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CC: Elizabeth Horne, David Brightwell, ICC Staff; Jeff Erickson, Nishant Mehta, Christopher Frye, Guidehouse

From: Amy Buege and Kumar Chittory, Verdant Associates

Date: September 16, 2024

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

1. 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 2024 draft recommendations to the Illinois SAG of NTG values to be used for this program in CY2025.

The findings are derived from in-depth telephone interviews and web surveys conducted with customers who participated in the Custom Program during CY2023. These interviews and surveys researched free ridership (FR) and spillover (SO) effects. For the Custom Program, the NTG findings are based on the outcome of 17 in-depth interviews¹ and 11 web surveys with CY2023 participants. The 28 interviews and web surveys represent 40 CY2023 projects and account for 75% of the ex ante savings population.

The results for Custom and Data Center measures are consolidated into a single table for the Custom Program. Due to the differences in project design, implementation, and NTG research findings, the recommendations for the Data Center measures, as well as LED Streetlighting measures, are reported separately.

An outcome of the CY2020 evaluation was that SAG approved using a three-year rolling NTG weighted average for Custom and Data Center Projects. The FR and NTG ratios for each researched year, along with the recommended three-year values for each measure type, are provided in **Error! Reference source not found.** and Table 2. CY2023 research was not conducted for LED Streetlighting measure and thus the recommended NTG values are based on previous research.

¹ One of the interview was conducted as part of the CY2021 NTG data collection effort and the results were carried forward to CY2023 as the customer completed additional projects in CY2023 that had an identical scope.

Table 1. Three Year Combined kWh Free Ridership and NTG Research Results for the Custom Program

Measure Type	Researched Year	Savings Type	Free Ridership	Spillover	NTG Ratio
Custom Projects – Non-DC	CY2021	kWh	0.45	0.00	0.55
Custom Projects – Non-DC	CY2022	kWh	0.34	0.00	0.66
Custom Projects – Non-DC	CY2023	kWh	0.32	0.00	0.68
Custom Projects – Non-DC	3 Year Average	kWh	0.37	0.00	0.63
Data Center New Construction	3 Year Average⁺	kWh	0.94	0.00	0.06
Data Center Other	CY2020	kWh	0.62	0.00	0.38
Data Center Other	CY2021	kWh	0.59	0.00	0.41
Data Center Other	CY2023	kWh	0.20	0.00	0.80
Data Center Other	3 Year Average[#]	kWh	0.51	0.00	0.49
LED Streetlighting	CY2018[~]	kWh	0.19	0.00	0.81

+ Because there is only one CY2023 Data Center New Construction Project in the population, the individual results for each year are not provided to ensure anonymity.

No new research was conducted for Data Center Other measures in CY2022. The 3-year average includes data collected from CY2020, CY2021 and CY2023.

~ No new research was conducted for the LED Streetlighting measures therefore the existing deemed values from CY2018 are recommended for those measures.

Source: Evaluation team analysis

Table 2. Three Year Combined kW Free Ridership and NTG Research Results for the Custom Program

Measure Type	Researched Year	Savings Type	Free Ridership	Spillover	NTG Ratio
Custom Projects – Non-DC	CY2021	kW	0.49	0.00	0.51
Custom Projects – Non-DC	CY2022	kW	0.44	0.00	0.56
Custom Projects – Non-DC	CY2023	kW	0.28	0.00	0.72
Custom Projects – Non-DC	3 Year Average	kW	0.43	0.00	0.57
Data Center New Construction	3 Year Average⁺	kW	0.94	0.00	0.06
Data Center Other	CY2020	kW	0.70	0.00	0.30
Data Center Other	CY2021	kW	0.57	0.00	0.43
Data Center Other	CY2023	kW	0.20	0.00	0.80
Data Center Other	3 Year Average[#]	kW	0.60	0.00	0.40
LED Streetlighting	CY2018[~]	kW	0.19	0.00	0.81

+ Because there is only one CY2023 Data Center New Construction Project in the population, the individual results for each year are not provided to ensure anonymity.

* No new research was conducted for the Data Center New Construction measures therefore the existing deemed values from the previous years (CY2020, CY2021 and CY2022) are recommended for those measures.

No new research was conducted for Data Center Other measures in CY2022. The 3-year average includes data collected from CY2020, CY2021 and CY2023.

~ No new research was conducted for the LED Streetlighting measures therefore the existing deemed values from CY2018 are recommended for those measures.

Source: Evaluation team analysis

2. Free Ridership and Spillover Survey Disposition for Custom (Non-DC) Projects

For CY2023, the evaluation team conducted a combination of in-depth telephone interviews and web surveys with key decision makers. The entire population was stratified into three categories based on ex ante savings (Stratum 1 – Large projects, Stratum 2 – Medium projects, and Stratum 3 – Small projects) similar to the gross impact evaluation. In-depth interviews were attempted for the 25 projects that overlap with the Custom Program gross sample. Web surveys were emailed to all Stratum 2 and Stratum 3 decision makers who were not included in the in-depth interview sample.

An attempt was made to conduct in-depth interviews or web surveys for all unique customers in the gross sample who had not been interviewed for similar projects in previous evaluation cycles.

Historical Surveys. In the CY2023 population, there were several customers who had participated in multiple projects across multiple locations (these included corporate customers and school districts), had participated in the program in prior years (legacy customers), or had participated in phased projects across multiple years. In such cases, rather than implementing the full survey again, the evaluation team contacted decision makers to confirm the validity of their responses from the previous evaluation cycle(s). These interviews are categorized as “Historical Surveys” in the table provided below.

A total of 38 CY2023 Custom (Non-DC) projects from the overall population were incorporated into the analysis based on the completion of 15 in-depth interviews and 11 web surveys, which included NTG research from one historical in-depth interview. These projects represented 66% of the total CY2023 Custom Program ex ante savings. Table 3 presents the survey representation for free ridership and projects with qualified spillover for the Custom Program. As shown in the table, none of the CY2023 projects that were assessed qualified for spillover.

Table 3. Custom (Non-DC) Projects Free Ridership and Spillover Research Representation

Interview Type	Actual Completes	Analyzed Completes*	Projects Represented	Share of Ex Ante Savings Represented by Analyzed Completes	Projects Qualified for Spillover
In-depth	15	14	21	47%	0
Web Surveys	12	11	11	8%	0
Historical Surveys	1	1	6	11%	0
Total	28	26	38	66%	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

3. Free Ridership and Spillover Protocols

This section discusses the FR and spillover approach used for the CY2023 research.

3.1 Participant Free Ridership Estimation

The Quantity and Timing adjustment shown in the NTG algorithm above is estimated using the equations from Illinois TRM v12.0.

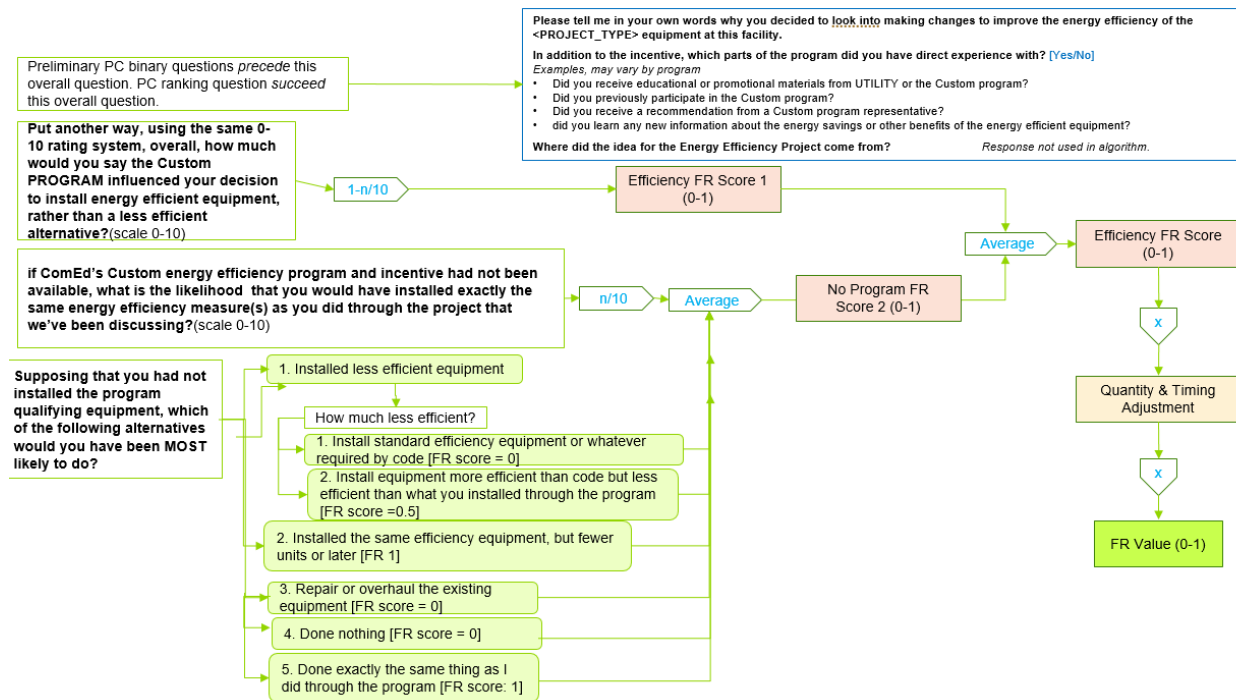
$$3\text{-year Time Horizon Timing Adjustment} = 1 - (\text{Number of Months Expedited} - 6)/30$$

$$Q\&T \text{ Adjustment} = (\% \text{ Not Installed at Same Time} * \text{Timing Adjustment}) + \% \text{ Installed at Same Time}$$

Source: <https://www.ilsag.info/wp-content/uploads/IL-TRM-Version-12.0-Volumes-1-4-Compiled-Final.pdf> Page47

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 Illinois SAG NTG Working Group consensus in 2020 which are consistent with the Core Non-Residential Free Ridership Algorithm from Illinois TRM v12.0.

Figure 1. Custom Program Free Ridership Overview



Source: Based on Illinois Non-Residential NTG Working Group consensus algorithm discussion in 2020.

The Quantity and Timing adjustment shown in the NTG algorithm above is estimated using the equations from Illinois TRM v12.0.

$$3\text{-year Time Horizon Timing Adjustment} = 1 - (\text{Number of Months Expedited} - 6)/30$$

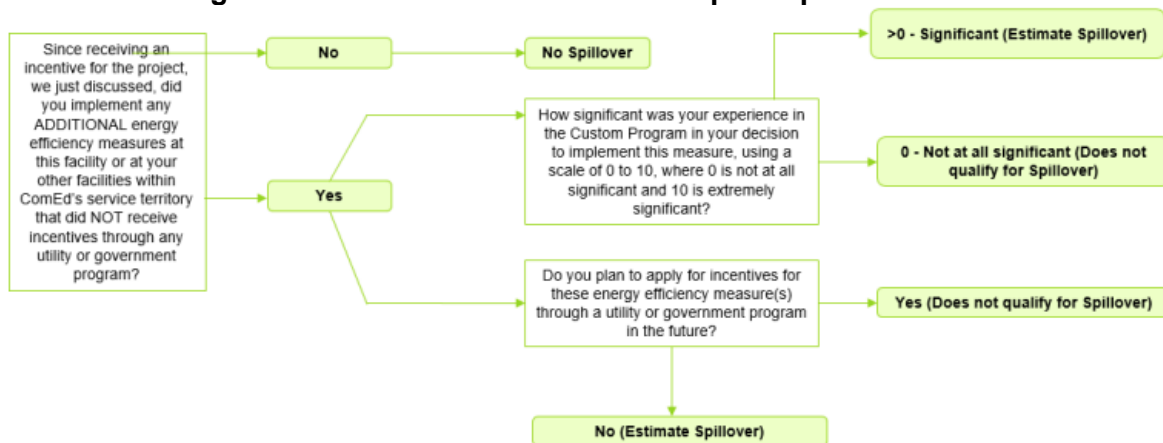
$$Q\&T \text{ Adjustment} = (\% \text{ Not Installed at Same Time} * \text{Timing Adjustment}) + \% \text{ Installed at Same Time}$$

Source: <https://www.ilsag.info/wp-content/uploads/IL-TRM-Version-12.0-Volumes-1-4-Compiled-Final.pdf> Page47

3.2 Participant Spillover Estimation

The evaluation team used the Core Participant Spillover protocol as specified in Illinois TRM v12.0 (Section 3.2.1, “Core Non-Residential Participant Spillover Protocol,”) to qualify non-rebated energy efficiency improvements as spillover. This protocol is applicable to most commercial, industrial, and public sector programs. **Error! Not a valid bookmark self-reference.** illustrates the spillover qualification screening process for the Custom Projects as recommended by TRM v12.0.

Figure 2. Core Non-Residential Participant Spillover Protocol



Source: Evaluation team representation of TRM v12.0, Section 3.1.2

4. Detailed NTG Results

The NTG results from the research conducted on the CY2023 population for the Custom Projects (Non-DC) are provided in this section. None of the respondents who completed a phone interview or web survey reported completing non-incented additional high efficiency improvements that qualified as spillover and thus, the spillover incorporated into the NTG ratios is zero.

Table 4. Summary of Free Ridership, Spillover and NTG Results for the CY2023 Custom Projects

Measure	Researched Year	Savings Type	Free Ridership	Relative Precision at 90% CI	Spillover	NTG Ratio
Custom Projects Non-DC	CY2023	kWh	0.32	3%	0.00	0.68
Custom Projects Non-DC	CY2023	kW	0.30	4%	0.00	0.70

Source: Evaluation team analysis

Table 5 summarizes FR findings for Custom Projects across the three strata. Stratum 1 represents the largest projects, Stratum 2 consists of medium projects, and Stratum 3 contains the smallest projects. For Stratum 1 projects, the NTG research was based exclusively on professional in-depth interviews, while a combination of professional interviews and web surveys were employed for Stratum 2 and Stratum 3 projects.

Table 5. CY2023 Custom Projects Breakdown by Sampling Strata

Sampling Stratum	Ex Ante Population	Ex Ante kWh in Population	Number of Projects Represented in Sample	Ex Ante kWh in Sample	Percent of Savings	FR	NTG Ratio
Stratum 1 Large Projects	4	6,746,974	4	6,746,974	100%	0.38	0.62
Stratum 2 Medium Projects	14	7,057,929	10	4,737,766	64%	0.22	0.78
Stratum 3 Small Projects	68	6,596,692	24	2,714,233	45%	0.34	0.66
All Custom Projects	86	20,401,594	38	14,198,972	70%	0.32	0.68

Source: Evaluation team analysis

4.1.1 Stratum 1 Custom Projects Summary

The four projects in Stratum 1 were included in the sample for CY2023 and the FR for these projects ranged from 0.16 to 0.72.

- Two of the four Stratum 1 projects had low FR (0.16 and 0.20). For one project (FR=0.20), the customer reported the program was very influential and that they would have repaired the existing equipment in the absence of the program. The other customer reported their project (FR=0.16) would have been delayed by three years without the program and that ComEd has been very influential in getting them to focus on increasing the efficiency of their operations.
- One Stratum 1 project had a moderate FR of 0.52. The customer stated that the incentive was very useful and accelerated this project slightly, but also stated that they would have likely installed the same equipment without the program.

- One Stratum 1 project had a high FR of 0.72. The customer reported moderately low program influence and stated that without the incentive they would have installed the same equipment.

4.1.2 Stratum 2 Custom Projects Summary

Ten Stratum 2 projects were included in the sample for CY2023. However, three of these ten were legacy projects, so no new data collection was completed for them in CY2023. For the remaining seven projects, data was collected through six in-depth interviews and one web survey. The FR for those seven projects ranged from 0.03 to 0.50.

- Six of the seven Stratum 2 projects where new data was collected had low FR ranging from 0.03 to 0.27. For these projects, customers reported the ComEd Program incentive helped them to install high efficiency equipment and in the absence of the ComEd Program they either would not have done anything or would have installed standard efficiency equipment (or whatever was required by code).
- One of the Stratum 2 projects had a moderate FR of 0.5. The customer reported that the ComEd incentive was highly influential, but that they probably would have installed the same equipment without the program.

4.1.3 Stratum 3 Custom Projects Summary

In Stratum 3, CY2023 data collection included four professional in-depth interviews and ten web surveys. Additionally, the FR results from similar legacy projects completed by the same customers were applied to 10 projects, leading to a total of 24 projects being included in the analysis. The FR for these Stratum 3 projects ranged from 0.0 to 1.0.

The four projects for which in-depth interviews were conducted demonstrated FR ranging from 0.23 to 1.0.

- One Stratum 3 project had a FR of 1.0. The customer stated that they would have done the exact same project at the same time with or without the incentive.
- Two Stratum 3 projects had moderate FR ranging from 0.40 to 0.65.
 - One Stratum 3 project had a FR of 0.40. The customer stated that the incentive was important, but also the high efficiency equipment is built better and thus they likely would have installed the same equipment in the absence of the program.
 - One Stratum 3 project had a moderately high FR of 0.65. The customer noted that the ComEd incentive was not a primary motive for this project and that the program did not have a significant influence on it.
- One Stratum 3 project had a low FR of 0.23. The customer stated that the ComEd program was heavily influential in this project and that without the program they would have installed equipment more efficient than code but less efficient than what they installed through the program.

The FR for the 10 Stratum 3 web surveys ranged from a low of 0.0 to a high of 0.85. The average FR across these 11 projects was 0.37.

None of the respondents who completed a phone interview or web survey reported completing additional high efficiency improvements that qualified as spillover and thus no spillover was incorporated into the NTG ratios (SO = 0).

5. Final NTG Results and Recommendations

As an outcome of the CY2020 evaluation, SAG approved using a three-year rolling average NTG for Custom Projects. The values that Guidehouse will submit for consideration for NTG ratios for CY2025 are based on savings weighted averages from the combined data for the past three program years (CY2021, CY2022 and CY2023) for all projects where research was conducted in CY2023. If research was not conducted in 2023, then results from prior evaluation years were used (as noted in table notes in table below).

The combined NTG findings for Custom Projects are based on data collected for 114 projects over three program years (CY2021 – CY2023) representing 62% of the ex ante savings from the population of 297 projects completed during the same three program years.

The combined NTG findings for Data Center Other Projects are based on data collected for seven projects over the three program years (CY2020, CY2021 and CY2023) representing 80% of the ex ante savings from the population of 16 projects completed during the same three program years.

The FR and NTG ratios for each researched year, along with the recommended three-year values for each measure, are provided in Table 6 **Error! Reference source not found.** and Table 7 below Table 2. CY2023 research was not conducted for LED Streetlighting measure type and so the recommended NTG values are based on prior program years.

Table 6. Three Year Combined kWh Free Ridership and NTG Research Results for the Custom Program

Measure Type	Researched Year	Savings Type	Free Ridership	Spillover	NTG Ratio
Custom Projects – Non-DC	CY2021	kWh	0.45	0.00	0.55
Custom Projects – Non-DC	CY2022	kWh	0.34	0.00	0.66
Custom Projects – Non-DC	CY2023	kWh	0.32	0.00	0.68
Custom Projects – Non-DC	3 Year Average	kWh	0.37	0.00	0.63
Data Center New Construction	3 Year Average⁺	kWh	0.94	0.00	0.06
Data Center Other	CY2020	kWh	0.62	0.00	0.38
Data Center Other	CY2021	kWh	0.59	0.00	0.41
Data Center Other	CY2023	kWh	0.20	0.00	0.80
Data Center Other	3 Year Average[#]	kWh	0.51	0.00	0.49
LED Streetlighting	CY2018[~]	kWh	0.19	0.00	0.81

+ Because there is only one CY2023 Data Center New Construction Project in the population, the individual results for each year are not provided to ensure anonymity.

No new research was conducted for Data Center Other measures in CY2022. The 3-year average includes data collected from CY2020, CY2021 and CY2023.

~ No new research was conducted for the LED Streetlighting measures therefore the existing deemed values from CY2018 are recommended for those measures.

Source: Evaluation team analysis

Table 7. Three Year Combined kW Free Ridership and NTG Research Results for the Custom Program

Measure Type	Researched Year	Savings Type	Free Ridership	Spillover	NTG Ratio
Custom Projects – Non-DC	CY2021	kW	0.49	0.00	0.51
Custom Projects – Non-DC	CY2022	kW	0.44	0.00	0.56
Custom Projects – Non-DC	CY2023	kW	0.28	0.00	0.72
Custom Projects – Non-DC	3 Year Average	kW	0.43	0.00	0.57
Data Center New Construction	3 Year Average⁺	kW	0.94	0.00	0.06
Data Center Other	CY2020	kW	0.70	0.00	0.30
Data Center Other	CY2021	kW	0.57	0.00	0.43
Data Center Other	CY2023	kW	0.20	0.00	0.80
Data Center Other	3 Year Average[#]	kW	0.60	0.00	0.40
LED Streetlighting	CY2018[~]	kW	0.19	0.00	0.81

+ Because there is only one CY2023 Data Center New Construction Project in the population, the individual results for each year are not provided to ensure anonymity.

No new research was conducted for Data Center Other measures in CY2022. The 3-year average includes data collected from CY2020, CY2021 and CY2023.

~ No new research was conducted for the LED Streetlighting measures therefore the existing deemed values from CY2018 are recommended for those measures.

Source: Evaluation team analysis

5.1 Custom and Data Centers Program NTG History

Custom Program NTG History

Effective Year	Business Custom Incentive
EPY1	<p>NTG 0.72</p> <p>Free Ridership 28%</p> <p>Spillover 0%</p> <p>Method: Customer self-reports. 24 surveys completed from a population of 88.</p>
EPY2	<p>NTG 0.76</p> <p>Free Ridership 24%</p> <p>Spillover 0%</p> <p>Method: Customer self-reports. 20 surveys completed from a population of 345.</p>
EPY3	<p>NTG 0.56 for kWh and 0.46 for kW</p> <p>Free Ridership 44%</p> <p>Spillover 0%</p> <p>Method: Customer self-reports. 67 surveys completed from a population of 887.</p>

Effective Year	Business Custom Incentive
EPY4	<p>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.</p>
EPY5	<p>Illinois SAG Consensus:</p> <ul style="list-style-type: none"> • 0.56
EPY6	<p>Illinois SAG Consensus:</p> <ul style="list-style-type: none"> • 0.61 kWh (deemed by Illinois SAG for PY6) • 0.64 kW (deemed by Illinois SAG for PY6) <p>Values for kilowatt-hours and kilowatts are derived from PY4 evaluation research results and are based on the Illinois SAG-approved values.</p>
	<p>Custom NTG: 0.64 Free Ridership: 0.36 Participants Spillover: Negligible Nonparticipants Spillover: Negligible</p>
EPY7	<p>Custom NTG: 0.48 Free Ridership 0.52 Participants Spillover: Negligible Nonparticipants Spillover: Negligible</p> <p>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.</p> <p>Notes: In PY5, Data Center were combined with Custom, while in PY6, Data Center were managed separately from Custom.</p> <p>Interviews were completed with five of 11 Data Center projects.</p>
EPY8	<p>Recommendation (based upon PY6 research): Custom NTG: 0.67 Custom Free Ridership: 0.33 Custom Spillover: 0.005</p> <p>NTG Research Source: Free Ridership and Spillover: PY6 participant and vendor research</p>

Effective Year	Business Custom Incentive
EPY9	<p>Custom NTG: 0.58 Custom Free Ridership: 0.42 Custom Spillover: Negligible</p> <p>NTG Research Source: Free Ridership and Spillover: PY7 participant and vendor research</p>
CY2018	<p>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</p> <p>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</p>
CY2019	<p>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</p> <p>NTG Research Source: Free Ridership and Spillover: PY7 participant and vendor research</p> <p>The evaluation team performed telephone surveys in PY8, but the analysis will be performed and combined with PY9 findings.</p>
CY2020	<p>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</p> <p>NTG Research Source: CY2018 participating customer surveys</p>
CY2021	<p>Custom NTG, All but Street Lights, Data Center: 0.51 Custom NTG, LED Street Lights: 0.81 Custom Spillover: 0.00</p> <p>NTG Research Source: Values based on 2018 and 2019 Guidehouse participant research results. <i>Streetlights NTG from the Municipal streetlights in the LED Street Lights program</i></p>

Effective Year	Business Custom Incentive
CY2022	<p> Custom NTG kWh: 0.39 kW: 0.28 Custom Free Ridership kWh: 0.61 kW: 0.72 Custom Spillover: Negligible </p> <p> LED Streetlighting NTG kWh: 0.81 kW: 0.81 LED Streetlighting Free Ridership kWh: 0.19 kW: 0.19 LED Streetlighting Spillover: Negligible </p> <p> NTG Research Source: Values based on 2020 Guidehouse participant research results. <i>Streetlights NTG from the Municipal streetlights in the LED Street Lights program</i> </p>
CY2023	<p> Custom NTG kWh: 0.53 kW: 0.45 Custom Free Ridership kWh: 0.47 kW: 0.55 Custom Spillover: Negligible </p> <p> LED Streetlighting NTG kWh: 0.81 kW: 0.81 LED Streetlighting Free Ridership kWh: 0.19 kW: 0.19 LED Streetlighting Spillover: Negligible </p> <p> NTG Research Source: Values based on PY9-CY2021 Guidehouse participant research results. <i>Streetlights NTG from the Municipal streetlights in the LED Street Lights program</i> </p>

Effective Year	Business Custom Incentive
CY2024	<p>Custom Non-DC NTG kWh: 0.56 kW: 0.49 Custom Free Ridership kWh: 0.44 kW: 0.51 Custom Spillover: Negligible Data Centers New Construction NTG kWh:0.09 kW:0.14 Data Centers New Construction FR kWh:0.91 kW:0.86 Data Centers New Construction Spillover: Negligible</p> <p>NTG Research Source: Values based on CY2020-CY2022 Guidehouse participant research results.</p> <p>Data Centers Other NTG kWh:0.37 kW: 0.31 Data Centers Other FR kWh:0.63 kW:0.69 Data Centers Other Spillover: Negligible</p> <p>NTG Research Source: Values based on CY2020-CY2022 Guidehouse participant research results.</p> <p>LED Streetlighting NTG kWh: 0.81 kW: 0.81 LED Streetlighting Free Ridership kWh: 0.19 kW: 0.19 LED Streetlighting Spillover: Negligible</p> <p>NTG Research Source: <i>Streetlights NTG from the Municipal streetlights in the LED Street Lights program</i></p>

Data Center Program NTG History

Effective Year	Data Center
EPY7	<p>Data Center NTG: 0.48 Free Ridership 0.52 Participants Spillover: Negligible Nonparticipants Spillover: Negligible</p> <p>See EPY7 Custom program</p>
EPY8	<p>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</p> <p>NTG Research Source: Free Ridership and Spillover: PY6 participant and vendor self-report data</p>
EPY9	<p>Data Center NTG: 0.68 Data Center Free Ridership: 0.36 Data Center Spillover: Negligible</p> <p>NTG Research Source: Free Ridership and Spillover: PY7 participant and vendor self-report data</p>
CY2018	<p>Data Center NTG kWh and kW: 0.68 Data Center Free Ridership kWh and kW: 0.32 Data Center Spillover: Negligible</p> <p>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.</p>

Effective Year	Data Center	
CY2019	<p>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</p>	
	<p>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</p>	
	<p>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.</p>	
	<p>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</p>	
		<p>Data Center Co-Locations, Retrofit NTG kWh: 0.78</p>
		<p>Data Center Co-Locations, Retrofit NTG kW: 0.82</p>
		<p>Data Center Co-Locations, Retrofit Free Ridership kWh: 0.22</p>
		<p>Data Center Co-Locations, Retrofit Free Ridership kw: 0.18</p>
	CY2020	<p>Data Center Co-Locations Spillover: Negligible</p>
		<p>Data Center Non-Co-Locations NTG kWh and kW: 0.67</p>
<p>Data Center Non-Co-Locations Free Ridership kWh and kW: 0.33</p>		
<p>Data Center Non-Co-Locations Spillover: Negligible</p>		
<p>NTG Research Source: Free Ridership: CY2018 participating customers survey Spillover: CY2018 participating customers survey</p>		

Effective Year	Data Center
CY2021	<p>Co-location New Construction kWh: 0.43 Co-location New Construction Free Ridership kWh: 0.57 Co-location New Construction Spillover: Negligible</p> <p>Data Center Other Projects kWh: 0.72 Data Center Other Projects kWh: 0.28 Data Center Other Projects Spillover: Negligible</p> <p>NTG Research Source: CY2019 participating customer surveys</p>
CY2022	<p>New Construction NTG kWh: 0.46 kW: 0.75 New Construction Free Ridership kWh: 0.54 kW: 0.25 New Construction Spillover: Negligible</p> <p>Retrofit NTG kWh: 0.38 kW: 0.30 Retrofit Free Ridership kWh: 0.62 kW: 0.70 Retrofit Spillover: Negligible</p> <p>NTG Research Source: CY2020 participating customer surveys</p>
CY2023	<p>New Construction NTG kWh: 0.35 kW: 0.50 New Construction Free Ridership kWh: 0.65 kW: 0.50 New Construction Spillover: Negligible</p> <p>Data Center Other Projects NTG kWh: 0.47 kW: 0.42 Data Center Other Projects Free Ridership kWh: 0.53 kW: 0.58 Data Center Other Projects Spillover: Negligible</p> <p>NTG Research Source: <i>Values based on PY9-CY2021 Guidehouse participant research results</i></p>

Effective Year	Data Center
	New Construction NTG kWh: 0.09 kW: 0.14 New Construction Free Ridership kWh: 0.91 kW: 0.86 New Construction Spillover: Negligible
CY2024	Data Center Other Projects NTG kWh: 0.37 kW: 0.31 Data Center Other Projects Free Ridership kWh: 0.63 kW: 0.69 Data Center Other Projects Spillover: Negligible
	NTG Research Source: No new research was conducted for Data Center Other and LED Streetlighting measures; new, rolling averages calculated excluding CY2019. New Construction based on in-depth interviews with CY2022 and CY2021 participants and web surveys from CY2022 participants.