

Nicor Gas Energy Efficiency Programs
History of NTG Values for GPY1 through 2018 (GPY7)
Updated to include NTG Values for 2019
October 1, 2018

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	Income Qualified Programs
2019	<p>NTG: 1.00</p> <p>Method: NTG values for all Income Qualified programs are 1.00 as defined by the Illinois TRM version 7.0.</p>

	Advanced (Smart) Thermostats defined in the Illinois TRM
GPY6	<p>NTG Not Applicable</p> <p>Method: 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.</p>
2018 (GPY7)	<p>NTG: Not Applicable</p> <p>Method: 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.</p>
2019	<p>NTG: Not Applicable</p> <p>Method: 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.</p>

	Home Energy Efficiency Rebate
GPY1	<p>NTG 0.69</p> <p>Free-ridership 37%</p> <p>Spillover 6%</p> <p>Method: Evaluation research consisting of customer self-report data from 74 program participants and 53 participating trade allies.</p>
GPY2	<p>NTG 0.69</p> <p>Free-ridership 37%</p> <p>Spillover 6%</p> <p>Method: SAG deemed based on GPY1 research.</p>
GPY3	<p>NTG 0.79</p> <p>Free-ridership 37%</p> <p>Spillover 16%</p> <p>Method: SAG deemed based on GPY1 research and spillover adjustment of 0.10.</p>
GPY4	<p>NTG 0.79</p> <p>Free-ridership 37%</p> <p>Spillover 16%</p> <p>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.</p>
GPY5	<p>NTG 0.79</p> <p>Free-ridership 37%</p> <p>Spillover 16%</p> <p>Method: No new research. Values based on GPY1 (free-ridership and spillover) and GPY3 (spillover adder).</p>

<p>GPY6</p>	<p>NTG 0.79 Free-ridership 37% Spillover 16% Method: 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>
<p>2018 (GPY7)</p>	<p>Home Energy Efficiency Rebates (all measures, excluding Duct Sealing, Air Sealing, and Insulation Measures)</p> <p>NTG: 0.68 This NTG value is not recommended for air sealing, insulation, or duct sealing.</p> <p>Free ridership: 0.45 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 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 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.</p> <p>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.</p> <p>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</p>

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)

Non-Participant Spillover: 0.11 (described above)

For Duct Sealing, Air Sealing, and Insulation

NTG: 0.90

Free ridership: 0.10

Spillover: 0.00

Method: 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.

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 & 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>	<p>"Home Energy Eff Rebates - HEER (This NTG covers all measures rebated through this program, INCLUDING Basic Programmable Thermostats, but EXCLUDING Smart Thermostats)"</p> <p>NTG: 0.68</p> <p>Method: No new research. Value retained from 2018 (GPY7). FR (Nicor Gas EM&V GPY5, 12/22/16 Navigant memo) & PSO (Nicor Gas EM&V GPY5, 12/16/16 Navigant memo); NPSO (PG & NSG GPY2). This NTG value does not cover air sealing, duct sealing, and insulation measures if rebated through the HEER Program.</p> <p>"Home Energy Eff Rebates - HEER (This NTG covers all measures rebated through this program, EXCLUDING Basic Programmable Thermostats and Smart Thermostats)"</p> <p>NTG: 0.72</p> <p>Method: No new research. Value retained from 2018 (GPY7). FR (Nicor Gas EM&V GPY5, 12/22/16 Navigant memo) & PSO (Nicor Gas EM&V GPY5, 12/16/16 Navigant memo); NPSO (PG & 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> <p>"Home Energy Eff Rebates - HEER (This NTG covers air sealing, duct sealing, and insulation if rebated through this program)"</p> <p>NTG: No recommendation for 2019 for air sealing, duct sealing, and insulation measures if rebated through the HEER Program. Measures addressed through the Home Energy Savings program.</p>
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	Deep (comprehensive energy efficiency) Home Energy Assessment retrofit pilot/program
GPY6	NTG 1.05 Free ridership 9% Spillover 14% Method: Based on Home Energy Savings 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.
2018 (GPY7)	NTG: 1.05 Method: 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.
2019	NTG: 1.05 Method: 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.

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

	Home Energy Savings
GPY1	<p>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.</p>
GPY2	<p>NTG 0.86 Free ridership N/A Spillover N/A Method: SAG deemed NTG ratio.</p>
GPY3	<p>NTG 0.86 Free ridership N/A Spillover N/A Method: SAG deemed NTG ratio.</p>
GPY4	<p>NTG 0.86 Free ridership N/A 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.</p>
GPY5	<p>NTG 1.05 Free ridership 9% Spillover 14% 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.</p>
GPY6	<p>NTG 1.05 Free ridership 9% 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.</p>
2018 (GPY7)	<p>NTG: 1.05 Method: 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.</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 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.</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 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 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

	<p>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</p>
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	energySMART Energy Saving Kits
GPY1	NA Launched in GPY3
GPY2	NA Launched in GPY3
GPY3	NTG 0.84 Free ridership 16% Spillover 0% Method: GPY3 program participant self-report data, drawn from analysis of 75 interviews.
GPY4	NTG 0.84 Free ridership 16% Spillover 0% Method: NTG values for GPY4 were deemed and reported in Table 14 of the Nicor Gas filed Energy Efficiency Plan for GPY4-GPY6.
GPY5	NTG 0.84 Free ridership 16% Spillover 0% Method: GPY3 program participant self-report data, drawn from analysis of 75 interviews.
GPY6	NTG 0.84 Free ridership 16% Spillover 0% Method: No change to values from GPY5.
2018 (GPY7)	NTG: 0.84 Method: No new research. Retained GPY6 final value.
2019	NTG: 0.84 Method: No new research. Retained GPY7 final value. FR (0.16) & PSO (0.0) (Nicor Gas EM&V GPY4); NPSO (no value)

	Elementary Energy Education
GPY1	<p>NTG 0.68 - 0.96 (varies by measure and participant group) Free ridership 0.18-0.53 Spillover 0.07-0.19 Method: Customer self-report, 223 surveys completed from a population of 9,972.</p>
GPY2	<p>NTG 0.79 Free ridership N/A Spillover N/A Method: SAG deemed NTG ratio</p>
GPY3	<p>NTG 0.79 Free ridership N/A Spillover N/A Method: SAG deemed NTG ratio</p>
GPY4	<p>NTG 0.79 Free ridership N/A 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.</p>
GPY5	<p>NTG 1.05 Free ridership 0.14 Spillover 0.19 Method: 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>Program NTG: 1.00 Water Efficient Showerheads NTG 1.00 Water Efficient Kitchen Aerators NTG 1.00 Water Efficient Bath Aerators NTG 1.00 Method: Based on SAG consensus.</p>
2018 (GPY7)	<p>Program NTG: 1.00 Method: 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>Program NTG: 1.00 Method: No new research. SAG Consensus. 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>

	Behavioral Energy Savings
GPY1	NA Launched in GPY3
GPY2	NA Launched in GPY3
GPY3	NTG 1.00 Free ridership N/A Spillover N/A Method: GPY3 billing analysis will yield a net savings value that includes FR and participant SO impacts.
GPY4	NA
GPY5	NTG 1.00 Free ridership N/A Spillover N/A Method: GPY5 billing analysis will yield a net savings value that includes FR and participant SO impacts.
GPY6	NTG 1.00 Free ridership N/A Spillover N/A Method: GPY6 billing analysis will yield a net savings value that includes FR and participant SO impacts.
2018 (GPY7)	NTG: 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	NTG: 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.

	Residential New Construction
GPY1	NTG not evaluated. Program just launched. No impact evaluation.
GPY2	NTG 0.80; Free ridership 0.20; Spillover 0.00 Method: 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	NTG 0.80; Free ridership 0.20; Spillover 0.00 Method: SAG deemed NTG ratio.
GPY4	NTG 0.80; Free ridership 0.20; Spillover 0.00 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	NTG 1.00; Free ridership N/A; Spillover N/A Method: 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	NTG: 0.65 Free ridership: 0.39; Participant Spillover: 0.04 Non-Participant Spillover: No value for non-participating builders Method: 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)	NTG: 0.65 Method: No new research. Retained GPY6 final value.
2019	NTG: 0.65 Method: No new research. Retained 2018 (GPY7) final value.

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

	<p>Comprehensive/Common Area NTG: 0.94 FR & PSO (Nicor Gas EM&V GPY4); NPSO (no value) Method: No new research. Retained GPY7 final values.</p>
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	Small Business Energy Savings
GPY1	<p>NTG 1.00 Free ridership 2% Spillover 2% Method: 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>NTG 1.00 Free ridership 2% Spillover 2% Method: SAG deemed NTG ratio based on GPY1 evaluation research.</p>
GPY3	<p>NTG 1.00 Free ridership 2% Spillover 2% Method: SAG deemed NTG ratio based on GPY1 evaluation research.</p>
GPY4	<p>NTG 1.00 Free ridership 2% Spillover 2% 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.</p>
GPY5	<p>NTG 0.93 Free ridership 9% Spillover 2% Method: 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>NTG 0.93 for Direct Install, Retrofit (custom and prescriptive projects). Free ridership 0.09; average of participant (0.16) and trade ally (0.03) Participant Spillover 0.02 Non-Participant Spillover 0.00 Method: 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 found no spillover. The GPY4 PGL & 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>
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<p>2018 (GPY7)</p>	<p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>Method: 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>
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2019	<p>No new research. 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>Direct Install: NTG 0.92; Participant Free Ridership: 0.23; Service Provider Free Ridership: 0.00; 40/60: 0.09; Participant Spillover: 0.01. 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>Prescriptive Rebates: NTG -0.83; Participant Free Ridership: 0.34; Trade Ally Free Ridership: 0.06; 44/56: 0.18; Participant Spillover: 0.01. 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>Custom Rebates: NTG: 0.93; Participant Free Ridership: 0.21; Trade Ally Free Ridership: 0.06; 12/88: 0.08; Participant Spillover: 0.01. 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>
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	Business and Public Sector: Business Energy Efficiency Rebate Program
GPY1	<p>NTG 0.73</p> <p>Free ridership 0.27</p> <p>Spillover 0.00</p> <p>Method: 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</p> <p>Free ridership 27%</p> <p>Spillover 0%</p> <p>Method: SAG approved NTG ratio based on GPY1 research.</p>
GPY3	<p>NTG 0.83</p> <p>Free ridership 27%</p> <p>Spillover 10%</p> <p>Method: SAG approved NTG ratio based on GPY1 free-ridership research and deemed spillover.</p>
GPY4	<p>NTG 0.83</p> <p>Free ridership 27%</p> <p>Spillover 10%</p> <p>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.</p>
GPY5	<p>NTG 0.68</p> <p>Free ridership 35%</p> <p>Participant Spillover 1%</p> <p>Non-Participant Spillover: 2%</p> <p>Method: 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</p> <p>Free ridership 35%</p> <p>Participant Spillover 1%</p> <p>Non-Participant Spillover: 2%</p> <p>Method: 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</p> <p>Method: No new research. Retained GPY6 final value.</p>
2019	<p>NTG: 0.68; Free Ridership: 0.35; Participant Spillover: 0.01; Non-Participant Spillover: 0.02</p> <p>Method: No new research. Retained GPY7 final value.</p>

	Business and Public Sector Custom Incentive Program
GPY1	<p>NTG: 0.53 Free ridership 47% Spillover 0% Method: 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>NTG: 0.72 Free ridership 28% Spillover 0% Method: 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>NTG: 0.73 Free ridership 27% Spillover 0% Method: 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>NTG: 0.53 Free ridership 47% Spillover 0% Method: 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>NTG: 0.73 Free ridership 27% Spillover 0% Method: Values from GPY3 evaluation research.</p>
GPY6	<p>NTG: 0.73 Free ridership 27% Spillover 0% Method: Values from GPY3 evaluation research.</p>
2018 (GPY7)	<p>NTG: 0.79 Free ridership: 0.21 Participant Spillover: 0.00 Non-Participant Spillover: 0.00</p> <p>Method: 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>NTG: 0.79; Free Ridership: 0.21 Method: 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>

Business and Public Sector Combined Heat and Power	
GPY5	<p>Launched in GPY5</p> <p>NTG 0.73 Free ridership 0.73 Spillover 0.00 Method: GPY5 NTG value for Nicor Gas Custom Program.</p>
GPY6	<p>NTG: 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. Method: NTG of 0.80 is an average based on evaluation secondary research and NYSERDA's 0.90 NTG.</p>
2018 (GPY7)	<p>NTG: 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. Method: No new research. Retained GPY6 approach.</p>
2019	<p>NTG: 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.</p>

Business and Public Sector Strategic Energy Management (SEM)	
GPY5	<p>Launched in GPY5</p> <p>NTG 0.91 Free ridership 0.09 Spillover 0.00 Method: 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.</p>
GPY6	<p>NTG 1.00 Free ridership: NA Participant Spillover: NA Non-Participant Spillover: NA Method: 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>NTG: 1.00 Method: No new research. Retained GPY6 final value.</p>
2019	<p>NTG: 1.0 Method: 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>

	Business and Public Sector Retro-Commissioning
GPY1	<p>NTG 1.02 Free ridership 9% Spillover 11% Method: 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>NTG 1.02 Free ridership 9% Spillover 11% Method: SAG deemed NTG ratio based on GPY1 evaluation research.</p>
GPY3	<p>NTG 1.02 Free ridership 9% Spillover 11% Method: SAG deemed NTG ratio based on GPY1 evaluation research.</p>
GPY4	<p>NTG 1.02 Free ridership 9% Spillover 11% 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.</p>
GPY5	<p>NTG 1.02 Free ridership 9% Spillover 11% Method: No new research. Values based on GPY1 evaluation research.</p>
GPY6	<p>NTG 1.02 Free ridership 9% Spillover 11% Method: No new research. Values based on GPY1 evaluation research.</p>
2018 (GPY7)	<p>NTG: 1.02 Method: No new research. Retained GPY6 final value.</p>
2019	<p>NTG: 0.94; Free Ridership: 0.06, No Spillover identified. Method: 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>

	Business and Public Sector Dedicated New Construction Program
GPY1	<p>NTG 0.33 Free ridership 67% Spillover 0% Method: 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>NTG 0.52 Free ridership N/A Spillover N/A Method: SAG deemed NTG ratio based on electric program evaluation results from EPY4.</p>
GPY3	<p>NTG 0.52 Free ridership N/A Spillover N/A Method: SAG deemed NTG ratio based on electric program evaluation results from EPY4.</p>
GPY4	<p>NTG 0.52 Free ridership N/A 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.</p>
GPY5	<p>NTG 0.92 Free ridership 8% Spillover 0% Method: 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>NTG 0.67 Method: 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>NTG: 0.77 Method: 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>NTG: 0.70 Method: 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>

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

Building Operator Certification Training	
2018 (GPY7)	<p>NTG: No Recommendation.</p> <p>Method: No new research. Use NTG guidance for 2019 if savings are claimed.</p>
2019	<p>NTG 1.00</p> <p>Method: 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>

Market Transformation	
2018 (GPY7)	<p>NTG: No Recommendation.</p> <p>Method: No new research. Use NTG guidance for 2019 if savings are claimed.</p>
2019	<p>NTG: Pilot Specific</p> <p>Method: 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.</p>

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

	DISCONTINUED: Nicor Gas Economic Redevelopment
GPY1	<p>NTG 0.8 (planning value) Free ridership N/A Spillover N/A Method: 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 Free ridership N/A Spillover N/A Method: The NTG ratio was deemed by SAG.</p>
GPY3	<p>NTG 0.70 Free ridership N/A Spillover N/A Method: The NTG ratio was deemed by SAG.</p>
GPY4	Discontinued as a separate program.