operation	Illinois Statewide Technical Reference Manual, Telephone follow-up surveys, On-site visits
Location of Installation of Measures	Telephone follow-up surveys with program participants, On-site visits
Installation Rate	Telephone follow-up surveys with program participants, On-site visits

2.1.2.1. Review of Documentation

DCEO's program implementation contractor, Midwest Energy Efficiency Alliance, provided in-depth documentation pertaining to all measures distributed through the program. The first step in the evaluation effort was to review this documentation and other program materials that were relevant to the evaluation effort. For each energy efficient measure distributed, the available documentation was reviewed, with particular attention given to the calculation procedures and documentation for savings estimates.

The savings calculations for each school were reviewed to determine whether the following types of information had been provided:

- The methodology used to estimate savings;
- The assumptions used in the calculations and their sources; and
- The correctness of calculations.

2.1.2.2. Analytic Desk Review

ADM reviewed the energy savings algorithms used by program staff to estimate gross kWh and therm savings for the measures distributed through the program. This review was performed to verify that the assumptions were reasonable and that the algorithms used were correct. The assessment of reasonableness of the calculations was based on the procedures outlined in the Illinois Statewide TRM. Expected savings calculations were checked to verify that calculation errors were not made and that the reported results could be replicated.

2.1.2.3. Data Collection

Telephone surveying was conducted with a sample of program participants. The telephone survey provides useful data, including:

- The types of measures that were distributed;
- How many of the distributed measures are still installed;
- The extent to which the measures are used;
- Participants' decision-making considerations for participating in program;
- Changes in participant behavior after participating in the program; and
- General participant feedback on the program.

ADM also completed on-site visits at a select number of participating schools for measure verification purposes. During site visits, field technicians verified that the measures were installed, that they were installed correctly, and that they were functioning.

2.1.2.4. Procedures for Estimating Savings from Measures Installed through the STEP Program

ADM applied the algorithms and stipulated values outlined in the Illinois Statewide TRM to estimate the gross savings for STEP Program during EPY5/GPY2. Parameters used to calculate savings for each measure are explained in detail below. ADM utilized input values specific to each school in the calculation methodologies below. The following calculation methodologies first list the input parameters and how they were determined, followed by a description of the formulas used.

Aerator

Savings calculations for aerators were based on the following parameters:

- Baseline flow rate;
- Flow rate of energy efficient aerators;
- Percentage of aerators still in use;
- Percentage of participants with natural gas heating;
- Number of occupants per faucet;
- Energy per gallon of hot water supplied by gas.

The installation rate parameter was determined through on-site visits with program participants. The percentage of participants with natural gas water heating was provided by MEEA.[8] The remaining parameters were determined through use of the Illinois Statewide Technical Reference Manual. ADM and MEEA agreed to treat all participants as either an elementary or a middle/high school.

The equation used to determine savings for all aerators distributed through the program is listed below. Table 2-5 describes each parameter used in the equation.

Equation used to calculate gross annual therm savings: ΔTherms = %FossilDHW × ((GPM_base × L_base - GPM_low * L_low) × NOPF × 365.25 *DF)/ GPMfactor) × EPG_gas × ISR

Table 2-5 Gross Impact Parameters-Aerator

Parameter	*Description*
%Fossil DHW	Proportion of water heating supplied by fossil fuel heating
GPM_base	Average flow rate, in gallons per minute "as used"
GPM_low	Average flow rate in GPM of low-flow aerator "as used"
L_base	Average baseline length faucet use per capita
L_low	Average retrofit length faucet per capita for all faucets in minutes
NOPF	Number of occupants per faucet
DF	Drain factor as defined
EPG gas	Energy per gallon of hot water supplied by gas
ISR	In service rate of faucet aerator dependent on install method

The values for the equation parameters are shown in Table 2-6.

[8] ADM will include this question in EPY6/GPY3's survey to be administered with program participants.

Table 2-6 Gross Impact Parameters with Values Used-Aerator

Parameter	*Value Used*	
	Elementary	*Middle/High School*
%Fossil DHW	100%	100%
GPM_base	1.2	1.2
GPM_low	0.5	0.5
Usage	3,750	11,250
EPG gas	0.00446	0.00446

CFL/ CFL with sensor

Savings calculations for CFLs and CFLs with sensors were based on the following parameters:

- Baseline wattage;
- Wattage of energy efficient CFL;
- Percentage of CFLs still in use; and
- Hours of use.

These parameters are determined through the telephone survey and through on-site visits with program participants. The remaining parameters were determined through use of the Illinois Statewide Technical Reference Manual. ADM and MEEA agreed to treat all participants as either an elementary or a middle/high school.

The equation used to determine savings for all CFL's distributed through the program is listed below. Table 2-7 describes each parameter used in the equation.

Equation used to calculate gross annual kWh savings: $\Delta kWh = ((WattsBase-WattsEE)/1000) \times ISR \times HOURSday \times WHFe$

Table 2-7 Gross Impact Parameters-CFL

Parameter	*Description*
WattsBase	Wattage of original bulb
WattsEnergyEfficient	Wattage of CFL installed
HOURSday	Hours that CFL is in use per day
WFHe	Waste heat factor for energy to account for cooling energy savings from efficient lighting
ISR	In service rate of CFLs dependent on install method

The values used for the equation parameters are shown in Table 2-8.

Table 2-8 Gross Impact Parameters with Values Used-CFL

Parameter	*Value Used*	
	Elementary	*Middle/High School*
WattsBase	60	60
WattsEnergyEfficient	23	23
HOURSday	2,118	2,327
WFHe	1.21	1.23

Low Flow Pre-Rinse Spray Valves

Savings calculations for low-flow pre-rinse spray valves were based on the following parameters:

- Baseline flow rate;
- Flow rate of low-flow pre-rinse spray valves;
- Percentage of low-flow pre-rinse spray valves still in use;
- Percentage of participants with natural gas heating;
- Water heater outlet water temperature;
- Water heater inlet water temperature; and
- Hours of use.

The installation rate parameter was determined through the telephone survey and through on-site visits with program participants. The percentage of participants with natural gas heating parameters was provided by MEEA.[9] The remaining parameters were determined through use of the Illinois Statewide Technical Reference Manual. ADM and MEEA agreed to treat all participants as either an elementary or a middle/high school.

The equations used to determine savings for all low-flow pre-rinse spray valves distributed through the program is listed below. Table 2-9 describes each parameter used in the equations.

Equation used to calculate gallons saved: [(FLObase – FLOeff)gal/min × 60 min/hr × HOURSday × DAYSyear]

Equation used to calculate gross annual therm savings: ΔTherms = [GALLONS × 8.33 × 1 × (Tout-Tin) × (1/EFF) / 100,000 Btu] × ISR

[9] ADM will include this question in EPY6/GPY3's survey to be administered with program participants.

Table 2-9 Gross Impact Parameters-Green Nozzle

Parameter	*Description*
FLObase	Base case flow in gallons per minute
FLOeff	Efficient case flow in gallons per minute
HOURSday	Hours that Green Nozzle is in use per day
DAYSyear	Days that Green Nozzle is used per year
Tout	Water Heater Outlet Water Temperature
Tin	Inlet Water Temperature
EFF	Efficiency of gas water heater supplying hot water to pre-rinse spray valve
ISR	In service rate of Green Nozzle dependent on install method

The values used for the equation parameters are shown in Table 2-10.

Table 2-10 Gross Impact Parameters with Values Used-Green Nozzle

Parameter	*Value Used*	
	Elementary	*Middle/High School*
FLObase	1.90	1.90
FLOeff	1.06	1.06
HOURSday	3	3
DAYSyear	312	312
Tout	124.1	124.1
Tin	54.1	54.1
EFF	97%	97%

LED Exit Sign

Savings calculations for LED exit signs were based on the following parameters:

- Baseline wattage of bulb;
- Wattage of energy efficient LED exit sign;
- Percentage of LED exit signs still in use;
- Annual operating hours; and
- Waste heat factor for energy.

The installation rate parameter was determined through the telephone survey and through on-site visits with program participants. The remaining parameters were determined through use of the Illinois Statewide Technical Reference Manual. ADM and MEEA agreed to treat all participants as either an elementary or a middle/high school.

The equation used to determine savings for all LED exit signs distributed through the program is listed below. Table 2-11 describes each parameter used in the equation.

Equation used to calculate gross annual kWh savings: $\Delta kWh = ((WattsBase - WattsEE) / 1000) \times HOURS \times WHFe \times ISR$

Table 2-11 Gross Impact Parameters-LED Exit Sign

Parameter	*Description*
WattsBase	Actual wattage if known
WattsEE	Actual Wattage
HOURS	Annual operating hours
WHFe	Waste heat factor for energy
ISR	In service rate of LED Exit Signs dependent on install method

The values used for the equation parameters are shown in Table 2-12.

Table 2-12 Gross Impact Parameters with Values Used-LED Exit Sign

Parameter	*Value Used*			
	Elementary-Fluorescent	*Middle/High school Fluorescent*	*Elementary-Incandescent*	*Middle/High school Incandescent*
WattsBase	11	11	35	35
WattsEE	2.4	2.4	2.4	2.4
HOURS	8,766	8,766	8,766	8,766
WHFe	1.21	1.23	1.21	1.23

LED Screw-in Bulb

Savings calculations for LED screw in bulbs were based on the following parameters:

- Baseline wattage;
- Wattage of LED screw-in bulb;
- Percentage of LED screw-in bulbs still in use; and
- Hours of use.

These parameters are determined through the telephone survey and on-site visits administered with participants of the program. The remaining parameters were determined through use of the Illinois Statewide Technical Reference Manual. ADM and MEEA agreed to treat all participants as either an elementary or a middle/high school.

The equation used to determine savings for all LED screw-in bulbs distributed through the program is listed below. Table 2-13 describes each parameter used in the equation.

Equation used to calculate gross annual kWh savings: ΔkWh = ((Delta Watts) / 1000) × HOURS × WHFe × ISR

Table 2-13 Gross Impact Parameters-LED Screw-in Bulb

Parameter	*Description*
Delta Watts	Baseline bulb – LED bulb
HOURSday	Hours that LED is in use per day
WHFe	Waste heat factor for energy
ISR	In service rate of LED's dependent on install method

The values used for the equation parameters are shown in in Table 2-14.

Table 2-14 Gross Impact Parameters with Values Used-LED Screw-in Bulb

Parameter	*Value Used*	
	Elementary	*Middle/High School*
Delta Watts	57	57
HOURSday	4,903	4,903
WHFe	1	1

Occupancy Sensor/Wall Switch

Savings calculations for occupancy sensors/wall switches were based on the following parameters:

- Hours of use before occupancy sensor installed;
- Hours of use of occupancy sensor after installation
- Wattage of occupancy sensor; and

These parameters are determined through the telephone survey and through on-site visits with program participants. The remaining parameters were determined through use of the Illinois Statewide Technical Reference Manual. ADM and MEEA agreed to treat all participants as either an elementary or a middle/high school.

The equation used to determine savings for all occupancy sensors distributed through the program is shown below. Table 2-15 describes each parameter used in the equation.

Equation used to calculate gross annual kWh savings is $\Delta kWh = KWcontrolled * Hours * ESF * WHFe \times ISR$

Table 2-15 Gross Impact Parameters-Occupancy Sensor

Parameter	*Description*
Kwcontrolled	Total lighting load connected to the control in kilowatts. Savings is per control
ESF	Energy Savings factor (represents the percentage reduction to the operating hours from the non-controlled baseline lighting system
WHFe	Waste heat factor for energy
Hours	Total operating hours of the controlled lighting circuit before the controls are installed
ISR	In service rate of occupancy sensors dependent on install method

The values used for the equation parameters are shown in Table 2-16.

Table 2-16 Gross Impact Parameters with Values Used-Occupancy Sensor

Parameter	*Value Used*	
	Elementary	*Middle/High School*
KWcontrolled	0.350	0.350
ESF	41%	41%
WHFe	1.21	1.23
Hours	2,118[10]	2,327[11]

LED Exit Sign Retrofit Kit

Savings calculations for LED exit sign retrofit kits were based on the following parameters:

- Baseline wattage of bulb;
- Wattage of energy efficient LED exit sign;
- Percentage of LED exit signs still in use;
- Annual operating hours; and
- Waste heat factor for energy.

The installation rate parameter is determined through the telephone survey and on-site visits administered with participants of the program. The remaining parameters were determined through use of the Illinois Technical Reference Manual. ADM and MEEA agreed to treat all participants as elementary or middle/high school.

The equation used to determine savings for all LED exit sign retrofit kits distributed through the program is listed below. Table 2-17 describes each parameter used in the equation.

[10] Hours of operation were adjusted dependent on survey responses and on-site visit findings.

[11] Hours of operation were adjusted dependent on survey responses and on-site visit findings.

Equation used to calculate gross annual kWh savings: ΔkWh = ((WattsBase - WattsEE) / 1000) × HOURS × WHFe × ISR

Table 2-17 Gross Impact Parameters-LED Exit Sign

Parameter	*Description*
WattsBase	Actual wattage if known
WattsEE	Actual Wattage
HOURS	Annual operating hours
WHFe	Waste heat factor for energy
ISR	In service rate of LED Exit signs dependent on install method

The values used for the equation parameters are shown in Table 2-18.

Table 2-18 Gross Impact Parameters with Values Used-LED Exit Sign

Parameter	*Value Used*			
	Elementary-Fluorescent	*Middle/High school Fluorescent*	*Elementary-Incandescent*	*Middle/High school Incandescent*
WattsBase	11	11	35	35
WattsEE	4.5	4.5	4.5	4.5
HOURS	8,766	8,766	8,766	8,766
WHFe	1.21	1.23	1.21	1.23

Smart Strip

The Illinois Statewide TRM stipulated value of 56.5 kWh per unit savings was used for smart strips.

Swivel Aerator

Savings calculations for swivel aerators were based on the following parameters:

- Baseline flow rate;
- Flow rate of energy efficient aerators;
- Percentage of aerators still in use;
- Percentage of participants with natural gas heating;
- Number of occupants per faucet; and
- Energy per gallon of hot water supplied by gas.

The installation rate parameter is determined through the telephone survey and through on-site visits with program participants. The percentage of participants with natural gas heating parameter was provided by MEEA.[12] The remaining parameters were determined through use of

[12] ADM will include this question in EPY6/GPY3's survey to be administered with program participants.

the Illinois Statewide Technical Reference Manual. ADM and MEEA agreed to treat all participants as either an elementary or a middle/high school.

The equation used to determine savings for all aerators distributed through the program is listed below. Table 2-19 describes each parameter used in the equation.

Equation used to calculate gross annual Therm savings: ΔTherms = %FossilDHW × ((GPM_base × L_base - GPM_low * L_low) × NOPF × 365.25 *DF)/ GPMfactor) × EPG_gas × ISR

Table 2-19 Gross Impact Parameters-Swivel Aerator

Parameter	*Description*
%Fossil DHW	Proportion of water heating supplied by fossil fuel heating
GPM_base	Average flow rate, in gallons per minute "as used"
GPM_low	Average flow rate in GPM of low-flow aerator "as used"
L_base	Average baseline length faucet use per capita
L_low	Average retrofit length faucet per capita for all faucets in minutes
NOPF	Number of occupants per faucet
DF	Drain factor as defined
EPG gas	Energy per gallon of hot water supplied by gas
ISR	In service rate of faucet aerator dependent on install method

The values used for the equation parameters are shown in Table 2-20.

Table 2-20 Gross Impact Parameters with Values Used-Swivel Aerator

Parameter	*Value Used*	
	Elementary	*Middle/High School*
%Fossil DHW	100%	100%
GPM_base	1.915	1.915
GPM_low	1.5	1.5
Usage	3,750	11,250
EPG gas	0.00446	0.00446

Timer for Window AC Unit

Savings were not calculated by the implementation contractor for timers for window AC units, and, therefore, ADM did not take these measures into account when calculating annual gross savings. The Illinois Technical Reference Manual does not list energy savings for window AC units, and this was the main source in calculating savings.

Vending Machine Control

Savings calculations for vending machine controls were based on the following parameters:

- Connected load of the controlled equipment;

- Hours of operation; and
- Energy savings factor that represents the percent reduction in kWh consumption of the controlled equipment.

The installation rate parameter is determined through the telephone survey and through on-site visits with program participants. The remaining parameters were determined through use of the Illinois Statewide Technical Reference Manual. ADM and MEEA agreed to treat all participants as either an elementary or a middle/high school.

The equation used to determine savings for all vending machine controls distributed through the program is listed below. Table 2-21 describes each parameter used in the equation.

Equation used to calculate gross annual kWh savings: ΔkWh = WATTSbase / 1000 × HOURS × ESF × ISR

Table 2-21 Gross Impact Parameters-Vending Machine Control

Parameter	*Description*
WATTSbase	Connected watts of the controlled equipment
1000	Conversion factor
HOURS	Operating hours of the connected equipment
ESF	Energy Savings Factor, represents the percent reduction in annual kWh consumption of the equipment controlled
ISR	In service rate of faucet aerator dependent on install method

The values used for the equation parameters are shown in Table 2-22.

Table 2-22 Gross Impact Parameters with Values Used-Vending Machine Control

Parameter	*Value Used*		
	Glass Front Refrigerated	*Plastic Front Refrigerated*	*Snack*
WATTSbase	460	400	85
1000	1000	1000	1000
HOURS	8,766	8,766	8,766
ESF	30%	46%	46%

2.2 Results of Gross Savings Estimation

2.2.1 Green Nozzle Program

The EPY5/GPY2 Green Nozzle Program originally reported that 555 energy efficient low-flow pre-rinse spray valves were distributed through the program. ADM reviewed program tracking

data for errors such as duplicate or erroneous entries. The verification of the number of spray valves distributed through the program consisted of a review of notes and reports from ERC and DCEO. Program invoices were cross-checked with program tracking data in order to ensure that the final number of distributed valves claimed and their associated savings matched sales data provided by ERC. Through this process, ADM found four errors in the tracking data. These errors showed an overstatement of the number of low-flow pre-rinse spray valves sent to three program participants. After discussions with ERC to clarify the discrepancy, it was determined that 549 low-flow pre-rinse spray valves had been distributed.

The in-service rate for the spray valves was found to be 81%, based on survey responses from 64 program participants.

Expected and realized savings are summarized in Table 2-23. Overall, the program had 145 participants and achieved gross realized savings of 242,702.91 therms. The program realization rate is 80%[13]. Realized savings were less than expected savings because not all of the low-flow pre-rinse spray valves were in use and because fewer spray valves were distributed than the quantity used in the calculation of expected savings. Annual gallons saved were calculated to be 31,217,238.

Table 2-23 Expected and Gross Realized Therm savings for Green Nozzle Program

Utility	*Expected Gross Therm Savings*	*Realized Gross Therm Savings*
Nicor	-	111,846.70
Peoples	-	2,652.49
North Shore	-	442.08
Ameren	-	127,761.64
Total	302,908.79	242,702.91

2.2.1.1.1. Lifetime Savings

The Illinois Statewide Technical Reference Manual effective useful life (EUL) of five years was used to estimate lifetime savings. Lifetime savings for EPY5/GPY2 are expected to be 1,213,514.54 therms. Lifetime water saved is expected to be 156,086,190 gallons.

2.2.2 Savings Through Efficient Products (STEP) Program

The STEP Program distributed 2,669 energy efficiency measures to 71[14] participants during the EPY5/GPY2 program year. ADM reviewed the tracking database for data entry errors such as duplicate or erroneous entries. ADM found one error in the data tracking base that incorrectly indicated that modlets were distributed during the program year, when in fact no modlets were

[13] During the evaluation process, ADM discovered that certain facilities had not yet installed nozzles. It was agreed by ADM and Energy Resources Center that certain EPY5 participants would be re-surveyed in EPY6 to see if the nozzles had been installed. If they had, these savings will be added to the EPY6 program savings.

[14] For the EPY5/GPY2 evaluation, the STEP program had a total of 74 participants, 71 of whom received measures. Three schools had audits performed but required no measures.

distributed. The modlets were not distributed because program staff determined that there would not be reliable energy savings associated with them and the Illinois Technical Reference Manual does not list savings for the measure

During the evaluation process, ADM discovered that a majority of participants (85%) had not yet installed any measures. The measures were not yet installed because most participants received the measures within the last two weeks of the program year and are allowed six months to install them. ADM and MEEA agreed that EPY5/GPY2 program savings would be calculated only for the participants that received their measures prior to March 2013. Consequently, the number of participants with eligible savings was reduced to 11 schools. Savings for the remaining 60 participants will be evaluated during the EPY6/GPY3 program year evaluation.

Table 2-24 shows the average annual per unit savings for the measures distributed through the STEP Program. The values are based on the TRM algorithms and assumptions described in Section 2.1.2.4.

Table 2-24 Average Annual per Unit Measure Savings by School Type

Measure	*Annual Gross Savings Elementary*	*Annual Gross Savings Middle/High School*
CFL	65.9 kWh	73.6 kWh
Aerator	9.3 Therms	27.8 Therms
Swivel Aerator	3.4 Therms	10.3 Therms
Green Nozzle	366.8 Therms	366.8 Therms
Power Strip	56.5 kWh	56.5 kWh
LED Screw-in Bulb	122.9 kWh	122.9 kWh
LED Exit Sign	91.2 kWh (Fluorescent baseline) 345.8 kWh (Incandescent baseline)	92.7 kWh (Fluorescent baseline) 351.5 kWh (Incandescent baseline)
LED Exit Sign Retrofit Kit	68.9 kWh (Fluorescent baseline) 323.5 kWh (Incandescent baseline)	70.1 kWh (Fluorescent baseline) 328.9 kWh (Incandescent baseline)
Vending Machine Control	Glass Front Refrigerated: 1209.7 kWh Plastic Front Refrigerated: 1612.9 kWh Snack: 342.8 kWh	
Occupancy Sensors	kWh savings based on occupancy data	

Installation rates of measures distributed through the program were determined through on-site verification visits and telephone surveys of participants who received these measures. The overall measure installation rate for the STEP Program during EPY5/GPY2 is 85%. Table 2-25 shows installation rates for each measure type.

Table 2-25 Installation Rates by Measure

Measure	*Installation Rate*
Aerator	88%
CFLs (includes CFL with sensor)	91%
Green Nozzle	100%
LED Exit Sign	86%
LED Screw-in bulb	100%
Occupancy Sensor (includes wall in switch)	73%
Smart Strip	75%
Swivel Aerator	82%
Timers for Window AC Unit	100%
Vending Machine Control	100%

Gross realized electric savings are summarized in Table 2-26. The gross realized electric savings during the June 2012 through May 2013 period are 113,580.14 kWh. The realization rate is 86%.

Table 2-26 Summary of kWh Savings for STEP Program

Utility	*Expected kWh Savings*	*Realized Gross kWh Savings*	*Gross Realization Rate*
Ameren	-	29,707.19	-
ComEd	-	83,872.95	-
Total	131,744.30	113,580.14	86%

Gross realized peak electric savings are summarized in Table 2-27. The gross realized peak electric savings during the June 2012 through May 2013 period are 7.30 kW. The realization rate is 87%.

Table 2-27 Summary of Peak kW Savings for STEP Program

Utility	*Expected kW*	*Realized Gross kW*	*Gross Realization Rate*
Ameren	-	2.08	
ComEd	-	5.22	
Total	8.38	7.30	87%

Gross realized natural gas savings are summarized in Table 2-28. The gross realized natural gas savings during the June 2012 through May 2013 period are 3,164 therms. The realization rate is 90%.

Table 2-28 Summary of Therm Savings for STEP Program

Utility	*Expected Therm Savings*	*Realized Gross Therm Savings*	*Gross Realization Rate*
Ameren	-	731.67	-
Nicor	-	2,433.10	-
Total	3,502.67	3,164.77	90%

2.2.2.1.1. Lifetime Savings

The Illinois Statewide Technical Reference Manual effective useful life (EUL) estimates were referenced to determine measure life. Table 2-29 shows a breakdown of EUL used to calculate lifetime savings for each measure[15] distributed through the STEP Program during the EPY5/GPY2 program year.

Table 2-29 Installation Rates by Measure

Measure	*Measure Life*
Aerator	9
CFLs (includes CFL with sensor)	6.8
Green Nozzle	5
LED Exit Sign	16
LED Screw-in bulb	7.14
Occupancy Sensor (includes wall in switch)	8
Smart Strip	4
Swivel Aerator	9
Vending Machine Control	5

Lifetime savings for EPY5/GPY2 were 1,145,854.48 kWh, 82.834 kW, and 24,081.78 Therms.

[15] Timers for window AC units were not included in this table because savings were not calculated for this measure.

3. Estimation of Net Savings

This chapter reports the results of estimating the net impacts of the both the Green Nozzle and STEP Program during the period June 2012 through May 2013, where net savings represents the portion of gross savings achieved by program that can be attributed to the effects of the program.

3.1 Procedures Used To Estimate Net Savings

Net savings may be less than gross savings because of free ridership impacts, which arise to the extent that participants in a program would have adopted energy efficiency measures and achieved the observed energy changes even in the absence of the program. Free-riders for a program are defined as those participants that would have installed the same energy efficiency measures without the program.

The goal of the free ridership analysis is to estimate the impacts of energy efficiency measures attributable to programs that are net of free ridership. That is, because the energy savings realized by free-riders are not induced by the program, these savings should not be included in the estimates of the program's actual impacts. Without adjustment for free ridership, some savings that would have occurred naturally would be attributed to the program. The measurement of the net impact of the program requires estimation of the marginal effect of the program over and above the "naturally occurring" patterns for installation and use of energy efficient equipment.

Information collected from a sample of program participants through a participant survey was used for the net-to-gross analysis. For the Green Nozzle Program, Appendix A provides a copy of the survey instrument, and Appendix B presents tabulated responses for each survey question. Appendix C provides a copy of the survey instrument used for the STEP Program and Appendix D presents the tabulated responses. Based on review of this information, the preponderance of evidence regarding free ridership inclinations was used to attribute a participant's savings to free ridership.

Several criteria were used for determining what portion, if any, of a participant's savings for a particular project should be attributed to free ridership. The first criterion was based on the response to the question: "Would you have been financially able to install the [Equipment] if it had not been provided at no-cost through the [Program Name]?" If a participant answered "No" to this question, a free ridership score of 0 was assigned to the project. That is, if a participant required that the equipment be provided at no-cost to install it, then the participant was deemed to not be a free rider.

For decision makers that indicated that they were financially able to install equipment without receiving it through the program, three factors were analyzed to determine what percentage of savings may be attributed to free ridership. The three factors are:

- Plans and intentions of participant to install the equipment even without support from the program;
- Influence that the program had on the participants decision to install the equipment; and
- A participant's previous experience with similar energy efficient measures.

Participants were asked about their plans to purchase the equipment, or if they had planned on purchasing less equipment than was distributed through the program. Two binary variables were constructed to account for participants' plans and intentions to install the energy efficient equipment. One, based on a more restrictive set of criteria indicates a higher likelihood of free ridership, and a second, based on less restrictive criteria indicates a relatively lower likelihood of free ridership.

The first, more restrictive criteria indicating participant plans and intentions to purchase the energy efficient equipment are as follows:

- The respondent answered "yes" to the following two questions: "Did you have plans to install the [Equipment] prior to participating in the [Program Name]?" and "Would you have gone ahead with this planned installation even if you had not participated in the [Program Name]?"
- The respondent answered "definitely would have installed" to the following question: "If the [Program Name] had not been available, how likely is it that you would have installed the [Equipment] anyway?"
- The respondent answers "no, the program did not affect the timing of the installation" to the question "Did you install the [Equipment] sooner than you would have had you not participated in the program?"

The second, less restrictive criteria accounting for participants' plans and intentions are as follows:

- The respondent answered "yes" to the following two questions: "Did you have plans to install the [Equipment] prior to participating in the [Program Name]?" and "Would you have gone ahead with this planned installation even if you had not participated in the [Program Name]?"
- The respondent answered "definitely would have installed" or "probably would have installed" to the following question: "If the [Program Name] had not been available, how likely is it that you would have installed the [Equipment] anyway?"
- Either the respondent answered "no, the program did not affect the timing of the installation" to the question "Did you install the [Equipment] sooner than you would have had you not participated in the program?" or the respondent indicated that while program information and financial incentives did affect the timing of equipment installation, in the absence of the program they would have installed the equipment within the next two years.

The second factor involves determining if experience with the program or similar programs influenced participants' decision to install the energy efficient equipment. The criteria indicating program influence that may signify a lower level of free ridership is as follows:

- The respondent answered "very important" to the following question: "How important was your previous experience with the [DCEO] programs to your decision to install the [Equipment]?
- The respondent answered "yes" to the question "Did a representative of the [Program Name] recommend that you install the [equipment]?" and "probably would not have" or "definitely would not have" to the question: "If the [Program Name] representative had not recommended that you install the [equipment], how likely is it that you would have done it anyway?"

The third factor requires determining if a participant in the program indicated that he or she had previous experience with energy efficiency improvements. A participant indicating that he or she had implemented a similar measure is considered to have a higher likelihood of free ridership.

The criteria indicating that previous experience may signify a higher likelihood of free ridership are as follows:

- The respondent answered "yes" to the following question: "Before participating in the [Program Name], has you installed any [Similar Equipment]?"
- The respondent answered "yes" to the question "Has your organization purchased any equipment to improve energy efficiency in the last three years for which you did not apply for financial assistance through an energy efficiency program?"

The four sets of rules described above were used to construct four different indicator variables that address free ridership behavior. For each participant, a free ridership value was assigned based on the combination of variables. With the four indicator variables, there were 11 applicable combinations for assigning free ridership scores for each respondent, depending on the combination of answers to the questions creating the indicator variables. Table 3-1 shows these values.

Table 3-1 Free Ridership Scores for Combinations of Indicator Variable Responses

Indicator Variables				*Free Ridership Score*
Had Plans and Intentions to Equipment without Program (Definition 1)	*Had Plans and Intentions to Install Equipment without Program (Definition 2)*	*Program had Influence on Decision to Install Equipment*	*Had Previous Experience with Equipment*	
Y	N/A	Y	Y	100%
Y	N/A	N	N	100%
Y	N/A	N	Y	100%
Y	N/A	Y	N	67%
N	Y	N	Y	67%
N	N	N	Y	33%
N	Y	N	N	33%
N	Y	Y	N	0%
N	N	N	N	0%
N	N	Y	N	0%
N	N	Y	Y	0%

3.2 Results of Net Savings Estimation for Green Nozzle Program

The procedures described in the preceding section were used to estimate free ridership rates and net-to-gross ratio for the Green Nozzle Program for the period June 2012 through May 2013.

3.2.1 Realized Net Therm Savings

The data used to assign free ridership scores were collected through a participant survey of 64 participant decision makers who installed low-flow pre-rinse spray valves during the period June 2012 through May 2013.

As discussed in Section 3.1, the first criterion used to determine what proportion of natural gas savings from a project should be assigned to free ridership was whether or not the participant was financially able to install the low-flow pre-rinse spray valves without receiving them through the Green Nozzle Program. If a decision maker respondent answered "No" to the question of "Would you have been financially able to install the low-flow pre-rinse spray valves if it had not been provided at no-cost through the Green Nozzle Program?" a free ridership score of 0 was assigned to the project. That is, if a participant required that the low-flow pre-rinse spray valves be provided at no-cost to install them, then the participant was deemed to not be a free rider.

Under this criterion, the other free ridership scoring criteria were applied only to projects for participants who answered "Yes" to the question: "Would you have been financially able to install the low-flow pre-rinse spray valves if it had not been provided at no-cost through the Green Nozzle Program?

Table 3-2 shows the percentage of survey respondents who relayed the following: The participant had plans and intentions to install the low-flow pre-rinse spray valves in the facility

without assistance from the program (under two alternative definitions as described in the preceding section), the program influenced the participants' decision to install the low-flow pre-rinse spray valves, or that the participant previously implemented a similar measure without assistance from an energy efficiency program during the last three years. Percentages reported are averages weighted by project gross realized savings.

Table 3-2 Weighted Average Indicator Variable Values

Had Financial Ability	*Had Plans and Intentions to Install Low-Flow Pre-Rinse Spray Valves without Program (Definition 1)*	*Had Plans and Intentions to Install Low-Flow Pre-Rinse Spray Valves without Program (Definition 2)*	*Program had Influence on Decision to Install Low-Flow Pre-Rinse Spray Valves*	*Had Previous Experience with Low-Flow Pre-Rinse Spray Valves*
35%	0%	0%	42%	3%

Table 3-3 shows percentages of total realized gross natural gas savings that are associated with different combinations of free ridership indicator variable values. Sixty-five percent of the savings are associated with respondents who indicated that they were financially unable to implement the project in the absence of the program incentive.

Table 3-3 Estimated Free-ridership for Therm Savings from Projects

Had Plans and Intentions to Install Low-Flow Pre-Rinse Spray Valves without Program (Definition 1)	*Had Plans and Intentions to Install Low-Flow Pre-Rinse Spray Valves without Program (Definition 2)*	*Program had Influence on Decision to Install Low-Flow Pre-Rinse Spray Valves*	*Had Previous Experience with Low-Flow Pre-Rinse Spray Valves*	*Percentage of Total Realized Gross Therm Savings*	*Free Rider Ship Score*
N	N	N	N	15.7%	0.0%
N	N	Y	N	18.9%	0.0%
N	N	Y	Y	0.7%	0.0%
Required program incentive to implement measures.				64.6%	0.0%
Total				100.0%	0.0%

The realized therm savings for the Green Nozzle Program during the period June 2012 through May 2013 are summarized in Table 3-4. During this period, realized net therm savings totaled 242,702.91 therms. The EPY5/GPY2 net to gross ratio was calculated to be 100%.

Table 3-4 Summary of Green Nozzle Program Net Therm Savings

Utility	*Expected Net Therm Savings*	*Realized Net Therm Savings*	*Net to Gross Ratio*
Ameren	-	111,846.70	-
Nicor	-	2,652.49	-
North Shore	-	442.08	-
Peoples	-	127,761.64	-
Total	302,908.79	242,702.91	100%

3.3 Results of Net Savings Estimation for STEP Program

The procedures described in section 3.1 were used to estimate free ridership rates and net-to-gross ratios for the STEP Program for the period June 2012 through May 2013.

3.3.1 Realized Net kWh and Therm Savings

The data used to assign free ridership scores were collected through a participant survey of three participant decision makers for projects completed during the period June 2012 through May 2013. Multiple attempts were made to obtain additional survey responses but these were ultimately unsuccessful. However, the survey respondents represented 40% of the therm savings and 45% of the kWh savings associated with projects completed through the program.

As discussed in section 3.1, the first criterion used to determine what proportion of natural gas and electric savings from a project should be assigned to free ridership was whether or not the participant was financially able to install the direct install equipment without receiving it through the STEP Program. If a decision maker respondent answered "No" to the question of "Would you have been financially able to install the Direct Install Equipment if it had not been provided at no-cost through the Lights for Learning Direct Install Program?"[16] a free ridership score of 0 was assigned to the project. That is, if a participant required the equipment to be provided at no-cost to install it, then the participant was deemed to not be a free rider.

Under this criterion, the other free ridership scoring criteria were applied only to projects for participants who answered "Yes" to the question "Would you have been financially able to install the Direct Install Equipment if it had not been provided at no-cost through the Lights for Learning Direct Install Program?"

Table 3-5 and Table 3-6 shows the percentage of survey respondents who relayed the following: The participant had plans and intentions to install the equipment in the facility without assistance from the program (under two alternative definitions as described in the preceding section), the program influenced the participant's decision to install the equipment, or that the participant

[16] During EPY5/GPY2, the STEP Program was operated and referred to as the direct install component of the Lights for Learning® Program. Consequently, the survey questions refer to it as the Lights for Learning Direct Install Program.

previously implemented a similar measure without a program incentive during the last three years. Percentages reported are averages weighted by project gross realized kWh and therm savings. All of the gross electric and natural gas savings were associated with respondents who indicated that they were financially unable to implement the project in the absence of the program incentive.

Table 3-5 Average Indicator Variable Values Weighted by kWh

Had Financial Ability	*Had Plans and Intentions to Install the Direct Install Equipment without Program (Definition 1)*	*Had Plans and Intentions to Install the Direct Install Equipment without Program (Definition 2)*	*Program had Influence on Decision to Install the Direct Install Equipment*	*Had Previous Experience with the Direct Install Equipment*
0%	0%	0%	30%	0%

Table 3-6 Average Indicator Variable Values Weighted by Therms

Had Financial Ability	*Had Plans and Intentions to Install the Direct Install Equipment without Program (Definition 1)*	*Had Plans and Intentions to Install the Direct Install Equipment without Program (Definition 2)*	*Program had Influence on Decision to Install the Direct Install Equipment*	*Had Previous Experience with the Direct Install Equipment*
0%	0%	0%	58%	0%

The realized net electric savings for the STEP Program during the period June 2012 through May 2013 are summarized in Table 3-7. During this period, realized net kWh savings totaled 113,580 kWh. The net to gross ratio is 100%.

Table 3-7 Summary of Net kWh Savings from Projects

Utility	*Expected kWh Savings*	*Realized Gross kWh Savings*	*Realized Net kWh Savings*	*Net to Gross Ratio*
Ameren		29,707.19	29,707.19	100%
ComEd		83,872.95	83,872.95	100%
Total	131,744.30	113,580.14	113,580.14	100%

The realized net peak electric savings for the STEP Program during the period June 2012 through May 2013 are summarized in Table 3-7. During this period, realized net kWh savings totaled 7.30 kW. The net to gross ratio is 100%.

Table 3-8 Summary of Net Therm Savings from Projects

Utility	*Realized Net kW*
Ameren	2.08
ComEd	5.22
Total	7.30

The realized net therm savings for the STEP Program during the period June 2012 through May 2013 are summarized in Table 3-4. During this period, realized net therm savings totaled 3,165 therms. The net to gross ratio is 100%.

Table 3-9 Summary of Net Therm Savings from Projects

Utility	*Expected Therm Savings*	*Realized Gross Therm Savings*	*Realized Net Therm Savings*	*Net to Gross Ratio*
Ameren		732	732	100%
Nicor		2,433	2,433	100%
Total	3,503	3,165	3,165	100%

4. Process Evaluation

This chapter presents the results of the process evaluation for the Green Nozzle and STEP Programs. The process evaluation focuses on the effectiveness of program policies and organization, as well as the program delivery framework. The purpose of the process evaluation is to assess the design and recent results of the programs in order to determine how effectively the program is achieving its intended outcomes. This evaluation is based upon analysis of program structures and interviews of program staff and program participants.

The chapter begins with a discussion of the overall progress of the programs. This is followed by an examination of certain issues that are critical to the future success of the program. This chapter also presents strategic planning and process recommendations, and highlights key findings from the interviews of program staff and participants. Conclusions, recommendations, and other findings from the process evaluation may be useful in comparing program years over time, and in conducting planning efforts for future program years.

4.1 Evaluation Objectives

The purpose of the process evaluation is to examine program operations and results throughout the program operating year, and to identify potential program improvements that may prospectively increase program efficiency or effectiveness in terms of levels of participation and program satisfaction. This process evaluation was designed to document the operations and delivery of the Green Nozzle and STEP Programs during electric program year 5 (EPY5) and gas program year 2 (GPY2), that is, the period of June 2012 to May 2013.

Key research questions to be addressed by this evaluation of EPY5/GPY2 activity include:

- Was the programs delivery effective and successful?
- Did the programs promote the benefits of energy efficiency?
- Were program participants satisfied with the program and the measures they received?

During the evaluation, data and information from numerous sources are analyzed to achieve the stated research objectives. Insight into the participant experience with the Green Nozzle Program is developed from a brief telephone survey of program participants. Insight into the participant experience with the STEP Program is developed from an email and telephone survey of program participants.

4.2 Summary of Primary Data Collection

- **Participant Surveys:** Surveys of participants who purchased products through the programs are the primary data source for understanding the participant perspective. The participant surveys provide feedback and insight regarding their experiences with the Green Nozzle and STEP Programs. Respondents report on their satisfaction with the program, detail their

motivations and the factors affecting their decision making process, and provide recommendations related to improving the program.

- **Program Staff Interviews:** Interviews with program staff provide an understanding of how the program operates, challenges the program has faced, the level of interest in the program, and changes planned for the program.
- **Program Documentation:** Review of program documents including the program website, reporting developed by program staff, program tracking data, and savings calculation spreadsheets provide additional insight into program operations.

4.3 Summary of Conclusions and Recommendations

The following presents a selection of key findings from the EPY5/GPY2 program year:

- **Green Nozzle and STEP Program Participants Satisfied with Program and Measures:** Participants in both of the programs were generally satisfied with the program and the equipment they received. All of the STEP Program survey respondents indicated that they were either satisfied or very satisfied with their overall program experience. Additionally, STEP participants indicated that program equipment received was functioning and that the installation went well. Only one of the Green Nozzle Program survey respondents indicated that he or she was dissatisfied with the program, while 74% of respondents stated that they were satisfied or very satisfied. However, a few participants in the Green Nozzle program noted that they did not like the low-flow spray-valves because they did not perform as well as the baseline equipment or that they had difficulty installing the spray valves.
- **STEP Program Allowance of Six Months for Measure Installation May Impact Cost Effectiveness:** The STEP modified direct install program allows participants six months to install the measures after receiving them. This allowance causes costs to incur in the year prior to when many of the measures are implemented and generate savings. Because of this timing, program costs may exceed realized benefits during the first year. In subsequent years the cost effectiveness of the program should improve. However, the cost effectiveness of the program will be impacted in future years if there is a large increase in program activity during a given year.
- **Potential for Improvement to Green Nozzle and STEP Program Data:** There were some limitations to the program tracking data provided by the Green Nozzle and STEP Programs. These issues generally pertained to additional data that would be beneficial to collect or missing data. The issues were resolved through consultations with implementation staff.
- **Installation Problems Noted in Green Nozzle and STEP Programs:** Some participants in both programs reported equipment installation problems. Participants in the Green Nozzle Program who encountered installation problems reported that they did not know how to install the low-flow or pre-rinse spray valves or that the spray valves did not fit their plumbing fixtures. As a result of these issues, some of the spray valves distributed through the program were not yet installed. Similarly, several participants in the STEP Program also

reported that the equipment did not fit their existing fixtures or was incompatible with the building's wiring.

The following recommendations are offered in the interest of continuing to develop the program's strategic advantages during coming program years.

- **Green Nozzle Program Should Collect Additional Data:** Green Nozzle Program staff should collect information including participants' hot water fuel type, participant email address, and utility service provider when participants apply for the program. Information on water heating fuel type will be needed for estimating expected savings should participants with electric water heating participate in the program at a later date. The utility information is needed for meeting reporting requirements.
- **Potential Improvements to the Green Nozzle Program Distribution Process and Program Guidelines:** The large number of participants who reported that they have not yet installed the low-flow pre-rinse spray valves suggests that some improvements could be made to the program participation process. One improvement is to verify that the low-flow pre-rinse spray valves will fit participants' kitchen plumbing fixtures when the spray valves are requested. Additionally, because some participants reported that they did not know how to install the fixtures, the program should consider providing materials explaining how to install the spray valves. This information could be provided through the use of an online video similar to the one used to promote the program.

  Program staff should consider developing an online form for participants to use when requesting spray valves. An online form would conserve staff resources and add consistency to the data collected from participants. Similarly, after the spray valves are distributed, staff should consider directing participants to a second online form that would verify that the participant has received and installed the spray valves. Follow-up contacts to verify installation could then be limited to participants who do not complete this form in a timely manner.
- **Potential Improvements to STEP Program Data:** The STEP Program should begin to collect and include the site address in the measure level data and to use consistent participant entity names across data files. Program staff should consider assigning a project number for each site that can be used to link information across multiple files. These changes will facilitate the program evaluation process and reduce its cost.
- **Consider a Different Installation Period Requirement for STEP Program:** Currently the program allows participants six months to install the equipment distributed through the STEP Program. Although this period provides substantial flexibility to the participants, it can also complicate program budgeting. With the extended installation period, costs for the distribution of the measures often accrue in one year while benefits accrue in another year. Additionally, the lengthy period increases the likelihood that equipment will be lost, forgotten, or placed into storage and remain uninstalled. For example, a change in staffing during the six month time frame could result in the organization losing interest in installing the equipment.

Program staff should consider limiting the installation period or requiring the installation of the equipment by the end of the program year. Either change will allow the program to claim savings for a larger share of the equipment for the year it is distributed in. The former change may also result in a higher overall installation rate.

Moving towards a more traditional direct install model, in which the equipment is installed for program participants rather than relying on self-installation, should also be considered. This change would likely result in an in-service greater than the 85% realized during the program year.

- **Consider Changes to Data Collected during STEP Program Walk-Throughs:** Some program participants reported that they received equipment that they were unable to install due to conditions that prevented the installation (e.g., low flow devices not fitting plumbing fixtures). It may be possible for program staff to improve the walk-through process by collecting additional information related to the installation of the efficiency measures. This information would include plumbing fixture size for low-flow equipment and wiring requirements for occupancy sensors.

4.4 Green Nozzle Program

4.4.1 Program Overview

The Green Nozzle Program is implemented by the DCEO's partner, the Energy Resources Center (ERC) located at the University of Illinois at Chicago. The 2012-2013 program year marked the first year of the program.

The Green Nozzle Program distributes low-flow pre-rinse spray valves to public sector food preparation facilities in order to replace spray valves that have a higher flow rate. During EPY5/GPY2, the program distributed a single model with a flow rate of .65 gpm. The Green Nozzle Program pays $54.95 per spray valve and provides them to participants at no cost.

Most of the spray valves are distributed to participants who request them by contacting a program staff member at the ERC. After receiving an email or telephone request, the spray valves are mailed to the program participant. The program requests that the participants return the replaced spray valves but this has not happened consistently. After the spray valves are sent, program staff contact the participants verify that the valves were received and installed. Spray valves are also distributed by Utilivate and the Energy 360 Group, other organizations that help assist with the implementation of the DCEO programs and who have contacts with potentially interested parties.

During EPY5/GPY2, 549 spray valves were distributed to 145 participants with natural gas water heating. Three of these participants either returned all or some of the spray valves received. The expected therm savings for the program year is 302,908.79.

4.4.2 Review of Program Tracking Data

ADM reviewed program tracking data for the Green Nozzle Program provided by the program implementation staff. Currently, program tracking data are managed in multiple spreadsheets. The fields in the data files were generally populated and did not suggest significant issues with missing data. However, the tracking data could be improved with the following augmentations:

- **Hot Water Fuel Type:** Natural gas was used for water heating for all of the sites that received spray valves during EPY5/GPY2. However, because sites with electric water heating may participate in future years, the hot water fuel type should be included in the program tracking data.
- **Utility Service Provider:** The current tracking data do not identify which utilities serve which participant sites. This information is needed in order to apportion program savings for the respective participating utility.
- **Participant Email:** Participant email addresses are included in some, but not all, of the tracking data provided. The inclusion of participant email address as a field will provide program staff and evaluator staff an additional means of contacting participants.

4.4.3 Participant Outcomes

A telephone survey was conducted to collect information about the decision-making, preferences, and opinions of the Green Nozzle Program.

Information in this section is intended to characterize participant decision making behaviors and identify notable trends within participant responses. Some of the comments and issues raised by participants are anecdotal in nature and may reflect individual participant opinions. The Conclusions and Recommendations section of the Process Evaluation chapter provides an overall distillation of key findings from the process evaluation activities that were performed for the Green Nozzle Program.

4.4.4 Factors Affecting Participant Participation

Participants were asked about the influence of the Green Nozzle Program on their decision to install the low-flow pre-rinse spray valves. Six percent of the respondents reported that they had plans to install the spray valves prior to participating in the program. Of these four respondents, two stated that they would have installed the spray valves had they not participated in the program. Although these respondents suggested that they would have installed the spray valves had they not participated in the program, the program may have still influenced the timing of the installation. Consequently, these responses do not, in isolation, designate a specific level of free-ridership. Responses to individual survey items may be used to characterize certain aspects of a decision maker's program perspective or implementation behavior, but it is necessary to analyze the full set of a respondent's survey responses in order to estimate an accurate and reliable net-to-gross percentage. In addition to gauging participants' preexisting plans and intentions, it is important to consider how the program affected factors such as the timing and overall efficiency

level of the project Chapter 3 outlines the full net-to-gross estimation methodology that is applied to survey results for this evaluation.

In order to further understand participants' motivation for participating in the program, participants were asked whether a program representative recommended installing the low-flow pre-rinse spray valves. Thirty-eight percent of the respondents indicated that a program staff member recommended the spray valves, and 88% of these participants stated that they probably or definitely would not have installed the spray valves if they had not received the recommendation.

In cases where decision makers reported that they had prior plans for the projects, the program may have influenced various factors related to the measure installation. These factors include the timing of the installation and the number of measures installed. Table 4-1 tabulates the respondents with prior plans who indicated that the program influenced these factors. Three-quarters of the respondents with prior plans to install the pre-rinse spray valves stated that they installed more than they would have without the program. Moreover, 50% of the participants reported that they installed the spray valves sooner than they otherwise would have without the program.

Table 4-1 Reported Program Influences on Installation Factors for Participants with Prior Plans

Program Influence on Projects	*Number of Responses*	*Had plans to install measure before participating*
Yes, program increased quantity of low-flow pre-rinse spray valves installed	4	75%
Yes, installed earlier than otherwise would have	4	50%

4.4.5 Energy Efficiency Behaviors and Decision Making

Survey respondents were asked about their previous experience with purchasing energy efficient equipment. As shown in Table 4-2, 34% of the survey respondents reported that they had previously purchased energy efficient equipment without seeking a financial incentive. Of these respondents, the largest share (41%) said that they did not apply for incentives because they did not know if the equipment qualified for financial assistance. An additional 31% reported that they had purchased energy efficient equipment but that they sought financial incentives for that equipment. Nineteen percent of survey respondents reported that they had not purchased energy efficient equipment in the last three years.

Table 4-2 Prior Experience with Energy Efficiency Equipment

	Response	*Percent of Respondents (n=64)*
Has your organization purchased any equipment to improve energy efficiency in the last three years for which you did not apply for financial assistance through an energy efficiency program?	Yes, purchased equipment but did not seek financial assistance.	34%
	No equipment was purchased	19%
	No, financial assistance was sought	31%
	Don't know	16%

Although a sizable share of participants had installed energy efficiency equipment in the last three years, very few had installed low-flow pre-rinse spray valves. As shown in Table 4-3, only 5% of respondents reported that they had previously installed low-flow pre-rinse spray valves. This finding suggests that program participants had little previous experience with this measure.

Table 4-3 Prior Experience with Low-Flow Pre-Rinse Spray Valves

	Response	*Percent of Respondents (n=64)*
Before participating in the Green Nozzle Program, had you installed any low-flow pre-rinse spray valves?	Yes	5%
	No	89%
	Don't know	6%

4.4.6 Program Participation Process

Overall, few participants reported problems with receiving the spray valves. As shown in Table 4-4, 95% of the respondents reported that they received all of the spray valves they were expecting. The remaining 5% of respondents indicated that they did not know if they received all of the valves they were expecting. Furthermore, none of the participants stated that the spray valves they received were broken.

Table 4-4 Experience with Receipt of Low-Flow Pre-Rinse Spray Valves

Question	*Percent of Respondents Saying Yes*	*n*
Did you receive all of the low-flow pre-rinse spray valves that you were expecting?	95%	64
Were any of the low-flow pre-rinse spray valves broken?	0%	64

One-third of respondents indicated that the spray valves were not currently installed, and were asked why the spray valves were not installed. The most frequent explanation was that the participant had plans to install the valves at a later time. Other explanations were that the installation was a low priority or that the spray valves would be installed after the completion of planned plumbing work. Another frequently mentioned reason why the spray valves were not installed was that the valves did not fit the plumbing. Lastly, some respondents indicated that

they did not like the low-flow spray valves because they were perceived as being less effective or that the water spay was less controlled and that it made a mess.

Table 4-5 Installation of Low-Flow Pre-Rinse Spray Valves

	Response	*Percent of Respondents (n=64)*
Are all of the low-flow pre-rinse spray valves that you received currently installed?	Yes	61%
	No	33%
	Don't know	6%

4.4.7 Participant Satisfaction

Respondents were asked whether or not the low-flow pre-rinse spray valves met their expectations. More than two-thirds indicated that their expectations were met or exceeded, while another 13% indicated that the spray valves mostly met their expectations. Respondents who indicated that their expectations were mostly met or were not met typically stated that this was because the spray valves were less effective for cleaning, the water spray was less controlled, or because they had not yet used them.

Table 4-6 Satisfaction of Participants Expectations

	Response	*Percent of Respondents (n= 64)*
Did the low-flow pre-rinse spray valves meet your expectations?	My expectations were exceeded	11%
	My expectations were met	55%
	My expectations were mostly met	13%
	My expectations were not met	11%
	Don't know	11%

Seventy-four percent of survey respondents reported that they were either satisfied or very satisfied with the Green Nozzle Program, and only one respondent was dissatisfied with the program. This respondent stated that the reason for his or her dissatisfaction was that their staff did not know how to install the spray valves.

Table 4-7 Participant Satisfaction with the Green Nozzle Program

	Response	*Percent of Respondents (n= 64)*
Overall, how satisfied are you with the Green Nozzle Program?	Very satisfied	41%
	Satisfied	33%
	Neither satisfied nor dissatisfied	20%
	Dissatisfied	2%
	Very Dissatisfied	-
	Don't know	5%

4.4.8 Participant Recommendations and Overall Impressions

At various points in the survey, participants responded to open-ended questions and provided recommendations for the program or other remarks about their program experiences. In most of these comments, participants stated that they liked the program and that they were grateful for it and other programs offered by DCEO. In addition to these comments, several respondents requested additional information about other programs offered, new programs, or changes to program offerings.

A few participants provided suggestions for improving the Green Nozzle Program. These suggestions included providing educational materials about how to use the spray valves correctly, increasing staff responsiveness to questions, and ensuring that participants are aware that the spray-valves are not one size fits all.

4.4.9 Program Operations Perspective

This section summarizes the core findings of interviews that were conducted with program staff of the Energy Resources Center (ERC).

In order to gather information regarding the operational efficiency and program delivery process for the Green Nozzle Program, a telephone interview was conducted with the program implementation contractor. The interview focused on overall process effectiveness and identifying potential improvements for future program activities.

Key program features and trends addressed by respondents include:

- **Program Marketed through Events and by Other Programs:** The Green Nozzle Program is primarily promoted at events or through other DCEO sponsored energy efficiency programs. Program staff distributes fliers promoting the availability of the low-flow pre-rinse spray valves, along with information on how to request them, at conferences such as the annual school district conference. The Smart Energy Design Assistance Center (SEDAC), which provides a variety of energy saving services and programs on behalf of DCEO, also promotes the availability of the low-flow pre-rinse spray valves. Initially the program had planned on SEDAC installing the spray valves during site visits performed through their building energy assessments program. However, the clients that SEDAC interfaces with for the assessments are typically not the staff best positioned to make decisions about the

installation of the spray valves. As an alternative, SEDAC obtains contact information for the relevant decision-maker with whom Green Nozzle Program staff can follow up.

The availability of the spray valves is also promoted through the Boiler Tune-Up Program, which is also administered by the ERC. Program staff and contractors performing work through this program speak with participants about the energy savings potential of the spray valves and encourage participants to request spray valves through the program.

The program has also created a short online video that describes the benefits of the spray valve and the ease of installation. [17] The video also describes who is eligible for receiving the spray valves and provides information on how to order them.

- **Few Participant Problems:** Program staff reported that there have been few problems with the program. However, staff did note that some participants do not like the functionality of the low-flow pre-rinse spray valves. In general, these participants have indicated that the spray valves are less effective than higher water use options. Additionally, a few shipments were reportedly lost during initial program operations. Program staff now uses a tracking number to prevent this from occurring in the future.
- **Future Program Developments:** One of the changes planned for program operations is improved coordination with the STEP Program implemented by MEEA. Specifically, Green Nozzle Program staff will order the low-flow pre-rinse spray valves that are distributed by MEEA through the STEP Program. These spray valves will have a lower flow rate than the spray valves currently distributed through the MEEA Program.

  Another planned change for the program is to utilize trade allies to distribute the spray valves. Interested trade allies will be sent a box of spray valves for distribution to appropriate facilities. Trade allies will record how many were distributed and to whom they were distributed. Trade allies benefit from offering the valves at no cost to potential clients by gaining the opportunity to discuss other projects and services with prospective customers.

  The program also plans on offering a higher flow rate spray valve for participants who do not like the .65 GPM spray valves. The alternative valves will have a flow rate of .95 GPM. Although these valves will result in lower savings, they will still result in an improvement over the 1.6 GPM defined as the baseline equipment in the Illinois Technical Reference Manual.

4.5 STEP Program

The Savings Through Efficient Products (STEP) Program is a modified direct install program implemented by the Midwest Energy Efficiency Alliance (MEEA) with assistance from their implementation partners Applied Proactive Technologies, Inc., the Energy Resources Center, and Green Home Experts. EPY5/GPY2 was the pilot year for the program and operations began in November 2012. During its first year of operation, the program primarily targeted schools who

[17] https://www.youtube.com/watch?v=GMyI2ilmeZQ

had previously participated in the Lights for Learning Program, which is also administered by MEEA.

4.5.1 Program Overview

The STEP Program provides energy saving equipment to program participants at no cost. The equipment provided through the program is mailed to participants and self-installed. The program offers a variety of energy efficiency measures to participants, including LED exit signs and lamps, CFLs, low-flow showerheads, faucet aerators, low-flow pre-rinse spray valves, occupancy sensors, and vending machine controls.

In order to qualify for the program, applicants must receive utility service from one of the investor owned utilities: Ameren, ComEd, Nicor Gas, Peoples Gas, or North Shore Gas. During the pilot year, previous participation in the Lights for Learning® Program was required; however, this is no longer a requirement.

Once applicants are approved for participation, program staff performs a facility walk-through. The purpose of the walk-through is to identify potential measures that may be installed at the facility. The identification of these measures begins with a discussion with facility staff to determine which types of measures they may be interested in. Program staff utilizes a form to collect information about the quantities for each measure type to be installed as well as parameters needed to estimate savings, for example, baseline wattage and type of existing lamps.

After the walk-through assessment is completed, a report is sent to program staff that details the recommended direct install measures and the estimated energy savings associated with the measures. The report also provides information on incentives that are available through DCEO's other programs to encourage participants to implement measures in addition to those implemented through the STEP Program. The information provided includes the incentive amounts and how to apply for the incentives.

Green Home Experts fulfills the orders for the recommended direct install measures that were identified during the walk-throughs. These measures are sent to participants along with a form that participants sign indicating that they have received the measures and affirming their commitment to installing them within six months. Once the participants install the measures, they either complete a self-verification report form or have program staff complete a verification visit. Participants who elect to complete the self-verification form indicate the number of each measure received, where the measure was installed, and submit an example picture of the installation. Participants are to return any uninstalled measures. Program staff reviews the quantities to verify that participants installed all measures sent, or returned uninstalled measures. The photographs are used to verify that the measures were installed correctly.

4.5.2 Review of Program Tracking Data

ADM reviewed STEP Program tracking data provided by program implementation staff. Tracking data is currently being maintained in two separate files; one file that contains

participant contact information and another that contains details on the distributed measures. A review of the data files noted a few issues:

- There was some missing data in the original data files sent. The missing data issues were subsequently provided by MEEA.
- The names referencing the participating entities differed in some cases between the contact information file and the measure level file.
- For some contacts there were multiple corresponding addresses and it was unclear which address corresponded to which site. It is recommended that the site address be included in the measure file that details site level measure information.

4.5.3 Participant Outcomes

A telephone and online survey was conducted to collect data about participant decision-making, preferences, and opinions of the STEP Program. In total, three participants who participated in the program responded to the survey.

Information in this section is intended to characterize participant decision making behaviors and identify notable trends within participant responses. Some of the comments and issues raised by participants are anecdotal in nature and may reflect individual participant opinions. The Conclusions and Recommendations section of the Process Evaluation chapter provides an overall distillation of key findings from the process evaluation activities that were performed for the STEP Program.

It is important to note that, while the survey results discussed below are used as inputs for the calculation of estimated free ridership, participant responses to individual survey items do not, in isolation from additional factors, infer specific levels of free-ridership. Chapter 3 details the methodology used to estimate free ridership based on survey response data, while this chapter provides a qualitative discussion of participant responses.

4.5.4 How Participants Learn About the Program

Each of the three survey respondents reported a different source for learning about the program. The sources reported were MEEA, friends and colleagues, and the Smart Energy Design Assistance Center.

4.5.5 Factors Affecting Making Energy Efficiency Improvements

Participants were asked about the influence of the STEP Program on their decision to implement the energy efficient equipment installed through the program. It should be noted that responses to individual survey items may be used to characterize certain aspects of a decision maker's program perspective or implementation behavior, but it is necessary to analyze the full set of a respondent's survey responses in order to estimate an accurate and reliable net-to-gross percentage. In addition to gauging participants' preexisting plans and intentions, it is important to consider how the program affected factors such as the timing and overall efficiency level of

the project. Chapter 3 outlines the full net-to-gross estimation methodology that is applied to survey results for this evaluation.

Participants were asked about the influence of the STEP Program on their decision to install the energy efficiency measures at their facility. None of the participants indicated that they had prior plans to install the equipment at their facility and none indicated that they could have afforded to make the improvements without the assistance provided by the program.

Overall, the survey responses suggest that the program was influential to the participants' decisions to implement the energy efficient equipment. However, as previously stated, the net savings are based on the net-to-gross methodology outlined in Chapter 3.

4.5.6 Participant Satisfaction with the Program and the Participation Process

Respondents rated their levels of satisfaction with selected aspects of the program on a scale ranging from very dissatisfied to very satisfied. None of the survey respondents reported dissatisfaction with any of the program elements and all three respondents indicated that they were satisfied or very satisfied with the program overall.

In addition to the assessment or their satisfaction with the program, interviewed participants were also asked a number of questions related to their participation in the program and any issues that may have arisen during their program experiences.

Two of the respondents stated that they were waiting for equipment that would replace equipment that they initially received. In one case, the participant was waiting for faucet aerators that would fit their plumbing fixtures, and in the other case, the respondent was waiting to receive motion sensors that were compatible with the building's wiring.

None of the participants reported that the equipment they received was broken.

All of the survey respondents indicated that the installation of the equipment went smoothly and that the measures they installed met their expectations.

One of the participants indicated that they completed a self-verification of the project, and this respondent indicated that the self-verification went well.

Two participants indicated that their organization did not install all of the direct install equipment. The equipment that was not installed consisted of the replacement aerators and motion sensors previously discussed.

One of the three survey respondents stated that they reviewed the program-provided report that describes the measures to be sent, the savings associated with the measures, and descriptions of incentive programs offered by DCEO. This participant stated that the report was somewhat useful.

Overall, participants in the program noted few difficulties with the participation process, receiving and installing the measures, and verifying the equipment installation.

5. Conclusions and Recommendations

The EPY5/GPY2 program year was the first year of operations for both the Green Nozzle and STEP Programs. As is to be expected for the programs' inaugural year, there are potential improvements for both of these programs that would improve their delivery. This chapter summarizes the findings and recommendations for program improvement.

5.1 Key Conclusions

The following presents a selection of key findings from the EPY5/GPY2 program year:

- **Green Nozzle and STEP Program Participants Satisfied with Program and Measures:** Participants in both of the programs were generally satisfied with the program and the equipment they received. All of the STEP Program survey respondents indicated that they were either satisfied or very satisfied with their overall program experience. Additionally, STEP participants indicated that program equipment received was functioning and that the installation went well. Only one of the Green Nozzle Program survey respondents indicated that he or she was dissatisfied with the program, while 74% of respondents stated that they were satisfied or very satisfied. However, a few participants in the Green Nozzle program noted that they did not like the low-flow spray-valves because they did not perform as well as the baseline equipment or that they had difficulty installing the spray valves.
- **STEP Program Allowance of Six Months for Measure Installation May Impact Cost Effectiveness:** The STEP modified direct install program allows participants six months to install the measures after receiving them. This allowance causes costs to incur in the year prior to when many of the measures are implemented and generate savings. Because of this timing, program costs may exceed realized benefits during the first year. In subsequent years the cost effectiveness of the program should improve. However, the cost effectiveness of the program will be impacted in future years if there is a large increase in program activity during a given year.
- **Potential for Improvement to Green Nozzle and STEP Program Data:** There were some limitations to the program tracking data provided by the Green Nozzle and STEP Programs. These issues generally pertained to additional data that would be beneficial to collect or missing data. The issues were resolved through consultations with implementation staff.
- **Installation Problems Noted in Green Nozzle and STEP Programs:** Some participants in both programs reported equipment installation problems. Participants in the Green Nozzle Program who encountered installation problems reported that they did not know how to install the low-flow or pre-rinse spray valves or that the spray valves did not fit their plumbing fixtures. As a result of these issues, some of the spray valves distributed through the program were not yet installed. Similarly, several participants in the STEP Program also reported that the equipment did not fit their existing fixtures or was incompatible with the building's wiring.

5.2 Key Conclusions

The following recommendations are offered in the interest of continuing to develop the program's strategic advantages during coming program years.

- **Green Nozzle Program Should Collect Additional Data:** Green Nozzle Program staff should collect information including participants' hot water fuel type, participant email address, and utility service provider when participants apply for the program. Information on water heating fuel type will be needed for estimating expected savings should participants with electric water heating participate in the program at a later date. The utility information is needed for meeting reporting requirements.
- **Potential Improvements to the Green Nozzle Program Distribution Process and Program Guidelines:** The large number of participants who reported that they have not yet installed the low-flow pre-rinse spray valves suggests that some improvements could be made to the program participation process. One improvement is to verify that the low-flow pre-rinse spray valves will fit participants' kitchen plumbing fixtures when the spray valves are requested. Additionally, because some participants reported that they did not know how to install the fixtures, the program should consider providing materials explaining how to install the spray valves. This information could be provided through the use of an online video similar to the one used to promote the program.

  Program staff should consider developing an online form for participants to use when requesting spray valves. An online form would conserve staff resources and add consistency to the data collected from participants. Similarly, after the spray valves are distributed, staff should consider directing participants to a second online form that would verify that the participant has received and installed the spray valves. Follow-up contacts to verify installation could then be limited to participants who do not complete this form in a timely manner.
- **Potential Improvements to STEP Program Data:** The STEP Program should begin to collect and include the site address in the measure level data and to use consistent participant entity names across data files. Program staff should consider assigning a project number for each site that can be used to link information across multiple files. These changes will facilitate the program evaluation process and reduce its cost.
- **Consider a Different Installation Period Requirement for STEP Program:** Currently the program allows participants six months to install the equipment distributed through the STEP Program. Although this period provides substantial flexibility to the participants, it can also complicate program budgeting. With the extended installation period, costs for the distribution of the measures often accrue in one year while benefits accrue in another year. Additionally, the lengthy period increases the likelihood that equipment will be lost, forgotten, or placed into storage and remain uninstalled. For example, a change in staffing during the six month time frame could result in the organization losing interest in installing the equipment.

Program staff should consider limiting the installation period or requiring the installation of the equipment by the end of the program year. Either change will allow the program to claim savings for a larger share of the equipment for the year it is distributed in. The former change may also result in a higher overall installation rate.

Moving towards a more traditional direct install model, in which the equipment is installed for program participants rather than relying on self-installation, should also be considered. This change would likely result in an in-service greater than the 85% realized during the program year.

- **Consider Changes to Data Collected during STEP Program Walk-Throughs:** Some program participants reported that they received equipment that they were unable to install due to conditions that prevented the installation (e.g., low flow devices not fitting plumbing fixtures). It may be possible for program staff to improve the walk-through process by collecting additional information related to the installation of the efficiency measures. This information would include plumbing fixture size for low-flow equipment and wiring requirements for occupancy sensors.

Appendix A: Green Nozzle Survey

1.According to our records you received [number of nozzles] low-flow pre-rinse spray valve (s) through the program. Is this correct?

( ) Yes
( ) No (If checked, go to 1A)
( ) Don't know

1A. How many low-flow pre-rinse spray valves did you receive?

2. Are all of the low-flow pre-rinse spray valves that you received currently installed?

( ) Yes
( ) No (If checked, go to 2A)
( ) Don't know

2A. How many of the low-flow pre-rinse spray valves are currently installed?

2B. Why are some of the low-flow pre-rinse spray valves not currently installed?

3. [If fewer than the number received] Why are you not currently using all of the spray valves you received?

4. Has your organization purchased any equipment to improve energy efficiency in the last three years for which you did not apply for financial assistance through an energy efficiency program?

( ) Yes, purchased equipment but did not seek financial assistance. (If checked, go to 4A)
( ) No equipment was purchased
( ) No, financial assistance was sought. (If checked, go to 4B)
( ) Don't know

4A. Why didn't you apply for a financial assistance for that equipment? (Do not read list)

( ) Didn't know whether equipment qualified for financial assistance
( ) Financial assistance was insufficient
( ) Didn't have time to complete paperwork for financial assistance application
( ) Too much paperwork for the financial assistance application
( ) Didn't know about financial assistance until after equipment was purchased
( ) Other (please specify)
( ) Don't know

4B. For the projects that you completed in the last three years, did you receive all of the financial assistance that you applied for?

( ) Yes
( ) No
( ) Don't know

5. Before participating in the Green Nozzle Program, had you installed any low-flow pre-rinse spray valves?
   ( ) Yes
   ( ) No
   ( ) Don't know

6. Did you have plans to install the low-flow pre-rinse spray valves prior to participating in the Green Nozzle Program?
   ( ) Yes (If checked, go to 6A)
   ( ) No
   ( ) Don't know

6A. Would you have gone ahead with this planned installation even if you had not participated in the program?
   ( ) Yes
   ( ) No
   ( ) Don't know

6B. Did you install more low-flow pre-rinse spray valves than you otherwise would have without the program because it was provided at no-cost or because of the information provided through the program?
   ( ) Yes (If checked, go to 6B1)
   ( ) No, program did not affect quantity installed
   ( ) Don't know

6B1. How many low-flow pre-rinse spray valves would you have installed had you not participated in the program?

6C. Did you install the low-flow pre-rinse spray valves sooner than you would have had you not participated in the program?
   ( ) Yes (If checked, go to 6C1)
   ( ) No, the program did not affect the timing of the installation
   ( ) Don't know

6C1. When would you otherwise have installed the equipment? Would you have installed it in…
   ( ) Less than 6 months
   ( ) 6 months to less than 1 year
   ( ) 1 year to less than 2 years
   ( ) 2 years to less than 5 years
   ( ) 5 or more years
   ( ) Don't know

7. Did you have experience with energy efficiency programs offered by DCEO or the Energy Resources Center prior to participating in the Green Nozzle Program?
   ( ) Yes (If checked, go to 7A)
   ( ) No
   ( ) Don't know

7A. How important was your previous experience with the programs to your decision to install the low-flow pre-rinse spray valves?
   ( ) Very important
   ( ) Somewhat important
   ( ) Only slightly important
   ( ) Not at all important
   ( ) Don't know

8. Did a representative of the Green Nozzle Program recommend that you install the low-flow pre-rinse spray valves?
   ( ) Yes
   ( ) No
   ( ) Don't know

8A. How likely would you have been to install the low-flow pre-rinse spray valves if they had not been recommended by program staff?
   ( ) Definitely would have installed
   ( ) Probably would have installed
   ( ) Probably would not have installed
   ( ) Definitely would not have installed
   ( ) Don't know

9. Would you have been financially able to install the low-flow pre-rinse spray valves if it had not been provided at no-cost through the Green Nozzle Program?
   ( ) Yes
   ( ) No
   ( ) Don't know

10. If the Green Nozzle Program had not been available, how likely is it that you would have installed the low-flow pre-rinse spray valves anyway?
   ( ) Definitely would have installed
   ( ) Probably would have installed
   ( ) Probably would not have installed
   ( ) Definitely would not have installed
   ( ) Don't know

11. Did you receive all of the low-flow pre-rinse spray valves that you were expecting?
( ) Yes
( ) No (If checked, go to 11A)
( ) Don't know

11A. Did you contact a program representative about the missing low-flow pre-rinse spray valves?
( ) Yes (If checked, go to 11B)
( ) No
( ) Don't know

11B. How was the issue resolved?

12. Were any of the low-flow pre-rinse spray valves broken?
( ) Yes (If checked, go to 12A)
( ) No
( ) Don't know

12A. Did you contact a program representative about the broken equipment?
( ) Yes (If checked, go to 12B)
( ) No
( ) Don't know

12B. How was the issue resolved?

13. Did the low-flow pre-rinse spray valves meet your expectations? Would you say… (Read list)
( ) My expectations were exceeded
( ) My expectations were met
( ) My expectations were mostly met (If checked, go to 13A)
( ) My expectations were not met (If checked, go to 13A)
( ) Don't know

13A. Please explain in what ways the pre-rinse spray valve did not meet your expectations.

14. Overall, how satisfied are you with the Green Nozzle Program?
( ) Very satisfied
( ) Satisfied
( ) Neither satisfied nor dissatisfied
( ) Dissatisfied
( ) Very dissatisfied
( ) Don't know

14A. (If dissatisfied or very dissatisfied checked for any) Please describe in what ways you were not satisfied with the program.

15. Do you have any other comments that you would like to relay to DECO or the Energy Resources Center about energy efficiency in public entities, or about their programs?

Appendix B: Green Nozzle Program Decision Maker Survey Responses

As part of the evaluation work effort, a survey was administered to a sample of participants in the Green Nozzle Program. This survey provided the information used in Chapter 3 to estimate the program net-to-gross ratio. However, the survey also provided information used to perform the program process evaluation.

Each participant was surveyed using the survey instrument provided in Appendix A. The surveys were conducted by telephone. During the survey, a participant was asked questions about (1) his or her general decision making regarding the implementation of energy efficiency improvements, (2) his or her knowledge of and satisfaction with the program, and (3) the influence that the program had on his or her decision to the low-flow pre-rinse spray valves.

The following tabulations summarize program participant survey responses. The first column presents the number of survey respondents (*n)*. The second column presents the percentage of survey respondents.

1. According to our records you received [number of nozzles] low-flow pre-rinse spray valve (s) through the program. Is this correct?	*Response*	*(n=64)*	*Percent of Respondents*
	Yes	62	97%
	No	0	0%
	Don't know	2	3%

2. Are all of the low-flow pre-rinse spray valves that you received currently installed?	*Response*	*(n=64)*	*Percent of Respondents*
	Yes	39	61%
	No	21	33%
	Don't know	4	6%

2B. How long does it take to receive approval for the capital request?	*Average Percentage of Spray Valves Installed, (n=21)*	
	Average	35%

4. Has your organization purchased any equipment to improve energy efficiency in the last three years for which you did not apply for financial assistance through an energy efficiency program?	*Response*	*(n=64)*	*Percent of Respondents*
	Yes, purchased equipment but did not seek financial assistance.	22	34%
	No equipment was purchased	12	19%
	No, financial assistance was sought	20	31%
	Don’t know	10	16%

4A. Why didn’t you apply for a financial assistance for that equipment?	*Response*	*(n=22)*	*Percent of Respondents*
	Didn't know whether equipment qualified for financial assistance	9	41%
	Financial assistance was insufficient	1	5%
	Didn’t have time to complete paperwork for financial assistance application	0	0%
	Too much paperwork for the financial assistance application	1	5%
	Didn't know about financial assistance until after equipment was purchased	2	9%
	Other (please specify)	7	32%
	Don’t know	0	0%

4B. For the projects that you completed in the last three years, did you receive all of the financial assistance that you applied for	*Response*	*(n=20)*	*Percent of Respondents*
	Yes	13	65%
	No	4	20%
	Don't know	3	15%

5. Before participating in the Green Nozzle Program, had you installed any low-flow pre-rinse spray valves?	*Response*	*(n=64)*	*Percent of Respondents*
	Yes	3	5%
	No	57	89%
	Don't know	4	6%

6. Did you have plans to install the low-flow pre-rinse spray valves prior to participating in the Green Nozzle Program?	*Response*	*(n=64)*	*Percent of Respondents*
	Yes	4	6%
	No	57	89%
	Don't know	3	5%

6A. Would you have gone ahead with this planned installation even if you had not participated in the program?	*Response*	*(n=4)*	*Percent of Respondents*
	Yes	2	50%
	No	2	50%
	Don't know	0	0%

6B. Did you install more low-flow pre-rinse spray valves than you otherwise would have without the program because it was provided at no-cost or because of the information provided through the program?	*Response*	*(n=4)*	*Percent of Respondents*
	Yes	3	75%
	No	1	25%
	Don't know	0	0%

6C. Did you install the low-flow pre-rinse spray valves sooner than you would have had you not participated in the program?	*Response*	*(n=4)*	*Percent of Respondents*
	Yes	2	50%
	No, the program did not affect the timing of the installation	2	50%
	Don't know	0	0%

6C1. When would you otherwise have installed the equipment? Would you have installed it in…	*Response*	*(n=2)*	*Percent of Respondents*
	Less than 6 months	0	0%
	6 months to less than 1 year	0	0%
	1 year to less than 2 years	1	50%
	2 years to less than 5 years	0	0%
	5 or more years	0	0%
	Don't know	1	50%

7. Did you have experience with energy efficiency programs offered by DCEO or the Energy Resources Center prior to participating in the Green Nozzle Program?	*Response*	*(n=63)*	*Percent of Respondents*
	Yes	28	44%
	No	34	54%
	Don't know	1	2%

7A. How important was your previous experience with the programs to your decision to install the low-flow pre-rinse spray valves?	*Response*	*(n=28)*	*Percent of Respondents*
	Very important	9	32%
	Somewhat important	11	39%
	Only slightly important	4	14%
	Not at all important	4	14%
	Don't know	0	0%

8. Did a representative of the Green Nozzle Program recommend that you install the low-flow pre-rinse spray valves?	*Response*	*(n=64)*	*Percent of Respondents*
	Yes	24	38%
	No	23	36%
	Don't know	17	27%

8A. How likely would you have been to install the low-flow pre-rinse spray valves if they had not been recommended by program staff?	*Response*	*(n=24)*	*Percent of Respondents*
	Definitely would have installed	0	0%
	Probably would have installed	3	13%
	Probably would not have installed	15	63%
	Definitely would not have installed	6	25%
	Don't know	0	0%

9. Would you have been financially able to install the low-flow pre-rinse spray valves if it had not been provided at no-cost through the Green Nozzle Program?	*Response*	*(n=64)*	*Percent of Respondents*
	Yes	32	50%
	No	21	33%
	Don't know	11	17%

10. If the Green Nozzle Program had not been available, how likely is it that you would have installed the low-flow pre-rinse spray valves anyway?	*Response*	*(n=64)*	*Percent of Respondents*
	Definitely would have installed	1	2%
	Probably would have installed	10	16%
	Probably would not have installed	37	58%
	Definitely would not have installed	15	23%
	Don't know	1	2%

11. Did you receive all of the low-flow pre-rinse spray valves that you were expecting?	*Response*	*(n=64)*	*Percent of Respondents*
	Yes	61	95%
	No	0	0%
	Don't know	3	5%

11A. Did you contact a program representative about the missing low-flow pre-rinse spray valves?	*Response*	*(n=0)*	*Percent of Respondents*
	Yes	0	0%
	No	0	0%
	Don't know	0	0%

12. Were any of the low-flow pre-rinse spray valves broken?	*Response*	*(n=64)*	*Percent of Respondents*
	Yes	0	0%
	No	58	91%
	Don't know	6	9%

12A. Did you contact a program representative about the broken equipment?	*Response*	*(n=0)*	*Percent of Respondents*
	Yes	0	0%
	No	0	0%
	Don't know	0	0%

13. Did the low-flow pre-rinse spray valves meet your expectations? Would you say…	*Response*	*(n=64)*	*Percent of Respondents*
	My expectations were exceeded	7	11%
	My expectations were met	35	55%
	My expectations were mostly met	8	13%
	My expectations were not met	7	11%
	Don't know	7	11%

14. Overall, how satisfied are you with the Green Nozzle Program?	*Response*	*(n=64)*	*Percent of Respondents*
	Very satisfied	26	41%
	Satisfied	21	33%
	Neither satisfied nor dissatisfied	13	20%
	Dissatisfied	1	2%
	Very Dissatisfied	0	0%
	Don't know	3	5%

Appendix C: STEP Program Decision Maker Survey

1. What was your role in the decision making process to participate in the Lights for Learning Direct Install Program?

   ( ) Main decision maker
   ( ) Assisted with the decision
   ( ) Was not part of the decision process (If checked, go to 2A)

2. Who was the main decision maker? If multiple people were responsible for the decision, please provide the name of the person you think is most knowledgeable about the decision making process to implement the energy efficient equipment.

2A. What is this person's telephone number?

3. What are the sources your [school/park district/school district] relies on for information about energy efficient equipment, materials and design features? (Check all that apply) (Do not read list)

   ( ) A DCEO representative
   ( ) The DCEO website
   ( ) The Midwest Energy Efficiency Alliance (MEEA)
   ( ) A utility representative
   ( ) Brochures or advertisements
   ( ) Friends and colleagues
   ( ) An architect, engineer, or energy consultant
   ( ) Equipment vendors or building contractors
   ( ) Smart Energy Design Assistance Center (SEDAC)
   ( ) Illinois Association of Parks Districts (IAPD)
   ( ) Other (please describe)

4. Which of the following policies or procedures does your [school/park district/school district] have in place regarding energy efficiency improvements? (Check all that apply) (Read list)

   ( ) An energy management plan (If checked, go to 4A)
   ( ) A staff member responsible for energy and energy efficiency
   ( ) Policies that incorporate energy efficiency in operations and procurement
   ( ) Active training of staff
   ( ) Other (please specify)
   ( ) Do not have policies or procedures for energy efficiency improvements
   ( ) Don't know

4A. Does your energy management plan include goals for energy savings?

( ) Yes (If checked, go to 4B)
( ) No
( ) Don't know

4B. Could you describe the goals specified in your energy management plan?

5. Has your (school/park district/school district) implemented energy efficiency improvements in the past?

( ) Yes (go to 5A)
( ) No
( ) Don’t know

5A. What energy efficiency improvements has your [school/park district/school district] implemented?

5B. When making decisions about energy efficient equipment, how important is your past experience with such equipment?

( ) Very important
( ) Somewhat important
( ) Only slightly important
( ) Not important at all
( ) Don't know

6. What barriers does your [school/park district/school district] face in making energy efficiency improvements? (Select all that apply) (Do not read list)

( ) Insufficient funding for improvements
( ) Lack of information on energy efficient equipment and practices
( ) Approval processes that are slow or make purchasing difficult
( ) Schedules that dictate when equipment is to be replaced or maintained regardless of efficiency levels
( ) Financial assistance program time requirements
( ) Current equipment that is too new to be replaced with more efficient equipment
( ) Other (please specify)
( ) Don't know

7. How important is financial assistance from DCEO or MEEA for your decision making regarding energy efficiency improvements?

    ( ) Very important
    ( ) Somewhat important
    ( ) Only slightly important
    ( ) Not important at all
    ( ) Don't know

8. How important is advice and/or recommendations received from DCEO or MEEA for your decision making regarding energy efficiency improvements?

    ( ) Very important
    ( ) Somewhat important
    ( ) Only slightly important
    ( ) Not important at all
    ( ) Don't know

9. Has your [school/park district/school district] purchased any energy efficient equipment in the last three years for which you did not apply for financial assistance through an energy efficiency program?

    ( ) Yes, purchased energy efficient equipment but did not seek financial assistance. (If checked, go to 9A)
    ( ) No equipment was purchased
    ( ) No, financial assistance was sought. (If checked, go to 9B)
    ( ) Don't know

9A. Why didn't you apply for a financial assistance for that equipment? (Do not read list)

    ( ) Didn't know whether equipment qualified for financial assistance
    ( ) Financial assistance was insufficient
    ( ) Didn't have time to complete paperwork for financial assistance application
    ( ) Too much paperwork for the financial assistance application
    ( ) Didn't know about financial assistance until after equipment was purchased
    ( ) Other (please specify)

9B. For the projects that you completed in the last three years, did you receive all of the financial assistance that you applied for?

    ( ) Yes
    ( ) No
    ( ) Don't know

10. How did you learn of the Lights for Learning Direct Install Program? (Select all that apply)

( ) Approached directly by a representative of the Lights for Learning Direct Install Program
( ) Received an informational brochure on the Lights for Learning Direct Install Program
( ) A DCEO representative mentioned it
( ) The DCEO website
( ) A Midwest Energy Efficiency Alliance (MEEA) representative mentioned it
( ) A Smart Energy Design Assistance Center (SEDAC) representative mentioned it
( ) A utility representative
( ) Friends or colleagues
( ) An architect, engineer, or energy consultant
( ) Attended a conference, workshop or seminar
( ) An energy service company
( ) Past experience with the program
( ) Equipment vendors or building contractors
( ) Other (please explain)
( ) Don't know

11. Before participating in the Lights for Learning Direct Install Program, had you installed any equipment or measure similar to the Direct Install Equipment in the participating facilities?

( ) Yes
( ) No
( ) Don't know

12. Did you have plans to install the Direct Install Equipment before participating in the Lights for Learning Direct Install Program?

( ) Yes (If checked, go to 12A)
( ) No
( ) Don't know

12A. Would you have gone ahead with this planned installation even if you had not participated in the program?

( ) Yes
( ) No
( ) Don't know

12B. For about how long have you had plans to install this equipment prior to finding out about the program? (Do not read. Use as prompts if needed.) ( ) Less than 6 months

( ) 6 months to less than 1 year
( ) 1 year to less than 2 years
( ) 2 years to less than 5 years
( ) 5 or more years
( ) Don't know

12C. Did your plans specify the specific equipment and the quantity of equipment or were they more general?

( ) Yes
( ) No, it was more of a general plan to make energy efficiency improvements
( ) Don’t know

13. Did you have experience with DCEO or MEEA energy efficiency programs prior to participating in the Lights for Learning Direct Install Program?

( ) Yes (If checked, go to 13A)
( ) No
( ) Don’t know

13A. How important was your previous experience with the DCEO or MEEA programs in making your decision to install the Direct Install Equipment?

( ) Very important
( ) Somewhat important
( ) Only slightly important
( ) Not at all important
( ) Don't know

14. How likely would you have been to install the Direct Install Equipment had it not been recommended during the facility walk-through?

( ) Definitely would have installed
( ) Probably would have installed
( ) Probably would not have installed
( ) Definitely would not have installed
( ) Don't know

15. Would you have been financially able to install the Direct Install Equipment if it had not been provided at no-cost through the Lights for Learning Direct Install Program?

( ) Yes
( ) No
( ) Don’t know

16. If the Lights for Learning Direct Install Program had not been available, how likely is it that you would have installed the Direct Install Equipment anyway?

( ) Definitely would have installed
( ) Probably would have installed
( ) Probably would not have installed
( ) Definitely would not have installed
( ) Don't know

17. Did you install more equipment than you otherwise would have without the program because it was provided at no-cost or because of the information provided through the program?

( ) Yes (If checked, go to 17A)
( ) No, program did not affect quantity installed
( ) Don't know

17A.What Direct Install Equipment did you install because of the program (ask for quantities of equipment installed)?

18. Did you install the equipment earlier than you otherwise would have because it was provided at no-cost or because of the information provided through the program?

( ) Yes (If checked, go to 18A)
( ) No, the program did not affect the timing of the purchase and installation
( ) Don't know

18A. When would you otherwise have installed the equipment? Would you have installed it in…

( ) Less than 6 months
( ) 6 months to less than 1 year
( ) 1 year to less than 2 years
( ) 2 years to less than 5 years
( ) 5 or more years
( ) Don't know

19. [If installed efficient light bulbs] If you had not installed the [efficient light bulbs] received through the program, would you have installed some other type of light bulbs?

( ) Yes (if checked, go to 19A)
( ) No
( ) Don't know

19A. What would you have installed had you not participated in the program? (Select all that apply)

( ) Incandescent light bulbs instead of CFL light bulbs
( ) Incandescent light bulbs instead of LED light bulbs
( ) CFL light bulbs instead of LED light bulbs
( ) Other _____
( ) Don't know

20. [If installed exit signs] If you had not installed the LED exit signs received through the program, would you have installed some other type of exit signs?

( ) Yes (if checked, go to 20A)
( ) No
( ) Don't know

20A. What would you have installed had you not participated in the program? (Select all that apply)

( ) Incandescent Exit Signs instead of LED Exit Signs
( ) Fluorescent Exit Signs instead of LED Exit Signs
( ) Other _____
( ) Don't know

21. Did you receive all of the Direct Install Equipment that you were expecting?

( ) Yes
( ) No (If checked, go to 21A)
( ) Don't know

21A.What equipment did you not receive?

22. Did you contact a program representative about the missing equipment?

( ) Yes (If checked, go to 22A.)
( ) No
( ) Don't know

22A. How was the issue resolved?

23. Was any of the energy efficient equipment that you received broken?

( ) Yes (If checked, go to 23A)
( ) No
( ) Don't know

23A. What equipment was broken?

24. Did you contact a program representative about the broken equipment?

( ) Yes (If checked, go to 24A)
( ) No
( ) Don't know

24A. How was the issue resolved?

25. Did the installation of the equipment go smoothly?

( ) Yes
( ) For the most part (If checked, go to 25A)
( ) No (If checked, go to 25A)
( ) Don't know

25A. What did not go smoothly with the equipment installation?

26. Did the equipment meet your expectations? Would you say… (Read list)

( ) My expectations were exceeded
( ) My expectations were met
( ) My expectations were mostly met (If checked, go to 26A)
( ) My expectations were not met (If checked, go to 26A)
( ) Don't know

26A. Please explain in what ways the energy efficiency measure did not meet your expectations.

27. Did a program representative verify the equipment installation or did you complete a self-verification?

( ) A program representative verified the equipment installation
( ) A self-verification was completed (If checked, go to 27A)
( ) Don't know

27A. Did the self-verification go smoothly?

( ) Yes
( ) For the most part (If checked, go to 28B)
( ) No (If checked, go to 28B)
( ) Don't know

27B. What about the self-verification did not go smoothly?

28. Did you **not** install any of the Direct Install Equipment that you were sent?

( ) Yes (If checked, go to 28A)
( ) No
( ) Don't know

28A. What equipment did you **not** install?

28B. Why did you **not** install this equipment?

29. Did you review the Final Report that was sent to you after the walk through was completed?

( ) Yes (If checked, go to 29A)
( ) No
( ) Do not recall receiving a report
( ) Don't know

29A. How useful was the information provided in the report?

( ) Very useful
( ) Somewhat useful
( ) Not at all useful
( ) Don't know

29B. Please explain how the report was or was not useful.

29C. Do you recall reading the section on financial incentives available for making energy efficiency improvements?

( ) Yes (If checked, go to 30C1)
( ) No
( ) Don't know

29C1. Were you aware of these incentive programs before you received the report?

( ) Yes
( ) No
( ) Don't know

29C2. Since receiving the report, have you started any projects or are you considering any projects to take advantage of the incentives available?

( ) Yes (If checked, go to 30C2.1)
( ) No
( ) Don't know

29C2.1. What projects have you started or are you considering?

30. Since participating in the Lights for Learning Direct Install Program, have you implemented any additional energy efficient equipment without the assistance of an energy efficiency program?

( ) Yes (If checked, go to 30A)
( ) No
( ) Don't know

30A. What equipment did you install?

30B. Did a program staff member recommend this equipment?

( ) Yes (If checked, go to 30B1)
( ) No
( ) Don't know

30B1. How important was this recommendation to your decision to implement the additional energy efficiency measures?

( ) Very important
( ) Somewhat important
( ) Neither important or unimportant
( ) Somewhat unimportant
( ) Unimportant
( ) Don't know

30C. How important was your experience with the program to your decision to implement the additional energy efficiency measures?

( ) Very important
( ) Somewhat important
( ) Neither important or unimportant
( ) Somewhat unimportant
( ) Unimportant
( ) Don't know

30D. How important was your participation in any past programs offered by DCEO or MEEA to your decision to implement the additional energy efficiency measures.

( ) Very important
( ) Somewhat important
( ) Neither important or unimportant
( ) Somewhat unimportant
( ) Unimportant
( ) Don't know

30E. Why didn't you apply for or receive any financial assistance for those items?

( ) Small project that wasn't worth applying for financial assistance
( ) Didn't know whether equipment qualified for financial assistance
( ) Too much paperwork for the financial assistance application
( ) Financial assistance was insufficient
( ) Didn't have time to complete paperwork for financial assistance application
( ) Didn't know about financial assistance until after equipment was purchased
( ) For some other reason (please describe): _____
( ) Don't know

31. Given your experience with the Lights for Learning Direct Install Program, would you buy energy efficient equipment in the future?

( ) Yes (if checked, go to 31A)
( ) No
( ) Don't know

31A. How likely would you be to buy energy efficient equipment in the future if financial assistance was not offered through an energy efficiency program?

( ) Very likely
( ) Somewhat likely
( ) Neutral
( ) Somewhat unlikely
( ) Very unlikely
( ) Don't know

32. How would you rate your satisfaction with the following - *Very Satisfied, Somewhat Satisfied, Neither Satisfied nor Dissatisfied, Somewhat Dissatisfied, or Very Dissatisfied?*

	Very Satisfied	Satisfied	Neither Satisfied Nor Dissatisfied	Dissatisfied	Very Dissatisfied	Not Applicable/ Don't Know
Information provided by the DCEO	( )	( )	( )	( )	( )	( )
Information provided by the Midwest Energy Efficiency Alliance (MEEA)	( )	( )	( )	( )	( )	( )
The effort required for the application process	( )	( )	( )	( )	( )	( )
The walk through energy audit	( )	( )	( )	( )	( )	( )
Performance of the equipment installed	( )	( )	( )	( )	( )	( )
The self-verification process	( )	( )	( )	( )	( )	( )
Overall program experience	( )	( )	( )	( )	( )	( )

32A. (If dissatisfied or very dissatisfied checked for any) Please describe in what ways you were not satisfied with the program.

33. Do you have any other comments that you would like to relay to DECO or MEEA about energy efficiency in public entities, or about their programs?

34. Would you like to be contacted for future programs that may be able to help you save energy?

( ) Yes
( ) No

Appendix D: STEP Program Participant Survey Results

As part of the evaluation work effort, a survey was administered to a sample of participants in the STEP Program. This survey provided the information used in Chapter 3 to estimate the program net-to-gross ratio. However, the survey also provided information used to perform the program process evaluation.

Each participant was surveyed using the survey instrument provided in Appendix A. The surveys were conducted by telephone or internet. During the survey, a participant was asked questions about (1) his or her general decision making regarding the implementation of energy efficiency improvements, (2) his or her knowledge of and satisfaction with the program, and (3) the influence that the program had on his or her decision to implement the measures distributed through the STEP Program.

The following tabulations summarize program participant survey responses. The first column presents the number of survey respondents (*n).* The second column presents the percentage of survey respondents.

1. What was your role in the decision making process to participate in the Lights for Learning Direct Install Program?	*Response*	*(n=3)*	*Percent of Respondents*
	Main decision maker	3	100%
	Assisted with the decision	0	0%
	Was not part of the decision making process	0	0%

2. What are the sources your [school/park district/school district] relies on for information about energy efficient equipment, materials and design features?	*Response*	*(n=3)*	*Percent of Respondents**
	A DCEO representative	0	0%
	The DCEO website	0	0%
	The Midwest Energy Efficiency Alliance	1	33%
	A utility representative	0	0%
	Brochures or advertisements	0	0%
	Friends and colleagues	1	33%
	An architect, engineer, or energy consultant	0	0%
	Equipment vendors or building contractors	0	0%
	Smart Energy Design Assistance Center	1	33%
	Illinois Association of Parks Districts	0	0%
	Other (please describe)	0	0%

**Since respondents were able to select more than one response, the sum of the percentages in the table above can exceed 100%.*

3. Which of the following policies or procedures does your [school/park district/school district] have in place regarding energy efficiency improvements?	*Response*	*(n=1)*	*Percent of Respondents**
	An energy management plan	0	0%
	A staff member responsible for energy and energy efficiency	0	0%
	Policies that incorporate energy efficiency in operations and procurement	1	100%
	Active training of staff	0	0%
	Other	0	0%
	Do not have policies or procedures for energy efficiency improvements	0	0%

*Since respondents were able to select more than one response, the sum of the percentages in the table above can exceed 100%.

3A. Does your energy management plan include goals for energy savings?	*Response*	*(n=0)*	*Percent of Respondents*
	Yes	0	0%
	No	0	0%
	Don't know	0	0%

4. Has your [school/park district/school district] implemented energy efficiency improvements in the past?	*Response*	*(n=3)*	*Percent of Respondents*
	Yes	2	67%
	No	0	0%
	Don't know	1	33%

	Response	*(n=2)*	*Percent of Respondents*
4B. When making decisions about energy efficient equipment, how important is your past experience with such equipment?	Very important	1	50%
	Somewhat important	0	0%
	Only slightly important	0	0%
	Not important at all	0	0%
	Don't know	1	50%

	Response	*(n=3)*	*Percent of Respondents**
5. What barriers does your [school/park district/school district] face in making energy efficiency improvements?	Insufficient funding for improvements	2	67%
	Lack of information on energy efficient equipment and practices	0	0%
	Approval processes that are slow or make purchasing difficult	0	0%
	Schedules that dictate when equipment is to be replaced or maintained regardless of efficiency levels	0	0%
	Financial assistance program time requirements	1	33%
	Current equipment that is too new to be replaced with more efficient equipment	0	0%
	Other	0	0%
	Don't know	0	0%

**Since respondents were able to select more than one response, the sum of the percentages in the table above can exceed 100%.*

	Response	*(n=3)*	*Percent of Respondents*
6. How important is financial assistance from DCEO or MEEA for your decision making regarding energy efficiency improvements?	Very important	2	67%
	Somewhat important	1	33%
	Only slightly important	0	0%
	Not important at all	0	0%
	Don't know	0	0%

	Response	*(n=3)*	*Percent of Respondents*
7. How important is advice and/or recommendations received from DCEO or MEEA for your decision making regarding energy efficiency improvements?	Very important	2	67%
	Somewhat important	1	33%
	Only slightly important	0	0%
	Not important at all	0	0%
	Don't know	0	0%

8. Has your [school/park district/school district] purchased any energy efficient equipment in the last three years for which you did not apply for financial assistance through an energy efficiency program?	*Response*	*(n=3)*	*Percent of Respondents*
	Yes, purchased energy efficient equipment but did not seek financial assistance.	0	0%
	No equipment was purchased	2	67%
	No, financial assistance was sought.	0	0%
	Don't know	1	33%

8A. Why didn't you apply for a financial assistance for that equipment?	*Response*	*(n=0)*	*Percent of Respondents*
	Didn't know whether equipment qualified for financial assistance	0	0%
	Financial assistance was insufficient	0	0%
	Didn't have time to complete paperwork for financial assistance application	0	0%
	Too much paperwork for the financial assistance application	0	0%
	Didn't know about financial assistance until after equipment was purchased	0	0%
	Other	0	0%
	Don't know	0	0%

8B.For the projects that you completed in the last three years, did you receive all of the financial assistance that you applied for?	*Response*	*(n=0)*	*Percent of Respondents*
	Yes	0	0%
	No	0	0%
	Don't know	0	0%

9. How did you learn of the Lights for Learning Direct Install Program?	*Response*	*(n=3)*	*Percent of Respondents**
	Approached directly by a representative	0	0%
	Received an informational brochure	1	33%
	A DCEO representative mentioned it	0	0%
	The DCEO website	1	33%
	A MEEA representative mentioned it	0	0%
	A SEDACrepresentative mentioned it	1	33%
	A utility representative	1	33%
	Friends or colleagues	1	33%
	An architect, engineer, or energy consultant	0	0%
	Attended a conference, workshop or seminar	0	0%
	An energy service company	0	0%
	Past experience with the program	0	0%
	Equipment vendors or building contractors	0	0%
	Other	0	0%
	Don’t know	0	0%

**Since respondents were able to select more than one response, the sum of the percentages in the table above can exceed 100%.*

10. Before participating in the Lights for Learning Direct Install Program, had you installed any equipment or measure similar to the Direct Install Equipment in the participating facilities?	*Response*	*(n=3)*	*Percent of Respondents*
	Yes	1	33%
	No	2	67%
	Don't know	0	0%

11. Did you have plans to install the Direct Install Equipment before participating in the Lights for Learning Direct Install Program?	*Response*	*(n=3)*	*Percent of Respondents*
	Yes	0	0%
	No	2	67%
	Don't know	1	33%

11A. Would you have gone ahead with this planned installation even if you had not participated in the program?	*Response*	*(n=0)*	*Percent of Respondents*
	Yes	0	0%
	No	0	0%
	Don't know	0	0%

11B. For about how long have you had plans to install this equipment prior to finding out about the program?	*Response*	*(n=0)*	*Percent of Respondents*
	Less than 6 months	0	0%
	6 months to less than 1 year	0	0%
	1 year to less than 2 years	0	0%
	2 years to less than 5 years	0	0%
	5 or more years	0	0%
	Don't know	0	0%

11C. Did your plans specify the specific equipment and the quantity of equipment or were they more general?	*Response*	*(n=0)*	*Percent of Respondents*
	Yes	0	0%
	No, it was more of a general plan to make energy efficiency improvements	0	0%
	Don’t know	0	0%

12. Did you have experience with DCEO or MEEA energy efficiency programs prior to participating in the Lights for Learning Direct Install Program?	*Response*	*(n=3)*	*Percent of Respondents*
	Yes	1	33%
	No	2	67%
	Don't know	0	0%

12A. How important was your previous experience with the DCEO or MEEA programs in making your decision to install the Direct Install Equipment?	*Response*	*(n=0)*	*Percent of Respondents*
	Very important	0	0%
	Somewhat important	0	0%
	Only slightly important	0	0%
	Not important at all	0	0%
	Don't know	0	0%

13. How likely would you have been to install the Direct Install Equipment had it not been recommended during the facility walk-through?	*Response*	*(n=3)*	*Percent of Respondents*
	Definitely would have installed	0	0%
	Probably would have installed	1	33%
	Probably would not have installed	1	33%
	Definitely would not have installed	0	0%
	Don't know	1	33%

14. Would you have been financially able to install the Direct Install Equipment if it had not been provided at no-cost through the Lights for Learning Direct Install Program?	*Response*	*(n=3)*	*Percent of Respondents*
	Yes	0	0%
	No	3	100%
	Don't know	0	0%

15. If the Lights for Learning Direct Install Program had not been available, how likely is it that you would have installed the Direct Install Equipment anyway?	*Response*	*(n=3)*	*Percent of Respondents*
	Definitely would have installed	0	0%
	Probably would have installed	0	0%
	Probably would not have installed	1	33%
	Definitely would not have installed	2	67%
	Don't know	0	0%

16. Did you install more equipment than you otherwise would have without the program because it was provided at no-cost or because of the information provided through the program?	*Response*	*(n=3)*	*Percent of Respondents*
	Yes	2	67%
	No, program did not affect quantity installed	0	0%
	Don’t know	0	0%

17. Did you install the equipment earlier than you otherwise would have because it was provided at no-cost or because of the information provided through the program?	*Response*	*(n=3)*	*Percent of Respondents*
	Yes	2	67%
	No, the program did not affect the timing of the purchase and installation	0	0%
	Don’t know	0	0%

17A. When would you otherwise have installed the equipment? Would you have installed it in…	*Response*	*(n=2)*	*Percent of Respondents*
	Less than 6 months	0	0%
	6 months to less than 1 year	0	0%
	1 year to less than 2 years	0	0%
	2 years to less than 5 years	0	0%
	5 or more years	1	50%
	Don’t know	1	50%

18. If you had not installed the efficient light bulbs received through the program, would you have installed some other type of light bulbs?	*Response*	*(n=1)*	*Percent of Respondents*
	Yes	1	100%
	No	0	0%
	Don't know	0	0%

18A. What would you have installed had you not participated in the program?	*Response*	*(n=1)*	*Percent of Respondents**
	Incandescent light bulbs instead of CFL light bulbs	0	0%
	Incandescent light bulbs instead of LED light bulbs	0	0%
	CFL light bulbs instead of LED light bulbs	0	0%
	Other	0	0%
	Don't know	1	100%

**Since respondents were able to select more than one response, the sum of the percentages in the table above can exceed 100%.*

19. If you had not installed the LED exit signs received through the program, would you have installed some other type of exit signs?	*Response*	*(n=2)*	*Percent of Respondents*
	Yes	1	50%
	No	1	50%
	Don't know	0	0%

19A. What would you have installed had you not participated in the program?	*Response*	*(n=1)*	*Percent of Respondents**
	Incandescent Exit Signs instead of LED Exit Signs	0	0%
	Fluorescent Exit Signs instead of LED Exit Signs	1	100%
	Other	0	0%
	Don't know	0	0%

**Since respondents were able to select more than one response, the sum of the percentages in the table above can exceed 100%.*

20. Did you receive all of the Direct Install Equipment that you were expecting?	*Response*	*(n=3)*	*Percent of Respondents*
	Yes	1	33%
	No	2	67%
	Don't know	0	0%

20B. Did you contact a program representative about the missing equipment?	*Response*	*(n=2)*	*Percent of Respondents*
	Yes	2	100%
	No	0	0%
	Don't know	0	0%

21. Was any of the energy efficient equipment that you received broken?	*Response*	*(n=3)*	*Percent of Respondents*
	Yes	0	0%
	No	3	100%
	Don't know	0	0%

21B. Did you contact a program representative about the broken equipment?	*Response*	*(n=0)*	*Percent of Respondents*
	Yes	0	0%
	No	0	0%
	Don't know	0	0%

22. Did the installation of the equipment go smoothly?	*Response*	*(n=3)*	*Percent of Respondents*
	Yes	3	100%
	For the most part	0	0%
	No	0	0%
	Don't know	0	0%

23. Did the equipment meet your expectations? Would you say…	*Response*	*(n=3)*	*Percent of Respondents*
	My expectations were exceeded	0	0%
	My expectations were met	3	100%
	My expectations were mostly met	0	0%
	My expectations were not met	0	0%
	Don't know	0	0%

24. Did a program representative verify the equipment installation or did you complete a self-verification?	*Response*	*(n=3)*	*Percent of Respondents*
	A program representative verified the equipment installation	2	67%
	A self-verification was completed	1	33%
	Don't know	0	0%

24A. Did the self-verification go smoothly?	*Response*	*(n=1)*	*Percent of Respondents*
	Yes	1	100%
	For the most part	0	0%
	No	0	0%

25. Did you not install any of the Direct Install Equipment that you were sent?	*Response*	*(n=3)*	*Percent of Respondents*
	Yes	2	67%
	No	1	33%
	Don't know	0	0%

26. Did you review the Final Report that was sent to you after the walk through was completed?	*Response*	*(n=3)*	*Percent of Respondents*
	Yes	1	33%
	No	0	0%
	Do not recall receiving a report	1	33%
	Don't know	1	33%

26A. How useful was the information provided in the report?	*Response*	*(n=1)*	*Percent of Respondents*
	Very useful	0	0%
	Somewhat useful	1	100%
	Not at all useful	0	0%
	Don’t know	0	0%

26C. Do you recall reading the section on financial incentives available for making energy efficiency improvements?	*Response*	*(n=0)*	*Percent of Respondents*
	Yes	0	0%
	No	0	0%
	Don’t know	0	0%

26C1. Were you aware of these incentive programs before you received the report?	*Response*	*(n=0)*	*Percent of Respondents*
	Yes	0	0%
	No	0	0%
	Don’t know	0	0%

26C2. Since receiving the report, have you started any projects or are you considering any projects to take advantage of the incentives available?	*Response*	*(n=0)*	*Percent of Respondents*
	Yes	0	0%
	No	0	0%
	Don’t know	0	0%

27. Since participating in the Lights for Learning Direct Install Program, have you implemented any additional energy efficient equipment without the assistance of an energy efficiency program?	*Response*	*(n=3)*	*Percent of Respondents*
	Yes	0	0%
	No	3	100%
	Don't know	0	0%

27B. Did a program staff member recommend this equipment?	*Response*	*(n=0)*	*Percent of Respondents*
	Yes	0	0%
	No	0	0%
	Don't know	0	0%

	Response	*(n=0)*	*Percent of Respondents*
27B1. How important was this recommendation to your decision to implement the additional energy efficiency measures?	Very important	0	0%
	Somewhat important	0	0%
	Neither important or unimportant	0	0%
	Somewhat unimportant	0	0%
	Unimportant	0	0%
	Don't know	0	0%

	Response	*(n=0)*	*Percent of Respondents*
27C. How important was your experience with the program to your decision to implement the additional energy efficiency measures?	Very important	0	0%
	Somewhat important	0	0%
	Neither important or unimportant	0	0%
	Somewhat unimportant	0	0%
	Unimportant	0	0%
	Don't know	0	0%

	Response	*(n=0)*	*Percent of Respondents*
27D. How important was your participation in any past programs offered by DCEO or MEEA to your decision to implement the additional energy efficiency measures.	Very important	0	0%
	Somewhat important	0	0%
	Neither important or unimportant	0	0%
	Somewhat unimportant	0	0%
	Unimportant	0	0%
	Don't know	0	0%

	Response	*(n=0)*	*Percent of Respondents*
27E. Why didn't you apply for or receive any financial assistance for those items?	Small project that wasn’t worth applying for financial assistance	0	0%
	Didn't know whether equipment qualified for financial assistance	0	0%
	Too much paperwork for the financial assistance application	0	0%
	Financial assistance was insufficient	0	0%
	Didn't have time to complete paperwork for financial assistance application	0	0%
	Didn't know about financial assistance until after equipment was purchased	0	0%
	For some other reason	0	0%
	Don’t know	0	0%

	Response	*(n=3)*	*Percent of Respondents*
28. Given your experience with the Lights for Learning Direct Install Program, would you buy energy efficient equipment in the future?	Yes	2	67%
	No	0	0%
	Don't know	1	33%

	Response	*(n=2)*	*Percent of Respondents*
28A. How likely would you be to buy energy efficient equipment in the future if financial assistance was not offered through an energy efficiency program?	Very likely	0	0%
	Somewhat likely	2	100%
	Neutral	0	0%
	Somewhat unlikely	0	0%
	Very unlikely	0	0%
	Don’t know	0	0%

	Response	*(n=3)*	*Percent of Respondents*
29A. On a scale of very satisfied to very dissatisfied, how satisfied were you with the information provided by the DCEO.	Very satisfied	1	33%
	Satisfied	1	33%
	Neither satisfied nor dissatisfied	1	33%
	Dissatisfied	0	0%
	Very dissatisfied	0	0%
	Not Applicable/Don't know	0	0%

	Response	*(n=3)*	*Percent of Respondents*
29B. On a scale of very satisfied to very dissatisfied, how satisfied were you with the information provided by the Midwest Energy Efficiency Alliance (MEEA).	Very satisfied	1	33%
	Satisfied	2	67%
	Neither satisfied nor dissatisfied	0	0%
	Dissatisfied	0	0%
	Very dissatisfied	0	0%
	Not Applicable/Don't know	0	0%

	Response	*(n=3)*	*Percent of Respondents*
29C. On a scale of very satisfied to very dissatisfied, how satisfied were you with the effort required for the application process.	Very satisfied	1	33%
	Satisfied	1	33%
	Neither satisfied nor dissatisfied	1	33%
	Dissatisfied	0	0%
	Very dissatisfied	0	0%
	Not Applicable/Don't know	0	0%

	Response	*(n=3)*	*Percent of Respondents*
29D. On a scale of very satisfied to very dissatisfied, how satisfied were you with the walk through energy audit.	Very satisfied	1	33%
	Satisfied	2	67%
	Neither satisfied nor dissatisfied	0	0%
	Dissatisfied	0	0%
	Very dissatisfied	0	0%
	Not Applicable/Don't know	0	0%

	Response	*(n=3)*	*Percent of Respondents*
29E. On a scale of very satisfied to very dissatisfied, how satisfied were you with the performance of the equipment installed.	Very satisfied	1	33%
	Satisfied	2	67%
	Neither satisfied nor dissatisfied	0	0%
	Dissatisfied	0	0%
	Very dissatisfied	0	0%
	Not Applicable/Don't know	0	0%

	Response	*(n=3)*	*Percent of Respondents*
29F. On a scale of very satisfied to very dissatisfied, how satisfied were you with the self-verification process.	Very satisfied	1	33%
	Satisfied	1	33%
	Neither satisfied nor dissatisfied	1	33%
	Dissatisfied	0	0%
	Very dissatisfied	0	0%
	Not Applicable/Don't know	0	0%

	Response	*(n=3)*	*Percent of Respondents*
29G. On a scale of very satisfied to very dissatisfied, how satisfied were you with the overall program experience.	Very satisfied	1	33%
	Satisfied	2	67%
	Neither satisfied nor dissatisfied	0	0%
	Dissatisfied	0	0%
	Very dissatisfied	0	0%
	Not Applicable/Don't know	0	0%

	Response	*(n=3)*	*Percent of Respondents*
30. Would you like to be contacted for future programs that may be able to help you save energy?	Yes	2	67%
	No	1	33%
	Don't know	0	0%