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| **ComEd** **Behavior - Res/IE Program Impact Evaluation Report**  Energy Efficiency/Demand Response Plan:  Program Year 2023 (CY2023)  (1/1/2023-12/31/2023) | | | | | | | |
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Table of Contents

[Introduction 1](#_Toc161063956)

[Program Savings Detail 1](#_Toc161063957)

[Cumulative Persisting Annual Savings 3](#_Toc161063958)

List of Tables and Figures

[Table 1. Total Annual Incremental Electric Savings - Total 1](#_Toc161063962)

[Table 2. Total Program Net Electric Savings - Total 2](#_Toc161063963)

[Table 3. CPAS – Electric 3](#_Toc161063964)

# Introduction

This report presents the results of the impact evaluation of the Residential Behavior Program from the program year from January 1 to December 31, 2023 (CY2023). The program was designed to generate energy savings by providing residential customers with information about energy use and conservation strategies. Program participants receive information from regularly mailed and emailed home energy reports.

# Program Savings Detail

Table 1 summarizes the incremental energy and demand savings the Residential Behavior Program achieved in CY2023. Since the randomized control trial (RCT) design of the Residential Behavior Program inherently estimates net savings, neither the evaluation team nor the implementer estimated gross savings and there is no gross realization rate or net-to-gross ratio. Similarly, the RCT cannot identify specific measures that produce savings and so cannot calculation electrification savings and it is is based on electricity consumption and so cannot calculate savings from other fuels.

Table 1. Total Annual Incremental Electric Savings - Total

| Savings Category | Units | Ex Ante Gross Savings\* | Program Gross Realization Rate | Verified Gross Savings\* | Program Net-to-Gross Ratio (NTG) | CY2021 Net Carryover Savings | CY2022 Net Carryover Savings | Verified Net Savings† |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Electric Energy Savings - Direct‡ | kWh |  |  |  |  |  |  | 82,505,806 |
| Electric Energy Savings -  Converted from Other Fuel§ | kWh |  |  |  |  |  |  | 0 |
| Electric Energy Savings - Indirect from Fuel Switching (through Electrification)|| | kWh |  |  |  |  |  |  | 0 |
| Total Electric Energy Savings# | kWh |  |  |  |  |  |  | 82,505,806 |
| Total Electric Energy Savings  Including Carryover# | kWh |  |  |  |  |  |  | N/A |
| Summer Peak\*† Demand Savings | kW |  |  |  |  |  |  | 14,241 |
| Summer Peak\*† Demand Savings   Including Carryover | kW |  |  |  |  |  |  | N/A |

All gross savings columns are intentionally blank as the RCT design inherently estimates net savings and therefore neither the evaluation team nor the implementer estimated gross savings.

N/A = not applicable (refers to a piece of data that cannot be produced or does not apply).

\* The “Ex Ante Gross Savings" and “Verified Gross Savings" in row one (Electric Energy Savings - Direct) and row six (Summer Peak Demand Savings) exclude gross carryover savings from CY2021 and CY2022.

† The “Verified Net Savings” in row one excludes carryover savings as they don’t apply to this program.

‡ The Electric Energy Savings - Direct includes primary kWh savings from efficient measures (includes efficiency savings from fuel switching measures but excludes the fuel switching savings), secondary kWh savings from wastewater treatment, and electric heating penalties.

|| Electrification savings from fuel switching measures excluding direct efficiency savings. Calculated from net electric savings from increase in kWh consumption and decrease in gas consumption from fuel switching (kWh equivalent).

# Total Electric Energy Savings is the sum of the Electric Energy Savings - Direct, the Electric Energy Savings Converted from Other Fuel, and the Electrification Savings from fuel switching alone.

\*† The Peak Demand Savings are savings occurring at coincident Summer Peak period, defined as 1:00-5:00 PM Central Prevailing Time on non-holiday weekdays, June through August. This definition is in accordance with PJM requirement.

Source: Evaluation team analysis

Table 2 provides the detailed adjustments made to arrive at the final verified net savings for CY2023 and reports the program net realization rate. Of the modeled savings, 4% are from uplift into other ComEd energy efficiency programs and over half (59%) are attributable to prior program years. After the uplift and persistence adjustments, the program achieved a net realization rate of 1.41. The difference in savings is driven by adjustments after the modeling (i.e., uplift and persistence) as the ex ante savings before adjustments are 218,606,000 kWh which is less than 2% different than the evaluation team’s modeled savings. Differences in the persistence savings adjustments are the main contributor to a realization rate greater than 1. The evaluation team does not have the information required to identify and verify the sources of the discrepancy in more detail.

Table 2. Total Program Net Electric Savings - Total

| Savings Category | Energy Savings (kWh) |
| --- | --- |
| Ex Ante Net Savings | 58,698,000 |
| Modeled Savings | 222,150,275 |
| Current Year Uplift Adjustment | (612,559) |
| Legacy Uplift Adjustment | (8,140,635) |
| Verified Unadjusted Net Savings | 213,397,081 |
| Persistence Adjustment | (130,891,275) |
| Final Verified Net Savings | 82,505,806 |
| Program Net Realization Rate | 1.41 |

Source: Evaluation team analysis

# Cumulative Persisting Annual Savings

Table 3 shows the cumulative persisting annual savings (CPAS) for the measures installed in CY2023.

Table 3. CPAS – Electric

|  | | | CPAS Verified Net kWh Savings | | | |  | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Savings Category | Verified Gross Savings (kWh) | Lifetime Net Savings (kWh)† | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| CY2023 Program Total Contribution to CPAS |  | 292,207,810 |  |  |  |  |  | 82,505,806 | 60,133,944 | 43,949,562 | 31,650,464 | 23,291,538 | 17,067,278 |
| Historic Program Total Contribution to CPAS‡ |  |  | 279,539,772 | 255,950,948 | 240,435,808 | 249,725,611 | 259,799,415 | 146,044,389 | 85,371,813 | 47,565,697 | 26,318,673 | 18,524,078 | 13,192,976 |
| Program Total CPAS |  | 292,207,810 | 279,539,772 | 255,950,948 | 240,435,808 | 249,725,611 | 259,799,415 | 228,550,195 | 145,505,757 | 91,515,259 | 57,969,137 | 41,815,616 | 30,260,254 |
| CY2023 Program Incremental Expiring Savings§ |  |  |  |  |  |  |  |  | 22,371,862 | 16,184,382 | 12,299,098 | 8,358,926 | 6,224,261 |
| Historic Program Incremental Expiring Savings|| |  |  |  |  |  |  |  | 113,755,026 | 60,672,576 | 37,806,116 | 21,247,024 | 7,794,595 | 5,331,102 |
| Program Total Incremental Expiring Savings# |  |  |  |  |  |  |  | 113,755,026 | 83,044,438 | 53,990,498 | 33,546,122 | 16,153,521 | 11,555,363 |

| Savings Category | Verified Gross Savings (kWh) | Lifetime Net Savings (kWh)† | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 | 2038 | 2039 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| CY2023 Program Total Contribution to CPAS |  | 292,207,810 | 12,656,637 | 9,262,763 | 6,737,921 | 4,951,895 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Historic Program Total Contribution to CPAS‡ |  |  | 9,271,794 | 6,475,833 | 4,569,163 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Program Total CPAS |  | 292,207,810 | 21,928,431 | 15,738,596 | 11,307,084 | 4,951,895 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| CY2023 Program Incremental Expiring Savings§ |  |  | 4,410,640 | 3,393,874 | 2,524,843 | 1,786,025 | 4,951,895 | 0 | 0 | 0 | 0 | 0 | 0 |
| Historic Program Incremental Expiring Savings|| |  |  | 3,921,182 | 2,795,961 | 1,906,670 | 4,569,163 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Program Total Incremental Expiring Savings# |  |  | 8,331,822 | 6,189,835 | 4,431,513 | 6,355,188 | 4,951,895 | 0 | 0 | 0 | 0 | 0 | 0 |

All gross savings columns are intentionally blank as the RCT design inherently estimates net savings and therefore neither the evaluation team nor the implementer estimated gross savings.

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

‡ Historical savings go back to CY2018.

§ Incremental expiring savings are equal to CPAS Yn-1 - CPAS Yn.

|| Historic incremental expiring savings are equal to Historic CPAS Yn-1 – Historic CPAS Yn.

# Program total incremental expiring savings are equal to current year total incremental expiring savings plus historic total incremental expiring savings.

Source: Evaluation team analysis