



# ComEd Low Income Kits Impact Evaluation Report

Energy Efficiency / Demand Response Plan:  
Program Year 2018 (CY2018)  
(1/1/2018-12/31/2018)

Presented to  
ComEd

DRAFT

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## 1. INTRODUCTION

This report presents the results of the impact evaluation of ComEd's CY2018 Low Income Kit Energy (LIKE) Program. It presents a summary of the energy and demand impacts for the total program and broken out by relevant measure and program structure details. The appendix presents the impact analysis methodology. CY2018 covers January 1, 2018 through December 31, 2018.

## 2. PROGRAM DESCRIPTION

The University of Illinois at Chicago Energy Resources Center (UIC-ERC) implements the LIKE Program and jointly delivers the program with the Illinois Association of Community Action Agencies (IACAA). The program provides qualified customers with a kit containing energy-saving devices such as seven-plug advanced power strips, LED light bulbs, LED night lights, faucet aerators, and high efficiency showerheads. The customer must state whether they have a gas or electric water heater and based on their response, they will receive one of two types of kits. Customers with gas water heaters receive a kit with different measures than those with electric water heaters. The kits also include educational information on additional energy-saving actions customers can take to reduce their energy bills. The target population is low income customers living in single family and small multi-family housing (two to four units) that are currently under served by existing energy efficiency programs. Eligibility is limited to customers whose incomes are at 80% Area Median Income (AMI) or below 250% of the federal poverty line for their household size.

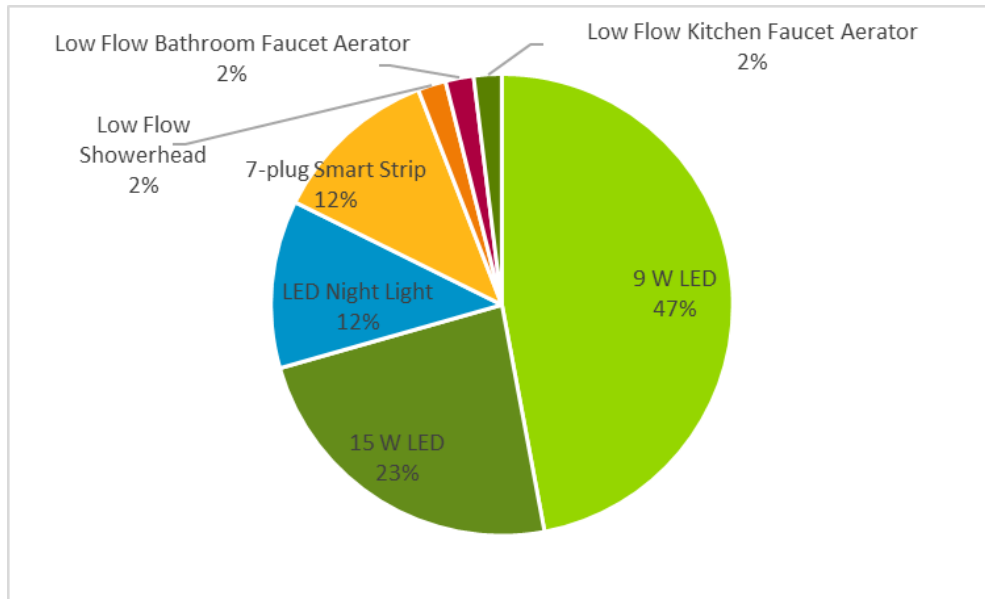
The program had 34,899 participants in CY2018 and distributed a total of 296,706 measures as shown in the following table and graph. The gas kit included the following measures: (1) 7-plug Smart Strip, (4) 9W LEDs, (2) 15W LEDs, and (1) LED night light. The electric kit included the following measures: (1) 7-plug Smart Strip, (4) 9W LEDs, (2) 15W LEDs, (1) LED night light, (1) low flow bathroom faucet aerator, (1) low flow kitchen faucet aerator, and (1) low flow showerhead.

**Table 2-1. CY2018 Volumetric Findings Detail**

| Participation            | Gas Kit | Electric Kit |
|--------------------------|---------|--------------|
| Participants             | 29,061  | 5,838        |
| Number of Measure Types  | 4       | 7            |
| Kits Delivered           | 29,061  | 5,838        |
| Total Measures Delivered | 232,488 | 64,218       |

Source: ComEd tracking data and Navigant team analysis.

Figure 2-1. Percent of Measures Installed by Type



Source: ComEd tracking data and Navigant team analysis.

### 3. PROGRAM SAVINGS DETAIL

Table 3-1 summarizes the incremental energy and demand savings the LIKE Program achieved in CY2018. ComEd did not claim any gas savings for this program in CY2018.

**Table 3-1. CY2018 Total Annual Incremental Electric Savings**

| Savings Category                       | Energy Savings (kWh) | Demand Savings (kW) | Summer Peak Demand Savings (kW) |
|--|----------------------|---------------------|---------------------------------|
| <b>Electricity</b>                     |                      |                     |                                 |
| Ex Ante Gross Savings                  | 9,749,320            | NR**                | 775.25                          |
| CY2018 Program Gross Realization Rate† | 1.00                 | NA‡                 | 1.42                            |
| CY2018 Verified Gross Savings          | 9,749,328            | 19,663.73           | 1,103.67                        |
| Program Net-to-Gross Ratio (NTG)       | 1.00                 | 1.00                | 1.00                            |
| CY2018 Verified Net Savings            | 9,749,328            | 19,663.73           | 1,103.67                        |
| PY9 Net Carryover Savings              | 789,322              | 975.86              | 29.62                           |
| Total Verified Net Savings             | 10,538,650           | 20,639.59           | 1,133.29                        |
| <b>Converted from Gas*</b>             |                      |                     |                                 |
| Ex Ante Gross Savings                  | NA                   | NA                  | NA                              |
| CY2018 Program Gross Realization Rate  | NA                   | NA                  | NA                              |
| CY2018 Verified Gross Savings          | NA                   | NA                  | NA                              |
| Program Net-to-Gross Ratio (NTG)       | NA                   | NA                  | NA                              |
| Verified Net Savings                   | NA                   | NA                  | NA                              |
| PY9 Net Carryover Savings              | NA                   | NA                  | NA                              |
| Total Verified Net Savings             | NA                   | NA                  | NA                              |
| <b>Total Electric Plus Gas</b>         |                      |                     |                                 |
| Ex Ante Gross Savings                  | 9,749,320            | NR                  | 775.25                          |
| CY2018 Program Gross Realization Rate  | 1.00                 | NA                  | 1.42                            |
| CY2018 Verified Gross Savings          | 9,749,328            | 19,663.73           | 1,103.67                        |
| Program Net-to-Gross Ratio (NTG)       | 1.00                 | 1.00                | 1.00                            |
| CY2018 Verified Net Savings            | 9,749,328            | 19,663.73           | 1,103.67                        |
| PY9 Net Carryover Savings              | 789,322              | 975.86              | 29.62                           |
| Total Verified Net Savings             | 10,538,650           | 20,639.59           | 1,133.29                        |

\* Gas savings converted to kWh by multiplying therms \* 29.31 (which is based on 100,000 Btu/therm and 3,412 Btu/kWh).

\*\* Not reported by ComEd

† Realization rate does not account for carryover savings

‡ Not applicable

Note: The coincident Summer Peak period is defined as 1:00-5:00 PM Central Prevailing Time on non-holiday weekdays, June through August.

Source: ComEd tracking data and Navigant team analysis.

### 4. CUMULATIVE PERSISTING ANNUAL SAVINGS

The measure-specific and total ex post gross savings for the LIKE Program and the cumulative persisting annual savings (CPAS) for the measures installed in CY2018 are shown in the following tables and figure. The total CPAS across all measures are 10,538,650 kWh. ComEd did not claim any converted gas savings for the LIKE Program in CY2018.

**Table 4-1. Cumulative Persisting Annual Savings (CPAS) – Electric**

| End Use Type                                     | Research Category                | EUL   | CY2018 Verified Gross Savings | NTG* | Lifetime Net Savings† | Verified Net kWh Savings |                   |                   |                  |                  |                  |                  |                  |                  |  |
|--|----------------------------------|-------|-------------------------------|------|-----------------------|--------------------------|-------------------|-------------------|------------------|------------------|------------------|------------------|------------------|------------------|--|
|  |                                  |       |                               |      |                       | 2018                     | 2019              | 2020              | 2021             | 2022             | 2023             | 2024             | 2025             | 2026             |  |
| Consumer Electronics                             | 7-plug Smart Strip               | 7.0   | 2,480,272                     | 1.00 | 17,361,904            | 2,480,272                | 2,480,272         | 2,480,272         | 2,480,272        | 2,480,272        | 2,480,272        | 2,480,272        |                  |                  |  |
| Lighting   | 9 W LED                          | 10.00 | 2,812,452                     | 1.00 | 14,806,732            | 2,812,452                | 2,812,452         | 2,812,452         | 909,911          | 909,911          | 909,911          | 909,911          | 909,911          | 909,911          |  |
| Lighting   | 15 W LED                         | 10.00 | 2,357,496                     | 1.00 | 15,873,809            | 2,357,496                | 2,357,496         | 2,357,496         | 1,257,331        | 1,257,331        | 1,257,331        | 1,257,331        | 1,257,331        | 1,257,331        |  |
| Lighting   | Carryover - 9 W LED              | 10.00 | 447,483                       | 1.00 | 2,052,388             | 447,483                  | 447,483           | 447,483           | 101,420          | 101,420          | 101,420          | 101,420          | 101,420          | 101,420          |  |
| Lighting   | Carryover - 15W LED              | 10.00 | 138,148                       | 1.00 | 677,259               | 138,148                  | 138,148           | 138,148           | 37,545           | 37,545           | 37,545           | 37,545           | 37,545           | 37,545           |  |
| Lighting   | Carryover - 23 W CFL             | 3.00  | 203,692                       | 1.00 | 611,076               | 203,692                  | 203,692           | 203,692           |                  |                  |                  |                  |                  |                  |  |
| Lighting   | LED Night Light                  | 8.00  | 631,913                       | 1.00 | 5,055,307             | 631,913                  | 631,913           | 631,913           | 631,913          | 631,913          | 631,913          | 631,913          | 631,913          | 631,913          |  |
| Hot Water  | Low Flow Bathroom Faucet Aerat   | 9.0   | 62,602                        | 1.00 | 563,421               | 62,602                   | 62,602            | 62,602            | 62,602           | 62,602           | 62,602           | 62,602           | 62,602           | 62,602           |  |
| Hot Water  | Low Flow Kitchen Faucet Aerators | 9.0   | 482,010                       | 1.00 | 4,338,086             | 482,010                  | 482,010           | 482,010           | 482,010          | 482,010          | 482,010          | 482,010          | 482,010          | 482,010          |  |
| Hot Water  | Low Flow Showerheads             | 10.0  | 922,583                       | 1.00 | 9,225,826             | 922,583                  | 922,583           | 922,583           | 922,583          | 922,583          | 922,583          | 922,583          | 922,583          | 922,583          |  |
| <b>CY2018 Program Total Electric CPAS</b>        |                                  |       | <b>10,538,650</b>             |      | <b>70,565,807</b>     | <b>10,538,650</b>        | <b>10,538,650</b> | <b>10,538,650</b> | <b>6,885,587</b> | <b>6,885,587</b> | <b>6,885,587</b> | <b>6,885,587</b> | <b>4,405,315</b> | <b>3,773,402</b> |  |
| <b>CY2018 Program Expiring Electric Savings‡</b> |                                  |       |                               |      |                       |                          |                   |                   | <b>3,653,063</b> | <b>3,653,063</b> | <b>3,653,063</b> | <b>3,653,063</b> | <b>6,133,335</b> | <b>6,765,249</b> |  |

| End Use Type                                     | Research Category                 | 2027             | 2028              | 2029              | 2030              | 2031              | 2032              | 2033              | 2034              | 2035              | 2036              | 2037              | 2038              |
|--|-----------------------------------|------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
| Consumer Electronics                             | 7-plug Smart Strip                |                  |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |
| Lighting   | 9 W LED                           | 909,911          |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |
| Lighting   | 15 W LED                          | 1,257,331        |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |
| Lighting   | Carryover - 9 W LED               | 101,420          |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |
| Lighting   | Carryover - 15W LED               | 37,545           |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |
| Lighting   | Carryover - 23 W CFL              |                  |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |
| Lighting   | LED Night Light                   |                  |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |
| Hot Water  | Low Flow Bathroom Faucet Aerators |                  |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |
| Hot Water  | Low Flow Kitchen Faucet Aerators  |                  |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |
| Hot Water  | Low Flow Showerheads              | 922,583          |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |
| <b>CY2018 Program Total Electric CPAS</b>        |                                   | <b>3,228,790</b> |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |
| <b>CY2018 Program Expiring Electric Savings‡</b> |                                   | <b>7,309,860</b> | <b>10,538,650</b> | <b>10,538,650</b> | <b>10,538,650</b> | <b>10,538,650</b> | <b>10,538,650</b> | <b>10,538,650</b> | <b>10,538,650</b> | <b>10,538,650</b> | <b>10,538,650</b> | <b>10,538,650</b> | <b>10,538,650</b> |

Note: The green highlighted cell shows program total first year electric savings.

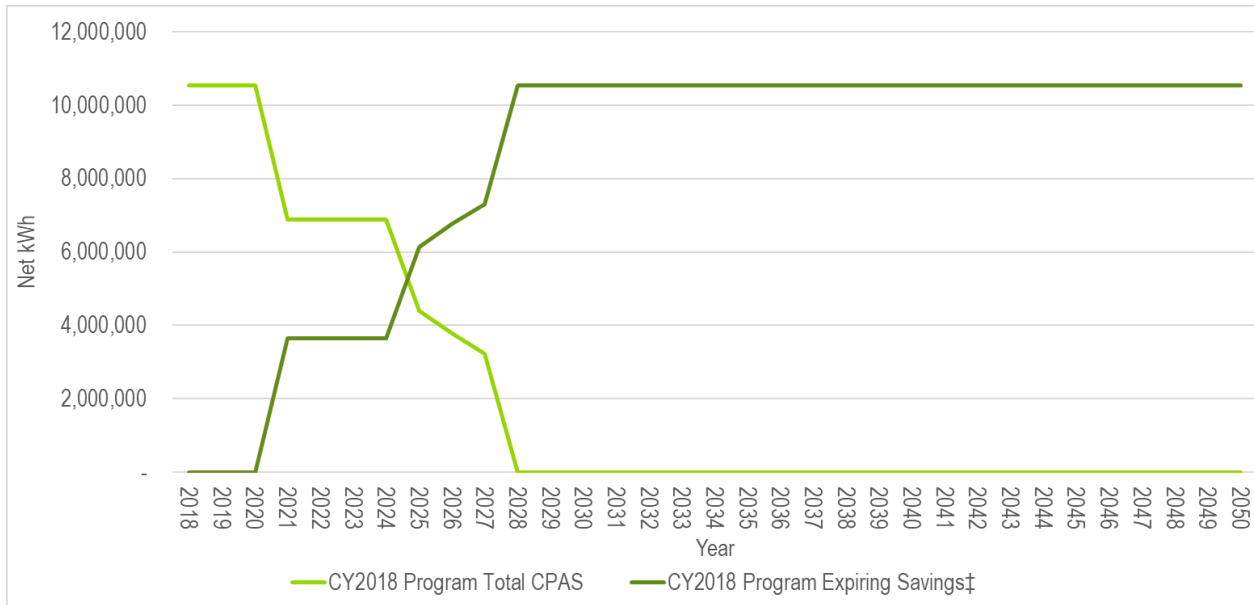
\* A deemed value. Source: ComEd\_NTG\_History\_and\_PY10\_Recommendations\_2017-03-01.xlsx, which is to be found on the IL SAG web site here: <http://ilsag.info/net-to-gross-framework.html>.

† Lifetime savings are the sum of CPAS savings through the EUL.

‡ Expiring savings are equal to CPAS Yn-1 - CPAS Yn + Expiring Savings Yn-1.

Source: Navigant analysis

**Figure 4-1. Cumulative Persisting Annual Savings**



‡ Expiring savings are equal to CPAS Yn-1 - CPAS Yn + Expiring Savings Yn-1.  
 Source: Navigant analysis

## 5. PROGRAM SAVINGS BY MEASURE

The program offered seven types of measures as shown in the following tables. The 9W and 15W LEDs contributed the most savings (53%) in CY2018.

**Table 5-1. CY2018 Energy Savings by Measure – Electric**

| End Use Type         | Research Category                 | Ex Ante Gross Savings (kWh) | Verified Gross Realization Rate | Verified Gross Savings (kWh) | NTG*        | Verified Net Savings (kWh) | Effective Useful Life |
|----------------------|-----------------------------------|-----------------------------|---------------------------------|------------------------------|-------------|----------------------------|-----------------------|
| Consumer Electronics | 7-plug Smart Strip                | 2,480,272                   | 1.00                            | 2,480,272                    | 1.00        | 2,480,272                  | 7.0                   |
| Lighting             | 9 W LED                           | 2,812,452                   | 1.00                            | 2,812,452                    | 1.00        | 2,812,452                  | 10.0                  |
| Lighting             | 15 W LED                          | 2,357,496                   | 1.00                            | 2,357,496                    | 1.00        | 2,357,496                  | 10.0                  |
| Lighting             | LED Night Light                   | 631,913                     | 1.00                            | 631,913                      | 1.00        | 631,913                    | 8.0                   |
| Hot Water            | Low Flow Bathroom Faucet Aerators | 62,602                      | 1.00                            | 62,602                       | 1.00        | 62,602                     | 9.0                   |
| Hot Water            | Low Flow Kitchen Faucet Aerators  | 482,010                     | 1.00                            | 482,010                      | 1.00        | 482,010                    | 9.0                   |
| Hot Water            | Low Flow Showerheads              | 922,583                     | 1.00                            | 922,583                      | 1.00        | 922,583                    | 10.0                  |
|                      | PY9 Carryover Savings             | NR                          | NA                              | 789,322                      | 1.00        | 789,322                    |                       |
| <b>Total†</b>        |                                   | <b>9,749,320</b>            |                                 | <b>10,538,650</b>            | <b>1.00</b> | <b>10,538,650</b>          |                       |

\* A deemed value. Source: ComEd\_NTG\_History\_and\_PY10\_Recommendations\_2017-03-01.xlsx, which is to be found on the IL SAG web site here: <http://ilsag.info/net-to-gross-framework.html>.

† The sum of measure savings does not equal the total due to rounding, see Finding 2 for more detail.  
 Source: ComEd tracking data and Navigant team analysis.



**Table 5-2. CY2018 Demand Savings by Measure**

| End Use Type         | Research Category                 | Ex Ante Gross Demand Reduction (kW) | Verified Gross Realization Rate | Verified Gross Demand Reduction (kW) | NTG*        | Verified Net Demand Reduction (kW) |
|----------------------|-----------------------------------|-------------------------------------|---------------------------------|--------------------------------------|-------------|------------------------------------|
| Consumer Electronics | 7-plug Smart Strip                | NR                                  | NA                              | 347.91                               | 1.00        | 347.91                             |
| Lighting             | 9 W LED                           | NR                                  | NA                              | 3,320.49                             | 1.00        | 3,320.49                           |
| Lighting             | 15 W LED                          | NR                                  | NA                              | 2,783.35                             | 1.00        | 2,783.35                           |
| Lighting             | LED Night Light                   | NR                                  | NA                              | 144.27                               | 1.00        | 144.27                             |
| Hot Water            | Low Flow Bathroom Faucet Aerators | NR                                  | NA                              | 4,471.60                             | 1.00        | 4,471.60                           |
| Hot Water            | Low Flow Kitchen Faucet Aerators  | NR                                  | NA                              | 5,127.76                             | 1.00        | 5,127.76                           |
| Hot Water            | Low Flow Showerheads              | NR                                  | NA                              | 3,468.36                             | 1.00        | 3,468.36                           |
|                      | PY9 Carryover Savings             | NR                                  | NA                              | 975.86                               | 1.00        | 975.86                             |
| <b>Total</b>         |                                   | <b>NR</b>                           |                                 | <b>20,639.59</b>                     | <b>1.00</b> | <b>20,639.59</b>                   |

\* A deemed value. Source: ComEd\_NTG\_History\_and\_PY10\_Recommendations\_2017-03-01.xlsx, which is to be found on the IL SAG web site here: <http://ilsag.info/net-to-gross-framework.html>.

Source: ComEd tracking data and Navigant team analysis.

**Table 5-3. CY2018 Summer Peak Demand Savings by Measure**

| End Use Type         | Research Category                 | Ex Ante Gross Peak Demand Reduction (kW) | Verified Gross Realization Rate | Verified Gross Peak Demand Reduction (kW) | NTG*        | Verified Net Peak Demand Reduction (kW) |
|----------------------|-----------------------------------|--|---------------------------------|---|-------------|---|
| Consumer Electronics | 7-plug Smart Strip                | 279.19                                   | 1.00                            | 278.33                                    | 1.00        | 278.33                                  |
| Lighting             | 9 W LED                           | 70.41                                    | 4.00                            | 281.65                                    | 1.00        | 281.65                                  |
| Lighting             | 15 W LED                          | 118.04                                   | 2.00                            | 236.09                                    | 1.00        | 236.09                                  |
| Lighting             | LED Night Light                   | 0.00                                     | NA                              | 0.00                                      | 1.00        | 0.00                                    |
| Hot Water            | Low Flow Bathroom Faucet Aerators | 98.38                                    | 1.00                            | 98.38                                     | 1.00        | 98.38                                   |
| Hot Water            | Low Flow Kitchen Faucet Aerators  | 112.81                                   | 1.00                            | 112.81                                    | 1.00        | 112.81                                  |
| Hot Water            | Low Flow Showerheads              | 96.42                                    | 1.00                            | 96.42                                     | 1.00        | 96.42                                   |
|                      | PY9 Carryover Savings             | NR                                       | NA                              | 29.62                                     | 1.00        | 29.62                                   |
| <b>Total</b>         |                                   | <b>775.25</b>                            |                                 | <b>1,133.29</b>                           | <b>1.00</b> | <b>1,133.29</b>                         |

\* A deemed value. Source: ComEd\_NTG\_History\_and\_PY10\_Recommendations\_2017-03-01.xlsx, which is to be found on the IL SAG web site here: <http://ilsag.info/net-to-gross-framework.html>.

Source: ComEd tracking data and Navigant team analysis.

## 6. IMPACT ANALYSIS FINDINGS AND RECOMMENDATIONS

### 6.1 Impact Parameter Estimates

Navigant estimated verified unit savings for each program measure using the impact algorithm sources found in version 6 of the Illinois Technical Reference Manual<sup>1</sup> (TRM v6.0). Table 6-1 presents the key parameters and the references used in the verified gross and net savings calculations.

<sup>1</sup> Illinois Statewide Technical Reference Manual for Energy Efficiency Version 6.0, available at: <http://www.ilsag.info/technical-reference-manual.html>

**Table 6-1. Savings Parameters**

| Gross Savings Input Parameters | Value  | Units      | Deemed * or Evaluated? | Source                         |
|--------------------------------|--------|------------|------------------------|--------------------------------|
| Quantity                       | Varies | # measures | Evaluated              | Program Tracking Data          |
| NTG                            | Varies | %          | Deemed                 | IL SAG Consensus†              |
| Advanced Power Strip Measures  | 71.07  | kWh        | Deemed                 | IL TRM v6.0 – Section 5.2.1    |
| LED Bulb Measures              | Varies | kWh        | Deemed                 | IL TRM v6.0 – Section 5.5.8    |
| LED Night Light Measures       | 18.1   | kWh        | Deemed                 | IL TRM v7.0** – Section 5.5.11 |
| Faucet Aerator Measures        | Varies | kWh        | Deemed                 | IL TRM v6.0 – Section 5.4.4    |
| Low Flow Showerhead Measures   | 158.03 | kWh        | Deemed                 | IL TRM v6.0 – Section 5.4.4    |

\* State of Illinois Technical Reference Manual version 6.0 from <http://www.ilsag.info/technical-reference-manual.html>.

\*\* State of Illinois Technical Reference Manual version 7.0 from <http://www.ilsag.info/technical-reference-manual.html>.

† A deemed value. Source: ComEd\_NTG\_History\_and\_PY10\_Recommendations\_2017-03-01.xlsx, which is to be found on the IL SAG web site here: <http://ilsag.info/net-to-gross-framework.html>.

## 6.2 Other Impact Findings and Recommendations

The evaluation team has one recommendation based on findings from the CY2018 evaluation, as follows:

**Finding 1.** The implementer used incorrect quantities for the 9 and 15 W LEDs when calculating peak demand savings causing the high realization rates for these measures. Each kit has four 9 W LEDs and two 15 W LEDs. Navigant believes the implementer is summing the unit kW savings to calculate the savings for each kit instead of including the appropriate quantities.

**Recommendation 1.** Navigant recommends the implementer update their savings calculator to include the kW savings for the additional LED bulbs.

**Finding 2.** ComEd's eTRACK system reports savings by kit, not measure. The kWh savings value in the tracking data is rounded to 2 decimal places. This rounding causes the sum of the implementer's measure savings to be unequal to the total savings reported in ComEd's system, but does not affect the overall realization rate for the program.

**Finding 3.** Carryover was not included in the ex ante estimates.

**Recommendation 2.** ComEd and the implementer should account for carryover in their ex ante estimates. See Section 7.2 for the 2019 and 2020 evaluation carryover estimates.

## 7. APPENDIX 1. IMPACT ANALYSIS METHODOLOGY

### 7.1 Verified Program Savings Analysis Approach

Navigant determined verified gross savings for each program measure by:

1. Reviewing savings algorithm inputs in the measure workbook for agreement with the TRM v6.0.
2. Validating savings algorithms were applied correctly.
3. Cross-checking per-unit savings values in the tracking data with the verified values in the measure workbook or in Navigant's calculations if the workbook did not agree with the TRM.
4. Multiplying the verified per-unit savings value by the quantity reported in the tracking data.

Navigant calculated verified net energy and demand (coincident peak and overall) savings by multiplying the verified gross savings estimates by a net-to-gross (NTG) of 1.0. In CY2018, the LIKE Program's NTG estimate was defined by a consensus process through the Illinois Stakeholder Advisory Group (SAG), as documented in a spreadsheet.<sup>2</sup>

## 7.2 Carryover Savings Estimates

The evaluation team calculated the CY2018 carryover savings estimates using the IL TRM (v5, and v6) and the PY9 Impact Evaluation report. The energy and demand savings from the second year PY9 installations are calculated based on the following parameters:

- Delta Watts – Verified savings estimate from the year of installation (source: IL TRM v6)
- Quantity – Number of bulbs from the year of installation (source: PY9 Report)
- HOU and Peak CF – Verified savings estimate from the year of installation (source: IL TRM v6)
- Energy and Demand IE – Verified savings estimate from the year of installation (source: IL TRM v6)
- Installation Rate – Verified savings estimate from the year of distribution (source: ILTRM v5)
- NTG – Evaluation research from the year of distribution (source: PY9 Report)

Table 7-1 shows that in CY2018 a total of 157,062 bulbs distributed during PY9 are expected to be installed within ComEd's service territory. The table below provides the gross and net energy and demand savings from these carryover bulbs attributable to the CY2018. Total CY2018 net carryover savings are estimated to be 789,322 kWh, 975.89 demand kW, and 29.62 peak demand kW.

**Table 7-1. CY2018 Carryover Savings**

| Parameter                                | 9W LED  | 15W LED | 23W CFL Bulbs | Total Carryover from PY9 |
|--|---------|---------|---------------|--------------------------|
| Bulbs Delivered                          | 104,708 | 19,282  | 33,072        | 157,062                  |
| Delta Watts                              | 34.00   | 57.00   | 49.00         | 39.98                    |
| Daily Hours of Use                       | 847     | 847     | 847           | 847                      |
| Installation Rate                        | 0.14    | 0.14    | 0.14          | 0.14                     |
| Energy Interactive Effects               | 1.06    | 1.06    | 1.06          | 1.06                     |
| Demand Interactive Effects               | 1.11    | 1.11    | 1.11          | 1.11                     |
| Coincidence Factor                       | 0.07    | 0.07    | 0.07          | 0.07                     |
| Carryover Gross Energy Savings (kWh)     | 447,483 | 138,148 | 203,692       | 789,322                  |
| Carryover Gross Demand Savings (kW)      | 553.24  | 170.80  | 251.83        | 975.86                   |
| Carryover Gross Peak Demand Savings (kW) | 0.04    | 11.96   | 17.63         | 29.62                    |
| NTG                                      | 1.00    | 1.00    | 1.00          | 1.00                     |
| Carryover Net Energy Savings (kWh)       | 447,483 | 138,148 | 203,692       | 789,322                  |
| Carryover Net Demand Savings (kW)        | 553.24  | 170.80  | 251.83        | 975.86                   |
| Carryover Net Peak Demand Savings (kW)   | 0.04    | 11.96   | 17.63         | 29.62                    |
| EUL                                      | 10.00   | 10.00   | 3.00          | 8.19                     |

Source: Navigant team analysis.

<sup>2</sup> Source: ComEd\_NTG\_History\_and\_PY10\_Recommendations\_2017-03-01.xlsx, which is to be found on the IL SAG web site here: <http://ilsag.info/net-to-gross-framework.html>.

Tables 7-2 and 7-3 show estimates for CY2019 and CY2020 savings. In CY2020 the carryover savings from PY9 will drop out and be replaced with carryover savings from CY2019.

**Table 7-2. CY2019 Carryover Savings**

| Parameter                                | Carryover from PY9 | PY2018 9W LED Carryover | PY2018 15W LED Carryover | Total Carryover to PY2019 |
|--|--------------------|-------------------------|--------------------------|---------------------------|
| Bulbs Delivered                          | 157,062            | 139,596                 | 69,798                   | 366,456                   |
| Delta Watts                              | 39.98              | 34.00                   | 57.00                    | 40.94                     |
| Daily Hours of Use                       | 847                | 847                     | 847                      | 847                       |
| Installation Rate                        | 0.12               | 0.14                    | 0.14                     | 0.14                      |
| Energy Interactive Effects               | 1.06               | 1.06                    | 1.06                     | 1.06                      |
| Demand Interactive Effects               | 1.11               | 1.11                    | 1.11                     | 1.11                      |
| Coincidence Factor                       | 0.07               | 0.07                    | 0.07                     | 0.07                      |
| Carryover Gross Energy Savings (kWh)     | 676,562            | 596,581                 | 500,075                  | 1,773,218                 |
| Carryover Gross Demand Savings (kW)      | 836.45             | 737.57                  | 618.26                   | 2,192.28                  |
| Carryover Gross Peak Demand Savings (kW) | 58.55              | 51.63                   | 43.28                    | 153.46                    |
| NTG                                      | 1.00               | 1.00                    | 1.00                     | 1.00                      |
| Carryover Net Energy Savings (kWh)       | 676,562            | 596,581                 | 500,075                  | 1,773,218                 |
| Carryover Net Demand Savings (kW)        | 836.45             | 737.57                  | 618.26                   | 2,192.28                  |
| Carryover Net Peak Demand Savings (kW)   | 58.55              | 51.63                   | 43.28                    | 153.46                    |
| EUL                                      | 7.94               | 10.00                   | 10.00                    | 9.21                      |

Source: Navigant team analysis.

**Table 7-3. CY2020 Carryover Savings**

| Parameter                                | Carryover from CY2018 |
|--|-----------------------|
| Bulbs Delivered                          | 209,394               |
| Delta Watts                              | 41.67                 |
| Daily Hours of Use                       | 847                   |
| Installation Rate                        | 0.12                  |
| Energy Interactive Effects               | 1.06                  |
| Demand Interactive Effects               | 1.11                  |
| Coincidence Factor                       | 0.07                  |
| Carryover Gross Energy Savings (kWh)     | 939,991               |
| Carryover Gross Demand Savings (kW)      | 1,162.14              |
| Carryover Gross Peak Demand Savings (kW) | 81.35                 |
| NTG                                      | 1.00                  |
| Carryover Net Energy Savings (kWh)       | 939,991               |
| Carryover Net Demand Savings (kW)        | 1,162.14              |
| Carryover Net Peak Demand Savings (kW)   | 81.35                 |
| EUL                                      | 10.00                 |

Source: Navigant team analysis.

## 8. APPENDIX 2. IMPACT ANALYSIS DETAIL

Navigant downloaded the final tracking data and measure workbook for the LIKE Program CY2018 impact evaluation from the ComEd eTRACK file site. We relied on the following documents to verify the per-unit savings for each program measure:

- Final CY2018 tracking data: “UIC-ERC\_2018\_EOY\_Data\_Rev0\_01152019.xlsx”
- Illinois Technical Reference Manual (TRM v6.0) for deemed input parameters or secondary evaluation research to verify any custom inputs used in the ex ante calculations.
- Implementer Savings Calculations: “LIKE 2018 Measure savings – Using Navigants recommendations.xlsx”

## 9. APPENDIX 3. TOTAL RESOURCE COST DETAIL

Table 9-1, below, shows the Total Resource Cost (TRC) table. It includes only the cost-effectiveness analysis inputs available at the time of finalizing this impact evaluation report. Additional required cost data (e.g., measure costs, program level incentive and non-incentive costs) are not included in this table and will be provided to evaluation later.

**Table 9-1. Total Resource Cost Savings Summary**

| End Use Type         | Research Category                 | Units | Quantity | Effective Useful Life | Ex Ante Gross Savings (kWh) | Ex Ante Gross Peak Demand Reduction (kW) | Verified Gross Savings (kWh) | Verified Gross Peak Demand Reduction (kW) | Verified Net Savings (kWh) | Verified Net Peak Demand Reduction (kW) |
|----------------------|-----------------------------------|-------|----------|-----------------------|-----------------------------|--|------------------------------|---|----------------------------|---|
| Consumer Electronics | 7-plug Smart Strip                | Each  | 34,899   | 7.0                   | 2,480,272                   | 279.19                                   | 2,480,272                    | 278.33                                    | 2,480,272                  | 278.33                                  |
| Lighting             | 9 W LED                           | Lamp  | 139,596  | 10.0                  | 2,812,452                   | 70.41                                    | 2,812,452                    | 281.65                                    | 2,812,452                  | 281.65                                  |
| Lighting             | 15 W LED                          | Lamp  | 69,798   | 10.0                  | 2,357,496                   | 118.04                                   | 2,357,496                    | 236.09                                    | 2,357,496                  | 236.09                                  |
| Lighting             | LED Night Light                   | Each  | 34,899   | 8.0                   | 631,913                     | 0.00                                     | 631,913                      | 0.00                                      | 631,913                    | 0.00                                    |
| Hot Water            | Low Flow Bathroom Faucet Aerators | Each  | 5,838    | 9.0                   | 62,602                      | 98.38                                    | 62,602                       | 98.38                                     | 62,602                     | 98.38                                   |
| Hot Water            | Low Flow Kitchen Faucet Aerators  | Each  | 5,838    | 9.0                   | 482,010                     | 112.81                                   | 482,010                      | 112.81                                    | 482,010                    | 112.81                                  |
| Hot Water            | Low Flow Showerheads              | Each  | 5,838    | 10.0                  | 922,583                     | 96.42                                    | 922,583                      | 96.42                                     | 922,583                    | 96.42                                   |
|                      | PY9 Carryover Savings             | Lamp  | 157,062  | 8.2                   | NR                          | NR                                       | 789,322                      | 29.62                                     | 789,322                    | 29.62                                   |

Source: ComEd tracking data and Navigant team analysis.