ComEd PY7-PY9 Summary Impact Evaluation Report

Energy Efficiency / Demand Response Plan:   
Plan Year 7 to 9 (PY7-PY9) June 1, 2014 – December 31, 2017

Presented to

Commonwealth Edison Company

Final (Revised)

*December 23, 2019*

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# Introduction

This report presents the results of the impact evaluation of ComEd’s third plan (Plan 3)[[1]](#footnote-1) slate of energy efficiencyprograms offered under the Energy Efficiency Portfolio Standard (EEPS), and the Illinois Power Agency (IPA) umbrella. It presents a summary of the energy and demand impacts for the portfolio and each program and some detail on cost effectiveness. The report fulfills the Illinois Public Utilities Act (PUA) requirement for a review of the 3-year results of the broader net program impacts for Program Year 7 (PY7) starting in June 1, 2014 through Program Year 9 (PY9) which ended in December 31, 2017.[[2]](#footnote-2)

In Plan 3, ComEd’s portfolio included programs implemented under the EEPS and IPA umbrella, pilot programs, and public sector and income eligible programs that ComEd took over from the Department of Commerce and Economic Opportunity (DCEO) portfolio on June 1, 2017.[[3]](#footnote-3) Overall, the ComEd Plan 3 portfolio implemented 66 programs, which included 24 IPA and 42 EEPS (including 12 DCEO transition period programs), as listed in Table 1‑1. The list contains 28 programs in the residential sector (including 4 income eligible programs) and 38 programs in the business sector (including 8 public sector programs).[[4]](#footnote-4) This report presents a summary of the energy and demand savings from programs implemented for which final impact evaluation reports with realized savings have been submitted to ComEd. This included 22 PY7 programs, 32 PY8 programs, and 56 PY9 programs.[[5]](#footnote-5)

The AirCare Plus, Lighting Discounts, Small Business and Streetlighting Programs had savings counting toward both EEPS and IPA targets. Those programs appear twice in the program-level results shown in Table 3‑1 but savings were not double counted. The Lighting Discounts Program and Instant Discounts Program both had carryover savings from measures sold or incented in prior years that were installed in PY7, PY8 and PY9. The PY9 Instant Discounts Program carryover savings were attributed to the EEPS portfolio. The PY9 Lighting Discounts Program carryover savings from PY7 were attributed to the EEPS portfolio, and the carryover savings from PY8 were attributed to the IPA portfolio.

Table 1‑1. ComEd PY7-PY9 Energy Efficiency Programs



\* Programs with transition period savings.

Source: ComEd tracking data and Navigant evaluation reports.

# Portfolio Savings

Table 2‑1 compares the ComEd EEPS Modified MWh goal[[6]](#footnote-6) and the ComEd EEPS savings over the portfolio cycle.

Table 2‑1. Comparing EEPS Annual Electric Net Goals to Actual Achieved



Note: This table shows savings and goals from only EEPS programs. “NA” means value are not provided or derived.

\* PY9+ is the sum of PY9 original 12 months program savings and transition period savings.

† Statutory MWh Goal is sourced from 220 ILCS 5/8-103 and Docket No. 13-0495, ComEd Ex 2.1.

‡ ComEd Modified MWh Goal is sourced from Docket No. 13-0495, EE&DR Plan compliance filed (Feb.27.2014, Docket No. 17-0212). Joint filling (April 27, 2017)

§ The verified net savings are sourced from the annual final summary reports. The transition period net MWh are derived from PY9 Transition Period WAML Memo dated 8/30/2018 (program verified gross MWh savings multiplied by program NTG values). The PY9 original 12 months MWh savings is derived from the difference in PY9 Plus program level MWh and the transition period MWh savings. Program level details are provided in Table 3-1.

†§Total Resource Cost (TRC) values are sourced from PY7-PY9 TRC Reports TRC reports submitted to ComEd on June 26, 2019.

Source: ComEd tracking data, Navigant team analysis, and Plan 3.

The findings from Table 2‑1 show that ComEd exceeded its proposed EEPS MWh goals by 125% for PY7, 123% for PY8, 127% for PY9 (original period), and 138% PY9 plus transition period. ComEd achieved 158% of the MWh goal set for the Transition Period. Overall, ComEd achieved 130% of goal in Plan 3, which translates to 585,827 MWh more than the proposed goal.

Table 2‑2 through Table 2‑4 summarize the incremental energy and demand savings the ComEd portfolio achieved in PY7 through PY9, combining savings from EEPS, IPA, and DCEO transition programs.

Table 2‑2. Total Annual Energy Savings



Note: The totals in this table may vary slightly from the totals in other tables and the totals summed across the individual program reports due to rounding issues. Some programs do not report ex ante gross savings (e.g., the Home Energy Reports program), so the evaluation did not calculate verified gross savings. The ex ante gross shown here is as reported by the programs and verified gross is only for those reporting ex ante gross. For the purposes of calculating a portfolio NTG ratio, Navigant used only those programs reporting ex ante gross and verified gross. Based on the same issue, the ratio of the net and verified gross savings shown in the table will not present an accurate ratio for the portfolio.

\* PY7 and PY8 savings include EEPS and IPA and exclude DCEO. The PY9+ program includes DCEO transition savings.

Source: ComEd tracking data and Navigant team analysis.

Table 2‑3. Total Annual Demand Savings



Note: MW Demand savings are equivalent to the reduction in aggregate non-coincident kW in PY7-PY9.

\* PY7 and PY8 savings include EEPS and IPA and exclude DCEO. The PY9 program includes DCEO transition savings.

Source: ComEd tracking data and Navigant team analysis.

Table 2‑4. Total Annual Peak Demand Savings



Note: The MW Peak Demand are aggregate non-coincidence kW savings occurring at coincident Summer Peak period, defined as 1:00-5:00 PM Central Prevailing Time on non-holiday weekdays, June through August.

\* PY7 and PY8 savings include EEPS and IPA and exclude DCEO. The PY9 program includes DCEO transition savings.

Source: ComEd tracking data and Navigant team analysis.

Table 2‑5 summarizes savings from the EEPS, IPA and DCEO transition period portfolios. In Plan 3, ComEd’s energy efficiency portfolio achieved a total of 4,845,477 verified net MWh savings, with the EEPS portion achieving 2,563,468 verified net MWh, the IPA portion achieving 2,246,527 verified net MWh, and the DCEO transition period programs achieving 35,482 verified net MWh. The total savings included 4,625,705 net MWh from funded measures and 219,772 net MWh savings from previously funded lighting measures, or carryover, funded in PY7 or PY8 through the Lighting Discounts Program and Instant Discounts Program and expected to be installed by PY9. Of the 219,772 MWh in total carryover savings, 189,395 net MWh was attributable to EEPS and 30,377 net MWh was attributable to IPA.

Table 2‑5. Total Annual Savings by Portfolio



Note: MW Demand savings are equivalent to the aggregate non-coincident reduction in kW in PY7-PY9. The Peak Demand are kW savings occurring at coincident Summer Peak period, defined as 1:00-5:00 PM Central Prevailing Time on non-holiday weekdays, June through August. Savings may be rounded to the nearest MWh or MW, so direct addition of numbers may produce slight discrepancy.

Source: ComEd tracking data and Navigant team analysis.

Overall, the IPA programs realized 46 percent of the portfolio savings and the EEPS programs had 53 percent while one percent came from DCEO transition period programs. The EEPS Business programs contributed 41 percent of the total savings, followed by IPA Residential programs at 34 percent (see Figure 2‑1). Figure 2-2 disaggregates the annual savings by portfolio category. Further detail on the savings by program category is shown in subsequent sections.

Figure 2‑1. Energy (MWh) Savings by Portfolio Category (3-Year Total)



Source: ComEd tracking data and Navigant team analysis.

Figure 2‑2. Energy Savings (MWh) by Portfolio Category (Annual Breakdown)



Source: ComEd tracking data and Navigant team analysis.

# Savings by Program

The savings by program are shown in Table 3‑1 and Table 3‑2. Note that the AirCare Plus Program, Lighting Discounts, Small Business and Streetlighting Programs had savings counted toward both EEPS and IPA targets, and therefore appear twice in the tables, but savings were not double counted. The Lighting Discounts Program had carryover savings counted toward both EEPS and IPA targets, while the Instant Discounts Program had carryover savings counted toward the EEPS target.

Table 3‑1. Annual Energy Savings by Program



Note: The Small Business, Lighting Discount, LED Streetlighting and SEM had both EEPS and IPA.

\* Heating and Cooling Rebates included both HVAC and weatherization savings in PY8 but split in PY9.

Source: ComEd tracking data and Navigant team analysis.

Table 3‑2 shows total summer peak demand savings by program. Very few programs reported total demand savings. The total peak demand reduction was 519 MW for the 3-year period.

Table 3‑2. Annual Peak Demand Savings by Program



Note: The Small Business, Lighting Discount, and LED Streetlighting programs had both EEPS and IPA.

\* Heating and Colling Rebates included both HAVC and weatherization savings in PY8 but split in PY9.

Source: ComEd tracking data and Navigant team analysis.

Figure 3‑1 and Figure 3‑2 show energy and summer peak demand savings for the programs with highest net savings impact. Seven programs Figure 3‑1 account for 84% of the net energy savings (or 4,193,069 MWh), and seven programs in Figure 3‑2 account for 87% of the demand reduction or 451 MW.

Figure 3‑1. Net Energy (MWh) Savings by Program



Source: ComEd tracking data and Navigant team analysis.

Figure 3‑2. Net Peak (MW) Demand Savings by Program



Source: ComEd tracking data and Navigant team analysis.

# Lifetime Savings and Cost by Program

This table provides the weighted average measure life and estimated lifetime savings from the verified first year gross and net savings, and cost information.

Table 4‑1. Verified First Year and Lifetime MWh Savings in PY7



\* Savings from the Energy Stewards program were evaluated using regression billing analysis.

Source: Evaluation Analysis

Table 4‑2. Verified First Year and Lifetime MW Savings in PY7



NA = programs did not report ex ante kW as such realization rates were not determined.

Source: Evaluation Analysis

Table 4‑3. Participation and Acquisition Costs in PY7



NA = Not Applicable. In the case of IL UCT Test, Navigant did not perform UCT analysis on this program.

\* Costs weren't available in ComEd's PY7 TRC analysis report

Source: Evaluation Analysis. Costs data from Utility Cost Test (UCT), sourced from PY7 TRC Reports.

Table 4‑4. Verified First Year and Lifetime MWh Savings in PY8



\* Includes the part use factor

† Savings from the Meter Genius pilot and Energy Stewards program were not statistically significant, which means they cannot be causally attributed to the program.

‡ With interactive effects

§ There were no EEPS savings reported for the Residential Lighting program (only carryover savings).

Source: Evaluation Analysis

Table 4‑5. Verified First Year and Lifetime MW Savings in PY8



NA = programs did not report ex ante kW or there was no realization of kW savings, as such realization rates were not determined.

Source: Evaluation Analysis

Table 4‑6. Participation and Acquisition Costs in PY8



NA = Not Applicable

\* Includes the part use factor

† Savings from the Meter Genius pilot and Energy Stewards program were not statistically significant, which means they cannot be causally attributed to the program.

‡ With interactive effects

§ There were no EEPS savings reported for the Residential Lighting program (only carryover savings).

Source: Evaluation Analysis. Costs data from Utility Cost Test (UCT), sourced from PY8 TRC Reports.

Table 4‑7. EEPS Verified First Year and Lifetime MWh Savings in PY9



Source: Evaluation Analysis.

Table 4‑8. EEPS Verified First Year and Lifetime MW Savings in PY9



NA = programs did not report ex ante kW or there was no realization of kW savings, as such realization rates were not determined.

*Source: Evaluation Analysis.*

Table 4‑9. EEPS Participation and Acquisition Costs in PY9



\*Costs included in all the other programs that distribute smart thermostat as a measure.

NAs means evaluation did not perform UCT test.

Source: Evaluation Analysis. Costs data from Utility Cost Test (UCT), sourced from PY9 TRC Reports.

Table 4‑10. IPA and DCEO Verified First Year and Lifetime MWh Savings in PY9



*Source: Evaluation Analysis.*

Table 4‑11. IPA and DCEO Verified First Year and Lifetime MW Savings in PY9



NA = programs did not report ex ante kW or there was no realization of kW savings, as such realization rates were not determined.

*Source: Evaluation Analysis.*

Table 4‑12. IPA and DCEO Participation and Acquisition Costs in PY9



Note: The PY9 CUB cost is prorated using the $/kWh for PY8 and multiply it with PY9 kWh. Costs were not available during final TRC analysis.

NAs means evaluation did not perform UCT test.

Source: Evaluation Analysis. Costs data from Utility Cost Test (UCT), sourced from PY9 TRC Reports.

Table 4‑13. Cost Effectiveness (TRC) 3-Year Summary Results – ComEd Only



Note: The net TRC benefit is the difference between the TRC benefit and the TRC cost. These results are ComEd only TRCs, and excluded benefits and costs related to gas companies for the joint programs. The TRC ratio is the sum of the TRC benefits divided by sum of the total costs in 3 years.

\* AirCare Plus TRC value reflects both the EEPS and IPA portions of the program. SBES program had EEPS and IPA savings in PY7 until the

program became fully IPA in PY8 and PY9. The combined TRC value for SBES is shown in the IPA section. LED Streetlighting (excluding DCEO

transition program) and NC Small Buildings (called Weidt Group NC in PY8) were IPA in PY8 and PY9, but had relatively small savings and weren’t

included in the TRC Analysis. The focus of the TRC analysis was on EEPS and Large IPA programs which contributed to majority of the portfolio savings.

Source: Evaluation PY7-PY9 TRC Reports-06-26-2019.

Table 4‑14. Cost Effectiveness (TRC) 3-Year Summary Results – Joint



Note: The net TRC benefit is the difference between the TRC benefit and the TRC cost. These results represent the joint TRCs including benefits and costs related to gas companies for the joint programs.

Source: Evaluation - Joint PY7-PY9 and GPY4-GPY6 TRC Report 2019-12-13 Final.

# High Impact Programs

Table 5-1 outlines the top ten business and residential programs with the highest net savings. The top 10 business programs produced 96 percent of the business portfolio savings (including public sector programs) with 4 percent from other business programs. The top 10 residential programs produced 99 percent with one percent from other residential programs, including income eligible programs.

Table 5‑1. High Impact Business and Residential Programs



Source: Evaluation Analysis.

Figure 5‑1 and Figure 5‑2 compare the top 5 programs with the highest net savings in the business and residential portfolios. The top 5 business programs represent 87%, 83%, and 86% respectively from PY7 to PY9 of the business sector savings, with an average 85 percent year over year savings contribution.

The top 5 residential programs represent 93%, 97%, and 98% respectively from PY7 to PY9 of the residential sector savings, with an average 95 percent year over year savings contribution. The Lighting Discount and Home Energy Report represent 88%. Lighting Discount is almost 50% of the residential portfolio savings year over year.

Figure 5‑1. Top 5 Business Programs Net MWh Savings Comparison



Source: Evaluation Analysis

Figure 5‑2. Top 5 Residential Programs Net MWh Savings Comparison



Source: Evaluation Analysis

1. The triennial energy efficiency and demand response plan filings required by Section 8-103 of Illinois Public Utilities Act (“Act”), 220 ILCS 5/8-103, generally referred to herein as “Plan” or “Plan 3”. [↑](#footnote-ref-1)
2. PY7 started in June 1, 2014 and ended in May 31, 2015. PY8 started in June 1, 2015 and ended in May 31, 2016. PY9 original 12-month program started in June 1, 2016 and got extended 7 months more (transition period) and ended in December 31, 2017 (PY9+). [↑](#footnote-ref-2)
3. Public Sector and Income Eligible programs were implemented only in PY9 during the transition period between June 1, 2017 and December 31, 2017. [↑](#footnote-ref-3)
4. Programs with carryover savings are counted only once. Programs that had both an IPA component and an EEPs component were counted separately. [↑](#footnote-ref-4)
5. Some programs had no savings in specific years. These programs were: Meter Genius, Great Energy Stewards, Root3 Energy Data Model, Low-Income Multi-family (UIC-ERC), and Total Connected Savings Wi-Fi Thermostat Optimization. These programs are shown in Table 1-1 but are excluded from subsequent tables containing program evaluation results. [↑](#footnote-ref-5)
6. The triennial energy efficiency and demand response plan filings required by Section 8-103 of Illinois Public Utilities Act (“Act”), 220 ILCS 5/8-103, generally referred to herein as “Plan” or “Plan 3”. [↑](#footnote-ref-6)