

**Nicor Gas Energy Efficiency Programs**  
**History of NTG Values for GPY1 through 2021**  
**Updated to include NTG Values for 2022**  
**September 30, 2021**

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	<b>Income Qualified Programs</b>
2019	<b>NTG:</b> 1.00 <b>Method:</b> NTG values for all Income Qualified programs are 1.00.
2020	<b>NTG:</b> 1.00 <b>Method:</b> NTG values for all Income Qualified programs are 1.00.
2021, 2022	<b>NTG:</b> 1.00 <b>Method:</b> NTG values for all Income Qualified programs are 1.00. The NTG value for Advanced Thermostats in Income Eligible programs is 1.00.

	<b>Advanced (Smart) Thermostats</b>
GPY6	<b>NTG</b> Not Applicable <b>Method:</b> Research for TRM Version 5.0 savings value was conducted as a large sample regression analysis of energy use data with a control group. Natural gas savings shown in TRM Version 5.0 Section 5.3.16 are net savings; no additional NTG adjustment is applied.
2018 (GPY7)	<b>NTG:</b> Not Applicable <b>Method:</b> No new research. The natural gas heating savings shown in Illinois TRM Version 6.0 Section 5.3.16 is based on regression analysis on energy use data and thus is a net savings number; no additional NTG adjustment is applied.
2019	<b>NTG:</b> Not Applicable <b>Method:</b> No new research. The savings for natural gas heating provided in Illinois TRM Version 7.0, Section 5.3.16 were derived from a billing regression analysis with an experimental design that does not require further net savings adjustment.
2020	<b>NTG:</b> None Applied <b>Method:</b> No new research. The savings for natural gas heating provided in Illinois TRM Version 8.0, Section 5.3.16 were derived from a consumption data analysis using matching to non-participants.
2021, 2022	<b>NTG: 0.90</b> <b>Method:</b> The heating savings factor for residential advanced thermostats 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 of 0.90 in all non-income-eligible programs where this measure is offered.

	<b>Home Energy Efficiency Rebate</b>
GPY1	<p>NTG 0.69  <b>Free-ridership</b> 37%  <b>Spillover</b> 6%  <b>Method:</b> Evaluation research consisting of customer self-report data from 74 program participants and 53 participating trade allies.</p>
GPY2	<p>NTG 0.69  <b>Free-ridership</b> 37%  <b>Spillover</b> 6%  <b>Method:</b> SAG deemed based on GPY1 research.</p>
GPY3	<p>NTG 0.79  <b>Free-ridership</b> 37%  <b>Spillover</b> 16%  <b>Method:</b> SAG deemed based on GPY1 research and spillover adjustment of 0.10.</p>
GPY4	<p>NTG 0.79  <b>Free-ridership</b> 37%  <b>Spillover</b> 16%  <b>Method:</b> 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.</p>
GPY5	<p>NTG 0.79  <b>Free-ridership</b> 37%  <b>Spillover</b> 16%  <b>Method:</b> No new research. Values based on GPY1 (free-ridership and spillover) and GPY3 (spillover adder).</p>
GPY6	<p>NTG 0.79  <b>Free-ridership</b> 37%  <b>Spillover</b> 16%  <b>Method:</b> No new research. Values based on GPY1 (free-ridership and spillover) and GPY3 (spillover adder). Program NTG value of 0.79 may be used for an "HVAC Saves" furnace quality installation pilot/program.</p>
2018 (GPY7)	<p><b>Home Energy Efficiency Rebates (all measures, excluding Duct Sealing, Air Sealing, and Insulation Measures)</b>  <b>NTG:</b> 0.68  This NTG value is not recommended for air sealing, insulation, or duct sealing.  <b>Free ridership:</b> 0.45  <b>Method:</b> Value is from GPY5 evaluation telephone survey research conducted with 100 GPY4 HEER Program participants. The FR result is based on applying TRM v6.0 NTG methodologies. The overall program FR value uses GPY4 HEER Program verified gross savings to weight measure category free ridership: AFUE 95 (FR=0.40, weight=69%); AFUE 97 (FR=0.44, weight=14%); other measures in survey (FR is not based on enough responses to report statistically significant results at the measure level, weight = 17%). Program measures that were not researched were assigned the overall FR average.</p> <p>Navigant described our concerns with the TRM v5.0 NTG algorithm and offered an alternative approach in an August 23, 2016 memo. Our alternative was not adopted for TRM v6.0, but the approach that did make it into TRM v6.0 addresses what we believed were weaknesses of TRM v5.0 and produces results similar to our August 23</p>

## Home Energy Efficiency Rebate

recommended alternative. Navigant recommends the algorithm in TRM v6.0 over the algorithm in TRM v5.0 to estimate free ridership for residential prescriptive rebate programs. A Navigant memo dated December 22, 2016 provides further discussion.

### **Participant Spillover: 0.02**

**Method:** The PSO value is from GPY5 evaluation telephone survey research conducted with 100 GPY4 HEER Program participants. The PSO result is based on applying the TRM v5.0 methodologies to identify spillover candidates, and estimating spillover savings using the Illinois TRM and Nicor Gas program data from GPY4. The TRM version 6.0 participant spillover methodology advises using a lower, more inclusive spillover threshold score of 5.0 rather than 7.0. Navigant re-examined our survey responses applying a threshold of 5.0, but no additional gas spillover was found. A Navigant memo dated December 16, 2016 provides further discussion.

### **Non-Participant Spillover: 0.11**

**Method:** Non-participant spillover value for 2018 (GPY7) is based on GPY2 evaluation research conducted for Peoples Gas (PGL) and North Shore Gas (NSG) to estimate spillover from non-participating trade allies. For statewide consistency, the methodology and survey instrument were derived from evaluation research completed for Ameren Illinois by Cadmus. For the spillover calculation, 59 interviews were conducted sampled from two groups of non-participating trade allies: 1) Trade allies that dropped out of the PGL or NSG program (so-called “drop out” trade allies): those who had participated in GPY1, but did not participate in GPY2; and 2) True non-participating trade allies - those who reported that they were aware of the PGL and NSG program, but had never participated. The value of 0.11 is a weighted average of 0.10 for Peoples Gas and 0.13 for NSG.

Navigant recommends the NPSO value from GPY2 PGL & NSG research rather than the GPY1 Nicor Gas research value of 0.06 for these reasons: 1) the GPY2 methodology was consistent with evaluation research conducted for Ameren Illinois, 2) the GPY2 sample was slightly larger, and it was observed that trade allies overlap utility service territories, 3) GPY2 is the more recent study, and 4) it is logical that non-participants after the second program year better represent future non-participants than research conducted on a first-year population of a program ramping up.

### **Home Energy Efficiency Rebates (all measures, excluding Programmable Thermostats, Duct Sealing, Air Sealing, and Insulation Measures)**

**NTG: 0.72**

### **Free ridership: 0.41**

**Method:** Value is from GPY5 evaluation telephone survey research conducted with 100 GPY4 HEER Program participants. The FR result is based on applying TRM v6.0 NTG methodologies. The FR value shown excludes programmable thermostats from the NTG weighting. Results and weighting for furnaces: AFUE 95 (FR=0.40, wgt: 83%); AFUE 97 (FR=0.44, wgt: 17%). This NTG value may be used for an overall program NTG for measures excluding programmable thermostats, air sealing, insulation, and duct sealing (that is, for furnaces, boilers, tankless water heaters, and other space heating and water heating equipment).

**Participant Spillover: 0.02** (described above)

	<p><b>Home Energy Efficiency Rebate</b></p>
	<p><b>Non-Participant Spillover:</b> 0.11 (described above)</p> <p><b>For Duct Sealing, Air Sealing, and Insulation</b>  <b>NTG:</b> 0.90  <b>Free ridership:</b> 0.10  <b>Spillover:</b> 0.00  <b>Method:</b> The free ridership value was taken from the "Home Energy Savings Program GPY2/EPY5 Evaluation Report" prepared for Nicor Gas and ComEd (Navigant, 3/25/2014). Results for Nicor Gas for the weatherization component were: FR=0.10. No recommendation was made for spillover.</p> <p>Navigant concludes the researched overall HEER Program NTG (either 0.68 or 0.72) is not reasonable for duct sealing, air sealing, and insulation. Duct sealing, air sealing, and insulation FR and PSO research is planned for Peoples Gas and North Shore Gas for the first half of 2017. Navigant may recommend updated free ridership and spillover values using data from the PGL &amp; NSG Home Energy Rebate Program survey planned for the first half of 2017 if results are final prior to May 30, 2017.</p>
2019	<p><b>Home Energy Eff Rebates - HEER</b>  <b>NTG value IF Basic Programmable thermostats <u>are included</u> in rebates offered (excludes advanced thermostats)</b>  <b>NTG:</b> 0.68  <b>Method:</b> No new research. Value retained from 2018 (GPY7). FR (Nicor Gas EM&amp;V GPY5, 12/22/16 Navigant memo) &amp; PSO (Nicor Gas EM&amp;V GPY5, 12/16/16 Navigant memo); NPSO (PG &amp; NSG GPY2). This NTG value does not cover air sealing, duct sealing, and insulation measures if rebated through the HEER Program.</p> <p><b>Home Energy Eff Rebates - HEER</b>  <b>NTG value IF Basic Programmable thermostats <u>are NOT included</u> in rebates offered (excludes advanced thermostats)</b>  <b>NTG:</b> 0.72  <b>Method:</b> No new research. Value retained from 2018 (GPY7). FR (Nicor Gas EM&amp;V GPY5, 12/22/16 Navigant memo) &amp; PSO (Nicor Gas EM&amp;V GPY5, 12/16/16 Navigant memo); NPSO (PG &amp; NSG GPY2). This NTG represents the program if Nicor Gas removes basic programmable thermostats from the rebate offerings. This NTG value does not cover air sealing, duct sealing, and insulation measures if rebated through the HEER Program.</p>

	<b>Home Energy Efficiency Rebate</b>
2020	<p><b>Home Energy Eff Rebates - HEER</b>  <b>NTG value IF Basic Programmable thermostats <u>are included</u> in rebates offered (excludes advanced thermostats)</b>            NTG: 0.68  <b>Method:</b> No new research. Value retained from 2018 (GPY7). FR (Nicor Gas EM&amp;V GPY5, 12/22/16 Navigant memo) &amp; PSO (Nicor Gas EM&amp;V GPY5, 12/16/16 Navigant memo); NPSO (PG &amp; NSG GPY2). This NTG value does not cover air sealing, duct sealing, and insulation measures if rebated through the HEER Program.</p> <p><b>Home Energy Eff Rebates - HEER</b>  <b>NTG value IF Basic Programmable thermostats <u>are NOT included</u> in rebates offered (excludes advanced thermostats)</b>            NTG: 0.72  <b>Method:</b> No new research. Value retained from 2018 (GPY7). FR (Nicor Gas EM&amp;V GPY5, 12/22/16 Navigant memo) &amp; PSO (Nicor Gas EM&amp;V GPY5, 12/16/16 Navigant memo); NPSO (PG &amp; NSG GPY2). This NTG represents the program if Nicor Gas removes basic programmable thermostats from the rebate offerings. This NTG value does not cover air sealing, duct sealing, and insulation measures if rebated through the HEER Program.</p>

	<b>Home Energy Efficiency Rebate</b>
2021, 2022	<p><b>Home Energy Eff Rebates – HEER</b></p> <p><b>For Furnaces &gt;95 AFUE, All Boilers, and Other HVAC Equipment</b>  NTG: 0.84  Free ridership: 0.29</p> <p><b>For Furnaces 97+ AFUE</b>  NTG: 0.86  Free ridership: 0.27</p> <p><b>For All Furnaces, Boilers, and Other HVAC Equipment:</b>  Participant Spillover: 0.00  Active Trade Ally Non-Participant Spillover: 0.02  Inactive Trade Ally Non-Participant Spillover: 0.11 (PG &amp; NSG GPY2).</p> <p><b>Free Ridership Method.</b> AFUE &gt;95: New research online (274 analyzed completes) and telephone (57 analyzed completes) survey of 2019 participants. AFUE 97+: New research online (33 analyzed completes) and telephone (12 analyzed completes) survey of 2019 participants. New research telephone survey of 2019 active trade allies (82 analyzed completes). AFUE &gt;95 weighted 47.5% Participants (0.35) and trade allies 52.5% (0.24). AFUE 97+ weighted 46.2% Participants (0.31) and trade allies 53.8% (0.24).</p> <p><b>Participant Spillover Method:</b> New research, telephone survey of 2018 and 2019 participants (100). <b>Active Trade Ally Spillover Method:</b> New research telephone survey of 2019 active trade allies (95 analyzed completes).</p> <p><b>Other HVAC Equipment:</b> 2019 Savings weighted average of furnaces: AFUE &gt;95 (90%) and AFUE 97+ (9%) furnaces, which together comprise 99% of program 2019 HVAC Equipment savings.</p> <p><b>Advanced thermostats.</b> NTG=0.90: Evaluator recommendation for all non-income eligible programs.</p>

	<b>Home Energy Savings</b>
GPY1	<p><b>Overall NTG</b> 0.86  <b>Overall Free ridership</b> 0.15  <b>Overall Spillover</b> 0.01  <b>Method:</b> Customer self-reports. 54 full-participant (direct install and weatherization measures) surveys completed from a population of 1,081 audits and 320 full-participants.</p>
GPY2	<p><b>NTG</b> 0.86  <b>Free ridership</b> N/A  <b>Spillover</b> N/A  <b>Method:</b> SAG deemed NTG ratio.</p>
GPY3	<p><b>NTG</b> 0.86  <b>Free ridership</b> N/A  <b>Spillover</b> N/A  <b>Method:</b> SAG deemed NTG ratio.</p>
GPY4	<p><b>NTG</b> 0.86  <b>Free ridership</b> N/A  <b>Spillover</b> N/A  <b>Method:</b> 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.</p>
GPY5	<p><b>NTG</b> 1.05  <b>Free ridership</b> 9%  <b>Spillover</b> 14%  <b>Method:</b> 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.</p>
GPY6	<p><b>NTG</b> 1.05  <b>Free ridership</b> 9%  <b>Spillover</b> 14%  <b>Method:</b> 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.</p>
2018 (GPY7)	<p><b>All Measures Except Faucet Aerators:</b>  <b>NTG:</b> 1.05 ; <b>Free Ridership:</b> 0.09 ; <b>Participant Spillover:</b> 0.14  <b>Faucet Aerators:</b>  <b>NTG:</b> 1.14 ; <b>Free Ridership:</b> 0.00 ; <b>Participant Spillover:</b> 0.14  <b>Method:</b> 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.</p>
2019	<p>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</p>



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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.

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 Attic Insulation	NA	NA	NA	2
	Air Sealing without Attic Insulation	0.25	0.07	0.82	4
	Wall Insulation	0.25	0.07	0.82	4
	Basement/Sidewall Insulation	0.25	0.07	0.82	4
	Duct Sealing	0.25	0.07	0.82	4

Source: The participant spillover value of 0.07 is from the HES spillover survey with 100 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

## Home Energy Savings

installed on a single measure basis) and used the simple average to represent this group of measures.

- 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.

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

- 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.
- 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

	<p><b>Home Energy Savings</b></p>
	<p>(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.</p> <ol style="list-style-type: none"> <li>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.</li> <li>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.</li> <li>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 &amp; 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</li> </ol>
<p>2021, 2022</p>	<p>Guidehouse provides measure-level NTG recommendations for CY2021 applying the findings of recent NTG research and TRM v8.0 specifications in the table below.</p>

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 Temp Setback	0.09	0.07	0.98	3
Weatherization	Air Sealing (A) plus adding Attic Insulation (B)	0.12 (A) 0.11 (B)	0	0.88 (A) 0.89 (B)	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. 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 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.

	<b>Home Energy Savings</b>
	<p>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.</p> <p>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 &amp; 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</p> <p><b>Leave-Behind Kit.</b> 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.</p> <p><b>Advanced thermostats.</b> NTG=0.90: Evaluator recommendation for all non-income eligible programs.</p>

	<b>energySMART Energy Saving Kits</b>
GPY1	<b>Launched in GPY3</b>
GPY2	<b>Launched in GPY3</b>
GPY3	<b>NTG 0.84</b> <b>Free ridership 16%; Spillover 0%</b> <b>Method:</b> GPY3 program participant self-report data, drawn from analysis of 75 interviews.
GPY4	<b>NTG 0.84</b> <b>Free ridership 16%; Spillover 0%</b> <b>Method:</b> NTG values for GPY4 were deemed and reported in Table 14 of the Nicor Gas filed Energy Efficiency Plan for GPY4-GPY6.
GPY5	<b>NTG 0.84</b> <b>Free ridership 16%; Spillover 0%</b> <b>Method:</b> GPY3 program participant self-report data, drawn from analysis of 75 interviews.
GPY6	<b>NTG 0.84</b> <b>Free ridership 16%; Spillover 0%</b> <b>Method:</b> No change to values from GPY5.
2018 (GPY7)	<b>All Measures Except Faucet Aerators:</b> <b>NTG: 0.84 ; Free Ridership: 0.16 ; Participant Spillover: 0.00</b> <b>Faucet Aerators:</b> <b>NTG: 1.00 ; Free Ridership: 0.00 ; Participant Spillover: 0.00</b>

	<b>energySMART Energy Saving Kits</b>
	<p><b>Method:</b> For measures except faucet aerators: No new research; Retained GPY6 final value. 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.</p>
2019	<p><b>All Measures Except Faucet Aerators and Showerheads:</b>  <b>NTG: 0.84 ; Free Ridership: 0.16 ; Participant Spillover: 0.00</b></p> <p><b>Faucet Aerators and Showerheads:</b>  <b>NTG: 1.00 ; Free Ridership: 0.00 ; Participant Spillover: 0.00</b></p> <p><b>Method:</b> For measures except faucet aerators and showerheads: No new research; Retained GPY7 final value. For faucet aerators and showerheads: TRM version 7.0 specifies that the free ridership for faucet aerators and showerheads be set at zero when estimating gross savings using the TRM specified baseline average water flow rate.</p>
2020	<p><b>All Measures Except Faucet Aerators and Showerheads:</b>  <b>NTG: 0.84 ; Free Ridership: 0.16 ; Participant Spillover: 0.00</b></p> <p><b>Faucet Aerators and Showerheads:</b>  <b>NTG: 1.00 ; Free Ridership: 0.00 ; Participant Spillover: 0.00</b></p> <p><b>Method:</b> No new research.</p> <p><u>For all measures except faucet aerators and showerheads:</u> No new research; Retained 2019 final value. NTG applies to weatherization measures distributed through this delivery method.</p> <p><u>For faucet aerators and showerheads:</u> TRM version 8.0 specifies that the free ridership for faucet aerators and showerheads be set at zero when estimating gross savings using the Residential Section of the TRM specified baseline average water flow rate.</p>

<b>energySMART Energy Saving Kits</b>	
2021	<p><b>Weatherization Measures :</b>  <b>NTG: 0.84 ; Free Ridership: 0.16 ; Participant Spillover: 0.00</b></p> <p><b>Water Saving Measures:</b>  <b>NTG: 1.00 ; Free Ridership: 0.00 ; Participant Spillover: 0.00</b></p> <p><b>Method:</b> No new research.</p> <p><u>Weatherization Measures:</u> NTG of 0.84 applies to weatherization measures distributed through this delivery method.</p> <p><u>For Water Saving Measures:</u> 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. Consistent with EEE, Guidehouse recommends that shower timers (which account for a very small portion of the program) also be assigned a NTG of 1.00.</p>
2022	<p><b>Weatherization Measures :</b>  <b>NTG: 0.91 ; Free Ridership: 0.19 ; Participant Spillover: 0.10</b></p> <p><b>Water Saving Measures:</b>  <b>NTG: 1.10 ; Free Ridership: 0.00 ; Participant Spillover: 0.10</b></p> <p><b>Method:</b></p> <p><u>Weatherization Measures:</u> NTG of 0.91 applies to weatherization measures distributed through this delivery method. FR (Guidehouse Survey conducted in 2021): Participant free ridership reported by 353 (C/I: 90/2) complete responses passing consistency checks from 746 respondents to an online survey sent/received June/July/August 2021 to 6,000 weatherization kit participants from 8/1/2020 through 2/28/2021.</p> <p>PSO (Guidehouse survey conducted in 2021) Participant spillover reported by 195 respondents that passed all TRM v9 screening criteria from 1610 respondents to an online survey sent/received June/July/August 2021 to 29,311 participants from 9/1/2019 through 3/31/2020. NPSO (no value).</p> <p><u>For Water Saving Measures:</u> 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. Consistent with EEE, Guidehouse recommends that shower timers (which account for a very small portion of the program) also be assigned a free ridership of 0.00. PSO (Guidehouse survey conducted in 2021) Participant spillover reported by 195 respondents that passed all TRM v9 screening criteria from 1610 respondents to an online survey sent/received June/July/August 2021 to 29,311 participants from 9/1/2019 through 3/31/2020. NPSO (no value).</p>

	<b>Elementary Energy Education</b>
GPY1	<p>NTG 0.68 - 0.96 (varies by measure and participant group)  <b>Free ridership</b> 0.18-0.53  <b>Spillover</b> 0.07-0.19  <b>Method:</b> Customer self-report, 223 surveys completed from a population of 9,972.</p>
GPY2	<p>NTG 0.79  <b>Free ridership</b> N/A; <b>Spillover</b> N/A  <b>Method:</b> SAG deemed NTG ratio</p>
GPY3	<p>NTG 0.79  <b>Free ridership</b> N/A; <b>Spillover</b> N/A  <b>Method:</b> SAG deemed NTG ratio</p>
GPY4	<p>NTG 0.79  <b>Free ridership</b> N/A; <b>Spillover</b> N/A  <b>Method:</b> 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.</p>
GPY5	<p>NTG 1.05  <b>Free ridership</b> 0.14; <b>Spillover</b> 0.19  <b>Method:</b> No new Illinois research. Free-ridership was estimated as the average of values from three Elementary Energy Education impact evaluation reports (weighted 2/3 showerheads, 1/3 aerators): NIPSCO (FR=12%; final report June 2013), Nicor Gas Rider 29 (FR=3%; final report September 2011), and GPY1 Nicor Gas (FR=27%; final report (July 2013). Rider 29 did not estimate spillover; the spillover is the average of results from NIPSCO (SO=21.5%) and GPY1 Nicor Gas (SO=17%).</p>
GPY6	<p><b>Program NTG: 1.00</b>  <b>Water Efficient Showerheads NTG 1.00; Water Efficient Kitchen Aerators NTG 1.00</b>  <b>Water Efficient Bath Aerators NTG 1.00; Method:</b> Based on SAG consensus.</p>
2018 (GPY7)	<p><b>Program NTG: 1.00</b>  <b>Method:</b> No new research. Retained GPY6 final value. Program value applies to all natural gas saving measures offered through the program, including Water Efficient Showerheads; Water Efficient Kitchen Aerators; Water Efficient Bath Aerators; Water Heater Setback, and Shower Timers.</p>
2019	<p><b>Program NTG: 1.00</b>  <b>Method: No new research.</b> SAG Consensus. Program value applies to all gas saving measures offered through the program, including Water Efficient Showerheads; Water Efficient Kitchen Aerators; Water Efficient Bath Aerators; Water Heater Setback, and Shower Timers.</p>
2020	<p><b>Program NTG: 1.00</b>  <b>Method: No new research.</b> Program value applies to all gas saving measures offered through the program, including Water Efficient Showerheads; Water Efficient Kitchen Aerators; Water Efficient Bath Aerators; Water Heater Setback, and Shower Timers.</p>
2021, 2022	<p><b>Program NTG: 1.00</b>  <b>Method: No new research.</b> Program value applies to all natural gas saving measures offered through the program, including Water Efficient Showerheads; Water Efficient Kitchen Aerators; Water Efficient Bath Aerators; Water Heater Setback, and Shower Timers.</p>



	<b>Behavioral Energy Savings</b>
GPY1	NA <b>Launched in GPY3</b>
GPY2	NA <b>Launched in GPY3</b>
GPY3	NTG 1.00 <b>Free ridership</b> N/A <b>Spillover</b> N/A <b>Method:</b> GPY3 billing analysis will yield a net savings value that includes FR and participant SO impacts.
GPY4	NA
GPY5	NTG 1.00 <b>Free ridership</b> N/A <b>Spillover</b> N/A <b>Method:</b> GPY5 billing analysis will yield a net savings value that includes FR and participant SO impacts.
GPY6	NTG 1.00 <b>Free ridership</b> N/A <b>Spillover</b> N/A <b>Method:</b> GPY6 billing analysis will yield a net savings value that includes FR and participant SO impacts.
2018 (GPY7)	<b>NTG:</b> Not applicable when the natural gas savings calculated by evaluation is based on regression analysis on energy use data and thus is a net savings number; no additional NTG adjustment is applied.
2019	<b>NTG:</b> No NTG adjustment is applied to evaluation verified gross savings estimated for first year pilot programs and research projects, or for savings derived from a billing regression analysis with an experimental design that does not require further net savings adjustment.
2020	<b>NTG:</b> No NTG adjustment is applied to evaluation verified gross savings estimated for first year pilot programs and research projects, or for savings derived from a billing regression analysis with an experimental design that does not require further net savings adjustment.
2021, 2022	<b>NTG:</b> No NTG adjustment is applied to savings derived from a consumption data analysis with an experimental design that does not require further net savings adjustment per Table 5-3 in Volume 4 of the IL-TRM.

	<b>Residential New Construction</b>
GPY1	NTG not evaluated. Program just launched. No impact evaluation.
GPY2	<b>NTG 0.80; Free ridership 0.20; Spillover 0.00</b> <b>Method:</b> SAG deemed NTG ratio. The 0.80 NTG was a planning value assigned to the first full year of the program, based on relevant research available at that time (including CPUC NTG=0.80). Preliminary NTG research was conducted on GPY2 builders based on a small sample (seven builders). The GPY2 preliminary research was not used in setting NTG values because it was based on then current building practices compared with the 2009 code, and not the more stringent 2012 code that was coming into force. Evaluation concluded the free-ridership value would not be representative of the more stringent 2012 code.
GPY3	<b>NTG 0.80; Free ridership 0.20; Spillover 0.00</b> <b>Method:</b> SAG deemed NTG ratio.
GPY4	<b>NTG 0.80; Free ridership 0.20; Spillover 0.00</b> <b>Method:</b> 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	<b>NTG 1.00; Free ridership N/A; Spillover N/A</b> <b>Method:</b> No new Illinois research. Navigant examined recent research to assess whether to update the previous values, given that the program will have been operating for four years in GPY5, and should be creating spillover and market effects. Secondary research on more mature residential new construction programs (including MA Res NC (NTG=1.18), National Grid RI (NTG=1.0), CPS Energy Savers (NTG=1.0), and Navigant/ODC/Arizona Public Service RNC market effects 2011 IEPEC paper) found that spillover and market effects are a significant component of the NTG value so that NTGRs are commonly 1.0 or higher. Consensus conclusion was that the GPY5 RNC NTG value be 1.00, with the expectation that spillover and market effects will offset free-ridership.
GPY6	<b>NTG: 0.65; Free ridership: 0.39; Participant Spillover: 0.04</b> <b>Non-Participant Spillover:</b> No value for non-participating builders <b>Method:</b> Navigant conducted interviews with builders and raters who participated in GPY4/EPY7 and GPY3/EPY6 in the winter of 2015 and used data from these interviews to estimate free-ridership and spillover for the program. Research included three measure areas: framing and insulation, HVAC, and other. Navigant interviewed a total of twelve builders (participant pop. 38) and six raters (participant pop. 11) representing 45 percent and 67 percent of homes in the GPY4/EPY7 program, respectively. Three of the builder interviewees represented nearly 80 percent of the interviewed builders' homes; however, the overall program participation is heavily skewed towards a small number of builders as well. In GPY4/EPY7, the top five (of 38) builders represented 80 percent of program homes. This research resulted in an overall range of NTG estimates from 0.39 to 0.65 for gas and 0.35 to 0.63 for electric. Given the uncertainty around self-reported NTG results and ongoing program efforts to reduce free-ridership, Navigant recommended using the maximum NTG values for prospective GPY6 application.
2018 (GPY7)	<b>NTG: 0.65</b> <b>Method:</b> No new research. Retained GPY6 final value.
2019	<b>NTG: 0.65</b> <b>Method:</b> No new research. Retained 2018 (GPY7) final value.
2020	<b>NTG: 0.65</b> <b>Method:</b> No new research. Retained 2019 final value.

	<b>Residential New Construction</b>
2021, 2022	<b>Nicor Gas only Prescriptive New Construction</b> <b>NTG: 0.80</b> <b>Method:</b> Guidehouse conducted secondary research but found no comparable program with a researched NTG value. We recommend the TRM default value of 0.80 for all measures except advanced thermostats have a NTG of 0.90.

	<b>Multifamily Program</b>
GPY1	<p>Program NTG: 0.95</p> <p><b>Water Efficient Showerheads NTG 0.95</b></p> <p><b>Water Efficient Kitchen Aerators NTG 0.95</b></p> <p><b>Water Efficient Bath Aerators NTG 0.95</b></p> <p><b>Research Method:</b> Participant self-report. CATI telephone survey with participating decision-makers (20 property managers).</p>
GPY2	<p><b>Dwelling Unit NTG 0.96</b></p> <p><b>Common Area NTG 0.93</b></p> <p><b>Free ridership N/A</b></p> <p><b>Spillover N/A</b></p> <p><b>Method:</b> SAG deemed. Values based on GPY1 evaluation research.</p>
GPY3	<p><b>Dwelling Unit NTG 0.96</b></p> <p><b>Common Area NTG 0.93</b></p> <p><b>Free ridership N/A</b></p> <p><b>Spillover N/A</b></p> <p><b>Method:</b> SAG deemed. Values based on GPY1 evaluation research.</p>
GPY4	<p><b>Dwelling Unit NTG 0.96</b></p> <p><b>Common Area NTG 0.93</b></p> <p><b>Free ridership N/A</b></p> <p><b>Spillover N/A</b></p> <p><b>Method:</b> 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.</p>
GPY5	<p><b>Dwelling Unit NTG 0.95</b></p> <p><b>Free ridership: 0.07; Spillover: 0.02</b></p> <p><b>Comprehensive/Common Area NTG 0.94</b></p> <p><b>Free ridership 0.08; Spillover 0.02</b></p> <p><b>Method:</b> GPY3 participant self-report. CATI telephone survey with participating GPY3 decision-makers (74 property owners/managers).</p>
GPY6	<p><b>Dwelling Unit Direct Install NTG 0.95</b></p> <p><b>Free ridership: 0.07; Spillover: 0.02</b></p> <p><b>Comprehensive/Common Area NTG 0.94</b></p> <p><b>Free ridership: 0.08; Spillover: 0.02</b></p> <p><b>Method:</b> GPY3 participant self-report. CATI telephone survey with participating GPY3 decision-makers (74 property owners/managers).</p>
2018 (GPY7)	<p><b>Dwelling Unit Direct Install (excluding faucet aerators):</b> NTG: 0.95 ; <b>Free Ridership: 0.07 ; Spillover: 0.02</b></p> <p><b>Dwelling Unit Direct Install (faucet aerators):</b> NTG: 1.02 ; <b>Free Ridership: 0.00 ; Spillover: 0.02</b></p> <p><b>Comprehensive/Common Area:</b> NTG: 0.94 ; <b>Free Ridership: 0.08 ; Spillover: 0.02</b></p> <p><b>Method:</b> For measures except faucet aerators: FR &amp; PSO (Nicor Gas EM&amp;V GPY4); NPSO (no value). 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.</p>
2019	<p><b>Assessment/Direct Install (all measures except faucet aerators and showerheads when using TRM specified baseline average water flow rates) NTG: 0.95</b></p>

	<p><b>Multifamily Program</b></p>
	<p>FR = 0.07 &amp; PSO = 0.02 (Nicor Gas EM&amp;V GPY4); NPSO (no value)</p> <p><b>Assessment/Direct Install (faucet aerators and showerheads when using TRM specific baseline average water flow rates) NTG: 1.02</b>  TRM version 7.0 specifies that the free ridership for faucet aerators and showerheads be set at zero when estimating gross savings using the TRM specified baseline average water flow rate. PSO = 0.02 (Nicor Gas EM&amp;V GPY4); NPSO (no value).</p> <p><b>Comprehensive/Common Area NTG: 0.94</b>  FR &amp; PSO (Nicor Gas EM&amp;V GPY4); NPSO (no value)  <b>Method:</b> No new research. Retained GPY7 final values.</p>
2020	<p><b>Direct Install (DI) In-Unit and Common Area (all measures except in-unit DI faucet aerators and in-unit DI showerheads) NTG: 0.96; Free Ridership: 0.05; Participant Spillover: 0.01; NPSO = 0.00</b>  <b>Method:</b> Navigant research with CY2018 participants for FR and GPY6 participants for PSO. The free ridership results meet a 90% confidence interval within 5% precision, based on 15 respondents receiving pipe insulation or programmable thermostats from a population of 95 unique direct installation participants (property owners and managers) from 2018 from Nicor Gas, Peoples Gas, and North Shore Gas, excluding accounts that only installed showerheads and aerators. Participant Spillover from survey of 65 participants from a sample of Nicor Gas, Peoples Gas, and North Shore Gas GPY6 multi-family program participants. NPSO (PGL &amp; NSG EM&amp;V GPY5; TRM v6.0 algorithms). Trade ally interviews did not find NPSO.</p> <p><b>Direct Install In-Unit (faucet aerators and showerheads when using TRM specific baseline average water flow rates) NTG: 1.01; Free Ridership: 0.0; Participant Spillover: 0.01; NPSO = 0.00</b>  TRM version 8.0 specifies that the free ridership for aerators and showerheads be set at zero when estimating gross savings using the Residential Section of the TRM specified baseline average water flow rate. Participant Spillover from survey of 65 participants from a sample of Nicor Gas, Peoples Gas, and North Shore Gas GPY6 multi-family program participants. NPSO (PGL &amp; NSG EM&amp;V GPY5; TRM v6.0 algorithms). Trade ally interviews did not find NPSO.</p> <p><b>Comprehensive All Rebated Measures NTG: 0.93</b>  FR (0.08); NPSO (no value); PSO (0.01)  <b>Method:</b> FR (Nicor Gas EM&amp;V GPY4); NPSO (no value). Free ridership value retained from 2019. Participant Spillover from survey of 65 participants from a sample of Nicor Gas, Peoples Gas, and North Shore Gas GPY6 multi-family program participants.</p>
2021, 2022	<p><b>Direct Install (DI) or Direct Distribution In-Unit and Common Area (all measures except in-unit DI faucet aerators and in-unit DI showerheads) NTG: 0.96; Free Ridership: 0.05; Participant Spillover: 0.01; NPSO = 0.00</b>  <b>Method:</b> Navigant research with CY2018 participants for FR and GPY6 participants for PSO. The free ridership results meet a 90% confidence interval within 5% precision, based on 15 respondents receiving pipe insulation or programmable thermostats from a</p>

	<p><b>Multifamily Program</b></p>
	<p>population of 95 unique direct installation participants (property owners and managers) from 2018 from Nicor Gas, Peoples Gas, and North Shore Gas, excluding accounts that only installed showerheads and aerators. Participant Spillover from survey of 65 participants from a sample of Nicor Gas, Peoples Gas, and North Shore Gas GPY6 multi-family program participants. NPSO (PGL &amp; NSG EM&amp;V GPY5; TRM v6.0 algorithms). Trade ally interviews did not find NPSO.</p> <p><b>Direct Install or Direct Distribution In-Unit (faucet aerators and showerheads when meeting TRM specifications for zero free ridership treatment) NTG: 1.01; Free Ridership: 0.0; Participant Spillover: 0.01; NPSO = 0.00</b></p> <p>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. Participant Spillover from survey of 65 participants from a sample of Nicor Gas, Peoples Gas, and North Shore Gas GPY6 multi-family program participants. NPSO (PGL &amp; NSG EM&amp;V GPY5; TRM v6.0 algorithms). Trade ally interviews did not find NPSO.</p> <p><b>Comprehensive All Rebated Measures and Central Plant Optimization NTG: 0.93</b> FR (0.08); NPSO (no value); PSO (0.01)</p> <p><b>Method:</b> FR (Nicor Gas EM&amp;V GPY4); NPSO (no value). Free ridership value retained from 2019. Participant Spillover from survey of 65 participants from a sample of Nicor Gas, Peoples Gas, and North Shore Gas GPY6 multi-family program participants. Includes Central Plant Optimization.</p>

	<b>Small Business Energy Savings</b>
GPY1	<p><b>NTG 1.00</b>  <b>Free ridership 2%</b>  <b>Spillover 2%</b>  <b>Method:</b> Customer self-report combined with trade ally input. 24 participant surveys completed from a population of 272. Basic method of participant free-ridership analysis was used. No participant spillover was found. Customer participant self-reported free-ridership was 20 percent for Nicor. Individual trade ally responses (representing over 80% of PY1 program savings) to free-ridership questions were weighted by their respective fuel-specific program savings contributions and combined for a fuel-specific maximum overall free-ridership rate. This approach resulted in an evaluation estimate of 0.02 free-ridership for gas measures that was balanced by spillover of 0.02 resulting in a NTG ratio of 1.00 for Nicor.</p>
GPY2	<p><b>NTG 1.00</b>  <b>Free ridership 2%</b>  <b>Spillover 2%</b>  <b>Method:</b> SAG deemed NTG ratio based on GPY1 evaluation research.</p>
GPY3	<p><b>NTG 1.00</b>  <b>Free ridership 2%</b>  <b>Spillover 2%</b>  <b>Method:</b> SAG deemed NTG ratio based on GPY1 evaluation research.</p>
GPY4	<p><b>NTG 1.00</b>  <b>Free ridership 2%</b>  <b>Spillover 2%</b>  <b>Method:</b> 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.</p>
GPY5	<p><b>NTG 0.93</b>  <b>Free ridership 9%</b>  <b>Spillover 2%</b>  <b>Method:</b> The GPY5 NTG value uses an equal-weight average of the free-ridership estimate from participant survey research performed on ComEd participants during EPY7 with the free-ridership estimate derived from Nicor Gas trade ally interviews in GPY1. For participant spillover, the EPY7 ComEd result was 2%, the Nicor Gas GPY1 result was 2%, and PGL/NSG GPY1 result was 1%. A value of 2% for participant spillover was set for all three utilities. This results in a NTGR of 0.93. For ComEd PY7 NTG research, Navigant conducted a CATI survey of 70 program projects drawn at random from a sample frame of 4,441 projects with ex-ante savings of 5,000 kWh or greater, representing 82 percent of PY7 projects and 98 percent of PY7 expected savings. Sample size chosen to attain +/- 10 percent precision at 90 percent confidence.</p>
GPY6	<p><b>NTG 0.93 for Direct Install, Retrofit (custom and prescriptive projects).</b>  <b>Free ridership 0.09; average of participant (0.16) and trade ally (0.03)</b>  <b>Participant Spillover 0.02</b>  <b>Non-Participant Spillover 0.00</b>  <b>Method:</b> The GPY6 NTG value uses an equal-weight average of the 16 percent free-ridership estimate from participant survey research performed on ComEd participants during EPY7 (described in GPY5 above) with the three percent free-ridership estimate derived from PGL and NSG trade ally interviews in GPY4. The PGL and NSG GPY4 trade ally free ridership is based on 12 trade ally interviews from a population of 55. The GPY4 trade ally interviews</p>

	<p><b>Small Business Energy Savings</b></p> <p>found no spillover. The GPY4 PGL &amp; NSG trade ally free ridership was considered the best available research value for Nicor Gas, based on similarities in program design and measure mix, and trade ally overlap.</p> <p>For participant spillover, the EPY7 ComEd result was 2%, the Nicor Gas GPY1 result was 2%, and PG/NSG GPY1 result was 1%. A value of 2% for participant spillover was set for all three utilities.</p>
<p>2018 (GPY7)</p>	<p><b>Direct Installation: NTG 0.87; Free ridership 0.14, average of participant (0.23) and trade ally (0.06); Participant Spillover: 0.01; Non-Participant Spillover 0.00.</b></p> <p><b>Prescriptive Rebates: NTG 0.81; Free ridership 0.20, average of participant (0.34) and trade ally (0.06); Participant Spillover: 0.01; Non-Participant Spillover 0.00.</b></p> <p><b>Custom Incentives: NTG 0.88; Free ridership 0.13, average of participant (0.21) and trade ally (0.06); Participant Spillover: 0.01; Non-Participant Spillover 0.00.</b></p> <p><b>Comprehensive Project Roll-up Average: NTG 0.81; Free ridership 0.20, average of participant (0.34) and trade ally (0.06); Participant Spillover: 0.01; Non-Participant Spillover 0.00.</b></p> <p><b>Method:</b> Participant free ridership values are from GPY5 evaluation research conducted by CATI telephone survey with GPY5 decision-makers for these two paths: 30 respondents for direct install (90/6); 40 respondents for prescriptive rebates (90/7). The GPY5 research applied the TRM v6.0 NTG algorithms.</p> <p>Due to the small population of Small Business custom projects, the GPY5 research completed only five Small Business custom project participant interviews, achieving a 90/23 result. Participant FR research conducted on the GPY5 Business Custom Program produced a free ridership estimate of 0.21, at 90/12, and 0.21 is judged to be the best available value for a custom path-level free ridership. The GPY5 Business Custom Program research used TRM v6.0 NTG algorithms.</p> <p>Participant spillover of 0.01 is a program-level research result from 75 interviews with Small Business Program GPY5 participants. The GPY5 research applied the TRM v6.0 NTG algorithms.</p> <p>Interviews with 10 trade allies representing 81 percent of program therm savings produced a free ridership value of 0.06, applicable at the program-level, but did not find evidence of PSO or NPSO.</p> <p>The comprehensive roll-up NTG value covers Direct Install, Prescriptive, and Custom Small Business path participants. Participant free ridership of 0.34 is a program-level research result from 75 interviews with Small Business Program GPY5 participants, weighted by GPY5 path savings. The GPY5 research applied the TRM v6.0 NTG algorithms. The roll-up NTG value may be used instead of the path-level NTGs.</p>



	<b>Small Business Energy Savings</b>
2019	<p><b>No new research.</b> For CY2019, Navigant recommended using the TRM v7.0 methodology to weight the participant and service provider free ridership scores because the weighted triangulation method appropriately gives more weight to more certain results. The free ridership research we used for scoring the weighting of service providers and participants was conducted in GPY5. Navigant reviewed the reports that documented our methodology, sample sizes, survey instruments, and results for free ridership research, and then used judgement to assign scores to the triangulation factors according to TRM v7.0. The TRM v7.0 weighting methodology is not applied to spillover. See Navigant memo: Weighting Gas Utility Small Business Service Provider and Participant Free Ridership using the TRM Version 7.0 Protocol and CY2019 NTG Recommendations, 9/19/18.</p> <p><b>Direct Install: NTG 0.92; Participant Free Ridership: 0.23; Service Provider Free Ridership: 0.00; 40/60: 0.09; Participant Spillover: 0.01.</b>  FR based on responses from GPY5 participants (90/6). Service Provider for direct install is the program implementation contractor - FR is set at zero  PSO based on responses from GPY5 participants, TRM v6  NPSO: Ten GPY5 SB trade ally interviews (representing 81% of program savings) found no PSO or NPSO</p> <p><b>Prescriptive Rebates: NTG -0.83; Participant Free Ridership: 0.34; Trade Ally Free Ridership: 0.06; 44/56: 0.18; Participant Spillover: 0.01.</b>  FR based on responses from GPY5 participants (90/7) and TAs, TRM v6  PSO based on responses from GPY5 participants, TRM v6  NPSO: Ten GPY5 SB trade ally interviews found no PSO or NPSO</p> <p><b>Custom Rebates: NTG: 0.93; Participant Free Ridership: 0.21; Trade Ally Free Ridership: 0.06; 12/88: 0.08; Participant Spillover: 0.01.</b>  Participant FR based on Business Custom Program - insufficient number of Small Business custom responses (5) to make path-level estimate (90/23)  Trade Ally FR based on ten GPY5 SB TA interviews.  PSO based on responses from GPY5 SB participants, TRM v6  NPSO: Ten SB GPY5 trade ally interviews found no PSO or NPSO</p>
2020	<p><b>No new research.</b> For CY2020, Navigant recommended using the TRM v7.0 methodology to weight the participant and service provider free ridership scores because the weighted triangulation method appropriately gives more weight to more certain results. The free ridership research we used for scoring the weighting of service providers and participants was conducted in GPY5. Navigant reviewed the reports that documented our methodology, sample sizes, survey instruments, and results for free ridership research, and then used judgement to assign scores to the triangulation factors according to TRM v7.0. The TRM v7.0 weighting methodology is not applied to spillover. See Navigant memo: Weighting Gas Utility Small Business Service Provider and Participant Free Ridership using the TRM Version 7.0 Protocol and CY2019 NTG Recommendations, 9/19/18.</p> <p><b>Direct Install: NTG 0.92; Participant Free Ridership: 0.23; Service Provider Free Ridership: 0.00; 40/60: 0.09; Participant Spillover: 0.01.</b></p>

	<b>Small Business Energy Savings</b>
	<p>FR based on responses from GPY5 participants (90/6). Service Provider for direct install is the program implementation contractor - FR is set at zero            PSO based on responses from GPY5 participants, TRM v6            NPSO: Ten GPY5 SB trade ally interviews (representing 81% of program savings) found no PSO or NPSO</p> <p><b>Prescriptive Rebates: NTG: 0.83; Participant Free Ridership: 0.34; Trade Ally Free Ridership: 0.06; 44/56: 0.18; Participant Spillover: 0.01.</b></p> <p>FR based on responses from GPY5 participants (90/7) and TAs, TRM v6            PSO based on responses from GPY5 participants, TRM v6            NPSO: Ten GPY5 SB trade ally interviews found no PSO or NPSO</p> <p><b>Custom Rebates: NTG: 0.93; Participant Free Ridership: 0.21; Trade Ally Free Ridership: 0.06; 12/88: 0.08; Participant Spillover: 0.01.</b></p> <p>Participant FR based on Business Custom Program - insufficient number of Small Business custom responses (5) to make path-level estimate (90/23)            Trade Ally FR based on ten GPY5 SB TA interviews.            PSO based on responses from GPY5 SB participants, TRM v6            NPSO: Ten SB GPY5 trade ally interviews found no PSO or NPSO</p>
2021	<p><b>No new research.</b> For CY2021, Navigant recommended using the TRM v7.0 methodology to weight the participant and service provider free ridership scores because the weighted triangulation method appropriately gives more weight to more certain results. The free ridership research we used for scoring the weighting of service providers and participants was conducted in GPY5. Navigant reviewed the reports that documented our methodology, sample sizes, survey instruments, and results for free ridership research, and then used judgement to assign scores to the triangulation factors according to TRM v7.0. The TRM v7.0 weighting methodology is not applied to spillover. See Navigant memo: Weighting Gas Utility Small Business Service Provider and Participant Free Ridership using the TRM Version 7.0 Protocol and CY2019 NTG Recommendations, 9/19/18.</p> <p><b>Direct Install: NTG 0.92; Participant Free Ridership: 0.23; Service Provider Free Ridership: 0.00; 40/60: 0.09; Participant Spillover: 0.01.</b></p> <p>FR based on responses from GPY5 participants (90/6). Service Provider for direct install is the program implementation contractor - FR is set at zero            PSO based on responses from GPY5 participants, TRM v6            NPSO: Ten GPY5 SB trade ally interviews (representing 81% of program savings) found no PSO or NPSO</p> <p><b>Prescriptive Rebates, including Commercial Food Service Projects, excluding Thermostats: NTG: 0.83; Participant Free Ridership: 0.34; Trade Ally Free Ridership: 0.06; 44/56: 0.18; Participant Spillover: 0.01.</b></p> <p>FR based on responses from GPY5 participants (90/7) and TAs, TRM v6            PSO based on responses from GPY5 participants, TRM v6            NPSO: Ten GPY5 SB trade ally interviews found no PSO or NPSO</p>

<b>Small Business Energy Savings</b>	
	<p><b>Thermostat Rebates: NTG: 0.91; Participant Free Ridership: 0.09.</b>  The Thermostat NTG is 1 minus 50% of the program level free ridership for Prescriptive Rebates plus NPSO, because the TRM heating savings was based on a consumption data analysis using matching to non-participants.</p> <p><b>Custom Rebates: NTG: 0.93; Participant Free Ridership: 0.21; Trade Ally Free Ridership: 0.06; 12/88: 0.08; Participant Spillover: 0.01.</b>  Participant FR based on Business Custom Program - insufficient number of Small Business custom responses (5) to make path-level estimate (90/23)  Trade Ally FR based on ten GPY5 SB TA interviews.  PSO based on responses from GPY5 SB participants, TRM v6  NPSO: Ten SB GPY5 trade ally interviews found no PSO or NPSO</p>
2022	<p><b>Retrofit Incentives (Prescriptive and Custom), Direct Installation, and Kits, excluding Thermostats: NTG; 0.96; Participant Free Ridership: 0.11; Trade Ally Free Ridership: 0.00; 40/60: 0.04; Participant Spillover: 0.00</b>  <b>Method:</b> FR (Guidehouse research conducted in 2021): Free ridership (FR) based on responses from 2020 and 2021 participants and 2019 and 2020 TAs. Participant free ridership reported by 12 (C/I: 90/16) complete responses passing consistency checks from sample of 365 Small Business participants from January 2020 through June 2021. Trade Ally FR reported by three largest contributing TAs (delivering 78% of program savings) from sample of largest 15 contributing TAs (91% of program savings) that participated in 2019 or 2020. FR results weighted 40% participants and 60% TA. Single NTG value applies to DI/Assessment, Prescriptive, and Custom delivery approaches (DI and Custom population savings too small for separate estimates).  Participant and Trade Ally spillover of 0.00 from same sample as FR (Guidehouse, 2021 research). NPSO: Ten GPY5 SB trade ally interviews found NPSO.</p> <p><b>Thermostat Rebates: NTG: 0.98; Participant Free Ridership: 0.02.</b>  The Thermostat NTG is 1 minus 50% of the program level free ridership for Retrofit Incentives plus NPSO, because the TRM heating savings was based on a consumption data analysis using matching to non-participants.</p>

<b>Business and Public Sector Optimization</b>	
2021	<p><b>NTG: 0.92</b>  Guidehouse reviewed the program delivery information and recommends that this new program path use the 2020 NTG ratio for Nicor Gas’ Small Business-Direct Install program: 0.92. The Small Business-DI program is comparable to this new program in terms of delivery (extensive trade ally involvement), incentive level (no cost to customer), and target customer. We recommend this value for the Business Optimization program until primary NTG research for the program can be conducted.</p>
2022	<p><b>NTG: 0.92</b>  Continue NTG value from 2021. We recommended the 0.92 value for the Business Optimization program until primary NTG research for the program can be conducted.</p>

	<b>Business and Public Sector: Business Energy Efficiency Rebate Program</b>
GPY1	<p>NTG 0.73  <b>Free ridership</b> 0.27  <b>Spillover</b> 0.00  <b>Method:</b> Customer self-report: 34 surveys completed from a population of 146. Standard Rigor approach. No quantifiable participant spillover was found from customer self-reports.</p>
GPY2	<p>NTG 0.73  <b>Free ridership</b> 27%  <b>Spillover</b> 0%  <b>Method:</b> SAG approved NTG ratio based on GPY1 research.</p>
GPY3	<p>NTG 0.83  <b>Free ridership</b> 27%  <b>Spillover</b> 10%  <b>Method:</b> SAG approved NTG ratio based on GPY1 free-ridership research and deemed spillover.</p>
GPY4	<p>NTG 0.83  <b>Free ridership</b> 27%  <b>Spillover</b> 10%  <b>Method:</b> 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.</p>
GPY5	<p>NTG 0.68  <b>Free ridership</b> 35%  <b>Participant Spillover</b> 1%  <b>Non-Participant Spillover:</b> 2%  <b>Method:</b> NTG ratio based on GPY4 free-ridership and participant spillover research consisting of interviews with 44 GPY3 customer participants and 20 GPY3 trade ally participants. Standard Rigor approach. Non-participant spillover drawn from GPY2 research consisting of 31 non-participating trade ally interviews.</p>
GPY6	<p>NTG 0.68  <b>Free ridership</b> 35%  <b>Participant Spillover</b> 1%  <b>Non-Participant Spillover:</b> 2%  <b>Method:</b> NTG ratio based on GPY4 free-ridership and participant spillover research. Non-participant spillover drawn from GPY2 research consisting of 31 non-participating trade ally interviews.</p>
2018 (GPY7)	<p>NTG: 0.68  <b>Method:</b> No new research. Retained GPY6 final value.</p>
2019	<p>NTG: <b>0.68</b>; <b>Free Ridership: 0.35</b>; <b>Participant Spillover: 0.01</b>; <b>Non-Participant Spillover: 0.02</b>  <b>Method:</b> No new research. Retained GPY7 final value.</p>
2020	<p>NTG: <b>0.86</b>  <b>Free Ridership: 0.19</b>; <b>Participant Spillover: 0.04</b>; <b>Non-Participant Spillover: 0.01</b>  <b>Method:</b> Based on FR, PSO, and Steam Trap NPSO from 2018 Navigant research with 2018 BEER program participants, trade allies, and non-participating steam trap trade allies. Participant FR value of 0.23 based on 31 interviews (C/P=90/11). Trade Ally FR of 0.11 based on interviews with 12 non-steam trap TAs and 7 steam trap TAs. Participant/TA FR results weighted 66/34. Participant spillover from 2 respondents of 31 interviews with 2018</p>

	<p><b>Business and Public Sector: Business Energy Efficiency Rebate Program</b></p>
	<p>participants: installed steam traps (majority of PSO) and non-steam trap measures (minimal PSO).</p> <p>Non-Steam Trap NPSO (Nicor Gas EM&amp;V GPY2) value is 0.02 weighted with steam trap NPSO (0.0) to equal 0.01. Non-participant spillover from GPY2 research consisted of 31 non-participating trade ally interviews, of which 10 responded to spillover questions and two identified spillover amounting to 2% of program savings. Reviewing the 2018 steam trap NTG research that included participants, and participating and non-participating trade allies, we revised the steam trap non-participant spillover to zero. We did not change the non-participant spillover for non-steam traps. Combining the two estimates results in a non-participant spillover of 0.01.</p>
<p>2021, 2022</p>	<p><b>Rebates, Excluding Thermostats</b> <b>NTG: 0.86</b> <b>Free Ridership: 0.19; Participant Spillover: 0.04; Non-Participant Spillover: 0.01</b> <b>Method:</b> Based on FR, PSO, and Steam Trap NPSO from 2018 Navigant research with 2018 BEER program participants, trade allies, and non-participating steam trap trade allies. Participant FR value of 0.23 based on 31 interviews (C/P=90/11). Trade Ally FR of 0.11 based on interviews with 12 non-steam trap TAs and 7 steam trap TAs. Participant/TA FR results weighted 66/34. Participant spillover from 2 respondents of 31 interviews with 2018 participants: installed steam traps (majority of PSO) and non-steam trap measures (minimal PSO).</p> <p>Non-Steam Trap NPSO (Nicor Gas EM&amp;V GPY2) value is 0.02 weighted with steam trap NPSO (0.0) to equal 0.01. Non-participant spillover from GPY2 research consisted of 31 non-participating trade ally interviews, of which 10 responded to spillover questions and two identified spillover amounting to 2% of program savings. Reviewing the 2018 steam trap NTG research that included participants, and participating and non-participating trade allies, we revised the steam trap non-participant spillover to zero. We did not change the non-participant spillover for non-steam traps. Combining the two estimates results in a non-participant spillover of 0.01.</p> <p><b>Thermostat Rebates: NTG: 0.92; Participant Free Ridership: 0.09, Non-Participant Spillover 0.01.</b> The Thermostat NTG is 1 minus 50% of the program level free ridership for rebates for all other equipment plus NPSO, because the TRM heating savings was based on a consumption data analysis using matching to non-participants.</p>

	<b>Business and Public Sector Custom Incentive Program</b>
GPY1	<p><b>NTG:</b> 0.53  <b>Free ridership</b> 47%  <b>Spillover</b> 0%  <b>Method:</b> Customer self-report: 11 surveys completed from a population of 28. Standard Rigor approach. Trade allies called for 3 participants and their responses factored in to the customer free ridership calculation.</p>
GPY2	<p><b>NTG:</b> 0.72  <b>Free ridership</b> 28%  <b>Spillover</b> 0%  <b>Method:</b> Evaluation research consisting of GPY2 participating customer self-reports. Free-ridership of 28% and participant spillover of 0% from 16 participating customer NTG interviews completed from a population of 73 projects. Standard Rigor approach.</p>
GPY3	<p><b>NTG:</b> 0.73  <b>Free ridership</b> 27%  <b>Spillover</b> 0%  <b>Method:</b> Evaluation research consisting of 7 participating GPY3 customer self-reports, with the program level estimate based on combining samples and populations from GPY2 and GPY3. Standard Rigor approach.</p>
GPY4	<p><b>NTG:</b> 0.53  <b>Free ridership</b> 47%  <b>Spillover</b> 0%  <b>Method:</b> NTG values for GPY4 were deemed using values from GPY1, and reported in Table 14 of the Nicor Gas filed Energy Efficiency Plan for GPY4-GPY6.</p>
GPY5	<p><b>NTG:</b> 0.73  <b>Free ridership</b> 27%  <b>Spillover</b> 0%  <b>Method:</b> Values from GPY3 evaluation research.</p>
GPY6	<p><b>NTG:</b> 0.73  <b>Free ridership</b> 27%  <b>Spillover</b> 0%  <b>Method:</b> Values from GPY3 evaluation research.</p>
2018 (GPY7)	<p><b>NTG:</b> 0.79  <b>Free ridership:</b> 0.21  <b>Participant Spillover:</b> 0.00  <b>Non-Participant Spillover:</b> 0.00</p> <p><b>Method:</b> Participant free ridership and participant spillover are from GPY5 survey research that produced a free ridership of 0.21 based on 14 interviews (90/12) and no spillover, applying TRM v6.0 NTG methodologies. Interviews with 8 trade allies did not find evidence of PSO or NPSO. The GPY5 research applied the TRM v6.0 NTG algorithms.</p>
2019	<p><b>NTG: 0.79; Free Ridership: 0.21</b>  <b>Method:</b> No new research. FR based on responses from GPY5 participants, TRM v6 PSO based on responses from GPY5 participants, TRM v6. NPSO: Eight GPY5 trade ally interviews found no PSO or NPSO</p>
2020	<p><b>NTG: 0.79; Free Ridership: 0.21</b></p>

<b>Business and Public Sector Custom Incentive Program</b>	
	<b>Method: No new research.</b> FR based on responses from GPY5 participants, TRM v6 PSO based on responses from GPY5 participants, TRM v6. NPSO: Eight GPY5 trade ally interviews found no PSO or NPSO
2021	<b>NTG: 0.79; Free Ridership: 0.21</b> <b>Method: No new research.</b> FR based on responses from GPY5 participants, TRM v6 PSO based on responses from GPY5 participants, TRM v6. NPSO: Eight GPY5 trade ally interviews found no PSO or NPSO
2022	<b>NTG: 0.84; Free Ridership: 0.20; Participant Spillover 0.04</b> <b>Method:</b> Participant FR and SO (Guidehouse 2021 research). Participant FR based on 11 completed survey responses of 2020 participants from population of 41 unique participant contacts, accounting for 53% of program savings. PSO based on response from 1 of 14 participants that responded to SO questions (SO value determined from customer follow-up). TA-PSO, NPSO: Eight GPY5 trade ally interviews found no PSO or NPSO.

<b>Business and Public Sector Combined Heat and Power</b>	
GPY5	<b>Launched in GPY5</b>  NTG 0.73 <b>Free ridership</b> 0.73 <b>Spillover</b> 0.00 <b>Method:</b> GPY5 NTG value for Nicor Gas Custom Program.
GPY6	<b>NTG:</b> Project-specific NTG values to be determined by evaluation early in each project. If that is not possible, the default of 0.80 NTG will be used. <b>Method:</b> NTG of 0.80 is an average based on evaluation secondary research and NYSERDA's 0.90 NTG.
2018 (GPY7)	<b>NTG:</b> Project-specific NTG values to be determined by evaluation early in each project. If that is not possible, the default of 0.80 NTG will be used. <b>Method:</b> No new research. Retained GPY6 approach.
2019	<b>NTG:</b> Project-specific NTG values to be determined by evaluation early in each project. If that is not possible, the default of 0.80 NTG will be used.
2020	<b>NTG:</b> Project-specific NTG values to be determined by evaluation early in each project. If that is not possible, the default of 0.80 NTG will be used.
2021, 2022	<b>NTG:</b> Project-specific NTG values to be determined by evaluation early in each project.

<b>Business and Public Sector Strategic Energy Management (SEM)</b>	
GPY5	<b>Launched in GPY5</b> NTG 0.91 <b>Free ridership</b> 0.09 <b>Spillover</b> 0.00 <b>Method:</b> Free-ridership value from GPY5 Nicor Gas Retro-Commissioning. The non-participant spillover value is set at zero. The SEM NTG value applies only to incremental savings attributed to the SEM program that are not accounted for in other programs.

	<b>Business and Public Sector Strategic Energy Management (SEM)</b>
GPY6	<p><b>NTG 1.00</b>  <b>Free ridership: NA</b>  <b>Participant Spillover: NA</b>  <b>Non-Participant Spillover: NA</b>  <b>Method:</b> SAG consensus value. Program NTG value would apply to other cohorts (for example, healthcare) as well as industrial. For equipment measures identified through SEM that are channeled through other incentive programs, use the NTG of the program processing the equipment incentive.</p>
2018 (GPY7)	<p><b>NTG: 1.00</b>  <b>Method:</b> No new research. Retained GPY6 final value.</p>
2019	<p><b>NTG: 1.0</b>  <b>Method:</b> SAG Consensus. Program NTG value would apply to other cohorts (for example, healthcare) as well as industrial. For equipment measures identified through SEM that are channeled through other incentive programs, use the NTG of the program processing the equipment incentive</p>
2020, 2021	<p><b>NTG: 1.0</b>  <b>Method:</b> No new research. SAG Consensus. Program NTG value would apply to other cohorts (for example, healthcare) as well as industrial. For equipment measures identified through SEM that are channeled through other incentive programs, use the NTG of the program processing the equipment incentive</p>
2022	<p><b>NTG: 0.97</b>  <b>Method:</b> No new research. SAG Consensus. Program NTG value would apply to other cohorts (for example, healthcare) as well as industrial. For equipment measures identified through SEM that are channeled through other incentive programs, use the NTG of the program processing the equipment incentive</p>

	<b>Business and Public Sector Retro-Commissioning (Joint and Nicor Gas Only)</b>
GPY1	<p><b>NTG 1.02</b>  <b>Free ridership 9%</b>  <b>Spillover 11%</b>  <b>Method:</b> Customer and service provider self-report.  NTG based on GPY1 research – 11 participants with gas savings and eight of nine service providers surveyed. Enhanced method. Participant and Service Provider spillover researched.</p>
GPY2	<p><b>NTG 1.02</b>  <b>Free ridership 9%</b>  <b>Spillover 11%</b>  <b>Method:</b> SAG deemed NTG ratio based on GPY1 evaluation research.</p>
GPY3	<p><b>NTG 1.02</b>  <b>Free ridership 9%</b>  <b>Spillover 11%</b>  <b>Method:</b> SAG deemed NTG ratio based on GPY1 evaluation research.</p>



	<b>Business and Public Sector Retro-Commissioning (Joint and Nicor Gas Only)</b>
GPY4	<p>NTG 1.02  <b>Free ridership</b> 9%  <b>Spillover</b> 11%  <b>Method:</b> 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.</p>
GPY5	<p>NTG 1.02  <b>Free ridership</b> 9%  <b>Spillover</b> 11%  <b>Method:</b> No new research. Values based on GPY1 evaluation research.</p>
GPY6	<p>NTG 1.02  <b>Free ridership</b> 9%  <b>Spillover</b> 11%  <b>Method:</b> No new research. Values based on GPY1 evaluation research.</p>
2018 (GPY7)	<p>NTG: 1.02  <b>Method:</b> No new research. Retained GPY6 final value.</p>
2019	<p><b>NTG: 0.94; Free Ridership: 0.06, No Spillover identified.</b>  <b>Method:</b> Evaluation research conducted 2017 and 2018 with GPY6/EPY9 project participants resulted in a NTG of 0.94 for gas. Memo: <i>Net-to-Gross Research Results from EPY9/GPY6 for the Coordinated Utility Retro-Commissioning Program</i>, Navigant, 8/25/18, revised 9/14/18. FR results weighted 36% for participants (FR=0.13) and 64% for service providers (FR=0.025). No spillover identified.</p>
2020	<p><b>NTG: 0.94; Free Ridership: 0.06, No Spillover identified.</b>  <b>Method:</b> No new research. Evaluation research conducted 2017 and 2018 with GPY6/EPY9 project participants resulted in a NTG of 0.94 for gas. Memo: <i>Net-to-Gross Research Results from EPY9/GPY6 for the Coordinated Utility Retro-Commissioning Program</i>, Navigant, 8/25/18, revised 9/14/18. FR results weighted 36% for participants (FR=0.13) and 64% for service providers (FR=0.025). No spillover identified.</p>
2021	<p><b>NTG: 0.94; Free Ridership: 0.06, No Spillover identified.</b>  <b>Method:</b> No new research. Evaluation research conducted 2017 and 2018 with GPY6/EPY9 project participants resulted in a NTG of 0.94 for gas. Memo: <i>Net-to-Gross Research Results from EPY9/GPY6 for the Coordinated Utility Retro-Commissioning Program</i>, Navigant, 8/25/18, revised 9/14/18. FR results weighted 36% for participants (FR=0.13) and 64% for service providers (FR=0.025). No spillover identified.</p>
2022	<p><b>NTG; 0.98; Participant Free Ridership: 0.16; EESP Free Ridership: 0.01; 37/63: 0.07; Participant Spillover: 0.05; EESP SO: 0.00; Overall Spillover: 0.05; NPSO: 0.00</b>  <b>Method:</b> FR (Guidehouse research conducted in 2021): Participant FR based on responses from year 2020 participants and EESPs. Participant free ridership reported by 10 (C/I: 90/10) responses from population of 132 participants. EESP FR reported by 10 EESPs (delivering 15% of program savings) from population of 25 EESPs. FR results weighted 37% participants and 63% EESP.  Spillover (Guidehouse research conducted in 2021): Spillover population and sample same as free ridership, results verified from two of six participant respondents passing spillover screen. EESP natural gas spillover was negligible from one respondent. No NPSO.</p>

	<b>Business and Public Sector Joint Non-Residential New Construction Program</b>
GPY1	<p><b>NTG 0.33</b>  <b>Free ridership 67% Spillover 0%</b>  <b>Method:</b> Customer self-report for all projects. Interviews with individuals representing 4 of 7 projects with gas incentives. NTG scores were adjusted for standard design national retail stores and LEED projects.</p>
GPY2	<p><b>NTG 0.52</b>  <b>Free ridership N/A Spillover N/A</b>  <b>Method:</b> SAG deemed NTG ratio based on electric program evaluation results from EPY4.</p>
GPY3	<p><b>NTG 0.52</b>  <b>Free ridership N/A Spillover N/A</b>  <b>Method:</b> SAG deemed NTG ratio based on electric program evaluation results from EPY4.</p>
GPY4	<p><b>NTG 0.52</b>  <b>Free ridership N/A Spillover N/A</b>  <b>Method:</b> 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.</p>
GPY5	<p><b>NTG 0.92</b>  <b>Free ridership 8% Spillover 0%</b>  <b>Method:</b> Gas-weighted free-ridership and spillover results from participant interviews conducted for the Nicor Gas and ComEd GPY3/EPY6 Business New Construction Program evaluation.</p>
GPY6	<p><b>NTG 0.67</b>  <b>Method:</b> FR, PSO, and NPSO research conducted for Nicor Gas and ComEd for GPY4/EPY7 resulted in a NTG of 0.57 for gas. SAG consensus for GPY6 is a three-year average of 0.52, 0.92, and 0.57. Also applies to small business new construction.</p>
2018 (GPY7)	<p><b>NTG: 0.77</b>  <b>Method:</b> Research conducted for ComEd and gas utility program partners for GPY5/EPY8 resulted in a NTG ratio of 0.83 for natural gas measures. SAG consensus for GPY6 and 2018 (GPY7) was to use a three-year average of the most recent research values. For 2018 (GPY7), the three most recent research values are: 0.92, 0.57, and 0.83, producing an average of 0.77. The NTG value also applies to small business new construction.</p>
2019	<p><b>NTG: 0.70</b>  <b>Method:</b> Evaluation research conducted during GPY6/EPY9 for gas utility and ComEd projects resulted in a NTG of 0.48 for gas, applying TRM v6.0 methodologies. Memo: Net-to-Gross Research Results from the EPY9/GPY6 Non-Residential New Construction Program, Navigant, 8/24/18, revised 9/21/18. FR based on 24 interviews, PSO based on 120 on-line survey responses. SAG consensus NTG for GPY6 and 2018 (GPY7) was to use a three-year average of the most recent research results (which were 0.92, 0.57, and 0.83 for 2018 (GPY7)). For 2019, the SAG consensus is a four-year average of NTG values (0.70), based on: 0.92, 0.57, 0.83, and 0.48.</p>
2020	<p><b>NTG: 0.58; Free Ridership: 0.42</b>  <b>Method:</b> NTG is the average of previous 4 program years GPY4 (0.57), GPY5 (0.83), GPY6 (0.48), &amp; CY2018 (0.45); 2018 FR estimate of 55% from Navigant CY2018 research, based on 23 completed interviews.</p>

	<b>Business and Public Sector Joint Non-Residential New Construction Program</b>
2021	<b>NTG: 0.54; 2019 Participants Researched Free Ridership: 0.61</b> <b>Method:</b> NTG Average of previous 4 program years GPY5 (0.83), GPY6 (0.48), CY2018 (0.45) & CY2019 (0.39); 2019 FR estimate from Opinion Dynamics CY2019 research, based on 28 completed interviews. <b>FR:</b> Guidehouse CY2019 Research
2022	<b>NTG: 0.43, 2021 Participant Researched Free Ridership: 0.61</b> <b>Method:</b> NTG is the average of previous 4 program years of research GPY6 (NTG=0.48); CY2018 (0.45); CY2019 (0.39); CY2020 (NA); and CY2021 (0.39). The 2021 FR estimate from Opinion Dynamics CY2021 research, based on 32 completed interviews from a population of 58 projects representing 74% of therm savings.

	<b>Virtual/Remote Assessment with Independent/Self Installation</b>
2021, 2022	<b>NTG = For a given program or measure, same NTG as the on-site direct installation approach by a Program Representative</b> <b>Method:</b> No new research. Several programs that previously offered direct installation (DI) by a program representative at the site are offering customers the option of a "Remote" or "Virtual" Assessment combined with independent/self - installation. There is no new research to suggest these RA/VA participants have a NTG that is different from the on-site Direct Installation participants that were previously surveyed for NTG. We recommend that RA/VA savings use the same NTG as the corresponding DI participants.

	<b>Virtual Commissioning (currently offered by ComEd)</b>
2021	<b>NTG = 1.00</b> <b>Method:</b> No new research. SAG consensus based on prior conversations for ComEd. Virtual Commissioning is a ComEd program and is not currently offered by Nicor Gas. We recommend the same NTG should the gas utilities decide to participate.
2022	<b>NTG = 0.93; FR=0.07, Spillover = 0.00</b> <b>Method:</b> NTG results from Guidehouse 2021 research for ComEd. Virtual Commissioning is a ComEd program and is not currently offered by Nicor Gas. We recommend the same NTG should the gas utilities decide to participate.

	<b>Commercial Food Service Midstream</b>
2021, 2022	<b>NTG = 0.80</b> <b>Method:</b> No new research. The evaluation team recommends a deemed NTG of 0.80 for the CFS Program for all utility partners until research can be conducted.

	<b>Emerging Technologies Program</b>
GPY1	<p>NTG N/A  <b>Free ridership</b> N/A  <b>Spillover</b> N/A  <b>Method:</b> N/A  This program feeds other C&amp;I programs; any impacts were attributed to the relevant program.</p>
GPY2 through GPY5	<p>NTG 1.00  <b>Free ridership</b> N/A  <b>Spillover</b> N/A  <b>Method:</b> The NTG ratio was deemed by SAG.</p>
GPY6	<p>NTG 1.00  <b>Free ridership</b> N/A  <b>Spillover</b> N/A  <b>Method:</b> Use value from GPY2 through GPY5.</p>
2018 (GPY7)	<p><b>NTG:</b> No Recommendation.  <b>Method:</b> No new research. Use NTG guidance for 2019 if savings are claimed.</p>
2019	<p>NTG 1.00  <b>Method:</b> No NTG adjustment is applied to evaluation verified gross savings estimated for first year Emerging Technologies pilot programs and research projects.</p>
2020	<p>NTG 1.00  <b>Method:</b> No NTG adjustment is applied to evaluation verified gross savings estimated for first year Emerging Technologies pilot programs and research projects.</p>
2021	<p>NTG 1.00  <b>Method:</b> No NTG adjustment is applied to evaluation verified gross savings estimated for first year Emerging Technologies pilot programs and research projects.</p>
2022	<p><b>NTG: Pilot Specific</b>  <b>Method:</b> Pilot program-specific NTG values to be determined by evaluation early in each project.</p>

	<b>Building Operator Certification Training</b>
2018 (GPY7)	<p><b>NTG:</b> No Recommendation.  <b>Method:</b> No new research. Use NTG guidance for 2019 if savings are claimed.</p>
2019	<p>NTG 1.00  <b>Method:</b> In previous years, net savings was estimated directly through participant sampling and interviews. No further NTG adjustment is applied if deemed savings are based on historical results.</p>
2020	<p>NTG 1.00  <b>Method:</b> In previous years, net savings was estimated directly through participant sampling and interviews. No further NTG adjustment is applied if deemed savings are based on historical results.</p>
2021, 2022	<p>NTG 1.00  <b>Method:</b> In previous years, net savings was estimated directly through participant sampling and interviews. No further NTG adjustment is applied if deemed savings are based on historical results.</p>

	<b>Market Transformation</b>
2018 (GPY7)	<b>NTG:</b> No Recommendation. <b>Method:</b> No new research. Use NTG guidance for 2019 if savings are claimed.
2019	<b>NTG: Pilot Specific</b> <b>Method:</b> Pilot program-specific NTG values to be determined by evaluation early in each project. If that is not possible, default of 0.8 NTG to be used.
2019	<b>NTG: Pilot Specific</b> <b>Method:</b> Pilot program-specific NTG values to be determined by evaluation early in each project. If that is not possible, default of 0.8 NTG to be used.
2020	<b>NTG: Pilot Specific</b> <b>Method:</b> Pilot program-specific NTG values to be determined by evaluation early in each project. If that is not possible, default of 0.8 NTG to be used.
2021, 2022	<b>NTG: Pilot Specific</b> <b>Method:</b> Pilot program-specific NTG values to be determined by evaluation early in each project.

	<b>DISCONTINUED: Behavioral Energy Savings-Energy Buzz</b>
GPY1	<p>NTG N/A  <b>Free-ridership</b> N/A  <b>Spillover</b> N/A  <b>Method:</b> PY1 had no impacts due to late launch.</p>
GPY2	<p>NTG N/A  <b>Free-ridership</b> N/A  <b>Spillover</b> N/A  <b>Method:</b> GPY2 found a net savings value of 26 therms per participant based on secondary research.</p>
GPY3	<p>NTG N/A  <b>Free-ridership</b> N/A  <b>Spillover</b> N/A  <b>Method:</b> GPY3 will use a deemed net savings value of 26 therms per participant based on GPY2 secondary research.</p>
GPY4	<b>Discontinued.</b>

	<b>DISCONTINUED: Nicor Gas Economic Redevelopment</b>
GPY1	<p>NTG 0.8 (planning value)  <b>Free ridership</b> N/A  <b>Spillover</b> N/A  <b>Method:</b> Due to the small number of projects completed in PY1, Navigant used the planning NTG value of 0.8.</p>
GPY2	<p>NTG 0.70  <b>Free ridership</b> N/A  <b>Spillover</b> N/A  <b>Method:</b> The NTG ratio was deemed by SAG.</p>
GPY3	<p>NTG 0.70  <b>Free ridership</b> N/A  <b>Spillover</b> N/A  <b>Method:</b> The NTG ratio was deemed by SAG.</p>
GPY4	<b>Discontinued as a separate program.</b>

	<b>DISCONTINUED - Deep (comprehensive energy efficiency) Home Energy Assessment pilot program</b>
GPY6	<p>NTG 1.05  <b>Free ridership</b> 9%  <b>Spillover</b> 14%  <b>Method:</b> Based on Home Energy Savings FR &amp; PSO (Nicor Gas EM&amp;V GPY2); NPSO (no value). NTG value of 1.05 may be used for a Deep (comprehensive energy efficiency) Home Energy Assessment retrofit pilot/program.</p>
2018 (GPY7)	<p><b>NTG:</b> 1.05  <b>Method:</b> No new research. The program NTG value of 1.05 may be used for a Deep (comprehensive energy efficiency) Home Energy Assessment retrofit pilot/program.</p>

2019	<b>NTG:</b> 1.05 <b>Method:</b> No new research. FR & PSO (Nicor Gas EM&V GPY2); NPSO (no value). NTG value of 1.05 may be used for a Deep (comprehensive energy efficiency) Home Energy Assessment retrofit pilot/program.
2020	<b>NTG:</b> 1.05 <b>Method:</b> No new research. FR & PSO (Nicor Gas EM&V GPY2); NPSO (no value). NTG value of 1.05 may be used for a Deep (comprehensive energy efficiency) Home Energy Assessment retrofit pilot/program.

	<b>DISCONTINUED: Home Energy Savings for Low and Moderate Income</b>
GPY6	<b>Overall NTG</b> 1.00 <b>Method:</b> SAG consensus.
2018 (GPY7)	<b>NTG:</b> 1.00 <b>Method:</b> No new research. Retained GPY6 final value.
2019	<b>NTG recommendation addressed by Income Qualified programs or Home Energy Savings</b>
2020	<b>NTG recommendation addressed by Income Qualified programs or Home Energy Savings</b>