

Memorandum

Ameren Illinois Company Streetlighting Initiative

To: Fernando Morales, Ken Woolcutt, AIC and Jennifer Morris, ICC Staff
From: Lisabeth Tremblay, Laura Agapay-Read, Wayne Leonard, Randy Gunn, Guidehouse; Zach Ross, Opinion Dynamics
Date: August 31, 2020
Re: 2019 AIC Streetlighting Net-to-Gross Research Findings

Introduction

This memo presents the findings of 2019 net-to-gross (NTG) research for the Ameren Illinois Company (AIC) Streetlighting Initiative's Municipality-Owned Streetlighting component. The NTG calculations are based on the NTG algorithms specified in the Illinois Technical Reference Manual (IL-TRM) Version 8.0 and rely on a self-report approach for estimating free-ridership. Findings are based on completed telephone surveys of 11 participants (out of a sample of 19 for a 57% response rate) conducted by Guidehouse.

The evaluation team found a free ridership value of 0.31 (illustrated in Table 1) among participants, which produces an NTG ratio (NTGR) of 0.69. Spillover was included as part of the research; however, no spillover was found among survey respondents. These results will be included in the September 2020 draft recommendations to the Illinois Stakeholder Advisory Group (SAG) of NTG values to be used for the 2021 program year.

Table 1. Municipality-Owned Streetlighting Initiative NTGR

Free Ridership Algorithm 1	Participant Spillover	NTGR	Source
0.31	0.00	0.69	2019 EM&V research

Initiative Description

Made available to AIC customers for the first time in 2018, the Streetlighting Initiative incentivizes municipal customers to upgrade their streetlighting fixtures. High-intensity discharge (HID) lighting is still the standard technology used for streetlighting in the United States. The Initiative targets existing streetlighting and other outdoor lighting for upgrades from HID to LED technology.

The Municipality-Owned Streetlighting component of the Initiative targets municipal customers who own their streetlighting fixtures and provides an incentive of \$0.75/watt reduction to decrease the per-fixture cost of upgrades to customers.

Methodology

The evaluation team applied the relevant free-ridership protocol (the Core Non-Residential Protocol) from the IL-TRM V8.0 as part of this research. For free-ridership, the protocol provides two options for combining three sub-scores. These two options use different specifications to account for the impact that the program had on project timing (referred to as “deferred free ridership”). Evaluators are advised to calculate free ridership using both options and to select one option for purposes of calculating the net energy savings for comparing to the legislated goal.

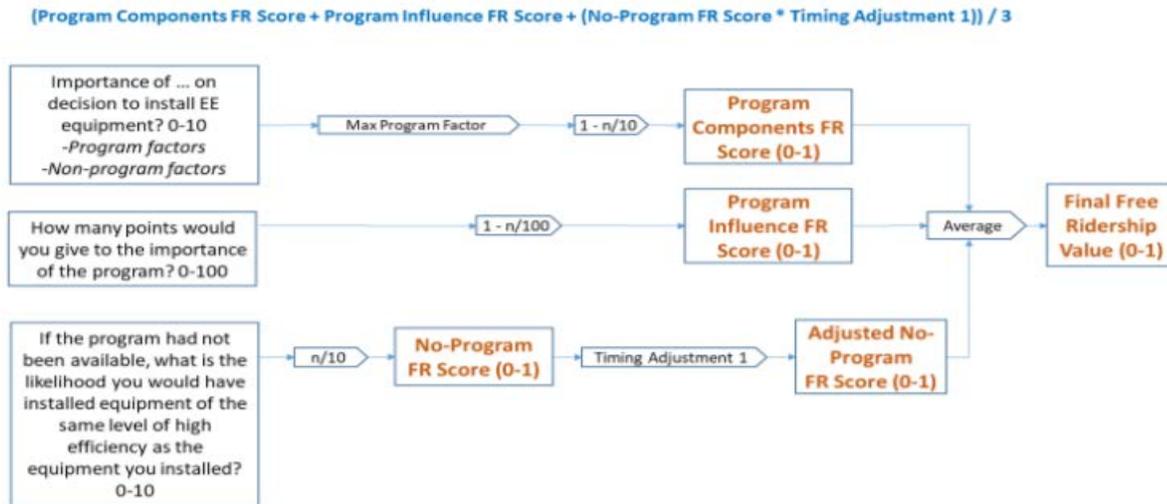
Guidehouse’s preferred algorithm specification is Core Free Ridership Algorithm 1, shown graphically in Figure 1. The other option, Core Free Ridership Algorithm 2, shown graphically in Figure 2, has also been analyzed. The rationale for selecting Algorithm 1 over Algorithm 2 is that Algorithm 1 provides for equal weighting of each of the three sub-scores, which represent different ways of determining whether the savings would have occurred in absence of the program. In contrast, Algorithm 2 applies a 50 percent weight to the program’s effect on the timing of the project, which Guidehouse believes is too high.

Table 2. Municipality-Owned Streetlighting Initiative NTGR Sub-Scores

Algorithm	Program Component Score	Program Influence Score	No Program Free Ridership Score	Timing Adjustment	Adjusted No Program Free Ridership Score	Free Ridership
Free Ridership Algorithm 1	0.15	0.53	0.52	0.57	0.33	0.31
Free Ridership Algorithm 2	0.15	0.53	0.52	0.66	NA	0.27

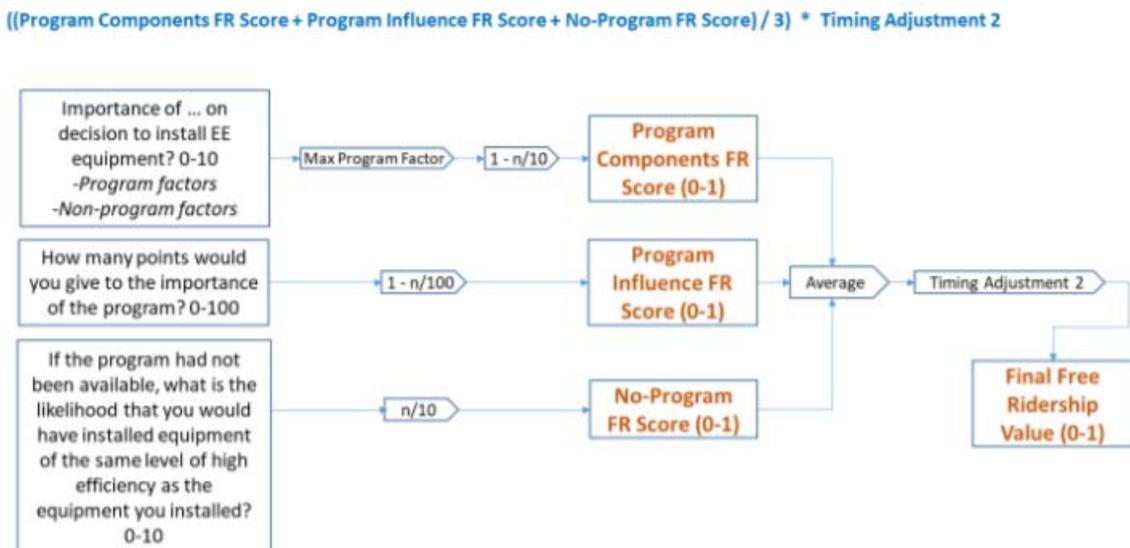
Values shown are savings weighted averages.

Figure 1. Core Participant Free Ridership Algorithm 1



Source: IL TRM v8.0.

Figure 2. Core Participant Free Ridership Algorithm 2



Source: IL TRM v8.0.

Survey

Interviews were fielded over the telephone by Guidehouse staff from January through February of 2020. Question topics included program awareness, free-ridership, spillover, program satisfaction, decision making process, and motivations. Due to a limited sample size, this evaluation team sought a census of all Municipality-Owned Streetlighting participants from program years 2018 and 2019. Table 2 represents the response rate and savings of the completed interviews.

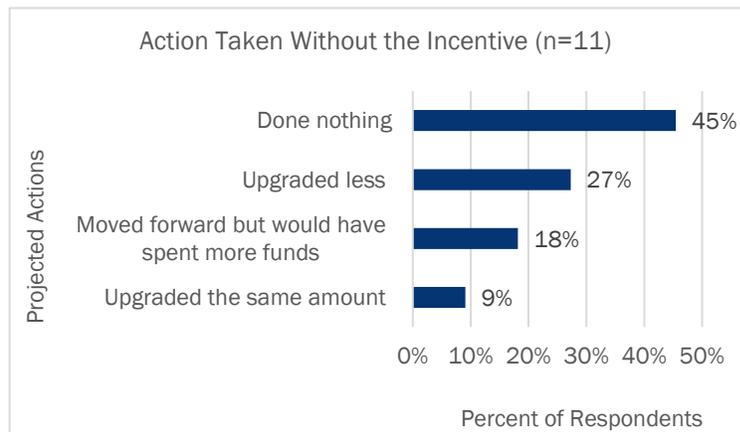
Table 3. Survey Responses

Program Year	Municipal Owned Projects	Unique Municipalities	Total Year End Energy Savings (kWh)	Completed Interviews	Savings Based on Completed Interviews (kWh)	Percent of Savings by Year
2018	18	11	625,908	4	126,384	20%
2019	23	8	881,345	7	755,431	86%
Total	41	19	1,507,253	11	881,815	59%

Results

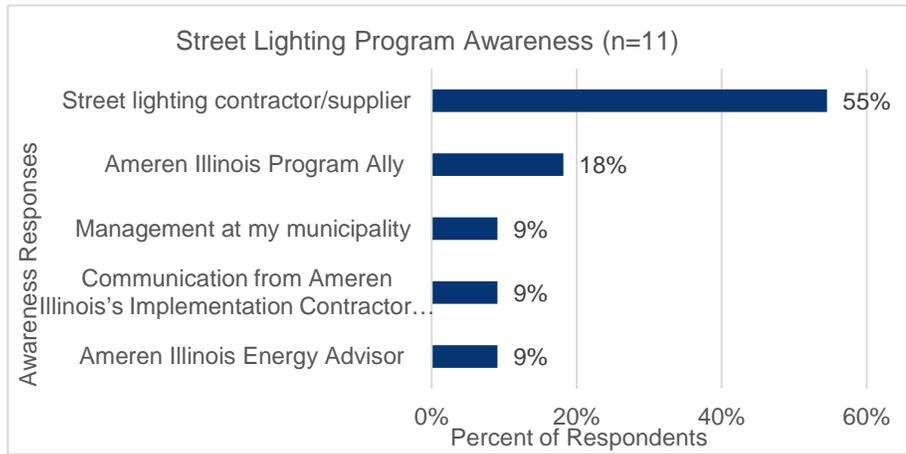
Free-ridership was driven primarily by the municipality's need to repair or replace street lighting due to the quality of light emitted or lighting equipment failure. While the incentive was influential in program participation, more than half (54%) of respondents stated they would have moved forward with all or part of their lighting project in absence of the program, as seen in Figure 3. The remaining customers (45%) were found to be more dependent on the program when considering upgrading their street lighting, stating they would have done nothing in the absence of the program. One customer commented, "...we would not have done [the lighting project] without [the program]."

Figure 3. Describe what your municipality would have done without the Program and without the incentive



The evaluation team also found that most municipalities (73%) reported that they did not become aware of the Initiative until a streetlighting contractor or program ally informed them, as seen in Figure 4. Sixty-three percent of customers also stated that their lighting contractor was influential to their decision to move forward with the project. In reference to initiative awareness, one customer commented, "More outreach and education by Ameren to let us know ahead of time that these programs are available, or through a community relations manager..."

Figure 4. How did you first learn about the Ameren Illinois Municipality-Owned Street Lighting Program?



Of the eleven municipalities surveyed, only three cited cost savings as a motivating factor for participating in the program, as illustrated in Figure 5. Other reasons for participation include; the need to upgrade lighting, the rebate opportunity, municipal energy efficiency plans, and safety reasons.

Figure 5. Describe why your town participated in the Ameren Illinois Municipality-Owned Street Lighting Program



Key Findings and Recommendations

- **Key Finding #1:** Only one quarter of the municipalities cited cost savings as a motivating factor for participating in the program.
 - **Recommendation:** Marketing materials should underscore not only the energy savings and incentives, but also the reduced maintenance costs (as LEDs last longer) and other non-energy impacts (e.g., more light on roadway, less into windows, lower glare, improved driver visibility).
- **Key Finding #2:** Most municipalities did not become aware of the Initiative until a streetlighting contractor or program ally informed them. These municipalities also stated that their lighting contractor was influential to their decision to move forward with the project.
 - **Recommendation:** Consider partnering with previous participants to host townhalls or meetups for decision makers in neighboring communities. Use this opportunity for others to experience the impact of the new fixtures firsthand, and to discuss the previous projects with city personnel.
 - **Recommendation:** Prepare and distribute marketing materials and trainings geared towards lighting professionals so that they may continue to assist in spreading awareness of the initiative.