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CC: Jennifer Morris, ICC Staff; Jeff Erickson, Randy Gunn, Rob Neumann, Laura Agapay-Read, Cherlyn Seruto, Navigant
From: Sharon Mullen, Charles Ampong, Paul Higgins, Navigant
Date: August 30, 2019
Re: Net-to-Gross Research Results for the ComEd Small Business Offer, CY2018

EXECUTIVE SUMMARY

This memo presents the findings of the CY2018 net-to-gross (NTG) study of the ComEd Small Business Offering (SBO). The CY2018 NTG calculations are based on the NTG algorithms specified in the Illinois Technical Reference Manual (TRM) version 7.0 and rely on the self-report approach for estimating free ridership and spillover. Findings are based on computer assisted telephone (CATI) surveys of participants from CY2018 for Free Ridership, participants from the last twelve months of PY9 for Spillover, and active Energy Efficiency Service Providers (EESPs).

As shown in Table 1, 0.968 is the mean weighted average NTG ratio.

Based on these results, Navigant will recommend to the Illinois Stakeholders Advisory Group (SAG) that a NTG value of 0.97 be used for this program in CY2020.

Table 1. NTG Research Results for ComEd SBO Program CY2018

Overall Program	Savings Type	Free Ridership	Participant Spillover	EESP Spillover	NTG ratio
All Measures	kWh	0.077	0.005	0.040	0.968

Source: Navigant analysis

FREE RIDERSHIP AND SPILLOVER SURVEY DISPOSITION

Telephone surveys were conducted with key decisionmakers for each sampled project. The study achieved a total of 247 completed surveys. The survey interview guides followed the standard NTG question structure specified in the TRM. Table 2 and Table 3 report survey dispositions for participant free ridership and spillover question batteries, respectively, while Table 4 shows the disposition for the EESP survey.

Table 2. Free Ridership Decision Maker Survey Disposition

Measure	Sample of Unique Participants	Target Completes	Actual Completes	Analyzed Completes	Share of Program Sample Savings Represented by Analyzed Completes
CY2019 Participants	1,026	110	110	110	11%

Source: Navigant analysis

Table 3. Participant Spillover Survey Disposition

Measure	Sample of Unique Participants	Target Completes	Actual Completes	Made Additional Efficiency Improvements	Qualified for Spillover	Share of Program Sample Savings Represented by Qualified Spillover Participants
PY9 (7/2017-6/2018) Participants	1,000	100	100	16	6	10%

Source: Navigant analysis

Table 4. Service Provider Free Ridership and Spillover Survey Disposition

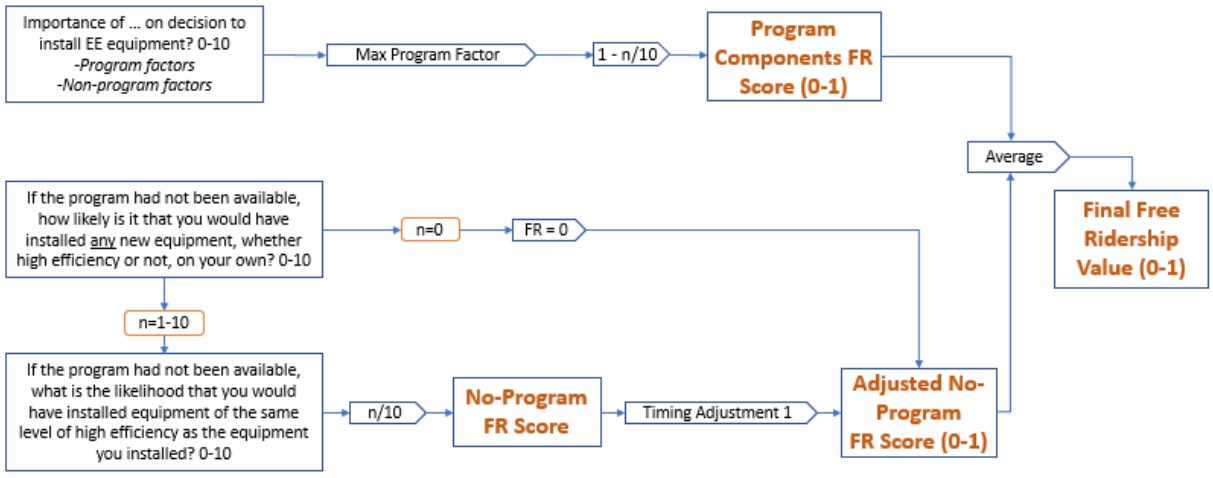
Measure	Population	Sample	Target Completes by % Savings Delivered	Actual Completes by % Savings Delivered	Analyzed Completes by % Savings Delivered
Service Providers	58	58	70%	71.8%	67.2%

Source: Navigant analysis

FREE RIDERSHIP AND SPILLOVER PROTOCOLS

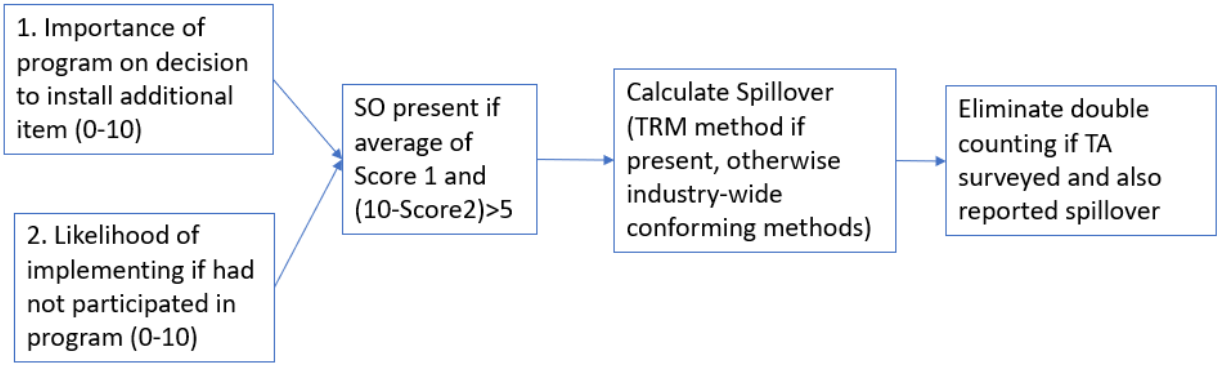
The evaluation team applied the relevant free ridership and spillover protocols from the TRM. The NTG protocols in version 7.0 of the TRM were developed by the Illinois NTG Working Group in their deliberations during the summer and fall of 2018 (see Figure 1 through Figure 4).

Figure 1. Core Participant Free Ridership Algorithm



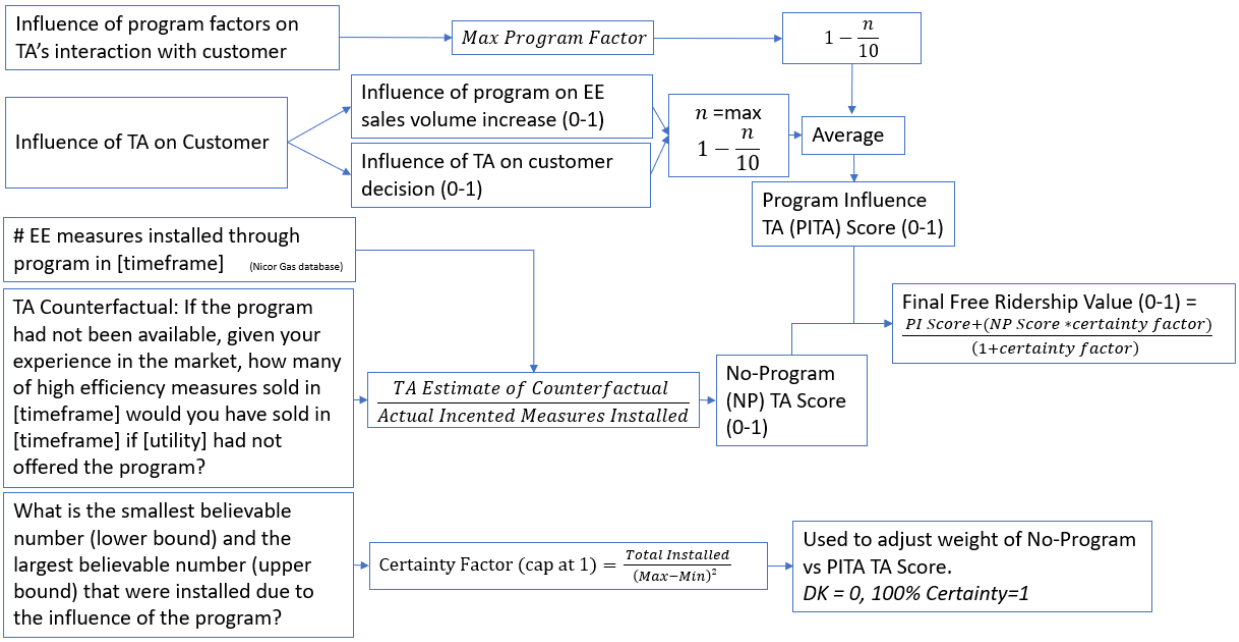
Source: Illinois TRM, version 7.0

Figure 2. Qualified Participant Spillover



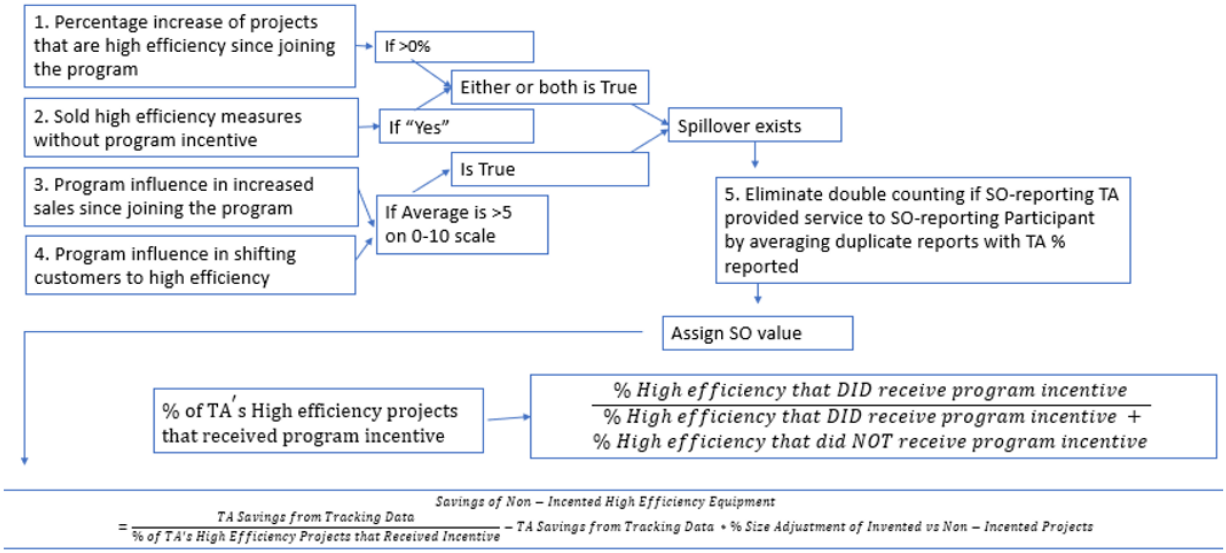
Source: Illinois TRM, version 7.0

Figure 3. EESP Free Ridership Algorithm



Source: Navigant analysis

Figure 4. EESP Participant Spillover Algorithm



Source: Illinois TRM, version 7.0

DETAILED NTG RESULTS

Free Ridership Consistency Check Analysis

None of the participant surveys were excluded from the analysis due to inconsistencies or non-response. However, we discovered that 30 of 110 respondents, or 27 percent, offered puzzling answers to the two counterfactual questions:

- When asked to rate the likelihood of having implemented any measure without the program, 30 respondents offered a lower rating than they offered for the likelihood that they would have implemented a measure with similar efficiency without the program. We suspect that these people are saying that there was a low likelihood that they would have done anything without the program, but assuming they had done so, they would have implemented a project with similar savings.
- Our evaluation team determined that the most appropriate method to analyze these responses was to average the two counterfactual questions and apply the timing adjustment to this average. However, we recommend a change to the questions (and hence the algorithm) for future research to clarify that the question is asking about any upgrades that they would have undertaken in absence of the program, and what the likelihood would be that these would have been a measure with the same efficiency.

Two of the EESP surveys triggered a consistency check, and an additional 10 offered responses that were inconsistent with open ended responses throughout the course of the survey. In these cases, the analysis team removed only the clearly confused component response, applying the recommended analysis to the remaining components of the free ridership algorithm. One EESP was removed from the analysis because the person had a tenuous relationship to the program, spent over one-third less time responding to the survey than the average response time, and offered consistently inconsistent responses to the questions.

Free Ridership Component Score Triangulation

The free ridership as reported by service providers is 0.068, while the free ridership as reported by participants is 0.09.

Combining Participant and Service Provider Results. Navigant calculated a weighted average of the participant and service provider free ridership utilizing the triangulation approach[1] shown in Table 5 to arrive at one recommended free ridership score. Navigant rated the survey data on three aspects: accuracy, validity, and representativeness, using a scale of 0 to 10 where 10 means "extremely so" and 0 means "not at all".

Table 5. Triangulation Weighting Approach

NTG Triangulation Data and Analysis	Participants	Service Providers
How likely is this approach to provide an accurate estimate of free ridership?	6	8
How valid is the data collected/analysis?	5	5
How representative is the sample?	3.3	6.7
Average Score	4.8	6.6
Sum of Averages	11.4	11.4
Weight	**0.42**	**0.58**

Source: Navigant analysis

Navigant arrived at the accuracy score based on our understanding of the difference between participant and service provider understandings of the marketplace and the likelihood of customers implementing the recommended improvements without the program: we rate the service provider data as more accurate than the participant data. We assigned identical validity scores to both populations. We based the representativeness score on the savings the respondents contributed to the program, calculated at 100 * XX% of savings delivered by the respondents (i.e., participants at 100 * 3.3%, service providers at 100 * 66%). The weights were determined as (average score) / (sum of averages). These weights were subsequently applied to the researched NTG values for the participants and service providers, respectively, and the weighted values summed:

$$\begin{aligned} Free\ Ridership &= (Participant\ FR) * (Participant\ Weight) + (EESP\ FR) * (EESP\ Weight) \\ &= 9.0\% * 0.42 + 6.8\% * 0.58 \\ &= 7.7\% \end{aligned}$$

Navigant recommends using the weighted free ridership estimate of 7.7 percent achieved through this triangulation of 9 percent reported by the participants and 6.8 percent reported by service providers. The triangulation weighting reflects the service providers' greater understanding of the market and higher representation of the energy savings achieved through the program.

Spillover Estimation

Navigant followed TRM protocol to assess spillover. This includes asking the participants if they had implemented or installed additional energy savings measures to reduce consumption at their facility that

[1] TRM section 5.1

were not incented. Navigant included questions to identify spillover candidates and measures, paraphrased below:

- Since completing your project, have you installed any additional energy efficient equipment or replaced any old equipment at this facility or at any other applicable facilities within ComEd's service territory?
- Did you receive any financial incentives or technical assistance from ComEd, another utility, the equipment manufacturer, or the government to help with this project?
- How important was your experience in the Small Business offer on your installing **<MEASUREX>** outside ComEd's program? Please use a 0-10 scale, where 0 means 'not at all important', and 10 means 'extremely important'?

Thirteen participants reported having implemented or installed additional operations or measures to save energy at their facilities since participating in the program, with six of those qualifying as spillover. The savings attributable to these spillover measures result in a participant spillover rate of 0.005.

EESP spillover questions asked if they had implemented or installed additional energy savings measures to reduce consumption at their client facilities that were not incented, and what impact they feel the ComEd offer has on business development and sales of high efficiency measures within the ComEd territory that are not incented. Navigant included the following questions to identify spillover candidates and measures, paraphrased below:

- Did you sell any additional high efficiency measures without ComEd Offer rebates in 2018?
- How influential do you think the Small Business Offer was in shifting the customer from standard efficiency to high efficiency measures? Please use our 0-10 point scale, where 0 means not at all influential and 10 means extremely influential.
- On average, did high efficiency projects that did NOT receive a rebate tend to be larger, smaller, or similarly-sized to rebated projects?

EESPs reported spillover at a rate of 0.04 percent.

Combining Free Ridership and Spillover to Create Program NTG Ratio

The NTG equation is 1- free ridership + spillover. Following this, estimates of free ridership and spillover were added together, and the resulting value was subtracted from unity (1.0) to yield the NTG ratio for the program, as shown in Table 6, and following the formula:

$$NTG = 1 - [(Participant\ FR * Participant\ Weight) + (EESP\ FR * EESP\ Weight)] + Participant\ Spillover + EESP\ Spillover$$

Table 6. Free Ridership and Spillover for the SBO Program

Program	Metric	Free Ridership	Participant Spillover	EESP Spillover	NTG
SBO	kWh	0.077	0.005	0.040	0.968

Source: Evaluation team analysis

APPENDIX: SBO PROGRAM NTG HISTORY

	Small Business Offer
EPY1	No Program
EPY2	No Program
EPY3	No Program
EPY4	**Retroactive application of NTG of 0.95** **Free-Ridership 5%** **Spillover 0%** **Method**: Customer self-report. 84 NTG surveys completed from a population of 181. Basic method of NTG analysis was used. No spillover was found. Customer participant self-reported Free-Ridership was 17 percent for ComEd. Individual trade ally responses to Free Ridership questions were weighted by their respective fuel-specific program savings contributions and combined for a fuel-specific overall Free-Ridership rate. This approach resulted in an evaluation estimate of 5 percent Free-Ridership for electric measures and was used to calculate the NTG of 0.95 for this ComEd program.
EPY5	SAG Consensus: • 0.90
EPY6	SAG Consensus: • 0.95
EPY7	**NTG: 0.95** No new NTG research in PY5. **Free Ridership: 5%.** Customer self-report survey. **Participant Spillover: 0%** Customer and trade ally self-report survey. **Nonparticipant Spillover: 0%** Trade ally survey Three small participant spillover projects were included in the ComEd NTGR, but the impact (about 0.003 added) was not significant at the two-digit level. Trade allies provided anecdotal evidence of non-participant spillover for electric measures, but they did not provide enough information to quantify it.
EPY8	**Recommendation** (based on average of PY7 Participant Survey & PY4 TA Interviews): **NTG: 0.91** **Free-Ridership**: 0.11 (based upon average of PY7 Participant Survey of FR 0.16 and PY4 TA Interviews FR 0.05) **Participant Spillover: 0.02** (based upon PY7 SO research) **Nonparticipant spillover: 0.0**
EPY9	**NTG: 0.89** **Free-Ridership: 0.11** **Participant Spillover: 0.02** (based on PY7 SO Research) **Nonparticipant spillover: 0.0** **NTG Research Source**: PY 7 Research – Free-Ridership and Spillover: Participant and TA self-report, real-time approach **Free-Ridership: 0.11** – (based upon average of PY7 Participant Survey of FR 0.16 and PY4 TA Interviews FR 0.05) **Participant Spillover: 0.02** (based upon PY7 SO research) **Nonparticipant spillover: 0.0**

	Small Business Offer
CY2018	**NTG: 0.91** **Free-Ridership**: 0.11 **Participant Spillover**: **0.02** (based on PY7 SO Research) **Nonparticipant spillover: 0.0** **NTG Research Source**: PY 7 Research – Free-Ridership and Spillover: Participant and TA self-report, real-time approach **Free-Ridership: 0.11** – (based upon average of PY7 Participant Survey of FR 0.16 and PY4 TA Interviews FR 0.05) **Participant Spillover: 0.02** (based upon PY7 SO research) **Nonparticipant spillover: 0.0**
CY2019	**NTG: 0.92** **Free-Ridership: 0.10** - (based upon 46/54 participant/TA weighting from TRM v7 method applied to PY7 research) **Participant Spillover: 0.02** (based on PY7 SO Research) **Nonparticipant spillover: 0.0** **NTG Research Source**: Participant and TA self-report (real time) - FR & SO are based upon PY7 Participant Surveys and updated TA interviews (PY8)

Source:
http://ilsagfiles.org/SAG_files/NTG/2019_NTG_Meetings/Corrected_NTG_Values/ComEd_NTG_History_and_CY2019_Recommendations_Aerator_and_Showerhead_Correction_2019-04-12.pdf