

**energySMART Energy Saving Kits  
GPY3 Evaluation Report**

**Final**

**Energy Efficiency Plan:  
Gas Plan Year 3  
(6/1/2013-5/31/2014)**

**Presented to  
Nicor Gas Company**

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## E. Executive Summary

This report presents a summary of the findings and results from the impact and process evaluation of the Nicor Gas program year three (GPY3) <sup>1</sup> energySMART Energy Saving Kit (“Kits”) Program. Through the Kits Program, residential customers could request a set of gas saving measures, including high efficiency showerheads, kitchen faucet aerators, and bathroom faucet aerators, and the measures would be shipped to them with directions for self-installation.

This program’s evaluation is noteworthy as it produced a Verified Gross Realization Rate of 1.32 which significantly drove the program savings upward. The explanation for the high RR is discussed in detail in Section 3.

### E.1. Program Savings

The following two tables summarize the total program savings and program savings by measure.

**Table E-1. GPY3 Program Results**

| Savings Category                            | Nicor Gas |
|---|-----------|
| Ex Ante Gross Savings <sup>2</sup> (Therms) | 1,828,371 |
| Verified Gross Realization Rate (RR)        | 1.32 ‡    |
| Verified Gross Savings (Therms)             | 2,421,471 |
| Net to Gross Ratio (NTGR)                   | 0.84†     |
| Verified Net Savings (Therms)               | 2,034,036 |

Source: Utility tracking data and Navigant analysis.

‡ Based on evaluation research findings

† Source: [http://ilsagfiles.org/SAG\\_files/Meeting\\_Materials/2013/August 5-6, 2013 Meeting/Nicor Gas NTG Results and Application GPY1-3.pdf](http://ilsagfiles.org/SAG_files/Meeting_Materials/2013/August%205-6,%202013_Meeting/Nicor_Gas_NTG_Results_and_Application_GPY1-3.pdf)

<sup>1</sup> The GPY3 program year began June 1, 2013 and ended May 31, 2014.

<sup>2</sup> From Program Tracking System

**Table E-2. GPY3 Program Results by Measure**

| Research Category                            | Ex Ante Gross Savings (Therms) | Verified Gross Realization Rate | Verified Gross Savings (Therms) | NTGR  | Verified Net Savings (Therms) |
|--|--------------------------------|---------------------------------|---------------------------------|-------|-------------------------------|
| Kit 1<br>Faucet aerators and one showerhead  | 250,682                        | 1.32 ‡                          | 332,527                         | 0.84† | 279,322                       |
| Kit 2<br>Faucet aerators and two showerheads | 1,577,689                      | 1.32 ‡                          | 2,088,945                       | 0.84† | 1,754,714                     |

Source: Program tracking data and Navigant analysis.

‡ Based on evaluation research findings.

† Source: [http://ilsagfiles.org/SAG\\_files/Meeting\\_Materials/2013/August 5-6, 2013 Meeting/Nicor Gas NTG Results and Application GPY1-3.pdf](http://ilsagfiles.org/SAG_files/Meeting_Materials/2013/August%205-6,2013/Meeting/Nicor_Gas_NTG_Results_and_Application_GPY1-3.pdf)

### E.2. Impact Estimate Parameters

The evaluation used parameters as defined by the Illinois Technical Reference Manual (TRM)<sup>3</sup>, as summarized in the following table.

**Table E-3. Impact Estimate Parameters**

| Parameter                       | Data Source                         | Deemed or Evaluated? |
|---------------------------------|-------------------------------------|----------------------|
| Net to Gross Ratio              | SAG Spreadsheet †                   | Deemed               |
| Verified Gross Realization Rate | Program Tracking Data, Illinois TRM | Evaluated            |
| In Service Rate (ISR)           | Program Email Survey Data           | Evaluated            |

Source: Navigant analysis

† Deemed values. Source: [http://ilsagfiles.org/SAG\\_files/Meeting\\_Materials/2013/August 5-6, 2013 Meeting/Nicor Gas NTG Results and Application GPY1-3.pdf](http://ilsagfiles.org/SAG_files/Meeting_Materials/2013/August%205-6,2013/Meeting/Nicor_Gas_NTG_Results_and_Application_GPY1-3.pdf)

### E.3. Participation Information

The program distributed 110,458 Kits to program participants in GPY3, with each kit containing four or five measures, depending on the number of showerheads requested.

<sup>3</sup> Illinois Statewide Technical Reference Manual for Energy Efficiency Version 2.0 June 7, 2013 \_Effective\_060113\_Version\_2.0\_060713\_Clean.pdf

**Table E-4. GPY3 Primary Participation Detail**

| Participation        | Nicor Gas |
|----------------------|-----------|
| Participants         | 110,458   |
| Distributed Measures | 528,949   |

*Source: Program tracking data and Navigant analysis.*

#### **E.4. Finding and Recommendations**

This section summarizes the key findings and recommendations.

**Finding 1.** The energy per gallon of hot water supplied by gas (EPH\_gas) input that Nicor Gas used in the kitchen aerator energy savings algorithm was slightly lower than the value prescribed in the Illinois TRM. This had a very small effect on the savings for this measure.

**Recommendation 1.** Correct the energy per gallon of hot water supplied by gas input used in the Kitchen Aerator energy savings algorithm.

**Finding 2.** The Navigant calculated ISR was 32% higher than the initial Nicor Gas ISR which was determined from a literature review.. This resulted in a verified gross program savings 32% greater than the initial ex ante gross savings.

**Recommendation 2.** Use the calculated ISR , and include the savings associated with partial kit installation in the program ISR.

**Finding 3.** The email verification survey instrument used by Nicor Gas in GPY3 does not collect information on the quantity of measures installed, requiring the use of assumptions to estimate savings from partial installations.

**Recommendation 3.** Redesign the email survey to capture all of the installation information for each individual component, including quantity installed, on the first page of the survey. Collecting quantity installed for each measure can adjust the savings up to + or - 37%.

## 1. Introduction

### 1.1 Program Description

The energySMART Energy Saving Kit Program mails kits that consist of one or two high efficiency showerheads, two high efficiency bathroom faucet aerators, and a high efficiency kitchen faucet aerator to customers of Nicor Gas who requested the kits. Both rental and owner-occupied dwellings are eligible for kits. Customers must be active residential customers of Nicor Gas, and only one kit is available for each account number. When they apply to receive a kit from Nicor Gas, the customers are asked if they want one or two shower heads included in their kit. (For the remainder of the report, kits containing one showerhead will be referred to as “Kit 1”, and kits containing two showerheads will be referred to as “Kit 2”.) The energySMART Energy Saving Kit Program is implemented directly through Nicor Gas, and began June 1, 2013.

Nicor Gas facilitated estimation of the in service rate for kits measures through an email survey sent to 44,433 kit recipients that asked participants if they installed the kit components. The email was sent to all participants who provided an email address. The program did not contact participants who provided only a phone number. In the survey, respondents who reported that they either partially installed the kit components or had not installed the components were then asked follow up questions to determine which components had not been installed or when they were planning to install the components, respectively. A second email survey was sent to 625 of the initial survey respondents who requested a kit between January 2014 and May 2014 and indicated that they had not yet installed the measures (delayed participants) because they had not yet had the time to do so.

### 1.2 Evaluation Objectives

As planned, the PY3 evaluation primarily focused on the impact evaluation and the verification of the Nicor Gas calculated in-service rate. The Evaluation Team identified the following key researchable questions for GPY3:

#### Impact Questions:

1. What is the in service rate (ISR) for the Energy Saving Kit components?
2. Are the TRM algorithms applied appropriately and the tracking system calculating savings correctly?
3. What are the program’s gross and net savings?

#### Process Questions

1. Was the reach back email survey effective for increasing the in service rate?



## 2. Evaluation Approach

This evaluation of the Kits Program reflects the first full-scale year of program operation (June 1, 2013 through May 31, 2014). During GPY3, program tracking data showed that 110,458 residential customers requested and received an energy saving kit. To determine verified gross savings, the evaluation team verified per unit savings for each kit measure using the Illinois TRM Version 2.0 which deems all algorithm inputs except an in service rate that must be determined through evaluation research. Navigant reviewed email survey response data from Nicor Gas to estimate an in service rate. To estimate verified gross savings, Navigant multiplied measure quantities sent from the program tracking system data times the verified per unit savings value. The verified net savings was calculated using a NTG ratio that was deemed for GPY3. The process evaluation for GPY3 was limited in scope as planned.

### 2.1 Overview of Data Collection Activities

The core data collection activities included a tracking system review, participant email surveys conducted by Nicor Gas, and an engineering analysis as shown in the table below.

**Table 2-1. Data Collection Activities**

| What                              | Who   | Target Completes | Completes Achieved | When                         |
|-----------------------------------|---|------------------|--------------------|------------------------------|
| Tracking System Review            | Participants  | Census           | Census             | January 2015                 |
| Program Email Survey – Initial    | Participants  | 44,433           | 10,517             | October 2013 – February 2014 |
| Program Email Survey – Reach-Back | Initial Respondents Partial or Delayed Installation | 625              | 83                 | September 2014               |
| Engineering Analysis              | Participants  | Census           | Census             | January 2015                 |
| Telephone Interview               | Program Manager                                     | 1                | 1                  | March 2014                   |

### 2.2 Verified Savings Parameters

Navigant used the Illinois TRM Version 2.0 methodology to calculate verified gross savings. The Illinois TRM deems many values used in the algorithms whose sources are shown in Table 2-2. The Illinois TRM allows for some custom values to be used in the algorithms as well. Navigant used energySMART tracking data for these values.

**Table 2-2 Verified Gross Savings Parameters**

| Measure                          | Input Parameter Source                   |
|----------------------------------|--|
| Low Flow Showerhead              | Illinois TRM version 2.0 – Section 5.4.5 |
| Low Flow Bathroom Faucet Aerator | Illinois TRM version 2.0 – Section 5.4.4 |
| Low Flow Kitchen Faucet Aerator  | Illinois TRM version 2.0 – Section 5.4.4 |

*Source: Navigant analysis*

### **2.3 Verified Gross Program Savings Analysis Approach**

For the deemed savings estimates, Navigant calculated independent estimates of the savings for each measure based on the Illinois TRM Version 2.0, program tracking data, and an in service rate calculated from program email survey data.

### **2.4 Verified Net Program Savings Analysis Approach**

Verified net energy savings were calculated by multiplying the verified gross savings estimates by a net-to-gross ratio (NTGR). For GPY3, the evaluation team used a NTGR value that was deemed.

### **2.5 Process Evaluation**

The GPY3 evaluation activities consisted of a Nicor Gas Program Manager interview and assessment of the email survey results. This limited scope for the process evaluation is consistent with this program’s evaluation plan for this evaluation cycle.

### 3. Gross Impact Evaluation

Navigant performed a tracking data review to determine quantities sent and ex ante gross savings by measure. To determine verified gross savings by measure, the evaluation team performed an engineering analysis for each kit measure using the Illinois TRM Version 2.0 and installation self-report data drawn from the Nicor Gas email surveys. The verified savings were compared with ex ante savings to calculate the measure and program level realization rates for the program.

#### 3.1 Tracking System Review

Navigant performed a verification of the program tracking database to determine ex ante gross savings totals. The purpose of the tracking system review was to ensure these systems accurately gather the data required to calculate program savings. Navigant used measure quantities and kit equipment specifications supplied by Nicor Gas as inputs to Illinois TRM algorithms to determine verified gross savings.

Key findings include:

1. The energy per gallon of hot water supplied by gas (EPH\_gas) input that Nicor Gas used in the Kitchen Aerator energy savings algorithm was slightly lower than the value prescribed in the Illinois TRM. This had a very small effect on the savings for this measure, but it is recommended to correct this input going forward.
2. Navigant calculated an in service rate (ISR) by performing a detailed analysis of the data gathered from the Nicor Gas email survey, and found a higher value than the ISR used by Nicor Gas. This resulted in higher measure level and program level realization rates.

#### 3.2 Program Volumetric Findings

In GPY3, the Nicor Gas energySMART Kits program distributed two different types of kits to the 110,458 participants.

The key finding of this analysis is that Kit Type 2 (which includes two low flow showerheads) had significantly higher participation and accounted for 79% of the kits distributed through the program. This translated to 86% of total program savings being attributed to Kit 2 distributions.

**Table 3-1. GPY3 Volumetric and Participation Findings**

| Kit   | Showerheads | Bathroom<br>Faucet<br>Aerators | Kitchen<br>Faucet<br>Aerators | Total<br>Participants |
|---|-------------|--------------------------------|-------------------------------|-----------------------|
| Kit 1 Participants<br>Faucet aerators and one showerhead  | 23,341      | 46,684                         | 23,341                        | 23,341                |
| Kit 2 Participants<br>Faucet aerators and two showerheads | 174,234     | 174,234                        | 87,117                        | 87,117                |
| Total   | 197,575     | 220,918                        | 110,458                       | 110,458               |

Source: Navigant analysis.

### 3.3 Gross Program Impact Parameter Estimates

Navigant calculated verified gross savings from the GPY3 Kits Program using algorithms and parameters defined in the Illinois TRM Version 2.0.

**Table 3-2 Verified Gross Savings Parameters**

| Measure                  | Input Parameter Source                   |
|--------------------------|--|
| Low Flow Showerhead      | Illinois TRM Version 2.0 – Section 5.4.5 |
| Low Flow Bath Aerator    | Illinois TRM Version 2.0 – Section 5.4.4 |
| Low Flow Kitchen Aerator | Illinois TRM Version 2.0 – Section 5.4.4 |

*Source: Navigant analysis*

The GPY3 energySMART Kits tracking database, program email survey results, and inputs provided by Nicor Gas provided most of the input parameters necessary to calculate savings using the Illinois TRM version 2.0. While the TRM provides deemed values for most of the input parameters, it does not do so for the measure ISRs and instead requires research-based ISRs. Due to limitations of the email survey, the evaluation team had to use some assumed values to calculate the in service rate from the email survey results.

#### Evaluation Estimate of the In Service Rate

There were a total of 10,517 email survey respondents used by the evaluation team to calculate the verified ISR. Respondents were asked if they installed all of the kit components (“complete installations”) or if they had installed some of the kit components (“partial installations”). Participants who indicated that they had installed some of the kit components were transferred to another survey page and asked which components they had not installed. Participants who initially indicated that they did not install any of the components were transferred to a survey page where they were asked why they had not installed the components and if they intended to install them in the future (participants who indicated that they did intend to install the measures in the future were considered “delayed installations”). Both partial and delayed installation participants received a “reach-back” survey email from the program at a later date where they were again asked if they had installed any of the previously non-installed measures.

Navigant analyzed the email survey results supplied by Nicor Gas and determined an ISR of 0.66. This was calculated using:

- 5,693 participants who installed all measures based on the first survey results (this includes 73 participants who were initially considered the partial installations but, upon further examination, were revealed to have installed all the measures excepting the plumbers tape. Because there is no savings associated with the plumbers tape, they were therefore reclassified as complete installations),
- 2,233 partial installation participants who received credit for 0.55 savings (partial installation participants who indicated that they installed some measures, but did not complete the

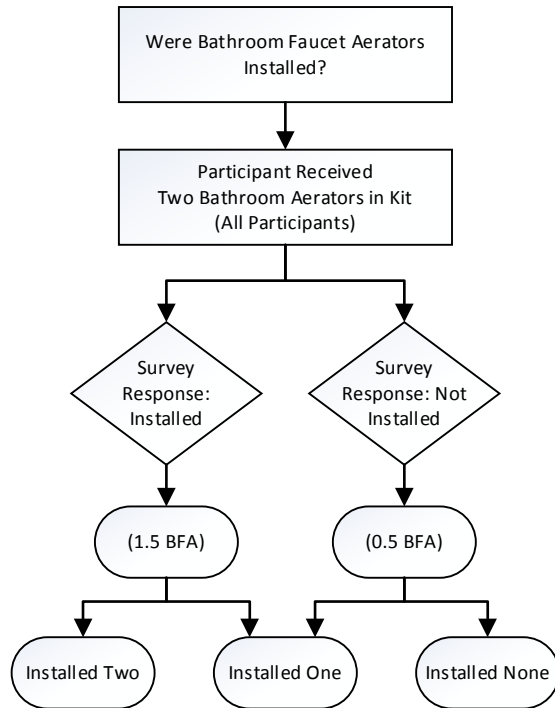
- survey to indicate which measures were installed were treated as non-responses and removed from the analysis),
- 33 participants who converted from “delayed installation” to complete installation in the reach-back (second round) surveys,
  - 22 participants who converted from delayed installation to partial installation in the reach-back (second round) survey, achieving an average of 0.50 of savings, and
  - 2,536 participants who did not install any measures.

Some participants 1) originally indicated that they were delayed installations, 2) received the reach-back survey email, and 3) did not complete the reach-back survey; these participants remained classified as non-installations. The evaluation team decided that their installation status did not change. While this is a conservative assumption, the evaluation team believes it is correct given the lack of evidence of their change in installation status. Other participants who responded to the reach-back campaign indicated that they installed “some” measures, but they did not complete the survey to indicate which measures they installed; these participants were removed from the sample, and therefore were not included in the ISR calculations.

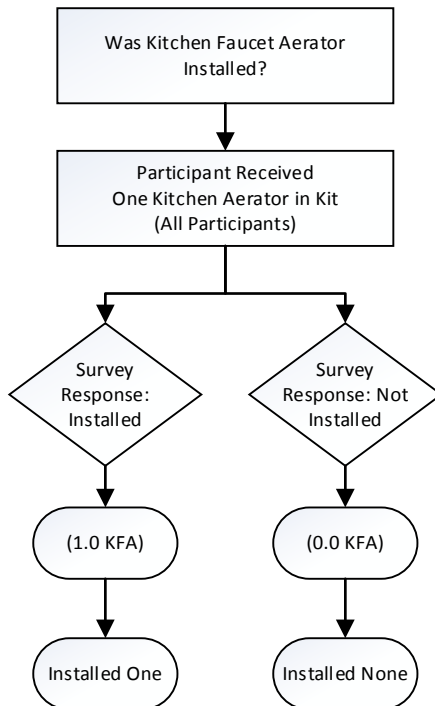
In order to calculate the savings for partial installations, the evaluation team had to make some assumptions due to the email survey design. The survey results did not indicate the number of showerheads in each participants’ kit. The evaluation team therefore assumed an average of 1.86 showerheads per kit (based on the tracking system results of 86% of kits containing two showerheads).

The evaluation team also had to make some assumptions because, in the email survey, if a participant indicated that they did not install all of the kit components, they were then asked which components they did not install [showerhead(s), kitchen faucet aerator, bathroom faucet aerator(s), or plumbers tape]. However, the survey did not ask *how many* of the showerheads or bathroom faucet aerators were not installed. Because of this, a participant who received two showerheads but did not indicate that they did not install the showerheads may have either (1) installed both showerheads or (2) installed one showerhead. Likewise, a participant who received two showerheads in their kit and indicated that they did not install the showerheads may have either (1) not installed both showerheads or (2) installed one showerhead. Figure 1, Figure 2, and Figure 3 present the possible results of the email survey for faucet aerators and showerheads.

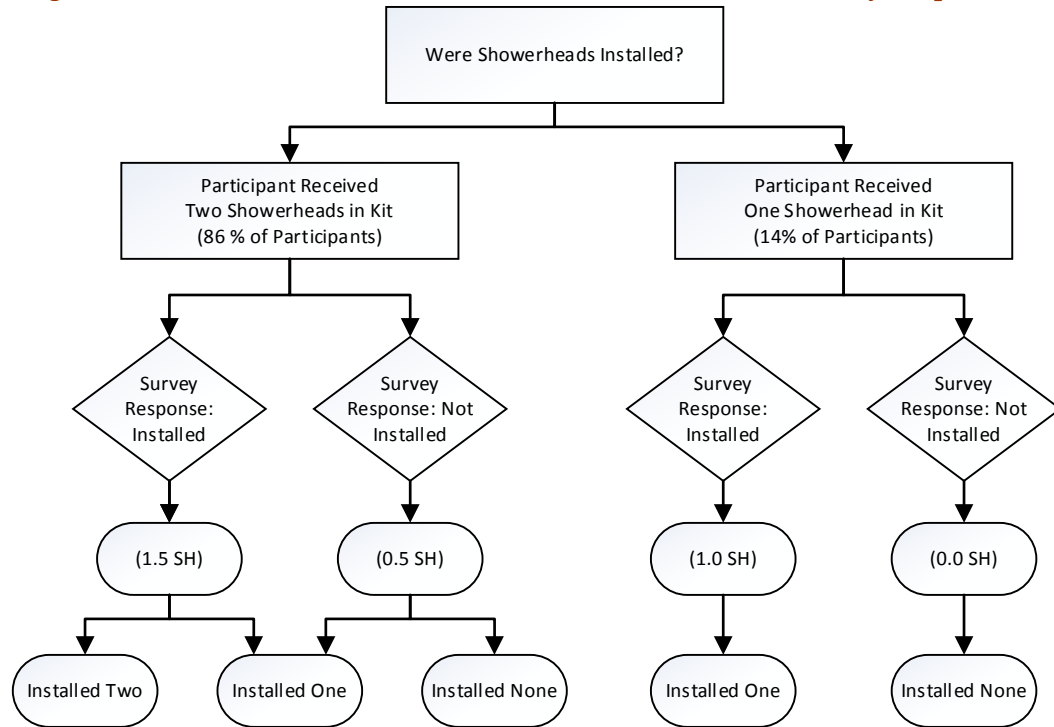
**Figure 1. Possible Installation Status of Bathroom Faucet Aerators for Email Survey Respondents**



**Figure 2. Possible Installation Status of Kitchen Faucet Aerators for Email Survey Respondents**



**Figure 3. Possible Installation Status of Showerheads for Email Survey Respondents**



Because the actual installation status for showerheads and faucet aerators cannot be deduced from the survey responses, the evaluation team used assumed quantities for each participant and measure. For bathroom faucet aerators, if a participant indicated that they *did not* install the aerators, the evaluation team assigned that participant a savings value of half (0.5) of one bathroom faucet aerator (because the participant may have installed either no bathroom faucet aerator or one bathroom faucet aerator, depending on their interpretation of the survey question). If a participant indicated that they *did* install the bathroom faucet aerators, the evaluation team assigned them the savings value of 1.5 bathroom faucet aerators (because the participant may have either installed one bathroom faucet aerator or both bathroom faucet aerators, depending on their interpretation of the survey question).

Because there was only one kitchen faucet aerator included in each kit, the email responses for kitchen aerators were unambiguous. If a respondent indicated that they *did not* install the kitchen aerator, they received no savings for that measure. If the participant indicated that they *did* install the measure, they received full saving for the kitchen aerator.

To calculate the assumed savings for showerheads, the evaluation team had to also take into consideration the fact that 14 percent of participants received only one showerhead in their kit (Kit 1 participants). As seen in Figure 1, if a participant only received one showerhead in their kit, the survey responses are unambiguous (like the kitchen faucet aerator responses). However, due to the design of the email survey, it is not possible to know which respondents received only one showerhead in their kit. The evaluation team assumed that 14 percent of survey respondents also received only one showerhead in their kit, and 86 percent of participants received two showerheads (Kit 2 participants). For the 86 percent of participants who received two showerheads, their email survey responses are ambiguous (like the bathroom faucet aerator responses).

To calculate the savings for showerhead participants who indicated in the survey that they *did not* install the showerheads, the following equation was used:

$$(0.0 * 0.14) + (0.5 * 0.86) = 0.43$$

For participant who indicated that they *did* install the showerheads, the following equation was used:

$$(1 * 0.14) + (1.5 * 0.86) = 1.43$$

Table 3-3 presents the values used by the evaluation team.

**Table 3-3. Assumed Quantity Installed per Response**

| Measure           | Indicated Non-Installation | Did Not Indicate Non-Installation |
|-------------------|----------------------------|-----------------------------------|
| Showerheads       | 0.43                       | 1.43                              |
| Bathroom Aerators | 0.50                       | 1.50                              |
| Kitchen Aerator   | 0.00                       | 1.00                              |

*Source: Navigant analysis*

To calculate the total savings for partial installations, the evaluation team calculated the savings for each individual component installed, using the assumptions detailed above. After totaling the savings for each installed measure, and dividing it by the potential savings for all partial installation survey respondents, the evaluation team calculated an ISR of 0.55 for partial installations. The same methodology was applied to the twenty-two “reach back” survey respondents who indicated partial kit installation, and the evaluation team calculated an ISR of 0.50. Overall, the reach back survey had a small effect on the overall program ISR. This may be partially due to the limited target of the email campaign (only those participants who indicated that they had not had time to install their kit components). Because of the low cost of administering email surveys, Navigant recommends continuing the reach back survey campaign and modifying the email campaign using the recommendation described below.

This is shown in Equation 3-1 below.

**Equation 3-1. ISR Calculation**

$$ISR = \frac{5,693 + (2,233 \times 0.55) + 33 + (22 \times 0.50)}{10,517} = 0.66$$

This ISR, 0.66, calculated by the evaluation team is higher than the Nicor Gas ex ante ISR of 0.50, which was based on a review of secondary data by Nicor Gas staff, but this calculation did not include any partial kit savings for survey respondents who indicated they had installed some, but not all, of the kit components. In order to calculate partial kit installation measure savings using the email survey results and not assumptions of quantities installed, Navigant recommends that the format of the survey be changed to ask about each individual component separately, on the first page of the email survey. The format could look like the following:



Did you install the ENERGY EFFICIENT SHOWERHEAD(S) that came with your kit?

- Yes
- No
- Not Yet – But Plan To

[IF YES]

How many SHOWERHEADS did you install?

- One
- Two

Did you install the BATHROOM FAUCET AERATORS that came with your kit?

- Yes
- No
- Not Yet – But Plan To

[IF YES]

How many BATHROOM FAUCET AERATORS did you install?

- One
- Two

Did you install the KITCHEN FAUCET AERATOR that came with your kit?

- Yes
- No
- Not Yet – But Plan To

By collecting all of the information about which measures and how many were installed on the first screen of the survey, the program staff will be able to calculate the savings for each participant, including partial installation participants, and therefore for the program. Approximately 36 percent of email survey respondents (n = 3,621) who indicated that they had installed “some” of the measures did not continue with the survey; the evaluation team removed these incomplete respondents from the sample and did not include them in the evaluation team’s overall ISR verification calculation.

### 3.4 Development of the Verified Gross Realization Rate

Navigant determined verified gross realization rates by comparing the ex ante gross savings with the verified gross savings. The results by measure are shown in Table 3-4 below. These measure level savings exclude the ISR.

**Table 3-4. Verified Gross Savings by Measure (Excluding ISR)**

| Measure         | Ex Ante Gross Savings (therms) | Verified Gross Savings (therms) | Realization Rate |
|-----------------|--------------------------------|---------------------------------|------------------|
| Showerhead      | 14.75                          | 14.75                           | 1.00             |
| Bath Aerator    | 0.91                           | 0.91                            | 1.00             |
| Kitchen Aerator | 4.91                           | 5.02                            | 1.02             |

The kitchen aerator measure had a measure level realization rate of 1.02 because Nicor Gas used an energy per gallon of hot water supplied by gas (EPG<sub>gas</sub>) value of 0.0039 instead of the Illinois TRM value of 0.00399. This resulted in the ex ante gross savings for this measure being slightly lower than the verified gross savings. The algorithm and assumptions for this measure are shown below.

$$\Delta \text{therms} = \% \text{FossilDHW} \times ((\text{GPM}_{\text{base}} \times L_{\text{base}} - \text{GPM}_{\text{low}} \times L_{\text{low}}) \times \text{Household} \times 365.25 \times \text{DF}/\text{FPH}) \times \text{EPG}_{\text{gas}}$$

Where:

- %FossilDHW: Proportion of water heating supplied by natural gas heating; 100%
- GPM<sub>base</sub>: Average flow rate, in gallons per minute, of the baseline faucet “as-used”; 1.2
- GPM<sub>low</sub>: Average flow rate, in gallons per minute, of the low-flow faucet aerator “as-used”; 0.94
- L<sub>base</sub>: Average baseline length faucet use per capita for all faucets in minutes; 6.90
- L<sub>low</sub>: Average retrofit length faucet use per capita for all faucets in minutes; 6.90
- Household: Average number of people per household; 2.56
- DF: Drain Factor; 75%
- FPH: Faucets Per Household; 1
- EPG<sub>gas</sub>: Energy per gallon of Hot water supplied by gas; 0.00399

The ex ante gross savings, verified gross savings, and gross realization rate by kit type is shown in Table 3-5 below. These kit level savings include the ISR.

**Table 3-5. Verified Gross Realization Rates (Including ISR)**

| Measure      | Ex Ante Gross Savings (therms) | Verified Gross Savings (therms) | Realization Rate |
|--------------|--------------------------------|---------------------------------|------------------|
| Kit 1        | 250,682                        | 332,527                         | 1.33             |
| Kit 2        | 1,577,689                      | 2,088,945                       | 1.32             |
| <b>TOTAL</b> | <b>1,828,371</b>               | <b>2,421,471</b>                | <b>1.32</b>      |

Source: Utility tracking data and Navigant analysis

### 3.5 Verified Gross Program Impact Results

As shown in the table above, the savings discrepancies resulted in realization rates higher than 1.00 at the kit and program level.

The large difference between the ex ante gross savings and the verified gross savings occurred because Nicor Gas used an ISR of 0.50 for each kit. This ISR was based on secondary data research by Nicor Gas staff.

The resulting total program verified gross savings is 2,421,471 therms as shown in the following table.

**Table 3-6. GPY3 Verified Gross Impact Savings Estimates**

|                                 | Gross Energy Savings (Therms) |
|---------------------------------|-------------------------------|
| Ex-Ante GPY3 Gross Savings      | 1,828,371                     |
| Verified Gross Realization Rate | 1.32‡                         |
| Verified Gross Savings          | 2,421,471                     |

Source: Utility tracking data and Navigant analysis.

‡ Based on evaluation research findings

#### 4. Net Impact Evaluation

For GPY3, Navigant used an Illinois SAG approved deemed NTG value of 0.84 to calculate net savings for Nicor Gas.

To calculate the verified net savings, Navigant applied the NTG ratio to the verified gross savings. Table 4-1 presents the program net savings.

**Table 4-1. GPY3 Verified Net Impact Savings Estimates**

|                        | Energy Savings<br>(Therms) |
|------------------------|----------------------------|
| Verified Gross Savings | 2,421,471                  |
| Net-to-Gross Ratio     | 0.84                       |
| Verified Net Savings   | 2,034,036                  |

*Source: Utility tracking data and Navigant analysis.*

## 5. Process Evaluation

Process evaluation activities conducted during GPY3 included an interview with the Nicor Gas program manager. The results of the interview were used to verify the program ISR.

## 6. Findings and Recommendations

This section summarizes the key impact findings and recommendations.

### Tracking System Review

1. **Finding 1.** The energy per gallon of hot water supplied by gas (EPH\_gas) input that Nicor Gas used in the Kitchen Aerator energy savings algorithm was slightly lower than the value prescribed in the Illinois TRM. This had a very small effect on the savings for this measure.

**Recommendation 1.** Correct the energy per gallon of hot water supplied by gas input used in the Kitchen Aerator energy savings algorithm.

### Email Verification Survey

2. **Finding 2.** The Navigant calculated ISR was higher than the Nicor Gas ISR, mainly due to the inclusion of partial installation savings in the Navigant ISR.

**Recommendation 2.** Include the savings associated with partial kit installation in the program ISR.

3. **Finding 3.** The email verification survey instrument used by Nicor Gas in GPY3 does not collect information on the quantity of measures installed, requiring the use of assumptions to calculate savings from partial installations.

**Recommendation 3.** Redesign the email survey to capture all of the installation information for each individual component, including quantity installed, on the first page of the survey.

4. **Finding 4.** The reach-back survey did not appear to have a large effect on the overall program ISR, as only 33 participants reported that they had installed the all kit components since completing the initial survey, and only 22 participants reported that they had installed some of the kit components since completing the initial survey. This may be partially due to the number of participants who indicated that they installed “some” measures, but did not complete the survey, and therefore could not be included in the final analysis.

**Recommendation 4.** Because email surveys are a cost-effective way of reaching participants, Nicor Gas should continue to send follow-up surveys to participants but should not expect the final ISR to change significantly from the initial ISR. The reach-back survey should be redesigned to include the changes suggested for the initial verification survey.