Guidehouse

Memorandum

To: Peoples Gas and North Shore Gas

CC: Elizabeth Horne, ICC; Laura Agapay-Read, Christopher Frye, Guidehouse

From: Oxana Petritchenko, David Bluestein, Alexis Hamilton, Guidehouse; Kumar Chittory, Amy Buege, Greg Vitz, Verdant Associates

Date: August 30th, 2024

Re: Peoples Gas and North Shore Gas Commercial Custom Net-to-Gross Participant Free Ridership and Spillover Survey – Final

Executive Summary

This memo presents findings from the net-to-gross (NTG) study of the Peoples Gas and North Shore Gas (PGL/NSG) Commercial Custom Rebate program. The NTG results for this program are based on the NTG algorithms specified in the 2024 Illinois Technical Reference Manual (TRM) version 12.0 and rely on free ridership (FR) and spillover (SO) research. The purpose of this research is to derive a single, program-level NTG value for the Custom Rebate program. The evaluation team administered an online survey to research FR and SO for commercial customers who participated in the program and conducted phone interviews for customers who did not respond to the online survey.

Guidehouse surveyed commercial customers who participated in the Peoples Gas and North Shore Gas Custom Rebate program between January 1, 2023, and December 31, 2023 for free ridership and those who participated between January 1, 2022 and December 31, 2022 for spillover. Table 1 summarizes the Custom Rebate program FR and SO research findings based on the commercial customer research.

Table 1. Net-to-Gross Research Results for Custom Rebate Program

Program	Free Ridership	Spillover	NTG Ratio
Custom Rebates	0.07*	0.00	0.93

Source: Evaluation team analysis
* The free ridership estimate calculated in this evaluation is based on the current core non-residential free ridership algorithm in TRM v12. That algorithm is the recent revision to the former TRM algorithm. The revision addressed the former algorithm's limitations that contributed to free ridership results that were biased high. The prior FR value for PGL/NSG's Custom program, 0.26, was calculated in 2019 using the former algorithm and associated questions (from TRM v7).

1. Free Ridership and Spillover Sample Disposition

Guidehouse fielded the participant online surveys using web survey software. The team sent survey invitations via email to a census of commercial customers who implemented program incentivized measures between January 1, 2023 and December 31, 2023 to assess free-ridership and customers who participated between January 1, 2022 and December 31, 2022 to assess spillover. After the initial survey invitation email, the Guidehouse team sent two additional survey reminders via email to encourage completion of the survey. Guidehouse also offered a $50 Tango electronic gift card to qualified customers who completed the survey.

To increase the 2024 survey response rate, Guidehouse sought assistance from the program implementation contractor, who sent additional emails to participants with a request to complete the online survey. Furthermore, the evaluation team reached out via phone to conduct phone interviews for customers who did not complete the survey online.

Table 2 and Table 3 present the sample disposition for the FR and SO surveys.

Table 2. Free Ridership Sample Disposition

Category	Unique Participants	Actual Completes	Analysed Completes	Response Rate	Respondent Share of Program Savings (Therms)
2023 Participants	11	8	8	73%	61%

Source: Evaluation team analysis

### Table 3. Spillover Sample Disposition

Category	Unique Participants	Actual Completes	Made Additional Efficiency Improvements	Qualified for Spillover	Respondent Share of Program Savings (Therms)
2022 Participants	5	3	0	0	80%

Source: Evaluation team analysis

2. Free Ridership and Spillover Protocols

The evaluation team applied the participant FR protocol (Figure 1) and SO protocol (Figure 2) from the 2024 Illinois TRM Version 12.0 (v12.0).

Figure 1. Free Ridership Algorithm
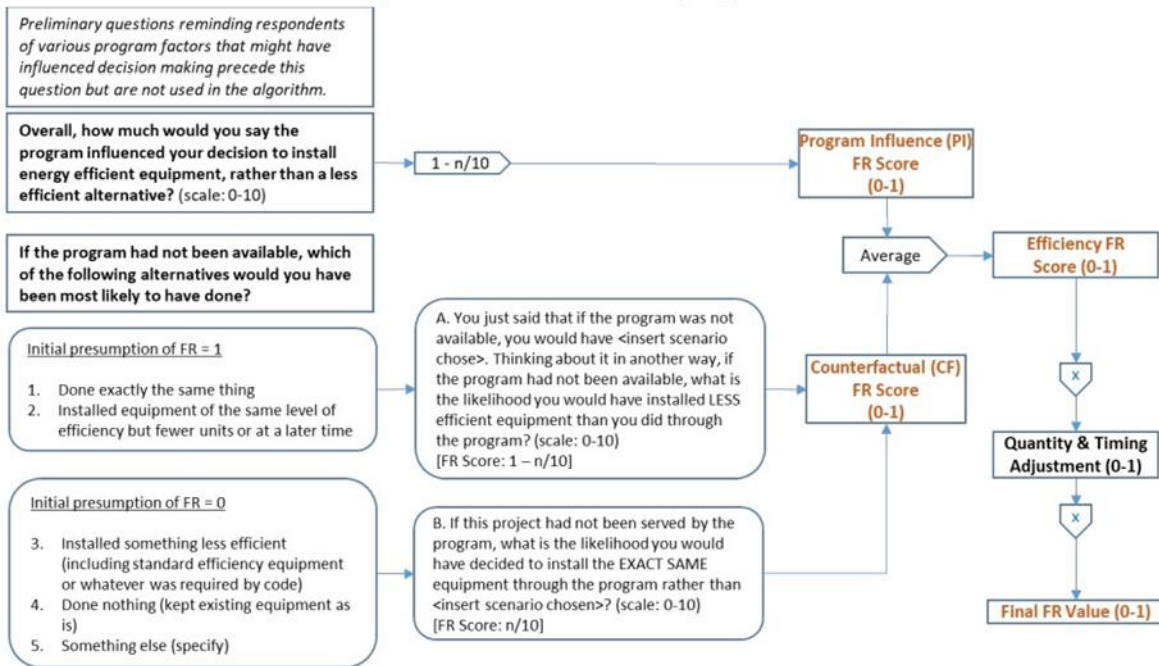
Source: 2024 Illinois TRM for Energy Efficiency Version 12.0, Volume 4, Figure 3-1 (page 44 of 149)
Illinois TRM v12

Figure 2. Core Non-Residential Participant Spillover Protocol
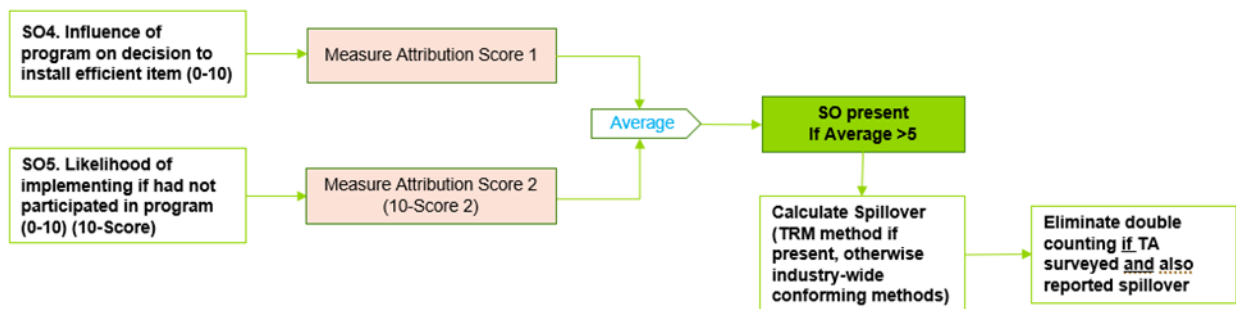
Source: Guidehouse drafted this algorithm based on content from the 2024 Illinois TRM Version 12.0, Volume 4, Sections 3.1.2 and 3.1.3 – Pages 48 of 149 through pages 55 of 149 respectively.

Illinois TRM v12

3. Participant Free Ridership Results

The team calculated FR estimates for the Custom Rebate Program participants using the data collected via the participant surveys and applied the protocol detailed above. Table 4 presents the FR estimates and the relative precision of the estimates.

Table 4. Participant Free Ridership Research Results

Population	Free Ridership	Relative Precision @ 90% CI
2023 Participants	0.07	2.1%

Source: Evaluation Team Analysis

3.1.   Free Ridership Consistency Check Analysis

The evaluation team checked for consistency in free ridership responses by asking respondents to describe in their own words any influence that the PGL/NSG Custom Rebate Program had on their decision to implement the incentivized measures at their facilities and what they would have done if the program and its technical assistance and financial incentives did not exist (see Figure 1).

According to the IL TRM v12.0, Attachment A, Section 3.1.1.1.4, a program influence and counterfactual consistency check is triggered when either of the following conditions are met:

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

OR

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

For respondents that fail the consistency checks, the evaluation team is to review the customer's verbatim responses to determine the weight of the program influence against the counterfactual responses and timing adjustments to arrive at a free ridership score.

The evaluation team determined that none of the eight 2023 participant respondents failed the consistency check. Therefore, no further review of the verbatim responses was required to validate customer FR scores.

4. Participant Spillover Results

Three 2022 participant survey respondents were included in the spillover analysis. Of these three, two reported installing additional energy efficient measures. However, both indicated they received a PGL/NSG Custom Program incentive for the measures. The third respondent did not install any additional energy efficient measures. Therefore, none of the three spillover respondents passed the spillover screening criteria.

Table 5 presents the participant spillover results. These results are combined with the FR results to estimate the NTG ratio.

Table 5. Spillover Research Results

Population	Spillover Results
2022 Participant Spillover	0.0

Source: Evaluation Team Analysis

5. Final NTG Results and Recommendations

The final NTG value is calculated as 1 - free ridership + spillover, using savings-weighted values from participants using the **Error! Reference source not found.**following formula:

$$NTG = 1 - Participant\ Free\ Ridership + Participant\ Spillover$$

The final components of the NTG are shown in Table 6.

Table 6. Summary of NTG Research Results for the Custom Rebate Program

Program Measure	Participant Free Ridership	Participant Spillover	NTG Ratio
All measures	0.07*	0.00	0.93

Source: Evaluation team analysis
* The free ridership estimate calculated in this evaluation is based on the current core non-residential free ridership algorithm in TRM v12. That algorithm is the recent revision to the former TRM algorithm. The revision addressed the former algorithm's limitations that contributed to free ridership results that were biased high. The prior FR value for PGL/NSG's Custom program, 0.26, was calculated in 2019 using the former algorithm and associated questions (from TRM v7).

APPENDIX A. Custom Rebate NTG History

PGL/NSG Custom Rebate Program	
GPY1	**NTG 0.68; Free ridership 0.32; Participant Spillover 0** **Method and Source:** Evaluation research consisted of participating customer self-reports: 15 NTG interviews were completed covering 15 projects from a population of 32 projects. No quantifiable participant spillover was found from customer self-reports.
GPY2	**NTG 0.78; Free ridership 0.24; Participant Spillover 0.02; Non-Participant Spillover 0** **Method and Source:** Evaluation research consisting of GPY2 participating customer self-reports, GPY2 participating trade ally self-reports, and non-participating trade ally self-reports. Free ridership of 0.24 and participant spillover of 0.001 from 40 participating customer NTG interviews completed covering 44 projects from a population of 100 projects. Participant spillover of 0.02 from 5 participating trade ally interviews. Non-participant spillover of 0 from 5 non-participating trade ally interviews.
GPY3	**NTG 0.78; Free ridership 0.24; Participant Spillover 0.02; Non-Participant Spillover 0** **Method and Source:** Deemed by SAG consensus from GPY2 evaluation research.
GPY4	**NTG 0.68** **Method and Source:** Based on GPY2 evaluation research, but with adjustment based on a review of other Illinois Custom programs.
GPY5	**NTG 0.78; Free ridership 0.24; Participant Spillover 0.02; Non-Participant Spillover 0** **Method and Source:** Based on GPY2 evaluation research of the C&I Custom Program, but with no further adjustments based on a review of other Illinois Custom Program NTG values for GPY5/EPY8.
GPY6	**NTG 0.69; Free ridership 0.31; Participant Spillover: 0; Non-Participant Spillover: 0** **Method and Source:** Evaluation research consisting of GPY4 participating customer self-reports and GPY4 participating trade ally self-reports. Free ridership of 31% and participant spillover of 0% from 13 participating customer NTG interviews completed from a population of 29 (a relative precision of ± 19% at a 90% confidence level). Participant spillover of 0 from 6 participating trade ally interviews. Non-participant spillover of 0% from 5 non-participating trade ally interviews conducted in GPY2 as part of evaluation research.
2018 (GPY7)	**NTG: 0.69** **Method:** No new research. Retained GPY6 final value.
2019	**NTG: 0.69; Free Ridership 0.31** **Method:** No new research. FR, PSO (IL EM&V GPY4, NPSO (IL EM&V GPY2)
2020-2023	**NTG: 0.74; Free Ridership 0.26; Spillover 0** **Method:** Navigant's analysis of participant interviews conducted in 2019 of 2018 Custom Rebate Program participants, including the private and public sectors. Navigant completed 10 interviews from a census of 19 participants, achieving 8% relative precision at 90% confidence level.

Source: PGL-NSG_Custom_Program_NTG_Research_Results_Memo_2019-08-28_Final.pdf (ilsag.info) and current research.