



**To:** Vincent Gutierrez  
**From:** Christy Zook, Guidehouse  
**CC:** Jeff Erickson, Nishant Mehta, Laura Agapay-Read, Guidehouse; Mike Frischmann, EcoMetric.  
Jennifer Morris, ICC  
**Date:** September 28, 2021  
**Re:** ComEd CY2021 Elementary Energy Education: Results of Secondary Research on NTG Ratios for Free Kit LEDs and Vouchers for Free LEDs

## Executive Summary

This memo documents our rationale to recommend 0.76 for the NTG ratio for free kit LEDs and 0.80 for vouchers for free LEDs in ComEd's Elementary Energy Education Program. At the NTG meeting on September 22, SAG discussed our recommendation for free kit and voucher LEDs, then others proposed to instead calculate NTG using the average of Ameren Missouri School Kit LED free ridership (0.56) and ComEd Single Family Assessment LED free ridership (0.26) for free ridership (0.41) with Ameren Missouri School Kit spillover (0.02). SAG agreed to 0.61 NTG for ComEd free kit LEDs as well as for vouchers for LEDs by consensus. The remainder of this memo presents our rationale for our initial recommendation.

Guidehouse conducted secondary research on net-to-gross (NTG) values for the ComEd CY2022 Elementary Energy Education (EEE) Program for two types of LED measures: LEDs in a free school take-home kit and vouchers for free LEDs in the kit redeemable through ComEd's online marketplace. The research involved identifying potentially similar programs in comparable jurisdictions with recently researched NTG values. Based on our research, Guidehouse recommends using the NTG value of 0.76 for the take-home kit LEDs and 0.80 for voucher LEDs in the program. This is based on several criteria which Guidehouse used to rate the applicability of NTG values of other programs to these measures in ComEd's program. This methodology and the criteria used are described below.

## Program Background

The ComEd EEE Program seeks to motivate students and their families to take steps that reduce energy consumption for water heating and lighting in their home. The program is jointly offered by ComEd, Nicor Gas, Peoples Gas, and North Shore Gas and targets mostly 5th grade students in schools that are customers of the sponsoring utilities. As part of the program, a curriculum and an energy efficiency take-home kit are provided to raise awareness about the way individual actions and low-cost measures can provide significant energy savings. The take-home kits include an LED nightlight, a high efficiency showerhead, bathroom and kitchen faucet aerators, a shower timer, and a water heater temperature setback instruction card.

New to the program in CY2021 is the addition of one BR30 bulb to the kit as well as vouchers for a combination<sup>1</sup> of free bulbs that the participant can obtain through an online website. These bulbs include a BR30, candelabra 5-watt, globe 6-watt, mini globe, and a three-way A19 LED.

## Research Methodology and Results

Guidehouse investigated NTG values for the free LED BR30 and the voucher LEDs. We sought programs with features similar to this program specifically targeting features that can affect a program measure's NTG:

- Customer sector: Residential
- Measure technology: LEDs
- Delivery level channel: Free School Energy Saving Kit (Opt out)

Our research included a secondary literature review of utility evaluation reports and utility NTG memos. We included residential direct install programs that offered free LEDs and residential lighting programs that offered discounted LEDs in our literature review. We also considered whether the program's NTG ratio was based on recent measure-specific primary research. The Guidehouse secondary research reviewed a total of 23 potentially analogous values, shown in Table 1 below.

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<sup>1</sup> Four vouchers are included in the take-home school kit, and each voucher can be redeemed for a two pack of LEDs. Participants can use the vouchers and claim between two and eight LEDs.

**Table 1. Net-to-Gross Values of School Kit, Direct Install, Residential Lighting Programs CY2021\***

| ID | State | Utility                | Region | Sector | Tech            | Program Name                               | Delivery Channel              | NTG                                    | FR   | PSO   | NPSO | Year of Research | NTG Research at Measure or Pgm Level? | Assessment   |
|----|-------|------------------------|--------|--------|-----------------|--|-------------------------------|--|------|-------|------|------------------|---------------------------------------|--|
| 1  | IL    | ComEd                  | MW     | RES    | Free LEDs       | Single Family Assessment                   | Direct Install                | 0.77                                   | 0.26 | 0.03  | -    | 2021             | Measure                               | Primary FR research on free LEDs (included both specialty and omni-directional bulbs) directly installed is most applicable to EEE Pgm |
| 2  | MO    | Ameren                 | MW     | RES    | Free LEDs       | Energy Efficiency Kits                     | School Kit                    | 0.51                                   | 0.56 | 0.023 | 0.04 | 2018             | Measure                               | Program-level PSO value is the most applicable PSO to EEE Pgm  |
| 3  | IL    | ComEd                  | MW     | RES    | Free LEDs       | Single Family Assessment                   | Direct Install                | 0.84                                   | 0.20 | 0.04  | -    | PY9              | Measure                               | Opt-in, different delivery method, and old research in a rapidly moving market   |
| 4  | IL    | ComEd                  | MW     | RES    | Discounted LEDs | Residential Lighting Products              | Upstream                      | 0.59 (Specialty LEDs)                  | 0.48 | 0.02  | 0.05 | 2018             | Measure                               | Different delivery method, price, and old research in a rapidly moving market  |
| 5  | IL    | ComEd                  | MW     | COM    | Free LEDs       | Small Business Kits                        | Opt-in Kit                    | 0.94                                   | 0.19 | 0.13  | -    | 2021             | Program                               | Not applicable (program-level value). Different delivery method and sector   |
| 6  | IL    | Ameren                 | MW     | RES    | Discounted LEDs | Retail Products                            | Upstream                      | 0.69                                   | 0.38 | 0.00  | 0.07 | PY8              | Measure                               | Different delivery method, price, and old research in a rapidly moving market  |
| 7  | IL    | Duke Energy            | MW     | RES    | Free LEDs       | Energy Efficiency Education                | School Kit                    | 1.06                                   | NA   | NA    | NA   | 2016             | Weighted Average – Sector             | Not applicable (weighted sector wide NTG ratio)  |
| 8  | CO    | Xcel Energy            | SW     | RES    | Free LEDs       | Think! Energy                              | School Kit                    | 1.0 (1.03 rounded to 1.0 by evaluator) | 0.32 | 0.35  | -    | 2018             | Program                               | Not applicable (program-level value)   |
| 9  | IN    | NIPSCO                 | MW     | RES    | Free LEDs       | School Education Program                   | School Kit                    | 0.94                                   | 0.24 | 0.18  | -    | 2020             | Program                               | Not applicable (program-level value)   |
| 10 | IN    | Indiana Michigan Power | MW     | RES    | Free LEDs       | School Energy Education Program            | School Kit                    | 0.96                                   | NA   | NA    | NA   | Not Clear        | Program                               | Not applicable (program level value)   |
| 11 | MD    | BGE (Empower)          | NE     | RES    | Free LEDs       | Quick Home Energy Checkup                  | Direct Install                | 0.78                                   | 0.26 | 0.04  | -    | 2018-2019        | Measure                               | Different delivery method and only omni-directional LEDs   |
| 12 | MI    | DTE                    | MW     | RES    | Free LEDs       | Think! Energy and Home Energy Consultation | School Kit and Direct Install | 0.92                                   | NA   | NA    | NA   |                  | Deemed - Sector                       | Not applicable (residential sector value)  |

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| ID | State  | Utility                         | Region | Sector | Tech            | Program Name                               | Delivery Channel              | NTG  | FR   | PSO  | NPSO | Year of Research | NTG Research at Measure or Pgm Level? | Assessment  |
|----|--------|---------------------------------|--------|--------|-----------------|--|-------------------------------|------|------|------|------|------------------|---------------------------------------|---|
| 13 | MI     | Consumers Energy                | MW     | RES    | Free LEDs       | Think! Energy and Home Energy Consultation | School Kit and Direct Install | 0.90 | NA   | NA   | NA   |                  | Deemed - Sector                       | Not applicable (residential sector value)                               |
| 14 | NC/S C | Duke Energy                     | S      | RES    | NA              | My Energy Kit                              | School Kit                    | 0.91 | 0.24 | 0.15 | -    | 2015             | Program                               | Not applicable (Old research and LEDs not included in kits at the time) |
| 15 | NM     | El Paso Electric                | SW     | RES    | Discounted LEDs | Residential Upstream Lighting              | Upstream                      | 0.67 | 0.32 | -    | -    | 2020             | Program                               | Different delivery method and price                                     |
| 16 | NM     | El Paso Electric                | SW     | RES    | Free LEDs       | Living Wise                                | School Kit                    | 1.0  | NA   | NA   | NA   | 2020             | Program                               | Not applicable (secondary research done for total program)              |
| 17 | NM     | Public Service of NM            | SW     | RES    | Discounted LEDs | Residential Lighting                       | Upstream                      | 0.68 | 0.32 | -    | -    | 2019             | Program                               | Different delivery method and price                                     |
| 18 | NM     | Southwestern Public Service Co. | SW     | RES    | Free LEDs       | School Education Kits                      | School Kit                    | 1.0  | NA   | NA   | NA   | 2020             | Program                               | Not applicable (secondary research done for total program)              |
| 19 | NM     | Southwestern Public Service Co. | SW     | RES    | Discounted LEDs | Home Lighting @ Recycling                  | Upstream                      | 0.71 | 0.29 | -    | -    | 2020             | Program                               | Different delivery method and price                                     |
| 20 | PA     | PECO                            | NE     | RES    | Free LEDs       | Residential Whole Home Program             | Direct Install                | 0.97 | 0.21 | 0.18 | -    | 2019-2020        | Program                               | Different delivery method   |
| 21 | PA     | PPL Electric                    | NE     | RES    | Free LEDs       | Student Energy Efficient Education Program | School Kit                    | 1.0  | NA   | NA   | NA   | NA               | Program                               | Not applicable (program-level value, not researched value)              |
| 22 | TX     | CPS Energy                      | SW     | RES    | Free LEDs       | School2Home Program                        | School Kit                    | 0.95 | NA   | NA   | NA   | Not Clear        | Program                               | Not applicable (program level value)                                    |
| 23 | WI     | WI FOE                          | MW     | RES    | Free LEDs       | Simple Energy Efficiency Program           | School Kit                    | 1.0  | NA   | NA   | NA   | NA               | Program                               | Not applicable (program-level value, not researched value)              |

\*The Ameren IL school kit program uses the ComEd PY9 Single Family Assessment value of 0.84 for LEDs included in the kit.

NA=Not Available. RES=Residential, COM=Commercial  
FR = Free Ridership, PSO = Participant Spillover, NPSO = Non-participant Spillover.  
Source: Guidehouse Evaluation Team

Guidehouse reviewed the 23 programs and NTG values and found most to be non-analogous based on several criteria in each case, but in general the programs used a different delivery method, offered discounted LEDs (not free), or had a NTG value (deemed or researched) at the program- or sector-level instead of at the bulb level. The evaluation team did not find any researched measure-specific NTG values of residential vouchers for LEDs included in a take-home school kit.

## Final NTG Results and Recommendations

Based on our secondary research, we recommend using the 0.26 free ridership value from ComEd's Single Family Assessment Program because this value is specific to free LED bulbs (both specialty and omni-directional). We also recommend using the 0.02 program-level spillover value from Ameren (MO)'s Energy Efficiency Kits Program because, like EEE, it is a school kits program. The 0.26 free ridership value and 0.02 program-level spillover value result in a 0.76 NTG value for the specialty LED bulbs<sup>2</sup>.

Because our research found no recently researched measure- or program-specific NTG values of residential vouchers for LEDs included in take-home school kit in comparable jurisdictions, we recommend the IL default NTG value of 0.80 for these bulbs in the EEE Program until savings warrant measure-specific primary research. The TRM intends the default NTG value to be temporary, and as such, Guidehouse will examine annually the possibility of measure-specific NTG research.

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<sup>2</sup> Jane Colby, Quick Question on Ameren (MO) PY2018 EE Kits Evaluation, message to Christine Zook, August 25, 2021.