Guidehouse

To: Nicor Gas

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Re: Nicor Gas Custom Program 2020 NTG Research Results

Executive Summary

The Nicor Gas Custom Program net-to-gross (NTG) research asked both free ridership (FR) and spillover (SO) questions in one survey. Invitations with the survey link were emailed distributed to 41 unique participants who installed a total of 49 Custom Program projects in 2019 or 2020. Guidehouse followed up with telephone calls to recruit respondents and field the survey. Guidehouse included participant survey questions following the free ridership protocol algorithm recently developed from the Illinois Technical Reference Manual version 9.0 (TRM v9.0)[1] by the Illinois Stakeholder Advisory Group (SAG) NTG Working Group.

These results will inform Guidehouse's September 2021 recommendations to SAG about NTG values to be used for this program in 2022.

Table 1 summarizes the Custom Program FR and SO 2020 research findings.

Table 1. Net-to-Gross Research Results for 2020 CUSTOM Program

Population	Free Ridership	Sample Relative Precision @90% CI*	Participant Spillover
Participant	0.20	NA	0.04

* The sample was a census attempt.
Source: Guidehouse

Program Description

The Custom Program is targeted to the public sector and private sector commercial and industrial (C&I) customers of Nicor Gas. It provides customers with rebate incentives for the installation of cost-effective natural gas-related energy efficiency improvements that are not eligible for a prescriptive rebate under the Nicor Gas Business Energy Efficiency Rebate Program. The Custom Program provides audits and engineering studies to assist customers in understanding their efficiency opportunities by quantifying the estimated project costs, energy

[1] State of Illinois Technical Reference Manual version 9.0 from http://www.ilsag.info/technical-reference-manual.html.

savings, and forecasted incentives. The program targets large public sector and C&I customers with more complex facilities that will benefit most from a custom offering during new equipment purchases, facility modernization and industrial process improvements. The Custom Program was implemented in 2020 by CLEAResult.

The program staff work with both trade allies and decision-makers at facilities with annual natural gas use over 60,000 therms to identify and quantify efficiency opportunities at their facilities. Interested customers must first submit a letter of interest and a pre-approval application to the program. The initial application includes usage history and detailed calculations and specifications for the project. Program staff review the customer's initial reported savings and screen projects using an internal cost-benefit test. The Custom Program requires that a project's initial application be pre-approved prior to the start of the project. Prior to issuing an approval notice, pre-installation inspections are performed on almost all projects, especially for complex and high impact measures.

Free Ridership and Spillover Sample and Survey Representation

The participant surveys were fielded by Guidehouse during the Spring and Summer of 2021. The sample was developed from the population of recent Custom participant contacts across PY2019 and PY2020. Out of 41 unique participant contacts, we attempted contact with all. Sixteen participants took the survey, representing 72% of the program's savings. We removed five surveys from our analysis because the respondents did not complete the survey. Our FR result is based on 11 complete surveys representing projects that contributed 53% of the program's savings. Table 2 presents the survey representation.

Table 2. Free Ridership and Spillover Survey Representation

Category	Sampling Frame	Sample	Actual Completes	Response Rate	Respondent Share of Program Savings (therms)
Participants, Free Ridership	41	Census	11	27%	53%

Source: Guidehouse 2021 NTG Research

Free Ridership and Spillover Protocols

The evaluation team applied a relevant FR protocol participant algorithm recently developed from the Illinois TRM by the Illinois SAG NTG Working Group and SO protocols from TRM v9.0.

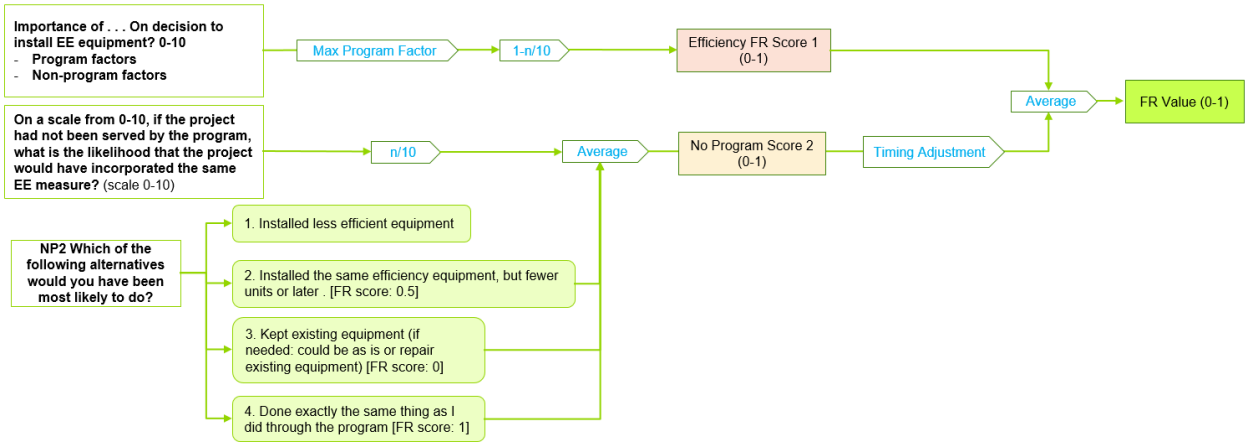
Participant Free Ridership Estimation

Figure 1 describes the Illinois SAG NTG Working Group algorithm that Guidehouse used to calculate the FR for the Custom Program. The questions and analysis are based on the TRM v9.0 Study-Based Free Ridership algorithm, with updates based on the Illinois SAG NTG Working Group consensus in 2020.

The survey asked the TRM program component questions but not the Working Group overall program influence question due to a complication with survey programming. We recommend calculating free ridership using a version of the TRM algorithm that approximates the Working Group version in that it includes a no-program question with scenario response options.

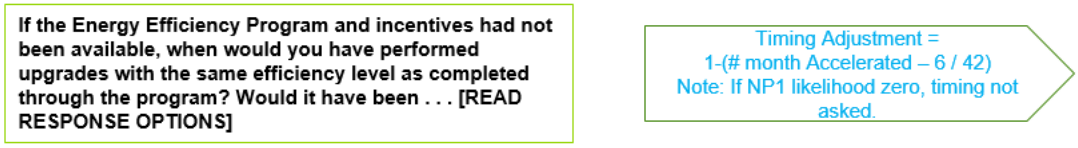
We applied the timing adjustment only to the No Program score, analogous to the TRM Algorithm 1. This yields a free ridership of 0.20. We find that the timing adjustment is not applicable to program influence and therefore recommend the algorithm offered in Figure 1, analogous to the TRM Algorithm 1.

Figure 1. Custom Free Ridership Overview



Source: Guidehouse adjustment of TRM v9.0 Study-Based Free Ridership Score Overview, with updates based on Illinois SAG NTG Working Group consensus in 2020 and survey programming.

Figure 2. Timing Adjustment



Source: Guidehouse adjustment of TRM v9.0 Study-Based Free Ridership Score Overview, with updates based on Illinois SAG NTG Working Group consensus in 2020.

The survey asked the program components, no-program, and timing questions of the TRM algorithm. We calculated the NTG result using TRM algorithms 1 and 2. Results using TRM Algorithms 1 and 2 come out to a FR value of 0.20, as shown in Table 3.

Table 3 Free Ridership Component Scores

Algorithm	Efficiency FR Score*	No Program Score*	Timing-Adjusted No Program Score*	Free Ridership
Algorithm One	0.24	0.63	0.58	0.196
Algorithm Two	0.44	0.51	0.32	0.195

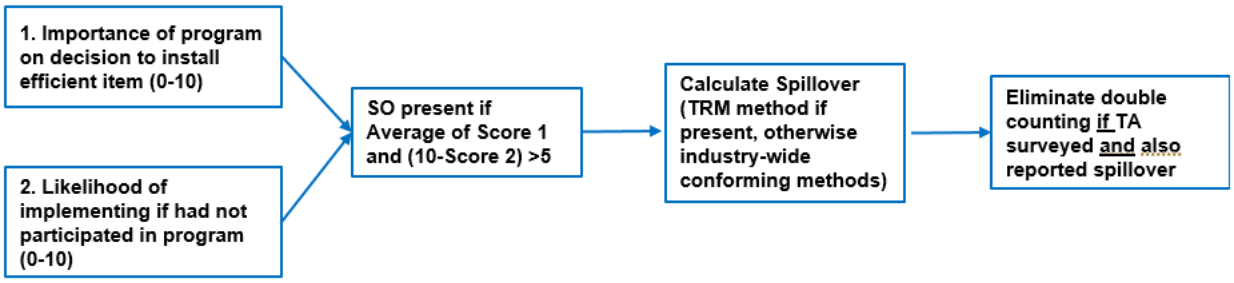
*Values are not weighted for savings

Source: Guidehouse 2021 NTG Research

Participant Spillover Estimation

Guidehouse calculated spillover based on TRM v9.0 Section 3.2.1, "Core [Non-Residential] Participant Spillover Protocol," summarized in Figure 3.

Figure 3. TRM v9.0 Section 3.2.1 "Core Participant Spillover Protocol"



Source: Guidehouse Representation of TRM v9.0.

The questions for participant spillover asked respondents if they had installed any additional natural gas savings measures since participating in the Custom Program. Guidehouse included eight questions[2] to identify spillover candidates. These questions addressed three general aspects, paraphrased below:

1. Did you do any other energy efficiency improvements to your business that were not rebated by a utility since you participated in the program?

2. How much influence did your participation in the program have on your making additional energy efficiency improvements?

    a. How important was your experience with Nicor Gas' Custom Program on your making additional energy efficiency improvements on your own? Please rate on a scale of 0 to 10, where 0 is not at all important and 10 is extremely important? (Attribution Score 1)

    b. If you had not participated in the program, how likely is it that you would have made this (these) additional energy-efficient improvement(s)? Please rate on a scale of 0 to 10 where 0 means you definitely would not have made the

[2] Respondents do not answer all eight questions; follow-up questions are skipped depending on earlier responses.

improvement and 10 means you definitely would have made the improvement even if you had not participated in the program? (Attribution Score 2)

3. What were details of the energy efficiency improvements (equipment, efficiency level, quantity, etc.)? The evaluation attributed spillover to the Custom Program if the following condition was met: the average of (Attribution Score 1) and (10 minus Attribution Score 2) exceeded 5.0.[3]

Of the 11 survey respondents, 1 reported that the program influenced them to make other energy efficient improvements (specifically, to the operations and maintenance of their steam traps). This potential spillover is being evaluated and will be included in the memo shortly.

Final NTG Results and Recommendations

Table 4 summarizes Guidehouse's recommendations for the Nicor Gas Custom Program to be used in 2022 based on our NTG research results with 2019-2020 participants.

Table 4. Summary of Free Ridership, Spillover, and NTG Research Results for the Custom Program

Program Path	FR	PSO	NTG
Participant	0.20	0.04	0.84

FR = Free Ridership; PSO = Participant Spillover. *NTG = (1 – FR) + PSO*

Source: Guidehouse

[3] The spillover methodology is guided by NTG protocols in the Illinois Statewide Technical Reference Manual for Energy Efficiency, Version 9.0, Volume 4: Cross-Cutting Measures and Attachments.

Appendix A. Custom NTG History for Nicor Gas

	Custom
GPY1	**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 into the customer free ridership calculation.
GPY2	**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.
GPY3	**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.
GPY4	**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.
GPY5	**NTG:** 0.73 **Free ridership** 27% **Spillover** 0% **Method**: Values from GPY3 evaluation research.
GPY6	**NTG:** 0.73 **Free ridership** 27% **Spillover** 0% **Method**: Values from GPY3 evaluation research.
2018 (GPY7)	**NTG:** 0.79 **Free ridership:** 0.21 **Participant Spillover:** 0.00 **Non-Participant Spillover**: 0.00 **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.

	Custom
2019	**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
2020	**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
2021	**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

Source: https://ilsag.s3.amazonaws.com/Nicor_Gas_NTG_History_and_2021_Values_Final-9-30-20.pdf