Guidehouse
Outwit *Complexity*

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From: Amy Buege and Kumar Chittory, Verdant Associates

Date: August 17, 2022

Re: Net-to-Gross Research Results for the ComEd Custom Program and Data Center Subprogram

Executive Summary

This memo presents the findings from the net-to-gross (NTG) study of the ComEd Custom program, which includes regular Custom projects and Data Center projects. The NTG calculations rely on the NTG algorithms agreed to by the Illinois Stakeholder Advisory Group (SAG) Non-Residential Net-to-Gross Working Group and use the self-report approach for estimating free ridership and spillover. These results will inform Guidehouse's September 2022 draft recommendations to the Illinois SAG of NTG values to be used for this program in CY2023.

Findings are based on in-depth telephone interviews and web surveys with customers who participated in the program in CY2021. The interviews and surveys researched free ridership (FR) and spillover (SO) effects. For Custom projects, the NTG findings are based on the results of 16 in-depth interviews and 17 web surveys with decision makers responsible for 50 projects which account for 69% of the CY2021 ex ante savings from the population of 141 Custom projects. For Data Center projects, six in-depth interviews were completed (no web surveys) on projects encompassing 96% of the ex ante savings from the population of 9 Data Center projects.

As part of CY2020 evaluation, SAG approved using a three-year rolling NTG average for the Custom and Data Center Projects. Table 1 provides the three-year FR and NTG ratios for the Custom Projects. The LED Streetlighting measures are not included in this table as the SAG approved NTG (from CY018 research) of 0.81 apply.

Table 1 Three Year Combined Free Ridership and NTG Research Results for the Custom Projects

Measure	Savings Type	Free Ridership	Spillover	NTG Ratio
Custom Projects	kWh	0.47	0.00	0.53
Custom Projects	kW	0.55	0.00	0.45

Source: Evaluation team analysis

Table 2 provides the three-year FR and NTG ratios for the Data Center Projects by measure type.

Table 2. Three Year Combined Free Ridership and NTG Research Results for the Data Center Projects

Measure	Savings Type	Free Ridership	Participant Spillover	NTG Ratio
Data Center New Construction	kWh	0.65	0	0.35
Data Center Other	kWh	0.53	0	0.47
Data Center New Construction	kW	0.50	0	0.50
Data Center Other	kW	0.58	0	0.42

Free Ridership and Spillover Research Approach

Custom Projects

For CY2021, the evaluation team conducted a combination of in-depth telephone interviews and web surveys with key decision makers. The entire population was sorted by ex ante savings and was stratified into three categories (Stratum 1 – Large Projects, Stratum 2 – Medium Projects, and Stratum 3 – Small Projects) such that each stratum contains about one-third of the total population savings. In-depth interviews were attempted for 20 projects that overlap with the gross sample for the Custom program. Web surveys were emailed to all Stratum 3 (small projects) decision makers who were not included in the in-depth interview sample. The same survey instrument was used for both the interviews and the web surveys.

Respondents who were identified as the decision maker for more than one project in the sample were asked whether the decision-making process was the same across all their projects, and, if so, if their responses were applicable to all their projects. For the respondents where this was true, their responses were applied to all their projects in the population. As a result, the 33 completed in-depth interviews and web surveys in the CY2021 sample constituted 50 projects in the overall population and represented 69% of the ex ante savings. Table 3 below reports survey representation for free ridership and spillover question batteries for the Custom program.

Table 3. Custom Projects Free Ridership and Spillover Research Representation

Interview Type	Actual Completes	Analyzed Completes*	Projects Represented	Share of Program Savings Represented by Analyzed Completes	Projects Qualified for Spillover
In-depth	16	16	29	59%	0
Web Surveys	18	17	21	10%	0
Total	**34**	**33**	**50**	**69%**	**0**

* Analyzed completes is the count of responses used to develop the free ridership and spillover estimates. It excludes responses that failed consistency checks or lacked required data.
Source: Evaluation team analysis

Data Center Projects

There were nine Data Center projects in the population, and one of the large new construction projects represented around 67% of the total ex ante savings. Because of the small population, it was not stratified into large, medium and small projects. In-depth interviews were conducted for six projects in the gross impacts analysis sample, and the results were rolled up to the entire population. As seen in Table 4, the CY2021 sample for the Data Center represents 96% of the ex ante savings.

Table 4. Data Center Projects Free Ridership and Spillover Research Representation

Interview Type	Population	Actual Completes	Analyzed Completes*	Share of Program Savings Represented by Analyzed Completes	Projects Qualified for Spillover
In-Depth	10	6	6	96%	0

* Analyzed completes is the count of responses used to develop the free ridership and spillover estimates. It excludes responses that failed consistency checks or lacked required data.
Source: Evaluation team analysis

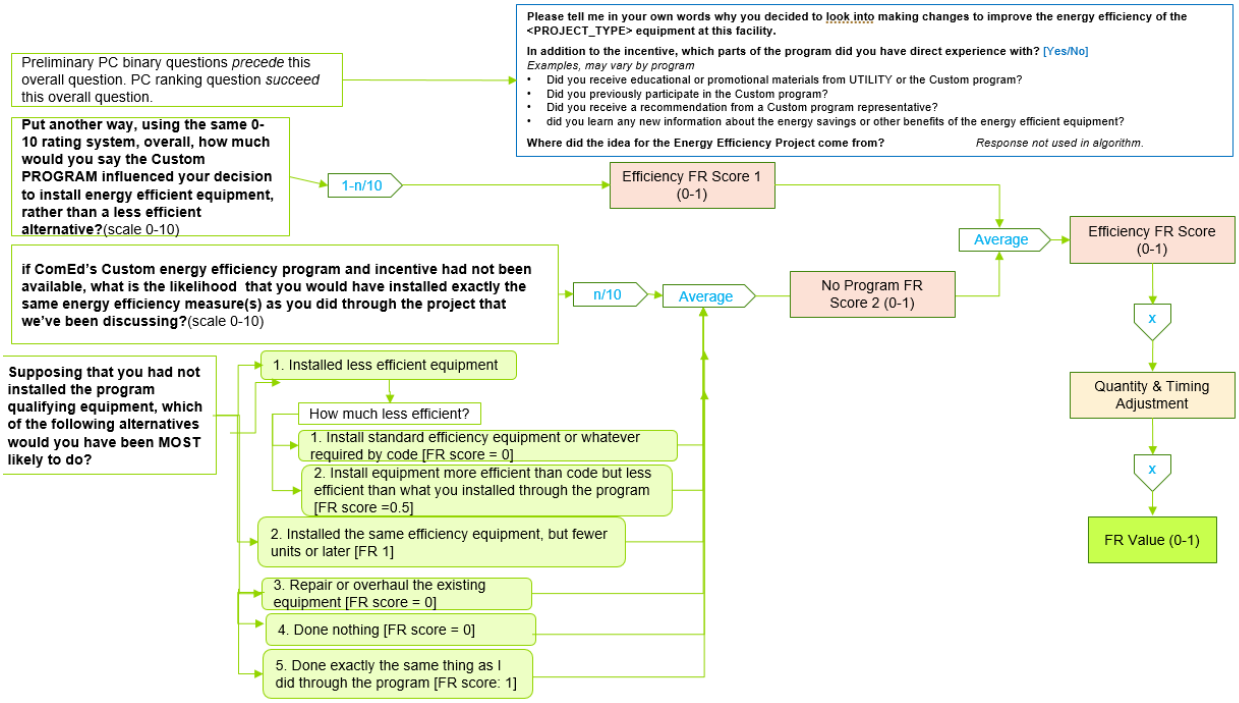
Free Ridership and Spillover Protocols

The evaluation team applied the relevant free ridership agreed by the Illinois Non-Residential Net-to-Gross Working Group and the and spillover 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 Custom projects. The questions and analysis are based on the TRM v9.0 Core Non-Residential Free Ridership algorithm, with updates based on the Illinois SAG NTG Working Group consensus in 2020.

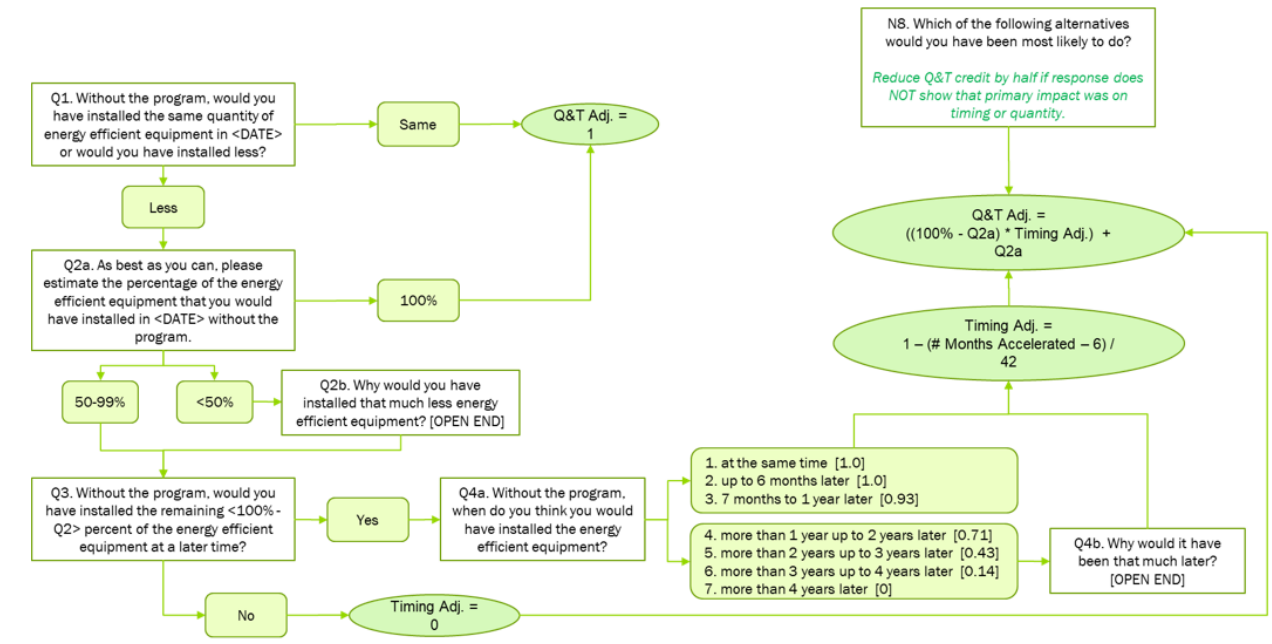
Figure 1. Custom Program Free Ridership Overview



Source: Based on Illinois Non-Residential NTG Working Group consensus algorithms for the 2021 evaluation.

The Quantity and Timing adjustment shown in the NTG algorithm above is estimated using the flow chart shown in Figure 2 below.

Figure 2. Quantity and Timing Adjustment

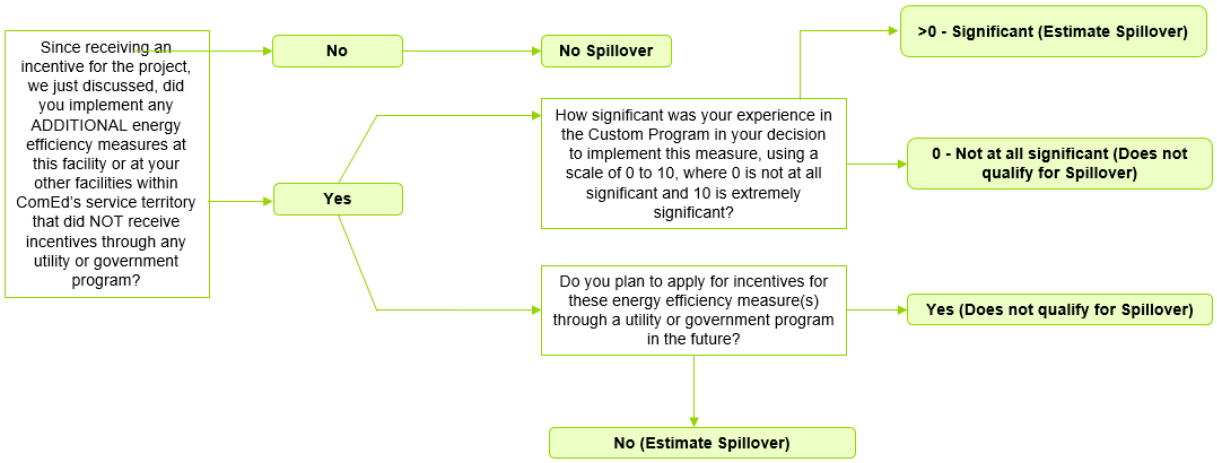


Source: Based on Illinois Non-Residential NTG Working Group consensus algorithms for the 2021 evaluation.

Participant Spillover Estimation

The evaluation team used the Core Participant Spillover protocol as specified in Illinois TRM v9.0 to qualify non-rebated energy efficiency improvements as spillover. This protocol is applicable to most commercial, industrial, and public sector programs. Figure 3 illustrates the spillover qualification screening process for the Custom projects.

Figure 3. Core Non-Residential Participant Spillover Protocol from TRM v9.0



Source: Evaluation team representation of TRM v9.0

Detailed Free Ridership Results

The Free Ridership results from the research conducted on the CY2021 population for the Custom and Data Center projects are provided in this section. The results from the CY2021 population are used to estimate the three-year rolling average.

Custom Projects

Table 5 summarizes Guidehouse's CY2021 NTG results for the Custom projects and the SAG approved NTG (from CY2018 research) for the LED Streetlighting projects.

Table 5. Summary of Free Ridership, Spillover and NTG Results for the CY2021 Custom Projects

Measure	Savings Type	Free Ridership	Relative Precision at 90% CI	Spillover	NTG Ratio
Custom Projects (CY2021)	kWh	0.45	9%	0.00	0.55
LED Streetlighting (CY2018)	kWh	0.19	--	0.00	0.81
Custom Projects (CY2021)	kW	0.49	10%	0.00	0.51
LED Streetlighting (CY2018)	kW	0.19	--	0.00	0.81

Note: LED Streetlighting NTG was deemed in CY2018.
Source: Evaluation team analysis

Table 6 summarizes FR findings for Custom projects across the three size strata. Stratum 1 represents the largest projects, Stratum 2 consists of medium-sized projects, and Stratum 3 contains the smallest projects. Stratum 1 and Stratum 2 NTG research relied entirely upon professional interviews, while a combination of professional interviews and web surveys was used for Stratum 3 projects.

Table 6. CY2021 Custom Projects Breakdown by Sampling Strata

Sampling Stratum	Number of Projects Represented in Sample	Ex Ante kWh in Sample	Ex Ante Population	Ex Ante kWh in Population	Percent of Savings	FR
Stratum 1 Large Projects	4	8,397,832	4	8,397,832	100%	0.53
Stratum 2 Medium Projects	7	5,103,682	9	7,656,282	67%	0.50
Stratum 3 Small Projects	39	3,538,377	111	8,525,321	42%	0.33
All Custom Projects	**50**	**17,039,891**	**123**	**24,579,434**	**69%**	**0.43**

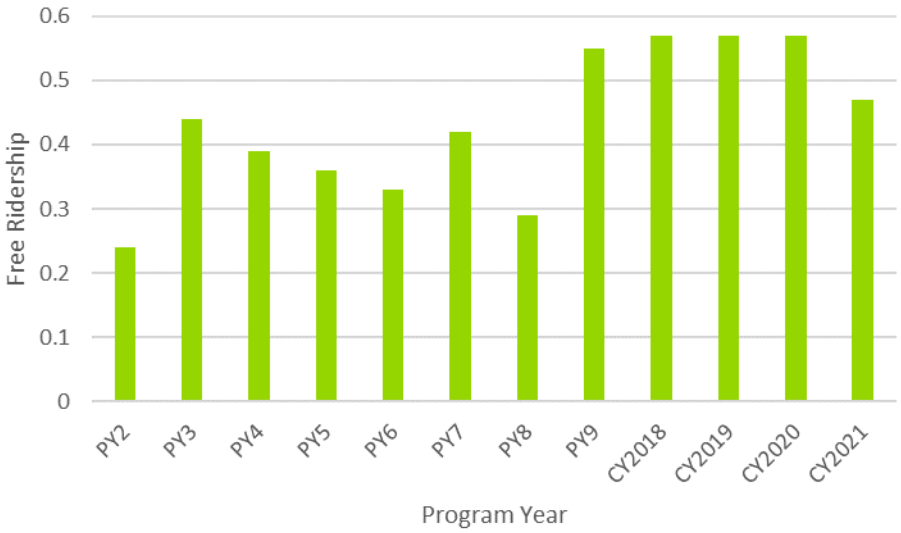
Stratum 1 sample includes one Streetlighting Project.
Source: Evaluation team analysis

As shown in Table 1 above, the savings-weighted energy FR across all Custom projects, excluding LED Streetlighting, was 0.45 (NTG = 0.55).

Figure 4 below shows that the Custom program FR fluctuated between 0.28 and 0.44 from the beginning of the program until PY9. From PY9 to CY2020, the FR was consistently around 0.55. The high level of FR for Custom projects from PY9 to CY2020 was driven by several large and medium legacy[1] projects and several small LED lighting projects for which respondents reported high efficiency lighting was standard practice. The current FR of 0.45 is lower compared to the previous years and is mainly driven by the low FR from the smaller Stratum 3 projects, as discussed below.

[1] Projects where NTG research was conducted during an earlier phase are referred to as legacy projects. These are generally phased projects where the incentive payment has been broken into multiple components and is paid out over more than one program year. For these projects, decision makers were contacted to verify that the responses from the previous evaluation cycle(s) still apply. In all cases, the decision maker confirmed that they do. As a result, the interview results and NTG ratios from the previous phase(s) apply to the current year's analysis.

Figure 4. Comparison of Custom Project Evaluated Free Ridership over Program Years



Note: These values are based on the researched program year (no multi-year averages) and thus differ from the deemed values in the appendices.
Source: Evaluation team analysis

The FR for Stratum1 and Stratum 2 for CY2021 (0.53 and 0.50 respectively) are in the same range when compared to CY2020 (0.44 and 0.54). However, the FR for Stratum 3 projects decreased significantly from 0.83 to 0.34 between CY2020 and CY2021. In CY2020, some of the largest Stratum 3 projects had high levels of free ridership as they reported the program had little influence on the Custom projects. This resulted in a very high FR for Strata 3 which drove up the overall FR for the program. In CY2021, the FR for Stratum 3 is significantly lower. Our analysis of Stratum 3 data found the following:

- The composition of the Stratum 3 projects changed from CY2020 to CY2021. The small projects are no longer dominated by lighting projects which tend to have low FR.
- The results from the 17 web surveys (FR = 0.34) conducted this year are consistent with the six in-depth interviews (FR = 0.31) for the Stratum 3 projects. The addition of the web surveys increased the sample size for Stratum 3 and improved the relative precision of the estimate.

Stratum 1 Custom Projects Summary

- Four projects were included in Stratum 1, however two of these four were legacy projects and thus, no data collection was completed for CY2021. The FR for these four Stratum 1 projects ranged from 0.19 to 0.73.
    - One of the two evaluated CY2021 projects was found to have high FR (0.73). The customer indicated they would most likely have installed the incentivized equipment at the same time in the absence of this program.

- The second evaluated project had moderate FR (0.50). This customer indicated the program was influential, however they also stated they would have installed similar equipment without the program.

- There was one legacy Stratum 1 project with moderate FR (0.47). The existing equipment was cheaply made and failing. Without the program, the customer would have likely installed something above code, but less efficient than the program measure.

- The fourth Stratum 1 projects was a Streetlighting project with deemed FR of 0.19 based on prior evaluation results.

Stratum 2 Custom Projects Summary

- For Stratum 2, seven in-depth interviews were completed and resulted in FR ranging from 0.10 to 0.87.
    - The Stratum 2 project with the highest energy savings was a legacy project with high FR (0.87). The decision maker for this project reported that the installed energy efficiency measure was the only reasonable option for them, but they also said that the ComEd program had some influence on the project.

    - Two projects had moderately high FR (0.70 and 0.78). Both customers indicated they would have installed the same equipment without the program and that the incentive was not important in their decision making. However, both the respondents indicated that the ComEd program was somewhat influential in their decision making.

    - The second legacy project in this stratum has moderately low FR (0.40). This respondent indicated that while program factors were somewhat important, their corporate sustainability policy and standard practice were the key drivers for the project.

    - Two of the Stratum 2 projects had low FR (0.10 and 0.18). For both projects, the decision maker reported the incentive and the ComEd program were influential in the decision making. One of the respondents also reported their organization had a corporate goal to reach Net Zero for the facility which influenced their decision making.

Stratum 3 Custom Projects Summary

- For Stratum 3, six in-depth interviews and 17 web surveys were completed for CY2021, representing 39 projects in the population. The FR for these projects ranged from 0.0 to 1.0.
    - The FR for the six in-depth interviews ranged from 0.0 to 0.58 and showed a weighted average FR of 0.31.

        - Two interviews resulted in very low levels of FR (0 and 0.10, respectively). One customer indicated they needed the incentive to complete their project and

without the incentive, their capital budget would have been insufficient to complete the project. The ComEd incentive reduced the payback period to an acceptable length for the customer. The other customer's project was identified through ComEd's Emerging Tech program, and the customer indicated that is highly unlikely to complete this project without ComEd's influence.

- The remaining four interviews led to estimates of moderate FR, ranging from 0.33 to 0.58. One customer with low FR indicated that their project was identified through an SEM Treasure Hunt, but the Custom program influenced them to complete this project. Another respondent with low FR in this group was the decision maker for a series of projects completed for a retail chain conducting a major refresh of all their stores. This retailer had significant sustainability goals driving these projects, however, they indicated the ComEd program influenced some of the technologies they adopted. This respondent indicated their decision making was identical for all the projects in ComEd territory and thus the NTG results from this interview were applied to all their projects completed in CY2021. The third respondent's project was eligible for an ESSER grant and indicated if the Custom incentive had not been available, they would have likely requested more grant money to complete this project. For the fourth project, the respondent provided some inconsistent responses which led to FR of 0.5.

- The FR for the Web surveys ranged from 0.0 to 1.0 with a weighted average FR of 0.34.

None of the respondents who completed a phone interview or web surveys reported completing additional high efficiency improvements that qualified as spillover and thus, the spillover incorporated into the NTG ratios is zero.

Data Center Projects

Table 7 summarizes the FR results for the CY2021 Data Center projects by measure type and the overall program. The Data Center energy FR is high (0.84) compared to previous years mainly because of the large new construction projects. One large new construction project that represented around 67% of the total population had high FR.

Table 7. CY2021 Data Center Projects Free Ridership

Measure	Savings Type	Free Ridership	Participant Spillover	NTG Ratio
Data Center New Construction	kWh	0.87	0	0.13
Data Center Other	kWh	0.59	0	0.41
Data Center Projects	**kWh**	**0.84**	**0**	**0.16**
Data Center New Construction	kW	0.95	0	0.05
Data Center Other	kW	0.57	0	0.43
Data Center Projects	**kW**	**0.90**	**0**	**0.10**

Source: Evaluation team analysis

For this program year, there were not enough co-location or retrofit projects in the population, so they were not stratified separately. Since the new construction projects represent a large portion of the savings and they have significantly different FR compared to the remaining projects, they were stratified separately.

New Construction Data Center Projects Summary

In-depth interviews for all the three new construction Data Center projects in this stratum were completed in previous years. The customers were emailed to explore whether the responses are applicable for the current phase. The customers replied that the previous responses are still applicable, thus we used the values from the previous phases for CY2021. The FR for the three new construction projects in the sample ranged from 0.52 to 0.95.

The largest project in the sample that represented 67% of the total ex ante savings for the Data Center projects did not show any program influence and scored FR of 0.95. This project was a Co-location Data Center where the owners aim to deliver an energy-efficient product to prospective clients. They aim for the lowest Power Utilization Effectiveness (PUE) factor, which is a key metric used by the industry to describe Data Center efficiency. The rebate from the program was “frosting on top of the cake” and it didn’t influence their decision. They are building all their other Data Centers the exact same way, including those in areas without incentives.

Other Data Center Projects Summary

For two projects, the customer reported moderate likelihood that would have installed the same equipment in the absence of the program (5 and 6 on a scale of 10) and that the ComEd program had low to moderate influence on the projects (5 and 3 on a scale of 10). This resulted in moderately high level of FR (0.62 and 0.75) for these two projects.

For one phased project, an interview was conducted in 2020, and the customer reported moderately high program influence which resulted in FR score of 0.33. The customer was contacted as part of the current evaluation to determine whether the responses for the earlier phase are still applicable, and the customer reported that they were the same.

Final NTG Results and Recommendations

As part of the CY2020 evaluation, SAG approved using a three-year rolling average for the Custom Projects NTG. The values that Guidehouse will submit for consideration for NTG ratios for CY2023 are based on savings weighted averages from the combined data for the past three program years (CY2019, CY2020 and CY2021).

The combined NTG findings for the Custom Projects are based on data collected for 84 projects over the three program years representing 51% of the ex ante savings from the population of 514 projects over this same period. In calculating these 3-year values, strata definitions were redefined across the respective populations.

Table 8 provides the three-year FR and NTG ratios for the Custom Projects. The LED Streetlighting measures are not included in this table as the SAG approved NTG (from CY018 research) of 0.81 apply.

Table 8 Three Year Combined Free Ridership and NTG Research Results for the Custom Program

Measure	Savings Type	Free Ridership	Spillover	NTG Ratio
Custom Projects	kWh	0.47	0.00	0.53
Custom Projects	kW	0.55	0.00	0.45

Source: Evaluation team analysis

As for the Custom program, SAG approved a three-year rolling average for Data Center Projects NTG. The values to be considered for proposed NTG ratios for CY2023 are based on savings weighted averages from the combined data for the past three program years (CY2019, CY2020 and CY2021).

The combined NTG findings for the Data Center Projects are based on data collected for 21 projects over the three program years representing 72% of the ex ante savings from the population of 53 projects over this same period. In calculating these 3-year values, strata definitions were redefined across the respective populations.

Table 9 provides the three-year FR and NTG ratios for the Data Center Projects by measure type.

Table 9. Three Year Combined Free Ridership and NTG Research Results for the Data Center Projects

Measure	Savings Type	Free Ridership	Participant Spillover	NTG Ratio
Data Center New Construction	kWh	0.65	0	0.35
Data Center Other	kWh	0.53	0	0.47
Data Center New Construction	kW	0.50	0	0.50
Data Center Other	kW	0.58	0	0.42

Appendix A. Custom Program NTG History

	Business Custom Incentive
EPY1	**NTG** 0.72 **Free Ridership** 28% **Spillover** 0% **Method**: Customer self-reports. 24 surveys completed from a population of 88.
EPY2	**NTG** 0.76 **Free Ridership** 24% **Spillover** 0% **Method**: Customer self-reports. 20 surveys completed from a population of 345.
EPY3	**NTG** 0.56 for kWh and 0.46 for kW **Free Ridership** 44% **Spillover** 0% **Method**: Customer self-reports. 67 surveys completed from a population of 887.
EPY4	**Deemed using PY2 = 0.76** **PY4 Research NTG** 0.61 for kWh and 0.64 for kW **Free Ridership** 39% **Spillover** 0% **Method**: Customer self-reports. 63 surveys completed from a population of 367.
EPY5	**Illinois SAG Consensus:** • **0.56**
EPY6	**Illinois SAG Consensus:** • **0.61 kWh (deemed by Illinois SAG for PY6)** • **0.64 kW (deemed by Illinois SAG for PY6)** Values for kilowatt-hours and kilowatts are derived from PY4 evaluation research results and are based on the Illinois SAG-approved values.

	Business Custom Incentive
EPY7	**Custom NTG: 0.64** **Free Ridership: 0.36** **Participants Spillover: Negligible** **Nonparticipants Spillover: Negligible** **Custom NTG: 0.48** **Free Ridership 0.52** **Participants Spillover: Negligible** **Nonparticipants Spillover: Negligible** Source: Participant self-report telephone survey. The spillover effects were examined in this evaluation and their magnitude was found to be small as discussed below in the spillover section. Quantification of spillover was not included in the calculation of the NTG ratio for EPY5. Notes: In PY5, Data Center were combined with Custom, while in PY6, Data Center were managed separately from Custom. Interviews were completed with five of 11 Data Center projects.
EPY8	**Recommendation (based upon PY6 research):** **Custom NTG: 0.67** **Custom Free Ridership: 0.33** **Custom Spillover: 0.005** **NTG Research Source:** Free Ridership and Spillover: PY6 participant and vendor research
EPY9	**Custom NTG: 0.58** **Custom Free Ridership: 0.42** **Custom Spillover: Negligible** **NTG Research Source:** Free Ridership and Spillover: PY7 participant and vendor research
CY2018	**Custom NTG kWh: 0.58** **Custom NTG kW: 0.70** **Custom Free Ridership kWh: 0.42** **Custom Free Ridership kW: 0.30** **Custom Spillover: Negligible** **NTG Research Source:** Free Ridership: PY7 participant and vendor research Spillover: PY7 participant self-report data The evaluation team performed telephone surveys in PY8, but the analysis will be performed and combined with PY9 findings

	Business Custom Incentive
CY2019	**Custom NTG kWh: 0.58** **Custom NTG kW: 0.70** **Custom Free Ridership kWh: 0.42** **Custom Free Ridership kW: 0.30** **Custom Spillover: Negligible** **NTG Research Source:** Free Ridership and Spillover: PY7 participant and vendor research The evaluation team performed telephone surveys in PY8, but the analysis will be performed and combined with PY9 findings.
CY2020	**Custom NTG kWh: 0.56** **Custom NTG kW: 0.58** **Custom Free Ridership kWh: 0.44** **Custom Free Ridership kW: 0.42** **Custom Spillover: Negligible** **NTG Research Source:** CY2018 participating customer surveys
CY2021	**Custom NTG, All but Street Lights, Data Center: 0.51** **Custom NTG, LED Street Lights: 0.81** **Custom Spillover: 0.00** **NTG Research Source:** Values based on 2018 and 2019 Guidehouse participant research results. *Streetlights NTG from the Municipal streetlights in the LED Street Lights program*
CY2022	**Custom NTG kWh: 0.39 kW: 0.28** **Custom Free Ridership kWh: 0.61 kW: 0.72** **Custom Spillover: Negligible** **LED Streetlighting NTG kWh: 0.81 kW: 0.81** **LED Streetlighting Free Ridership kWh: 0.19 kW: 0.19** **LED Streetlighting Spillover: Negligible** **NTG Research Source:** Values based on 2020 Guidehouse participant research results. *Streetlights NTG from the Municipal streetlights in the LED Street Lights program*

	Business Custom Incentive
CY2023	**Custom NTG kWh: 0.55 kW: 0.51** **Custom Free Ridership kWh: 0.45 kW: 0.49** **Custom Spillover: Negligible** **LED Streetlighting NTG kWh: 0.81 kW: 0.81** **LED Streetlighting Free Ridership kWh: 0.19 kW: 0.19** **LED Streetlighting Spillover: Negligible** **NTG Research Source:** Values based on 2021 Guidehouse participant research results. *Streetlights NTG from the Municipal streetlights in the LED Street Lights program*

Appendix B. Data Center Program NTG History

	Data Center
EPY7	**Data Center NTG: 0.48** **Free Ridership 0.52** **Participants Spillover: Negligible** **Nonparticipants Spillover: Negligible** **See EPY7 Custom program**
EPY8	**Recommendation (based upon PY6 research):** **Data Center NTG kWh: 0.60** **Data Center NTG kW: 0.57** **Data Center Free Ridership kWh: 0.40** **Data Center Free Ridership kW: 0.43** **Data Center Spillover: Negligible** **NTG Research Source:** Free Ridership and Spillover: PY6 participant and vendor self-report data
EPY9	**Data Center NTG: 0.68** **Data Center Free Ridership: 0.36** **Data Center Spillover: Negligible** **NTG Research Source:** Free Ridership and Spillover: PY7 participant and vendor self-report data
CY2018	**Data Center NTG kWh and kW: 0.68** **Data Center Free Ridership kWh and kW: 0.32** **Data Center Spillover: Negligible** **NTG Research Source:** Free Ridership: PY7 participant and vendor self-report data Spillover: PY7 participant and vendor self-report data The evaluation team performed telephone surveys in PY8, but the analysis will be performed and combined with PY9 findings.

	Data Center
CY2019	**Data Center Co-Locations: New Construction NTG kWh and kW: 0.20** **Data Center Co-Locations: New Construction Free Ridership kWh and kW: 0.80** **Data Center Co-Locations Spillover: Negligible** **Data Center Co-Locations: Retrofit NTG kWh and kW: 0.72** **Data Center Co-Locations: Retrofit Free Ridership kWh and kW: 0.28** **Data Center Co-Locations Spillover: Negligible** **Data Center Non-Co-Locations NTG kWh and kW: 0.71** **Data Center Non-Co-Locations Free Ridership kWh and kW: 0.29** **Data Center Non-Co-Locations Spillover: Negligible** **NTG Research Source:** Free Ridership: PY8 and PY9 participating customer surveys Spillover: PY8 and PY9 participating customer surveys The evaluation team performed telephone surveys in PY8, but deferred analysis until PY9. The recommended values are based on the combined PY8/9 results.
CY2020	**Data Center Co-Locations, New Construction NTG kWh: 0.44** **Data Center Co-Locations, New Construction NTG kW: 0.34** **Data Center Co-Locations, New Construction Free Ridership kWh: 0.56** **Data Center Co-Locations, New Construction Free Ridership kW: 0.66** **Data Center Co-Locations Spillover: Negligible** **Data Center Co-Locations, Retrofit NTG kWh: 0.78** **Data Center Co-Locations, Retrofit NTG kW: 0.82** **Data Center Co-Locations, Retrofit Free Ridership kWh: 0.22** **Data Center Co-Locations, Retrofit Free Ridership kw: 0.18** **Data Center Co-Locations Spillover: Negligible** **Data Center Non-Co-Locations NTG kWh and kW: 0.67** **Data Center Non-Co-Locations Free Ridership kWh and kW: 0.33** **Data Center Non-Co-Locations Spillover: Negligible** **NTG Research Source:** Free Ridership: CY2018 participating customers survey Spillover: CY2018 participating customers survey

	Data Center
CY2021	**Co-location New Construction kWh: 0.43** **Co-location New Construction Free Ridership kWh: 0.57** **Co-location New Construction Spillover: Negligible** **Data Center Other Projects kWh: 0.72** **Data Center Other Projects kWh: 0.28** **Data Center Other Projects Spillover: Negligible** **NTG Research Source:** CY2019 participating customer surveys
CY2022	**New Construction NTG kWh: 0.46 kW: 0.75** **New Construction Free Ridership kWh: 0.54 kW: 0.25** **New Construction Spillover: Negligible** **Retrofit NTG kWh: 0.38 kW: 0.30** **Retrofit Free Ridership kWh: 0.62 kW: 0.70** **Retrofit Spillover: Negligible** **NTG Research Source:** CY2020 participating customer surveys
CY2023	**New Construction NTG kWh: 0.13 kW: 0.05** **New Construction Free Ridership kWh: 0.87 kW: 0.95** **New Construction Spillover: Negligible** **Data Center Other Projects NTG kWh: 0.41 kW: 0.43** **Data Center Other Projects Free Ridership kWh: 0.59 kW: 0.57** **Data Center Other Projects Spillover: Negligible** **NTG Research Source:** CY2021 participating customer surveys

https://ilsag.s3.amazonaws.com/ComEd-NTG-History-and-CY2021-Recs-2020-09-30-Final.pdf