To:	Nicor Gas, Elizabeth Horne, David Brightwell, ICC Staff
CC:	Laura Agapay-Read, Jeff Erickson, Guidehouse
From:	Celina Aguilar, Guidehouse; Theresa Wells, George Frymire, EcoMetric
Date:	August 25, 2025
Re:	Nicor Gas Home Energy Savings NTG Research Results for Home Energy Savings Participant & Trade Ally Free Ridership Survey

1. Executive Summary

This memo presents findings from the net-to-gross (NTG) study of the Nicor Gas Home Energy Savings (HES) Program. The participant free ridership (FR) results for this program are estimated according to the FR algorithm specified in the deviation memo[1] Guidehouse provided to Illinois Stakeholder Advisory Group (IL SAG) in 2025. The Illinois Technical Reference Manual version 13.0 (TRM).does not specify an approach for measuring trade ally FR; the team used a method previously developed by Guidehouse The team gathered FR results via online surveys to two populations: 1) participating Nicor Gas HES customers[2] to assess the impact of the program on the customer's decision to pursue energy efficient upgrades, and 2) active trade allies to assess the program impact on the contractor's decision to recommend and install energy efficient equipment. For free ridership, Guidehouse surveyed residential customers who participated in the program between January 2024 through December 2024, received rebated or discounted air sealing, duct sealing, and/or insulation measures, and are not designated as being in a Disadvantaged Community as defined in IL SAG Policy Manual version 3.0[3]. Also, for free ridership, Guidehouse surveyed trade allies who participated in the program between January 2023 and December 2023. Participant and trade ally spillover were collected and reported in 2024, and results can be found on the IL SAG website[4]. This memo does not address advanced thermostats or direct install measures. Those results can be found in the evaluation 2023 memo on the IL SAG website[5].

Table 1 summarizes the Home Energy Savings Program FR and SO research findings based on the participant and trade ally research. The NTG ratio of **1.34** for all measures is a blended value of the participant and trade ally NTG results.

[1] https://www.ilsag.info/wp-content/uploads/Guidehouse_SAG_Deviation-Memo-on-Residential-Freeridership-Protocol-2025-03-06.docx

[2] All participant samples excluded participants in disadvantaged communities as savings for those participants have deemed NTG values as described in the Energy Efficiency Policy Manual Section 7.4.

[3] https://www.ilsag.info/wp-content/uploads/IL_EE_Policy_Manual_Version_3.0_Final_11-3-2023.pdf

[4] https://www.ilsag.info/wp-content/uploads/Nicor-Gas-Home-Energy-Savings-Participant-and-Trade-Allies-2024-Spillover-Memo-FINAL-2024-08-30.pdf

[5] https://www.ilsag.info/wp-content/uploads/Nicor-Gas-Home-Energy-Savings-NTG-Memo-2023-09-27-Final.pdf

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Table 1. Net-to-Gross Research Results for Home Energy Savings Program

Program Measure	Free Ridership	Spillover	NTG Ratio
Sealing and Insulation Participant	0.34	0.45	
Trade Ally	0.04	<0.01	
Combined Results	**0.11**	**0.45**	**1.34**

Source: Evaluation team analysis

2. Free Ridership Research Sample Disposition

In 2024, Guidehouse fielded the participant and trade ally online surveys using Qualtrics web survey software. The team emailed survey invitations followed by two additional email reminders to encourage completion of the survey. Guidehouse offered a $20 Tango e-gift card to qualified program participants who completed the survey.

Guidehouse launched the online trade ally survey to a census of companies who participated in the program between January 2023 and December 2023. After the initial survey invitation email, the team emailed two additional reminders to encourage completion of the survey. A$50 Tango e-gift card was offered to qualified trade allies who completed the survey.

A total of 137 participant surveys were completed. One survey had to be excluded from the analysis due to responses of "don't know" to key free ridership questions used in the calculations. Of the 17 trade allies in the population, 11 completed the survey. Five of the 11 trade allies were not able to answer the questions about the percentage of projects completed or savings achieved absent the program and were excluded from FR analysis. Table 2 presents the sampling and completion targets for the online surveys.

Table 2. Participant and Trade Ally Free Ridership Survey Fielding Sampling and Completion Targets

Category	Total Population of Unique Participants	Number of Participants Sampled	Target Completes	Actual Completes	Analyzed Completes	Response Rate
Sealing and Insulation Participant	2,955	857	66	137	136	16%
Trade Allies	17	17	14	11	6	35%

Source: Evaluation team analysis

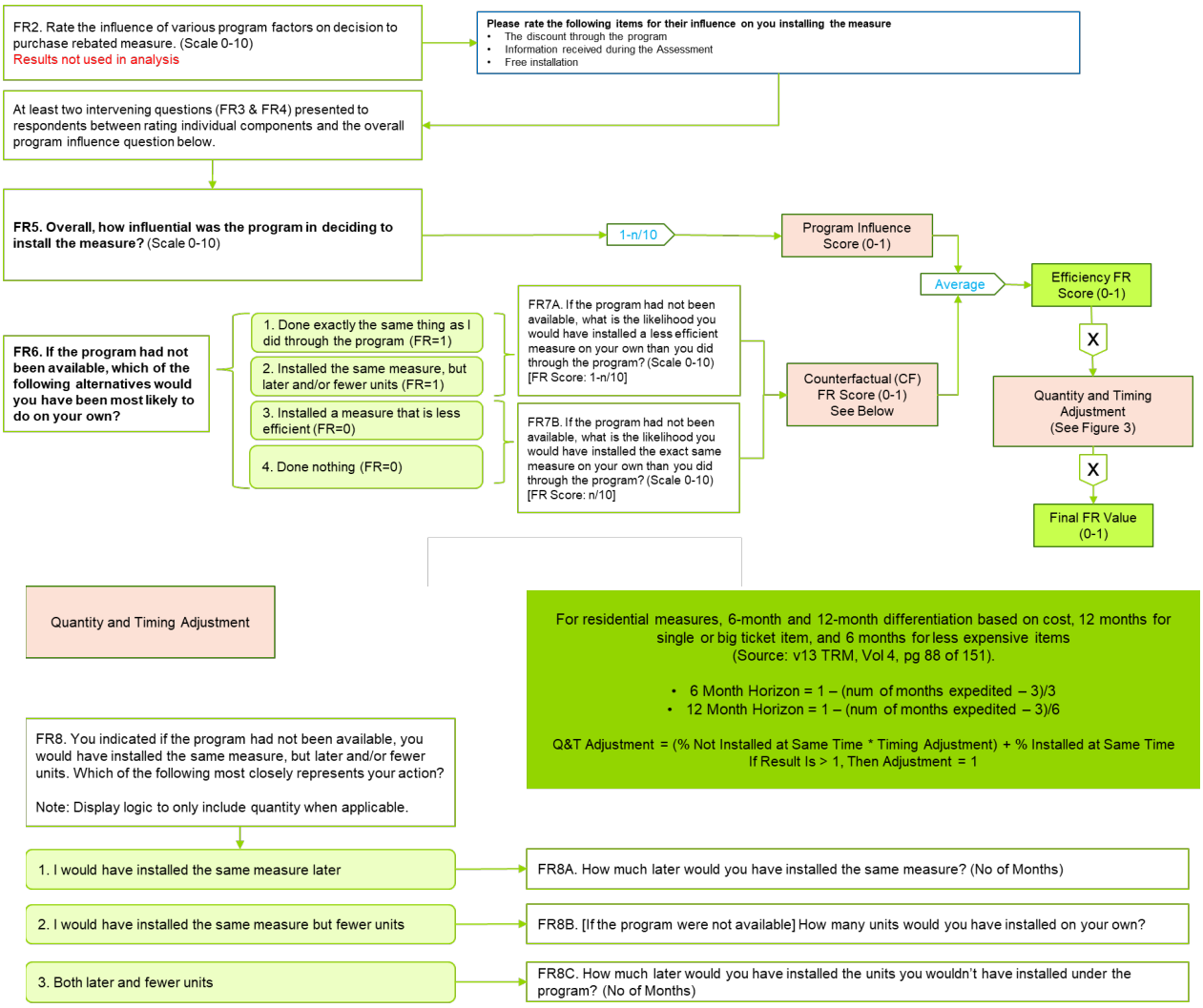
2.1 Free Ridership Protocols

The evaluation team applied the participant FR protocol from Guidehouse's 2025 Deviation Memo and combined the results with trade ally FR using the methodology laid out in TRM Section 5.1, "Combining Participant and Trade Ally Free Ridership Scores."

2.2 Participant Free Ridership Estimation

Figure 1 describes the residential free ridership algorithm used to calculate FR for the HES program participant surveys.

Figure 1. Free Ridership Protocol for Residential Rebate Programs

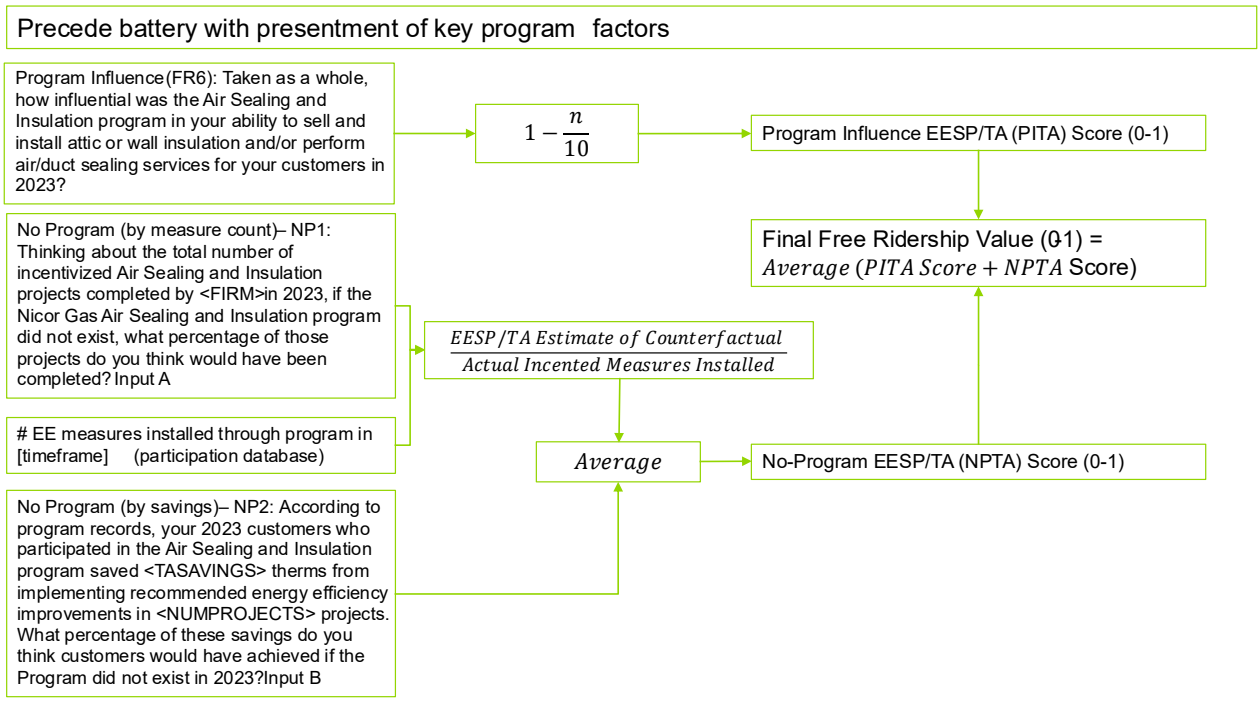


Source: Guidehouse. https://www.ilsag.info/wp-content/uploads/Guidehouse_SAG_Deviation-Memo-on-Residential-Freeridership-Protocol-2025-03-06.docx

2.3 Trade Ally Free Ridership Estimation

TRM does not specify an approach for measuring the trade ally perspective of participant FR. For this study, Guidehouse used the following method to assess participant FR from a trade ally perspective. This methodology is summarized in Figure 2 below.

Figure 2. Trade Ally Free Ridership Algorithm



Source: Guidehouse

3. Participant and Trade Ally Free Ridership Results

Using the protocols detailed above and data collected during the participant and trade ally surveys, Guidehouse calculated FR estimates for the program participants and trade allies. Table 3 below presents the FR estimates and the relative precision[6] of the estimates. Section 3.2 details the process of combining participant and trade ally FR estimates.

Table 3. Participant and Trade Ally Free Ridership Research Results

Population	Free Ridership	Relative Precision @90% CI
Sealing and Insulation Participant FR	0.34	0.054
Trade Ally FR	0.04	0.005

Source: Evaluation Team Analysis

3.1 Free Ridership Consistency Check Analysis

The evaluation team checked for consistency in free rider responses by asking respondents to describe in their own words any influence that the program had on their decision to participate in the program, or what they would have done if the program, and its technical assistance and financial incentives, did not exist (see Figure 1).

[6] The analysis estimates relative precision at the 90 percent confidence level by calculating the standard error of the NTGR mean and adjusting for the total population size.

The evaluation team applied the consistency check protocol specified for non-residential programs in TRM Volume 4, Section 3.1.1.1.5 which states that a program Influence/Counterfactual consistency check is triggered when either of the following conditions are met:

1) The Program Influence FR Score is greater than 0.7 AND the Counterfactual FR Score is less than 0.3.

OR

2) The Program Influence FR Score is less than 0.3 AND the Counterfactual FR Score is greater than 0.7.

For respondents who whose responses triggered consistency checks, the evaluation team reviewed their verbatim responses to determine the weight of the program influence against the counterfactual responses and timing adjustments to arrive at a free ridership score.

The evaluation team found no inconsistencies in the verbatim responses for the participants and so did not adjust scores for that calculation.

3.2 Combining Participant and Trade Ally Free Ridership

Guidehouse calculated a combined participant and trade ally FR estimate utilizing the triangulation approach outlined in TRM (Section 5.1 Volume 4). This approach rates the participant and trade ally survey data on three aspects: accuracy, validity, and representativeness, using a scale where 100% means "extremely so" and 0% means "not at all."

1. Accuracy: How likely is the approach to provide an accurate estimate of FR?
    a. We calculated the participant and trade ally portions based on a comparison of their relative precision (RP) values from the FR estimates.
    b. For this program, the Relative Precision (RP) from the participant surveys (0.339) was higher than that of the TA surveys (0.0038), indicating that the TA result was more precise. To base our Accuracy score on RP, we normalized and inverted the result using the equation below. This resulted in a weight of 8% for the participant data and 92% for the TA data.

$$Normalized\ Weight = 1 - (\frac{Participant\ or\ Trade\ Ally\ RP}{Participant\ RP + Trade\ Ally\ RP})$$

2. Validity: How valid are the data collected and the analysis? The evaluation team averaged quantitative and qualitative scoring for Validity.
    a. The quantitative score for participants and trade allies was based on the number of complete interviews relative to their total population. A total of 136 of the 2,955 participant projects completed surveys, resulting in a normalized score of 12% (refer to the formula below). In comparison, 6 out of 17 trade allies completed surveys, yielding a normalized score of 88%.

$$Normalized\ \%\ Weight = \frac{\%\ Complete\ for\ Participant\ or\ TradeAlly}{(\%\ Complete_{Participant} + \%\ Complete_{TradeAlly})}$$

b. The qualitative score reflects the nature of the surveys. Participant surveys ask project-specific questions and, thus, are likely to have lower recall bias. In contrast, TA surveys cover multiple projects over the year. Alone these factors would lead us to score participant validity higher than TA's. But because residential participants typically do not understand the market or all the ways the program brings home energy savings to them to the extent that TAs do, we rate TA validity at 60% and participant validity at 40%.
c. By averaging the quantitative and qualitative scores, the final Validity scores are 26% for participants and 74% for trade allies.

3. **Representativeness**: How representative is the sample?
   a. We assigned 38% weight to the participant portion and 62% weight to the trade ally portion, which is the normalized percentage of program savings represented by survey respondents.

Table 4. Free Ridership Triangulation Weighting Approach

Free Ridership Triangulation Data and Analysis	Participant	Trade Ally
How likely is this approach to provide an **accurate** estimate of free ridership?	8%	92%
How **valid** is the data collected/analysis?	26%	74%
How **representative** is the sample?	38%	62%
Average Score (Weight)	**24%**	**76%**

Source: Evaluation Team analysis

Applying these participant and trade ally weights to the FR estimates yields the blended FR estimates shown in the equation below.

$$\begin{aligned} Free\ Ridership &= (Participant\ FR) * (Participant\ Weight) + (TA\ FR) * (TA\ Weight) \\ &= 0.34 * 0.24 + 0.04 * 0.76 \\ &= 0.11 \end{aligned}$$

The evaluation team used this formula to combine the (0.34) participant free ridership with the (0.04) service provider free ridership to produce the combined weighted free ridership of 0.11.

4. Final NTG Results and Recommendations

The final NTG value is calculated as 1- free ridership + spillover[7], using averaged values from participants and savings weighted values from trade allies using the following formula:

$$\begin{aligned} NTG = 1 - [&(Participant\ FR * Participant\ Weight) + (TA\ FR * TA\ Weight)] \\ &+ Participant\ Spillover + TA\ Spillover \end{aligned}$$

[7] Except for measures where savings are calculated using a method based on a consumption data analysis using matching to non-participants, then NTG = 1 – FR/2 + NPSO. For more detail, see Table 5-3 in Volume 4 of the TRM.

The final components of the NTG are shown in Table 5. This memo does not address advanced thermostats or direct install measures. Those results can be found in the evaluation's 2023 memo on the IL SAG website[8].

Table 5. Summary of Free Ridership, Spillover and NTG Results

Program measures	Free Ridership	Participant Spillover	NTG Ratio*
All scenarios of air sealing plus attic insulation	0.11	0.45	0.95
Air sealing (without attic insulation), all insulation (excluding attic insulation), duct sealing, and pipe insulation	0.11	0.45	1.34

* For air sealing installed with attic insulation, the savings adjustment factor is based on a consumption data analysis using matching to non-participants. Considering the guidance of TRM Table 5.3, the evaluators recommend a NTG that is 1 minus 50% of the researched free ridership rate plus non-participant spillover.

Source: Evaluation team analysis

APPENDIX A. Home Energy Savings NTG History

	HOME ENERGY SAVINGS PROGRAM
GPY1	**Overall NTG** 0.86 **Overall Free ridership** 0.15 **Overall Spillover** 0.01 **Method:** Customer self-reports. 54 full-participant (direct install and weatherization measures) surveys completed from a population of 1,081 audits and 320 full-participants.
GPY2	**Overall NTG** 0.86 **Overall Free ridership** N/A **Overall Spillover** N/A **Method:** SAG deemed NTG ratio.
GPY3	**Overall NTG** 0.86 **Overall Free ridership** N/A **Overall Spillover** N/A **Method:** SAG deemed NTG ratio.
GPY4	**Overall NTG** 0.86 **Overall Free ridership** N/A **Overall Spillover** N/A **Method:** NTG values for GPY4 were deemed using values from GPY3 and reported in Table 14 of the Nicor Gas filed Energy Efficiency Plan for GPY4-GPY6.
GPY5	**Overall NTG** 1.05 **Overall Free ridership** 9% **Overall Spillover** 14%

[8] https://www.ilsag.info/wp-content/uploads/Nicor-Gas-Home-Energy-Savings-NTG-Memo-2023-09-27-Final.pdf

<table>
<tr><td></td><td>HOME ENERGY SAVINGS PROGRAM</td></tr>
<tr><td></td><td>Method: Documented in the GPY2 Home Energy Savings evaluation report. Free ridership values from GPY1 full-participant research, and updated spillover values based on GPY2 full participant (n=104) and assessment-only participant surveys (n=68). The evaluation also used trade ally free ridership and spillover feedback that was combined with participant results.</td></tr>
<tr><td>GPY6</td><td>Overall NTG 1.05
Overall Free ridership 9%
Overall Spillover 14%
Method: No change to values from GPY5. Program NTG value of 1.05 may be used for a Deep (comprehensive energy efficiency) Home Energy Assessment retrofit pilot/program.</td></tr>
<tr><td>2018 (GPY7)</td><td>All Measures Except Faucet Aerators:
NTG: 1.05 ; Free Ridership: 0.09 ; Participant Spillover: 0.14
Faucet Aerators:
NTG: 1.14 ; Free Ridership: 0.00 ; Participant Spillover: 0.14
Method: For measures except faucet aerators: No new research; retained GPY6 final value. As in GPY6, the program NTG value of 1.05 may be used for a Deep (comprehensive energy efficiency) Home Energy Assessment retrofit pilot/program. For faucet aerators: TRM version 6.0 specifies that the free ridership for faucet aerators be set at zero when estimating gross savings using the TRM specified baseline average water flow rate. Spillover value represents SAG Consensus for GPY6.</td></tr>
<tr><td>2019</td><td>Navigant provides measure-level NTG recommendations for CY2019 applying the findings of recent HES NTG research and TRM v7.0 specifications in the table below. The net-to-gross (NTG) surveys were fielded in Summer 2018. Navigant conducted telephone surveys with 100 GPY6 participants that participated in the program between June 2016 and July 2017 to assess spillover as well as 213 GPY6 and CY2018 participants that participated in the program between August 2017 and June 2018 to assess free ridership.
<table>
<tr><th>Program Path</th><th>Measure</th><th>FR</th><th>PSO</th><th>NTG</th><th>FR Source</th></tr>
<tr><td rowspan="8">Direct Install</td><td>Showerhead</td><td>0</td><td>0.07</td><td>1.07</td><td>1</td></tr>
<tr><td>Kitchen Aerator</td><td>0</td><td>0.07</td><td>1.07</td><td>1</td></tr>
<tr><td>Bathroom Aerator</td><td>0</td><td>0.07</td><td>1.07</td><td>1</td></tr>
<tr><td>Programmable Thermostat</td><td>0.26</td><td>0.07</td><td>0.81</td><td>3</td></tr>
<tr><td>Re-Programming Thermostat</td><td>0.22</td><td>0.07</td><td>0.85</td><td>5</td></tr>
<tr><td>Hot Water Pipe Insulation</td><td>0.08</td><td>0.07</td><td>0.99</td><td>3</td></tr>
<tr><td>Water Heater Temperature Setback</td><td>0.09</td><td>0.07</td><td>0.98</td><td>3</td></tr>
<tr><td rowspan="5">Weatherization</td><td>Air Sealing plus Attic Insulation</td><td>NA</td><td>NA</td><td>NA</td><td>2</td></tr>
<tr><td>Air Sealing without Attic Insulation</td><td>0.25</td><td>0.07</td><td>0.82</td><td>4</td></tr>
<tr><td>Wall Insulation</td><td>0.25</td><td>0.07</td><td>0.82</td><td>4</td></tr>
<tr><td>Basement/Sidewall Insulation</td><td>0.25</td><td>0.07</td><td>0.82</td><td>4</td></tr>
<tr><td>Duct Sealing</td><td>0.25</td><td>0.07</td><td>0.82</td><td>4</td></tr>
</table>
Source: The participant spillover value of 0.07 is from the HES spillover survey with 100</td></tr>
</table>

	HOME ENERGY SAVINGS PROGRAM
	GPY6 participants. The source and explanation for the measure-level free ridership values referenced in the table above are as follows: Free Ridership Sources 1. Illinois TRM version 7.0 specifies that faucet aerators and showerheads should have free ridership set at zero when estimating gross savings using the TRM specified baseline average water flow rate. Faucet aerators and showerheads may receive a spillover adjustment. 2. All scenarios of Air Sealing plus Attic Insulation installed in the same project (with or without additional measures installed in the same project) do not receive further free ridership or spillover adjustment. This applies only if the savings for natural gas heating are estimated using the Illinois TRM Version 7.0, Section 5.6.1 (Air Sealing) and Section 5.6.5 (Ceiling/Attic Insulation) adjustment factor of 72% that was derived from air sealing and insulation research. The 72% adjustment factor was derived from a gas consumption data regression analysis with an experimental design that does not require NTG adjustment. 3. Free ridership is based on a survey of GPY6 and CY2018 participants of the HES program that participated between August 2017 and June 2018. 4. There were too few responses for some of these measures to apply the results from the survey of GPY6 and CY2018 participants at a measure level. Instead, we combined the scores from the 40 weatherization responses (excluding attic insulation which is not installed on a single measure basis) and used the simple average to represent this group of measures. 5. There were too few responses for this measure to use the results from the survey of GPY6 and CY2018 participants of the HES program alone. ICC Staff suggestion with SAG consensus was combining the Nicor Gas (12 responses) and PG & NSG (21 responses) survey question results for the re-programming t-stat value (combined 33 responses average FR=0.34) and then take an average of those results and the water heater temp setback results (FR = 0.09) (SAG consensus). Final FR=0.22
2020	Navigant provides measure-level NTG recommendations for CY2020 applying the findings of recent NTG research and TRM v8.0 specifications in the table below.

HOME ENERGY SAVINGS PROGRAM

Program Path	Measure	FR	PSO	NTG	FR Source
Direct Install	Showerhead	0	0.07	1.07	1
	Kitchen Aerator	0	0.07	1.07	1
	Bathroom Aerator	0	0.07	1.07	1
	Programmable Thermostat	0.26	0.07	0.81	3
	Re-Programming Thermostat	0.22	0.07	0.85	5
	Hot Water Pipe Insulation	0.08	0.07	0.99	3
	Water Heater Temperature Setback	0.09	0.07	0.98	3
Weatherization	Air Sealing plus adding Attic Insulation	NA	NA	NA	2
	Air Sealing without adding Attic Insulation	0.24	0.07	0.83	4
	Wall, Basement Sidewall, Floor Above Crawlspace, Rim/Band Joist	0.22	0.07	0.85	4
	Duct Sealing	0.14	0.07	0.93	4

Source: The participant spillover value of 0.07 is from the HES spillover survey Navigant conducted with 100 GPY6 participants that participated in the program between June 2016 and July 2017. The source and explanation for the measure-level free ridership values referenced in the table above are as follows:

Free Ridership Sources

1. Illinois TRM version 8.0 specifies that faucet aerators and showerheads should have free ridership set at zero when estimating gross savings using the Residential Section of the TRM specified baseline average water flow rate. Faucet aerators and showerheads may receive a spillover adjustment.
2. All scenarios of Air Sealing plus added Attic Insulation installed in the same project (whether or not additional measures are installed in the same project) do not receive further free ridership or spillover adjustment. This applies only if the savings for natural gas heating are estimated using the Illinois TRM Version 8.0, Section 5.6.1 (Air Sealing) and Section 5.6.5 (Ceiling/Attic Insulation) adjustment factor of 72% that was derived from air sealing and insulation research. The 72% adjustment factor was derived from a gas consumption data regression analysis with an experimental design that does not require NTG adjustment.
3. Free ridership is based on a survey of GPY6 and CY2018 participants of the HES program that participated between August 2017 and June 2018.
4. Navigant research of free ridership from a telephone survey administered to ComEd EPY9/GPY6 and CY2018 Weatherization Rebates Program participants that were joint with PGL, NSG and Nicor Gas. Navigant conducted the net-to-gross (NTG) research in Fall 2018 with EPY9/GPY6 and CY2018 participants and in Spring 2019 with only CY2018 duct sealing participants. Analyzed completes: Attic Insulation (61), Air Sealing (68), Duct Sealing (79). Wall insulation FR is a weighted average value, applied to other insulation measures. Survey was fuel neutral and used TRM v7.0 protocols. Navigant recommended updating older gas research with these newer joint values, described in Navigant memo to ComEd July 19, 2019.

<table>
<tr><td></td><td>HOME ENERGY SAVINGS PROGRAM</td></tr>
<tr><td></td><td>5. There were too few responses for this measure to use the results from the survey of GPY6 and CY2018 participants of the HES program alone. ICC Staff suggestion with SAG consensus was combining the Nicor Gas (12 responses) and PG & NSG (21 responses) survey question results for the re-programming t-stat value (combined 33 responses average FR=0.34), and then take an average of those results and the water heater temp setback results (FR = 0.09) (SAG consensus). Final FR=0.22</td></tr>
<tr><td>2021, 2022, 2023</td><td>Guidehouse provides measure-level NTG recommendations for CY2021 applying the findings of recent NTG research and TRM v8.0 specifications in the table below.
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<tr><td rowspan="4">Weatherization</td><td>Air Sealing (A) plus adding Attic Insulation (B)</td><td>0.12 (A)
0.11 (B)</td><td>0</td><td>0.88 (A)
0.89 (B)</td><td>2</td></tr>
<tr><td>Air Sealing without adding Attic Insulation</td><td>0.24</td><td>0.07</td><td>0.83</td><td>4</td></tr>
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Source: The participant spillover value of 0.07 is from the HES spillover survey Navigant conducted with 100 GPY6 participants that participated in the program between June 2016 and July 2017. The source and explanation for the measure-level free ridership values referenced in the table above are as follows:

<u>Free Ridership Sources</u>
1. The IL TRM specifies that the free ridership for showerheads and aerators be set at zero when estimating gross savings using a baseline average flow rate that includes the effect of existing low flow fixtures. Faucet aerators and showerheads may receive a spillover adjustment.
2. Applies only in scenarios where air sealing and attic insulation are installed at the same time, and only if the savings for natural gas heating are estimated using the Illinois TRM, Section 5.6.1 (Air Sealing) and Section 5.6.5 (Ceiling/Attic Insulation) adjustment factor of 72% that was derived from air sealing and insulation research by Navigant (2018). The savings adjustment factor is based on a consumption data analysis using matching to non-participants. The values are therefore between net and gross with respect to free ridership. Like all consumption data analyses, they are net with respect to participant spillover and gross with respect to non-participant spillover. For more detail, see Table 5- 3 in Volume 4 of the IL-TRM. Consistent with Section 7.2 of the Illinois EE</td></tr>
</table>

	HOME ENERGY SAVINGS PROGRAM
	Policy Manual, applicable net-to-gross adjustments to the savings will be determined as part of the annual SAG net-to-gross process. Considering the guidance of TRM Table 5.3, the evaluators recommend a NTG that is 1 minus 50% of the researched free ridership rate plus non-participant spillover. 3. Free ridership is based on a survey of GPY6 and CY2018 participants of the HES program that participated between August 2017 and June 2018. 4. Navigant research of free ridership from a telephone survey administered to ComEd EPY9/GPY6 and CY2018 Weatherization Rebates Program participants that were joint with PGL, NSG and Nicor Gas. Navigant conducted the net-to-gross (NTG) research in Fall 2018 with EPY9/GPY6 and CY2018 participants and in Spring 2019 with only CY2018 duct sealing participants. Analyzed completes: Attic Insulation (61), Air Sealing (68), Duct Sealing (79). Wall insulation FR is a weighted average value, applied to other insulation measures. Survey was fuel neutral and used TRM v7.0 protocols. Navigant recommended updating older gas research with these newer joint values, described in Navigant memo to ComEd July 19, 2019. 5. There were too few responses for this measure to use the results from the survey of GPY6 and CY2018 participants of the HES program alone. ICC Staff suggestion with SAG consensus was combining the Nicor Gas (12 responses) and PG & NSG (21 responses) survey question results for the re-programming t-stat value (combined 33 responses average FR=0.34) and then take an average of those results and the water heater temp setback results (FR = 0.09) (SAG consensus). Final FR=0.22 **Leave-Behind Kit.** NTG=0.99: Leave Behind Kits are a new offering of self-install measures. Evaluator recommendation is a free ridership of 0.08 for those measures, matching the findings for pipe insulation, and a program-level spillover value of 0.07. **Advanced thermostats.** NTG=0.90: Evaluator recommendation for all non-income eligible programs.

HOME ENERGY SAVINGS PROGRAM

2024

Program/Path/Measures	Free Ridership (FR)	Participant Spillover (PSO)	2024 NTG Value	Gas Source(s) and Discussion
	Final 2024 NTG Values			
HES Direct Install - Showerheads	0.00	0.17	1.17	The IL TRM specifies that the free ridership for showerheads be set at zero when estimating gross savings using a baseline average flow rate that includes the effect of existing low flow fixtures. PSO: Participant spillover based on Guidehoue 2023 survey with customers who participated between April 2021 and September 2022. Guidehoue memo: Nicor Gas Home Energy Savings NTG Memo 2023-08-24.
HES Direct Install Advanced Thermostat	0.08		0.96	Guidehoue recommends NTG = 1 - FR/2 + NPSO for residential advanced thermostats. Here FR is based on Guidehoue research conducted in 2023 with Nicor Gas customers who participated in HES between Q2 2022 and Q1 2023. Guidehoue memo: Nicor Gas Advanced Thermostat FR Memo 2023-08-15. (Note that savings achieved by advanced thermostats are included when calculating residential non-participant spillover with the 1.048 multiplier,
HES Direct- and Virtual/Self- Install Programmable Thermostat, Thermostat Education, Hot Water Pipe Insulation, Weatherstripping, Door Sweep (includes Leave-Behind Kit)	0.10	0.17	1.07	Recommendations for free ridership based on Guidehouse research conducted in 2023 with Nicor Gas customers who participated in HES between October 2022 and March 2023.. Participant spillover based on Guidehoue 2023 survey with customers who participated between April 2021 and September 2022. Guidehoue memo: Nicor Gas Home Energy Savings NTG Memo 2023-08-24..
All scenarios of Air Sealing plus added Attic Insulation Installed in the Same Project (whether or not additional measures are installed in the same project)			0.88 Air Sealing 0.89 Attic Insul.	Applies only in scenarios where air sealing and attic insulation are installed at the same time, and only if the savings for natural gas heating are estimated using the Illinois TRM, Section 5.6.1 (Air Sealing) and Section 5.6.5 (Ceiling/Attic Insulation) adjustment factor of 72% that was derived from air sealing and insulation research by Navigant (2018). See Navigant (2018) ComEd and Nicor Gas Air Sealing and Insulation Research Report. The savings adjustment factor is based on a consumption data analysis using matching to non-participants. The values are therefore between net and gross with respect to free ridership. Like all consumption data analyses, they are net with respect to participant spillover and gross with respect to non-participant spillover. For more detail, see Table 5-3 in Volume 4 of the IL-TRM. Consistent with Section 7.2 of the Illinois EE Policy Manual, applicable net-to-gross adjustments to the savings will be determined as part of the annual SAG net-to-gross process. Considering the guidance of TRM Table 5.3, the evaluators recommend a NTG that is 1 minus 50% of the researched free ridership rate plus non-participant spillover.
Air Sealing (conducted without adding Attic Insulation)	0.24	0.17	0.93	FR: Navigant research of free ridership from a telephone survey administered to ComEd EPY9/GPY6 and CY2018 Weatherization Rebates Program participants that were joint with PGL, NSG and Nicor Gas. Navigant conducted the net-to-gross (NTG) research in Fall 2018 with EPY9/GPY6 and CY2018 participants and in Spring 2019 with only CY2018 duct sealing participants. Analyzed completes: Attic Insulation (61), Air Sealing (68), Duct Sealing (79). Wall insulation FR is a weighted average value. Survey was fuel neutral and used TRM v7.0 protocols. Navigant recommended updating older gas research with these newer joint values, described in Navigant memo to ComEd July 19, 2019.
Insulation measures, excluding ceiling/attic insulation, including Wall, Floor Above Crawlspace, Basement Sidewall; Rim/Band Joist	0.22	0.17	0.95	
Duct Sealing	0.14	0.17	1.03	

2025

Program/Path/Measures	Free Ridership (FR)	Participant Spillover (PSO)	2025 NTG Value	Gas Source(s) and Discussion
	Final 2025 NTG Values			
HES Direct Install - Showerheads	0.00	0.45	1.45	The IL TRM specifies that the free ridership for residential aerators and residential high efficiency showerheads be set at zero when estimating gross savings using a baseline average flow rate that includes the effect of existing low flow fixtures. PSO: Participant spillover based on Guidehouse 2024 survey with customers who participated in the program in 2022 and trade allies who achieved program savings in 2022-3.
HES Direct Install Advanced Thermostat	0.08	NA	0.96	Guidehouse recommends NTG = 1 - FR/2 + NPSO for residential advanced thermostats. Here FR is based on Guidehouse research conducted in 2023 with Nicor Gas customers who participated in HES between Q2 2022 and Q1 2023. Guidehoue memo: Nicor Gas Advanced Thermostat FR Memo 2023-08-15. (Note that savings achieved by advanced thermostats are included when calculating residential non-participant spillover with the 1.048 multiplier, described below.)
HES Direct- and Virtual/Self- Install Programmable Thermostat, Thermostat Education, Hot Water Pipe Insulation, Weatherstripping, Door Sweep (includes Leave-Behind Kit)	0.10	0.45	1.35	Recommendations for free ridership based on Guidehouse research conducted in 2023 with Nicor Gas customers who participated in HES between October 2022 and March 2023 PSO: Participant spillover based on Guidehouse 2024 survey with customers who participated in the program in 2022 and trade allies who achieved program savings in 2022-3.
HES All scenarios of Air Sealing plus added Attic Insulation Installed in the Same Project (whether or not additional measures are installed in the same project)	NA	NA	0.88 Air Sealing 0.89 Attic Insul.	Applies only in scenarios where air sealing and attic insulation are installed at the same time, and only if the savings for natural gas heating are estimated using the Illinois TRM, Section 5.6.1 (Air Sealing) and Section 5.6.5 (Ceiling/Attic Insulation) adjustment factor of 72% that was derived from air sealing and insulation research by Navigant (2018). See Navigant (2018) ComEd and Nicor Gas Air Sealing and Insulation Research Report. The savings adjustment factor is based on a consumption data analysis using matching to non-participants. The values are therefore between net and gross with respect to free ridership. Like all consumption data analyses, they are net with respect to participant spillover and gross with respect to non-participant spillover. For more detail, see Table 5-3 in Volume 4 of the IL-TRM. Consistent with Section 7.2 of the Illinois EE Policy Manual, applicable net-to-gross adjustments to the savings will be determined as part of the annual SAG net-to-gross process. Considering the guidance of TRM Table 5.3, the evaluators recommend a NTG that is 1 minus 50% of the researched free ridership rate plus non-participant spillover.
HES Air Sealing (conducted without adding Attic Insulation)	0.24	0.45	1.21	FR: Navigant research of free ridership from a telephone survey administered to ComEd EPY9/GPY6 and CY2018 Weatherization Rebates Program participants that were joint with PGL, NSG and Nicor Gas. Navigant conducted the net-to-gross (NTG) research in Fall 2018 with EPY9/GPY6 and CY2018 participants and in Spring 2019 with only CY2018 duct sealing participants. Analyzed completes: Attic Insulation (61), Air Sealing (68), Duct Sealing (79). Wall insulation FR is a weighted average value. Survey was fuel neutral and used TRM v7.0 protocols. Navigant recommended updating older gas research with these newer joint values, described in Navigant memo to ComEd July 19, 2019. PSO: Participant spillover based on Guidehouse 2024 survey with customers who participated in the program in 2022 and trade allies who achieved program savings in 2022-3.
HES Insulation measures, excluding ceiling/attic insulation, including Wall, Floor Above Crawlspace, Basement Sidewall; Rim/Band Joist	0.22	0.45	1.23	
HES Duct Sealing	0.14	0.45	1.31	

Source: Final Evaluation Reports - Illinois Energy Efficiency Stakeholder Advisory Group Illinois Energy Efficiency Stakeholder Advisory Group (ilsag.info)