

## Memorandum

**To:** Rebecca McNish, Erin Daughton, Vince Gutierrez, Molly Lunn, ComEd

**CC:** Elizabeth Horne, ICC; Jeff Erickson, Charlie Maglione, Shaun Fernando, Adam Knickelbein, Guidehouse

**From:** Patricia Plympton, Anna McCreery, Madalin How, Adam Winston, Guidehouse

**Date:** June 13, 2023

**Re:** ComEd CY2022 Energy Efficiency Portfolio Economic and Employment Impacts - Final

## Introduction

This memo presents the results of Guidehouse’s analysis of economic and employment impacts produced by ComEd’s CY2022 energy efficiency portfolio and voltage optimization. This analysis was conducted in alignment with Version 2.1 of the Illinois Energy Efficiency Policy Manual (“the Policy Manual”), requiring that each program administrator in Illinois annually report estimates of the economic development and employment impacts of its energy efficiency programs.

The methodology used in this analysis is consistent with that developed by consensus with the Illinois Stakeholder Advisory Group Non-Energy Impacts Working Group used in the previously prepared CY2018, CY2019, and CY2020 analyses.<sup>1</sup> The evaluation team made refinements to the analysis and data inputs (e.g., utility rates) as process improvements from the prior analyses, including purchasing the most recent Illinois data for IMPLAN. The most significant difference in the new IMPLAN dataset is that the productivity values increased (i.e., there is a higher economic output per job) resulting in fewer job-years than in previous economic analyses.

---

<sup>1</sup> To meet Clean Energy and Jobs Act annual deadline of April 30 for the Economics NEI analysis and memo, Guidehouse developed cost ratios for CY2021 using CY2020 cost data. For CY2022, Guidehouse prioritized using actual cost data for the analysis and memo and submitted a preliminary Economic NEI memo on April 27, 2023.

## Results

The results from the CY2022 Economic Non-Energy Impact (NEI) analysis indicate that the ComEd energy efficiency portfolio and voltage optimization generated 16,454 job-years, \$1.14B in total labor income, and \$4.05B in industry output.

### Summary of Input Data

Table 1 presents a summary of input data used for the CY2022 economic and employment impact analysis. All data was sourced from the evaluation team's CY2022 evaluation of the ComEd energy efficiency portfolio and voltage optimization.

**Table 1. Summary of ComEd's CY2022 Economic and Employment Impact Analysis Input Data**

| Impact Category                              | Amount (\$M's) | Description of Impact   | Time Period   |
|--|----------------|---|---|
| Bill Savings                                 | \$2.03 B       | Positive economic effect on ratepayers  | 2022-2046   |
| Program Funding                              | -\$443 M       | Negative economic effect on ratepayers  | Over WAML <sup>2</sup> period (Electric: 2022-2034) |
| Net Ratepayer Bill Savings                   | \$1.59 B       | Net economic effect on ratepayers   | 2022-2046   |
| Lost Utility Fuel and Transport Expenditures | -\$85 M        | Negative economic impact on fuel production and transportation                              | 2022-2046   |
| Incentives and Rebates                       | \$260 M        | Positive economic effect on ratepayers  | 2022  |
| Net Incremental Measure Costs                | \$355 M        | Negative economic effect on ratepayers; positive economic effect on retailers and suppliers | 2022  |
| Program Administration Costs                 | \$87 M         | Positive economic effect on utilities   | 2022  |
| Voltage Optimization                         | \$96 M         | Positive economic effect on utilities   | 2022  |

Source: Guidehouse analysis of ComEd CY2022 data

Each impact category is described in more depth below.

- **Bill Savings:** This flow represents the monetized savings program participants realize from their energy efficiency improvements through the utility program. Bill savings are monetized

<sup>2</sup> WAML refers to the weighted average measure life; the measure life for each program is based on the measure life of each measure weighted proportionally to its gross savings contribution to that particular program.

by multiplying the net verified savings by each customers' applicable unit energy cost.<sup>3</sup> Bill savings are realized through the lifetime of the measure as a positive cash flow to the participants.

- **Program Funding:** This flow represents the bill surcharges realized by participants to fund the utility programs. This flow occurs over the weighted average measure life (WAML) of the measure for traditional electric energy efficiency measures and in the year the measures are implemented for gas energy efficiency measures.
- **Net Ratepayer Bill Savings:** This is the net positive bill savings realized by all ratepayers defined as bill savings less program funding charges.
- **Lost Utility Fuel and Transportation Expenditures:** This flow represents decreased expenditures on fuel and transportation (and therefore decreased job creation) due to decreased electric generation as a result of energy efficiency measures.
- **Incentives and Rebates:** These flows represent payments made by the utility to program allies and contractors as part of the installation of energy efficiency measures in CY2022 and rebate payments made by the utility to program participants in CY2022.
- **Net Incremental Measure Costs:** This flow is the sum of all incremental measure costs that program participants expend on energy efficiency projects through the utility's programs in CY2022. As in the cost-effectiveness analysis, incremental measure costs used in this analysis are net costs calculated using SAG-approved NTG values. From the perspective of the participants this is a negative flow as they expend money implementing a project. From the perspective of contractors, trade allies, and equipment providers this is a positive cash flow as they receive income from sales of energy efficiency products and services.
- **Program Administration Costs:** This flow models program administration expenditures incurred as part of portfolio operations.
- **Voltage Optimization<sup>4</sup>:** This flow represents utility expenditures on voltage optimization measures; costs are reported in the year circuits are adjusted for voltage optimization and on an ongoing basis for operations and maintenance.

## Employment Impacts

Figure 1 presents a visual summary of the employment impacts of the CY2022 energy efficiency portfolio investments from 2022 to 2046, separated into direct, indirect, and induced impacts. These categories of economic effects are described below and are defined more fully in Section 6.8 of the Illinois Energy Efficiency Policy Manual Version 2.1.

---

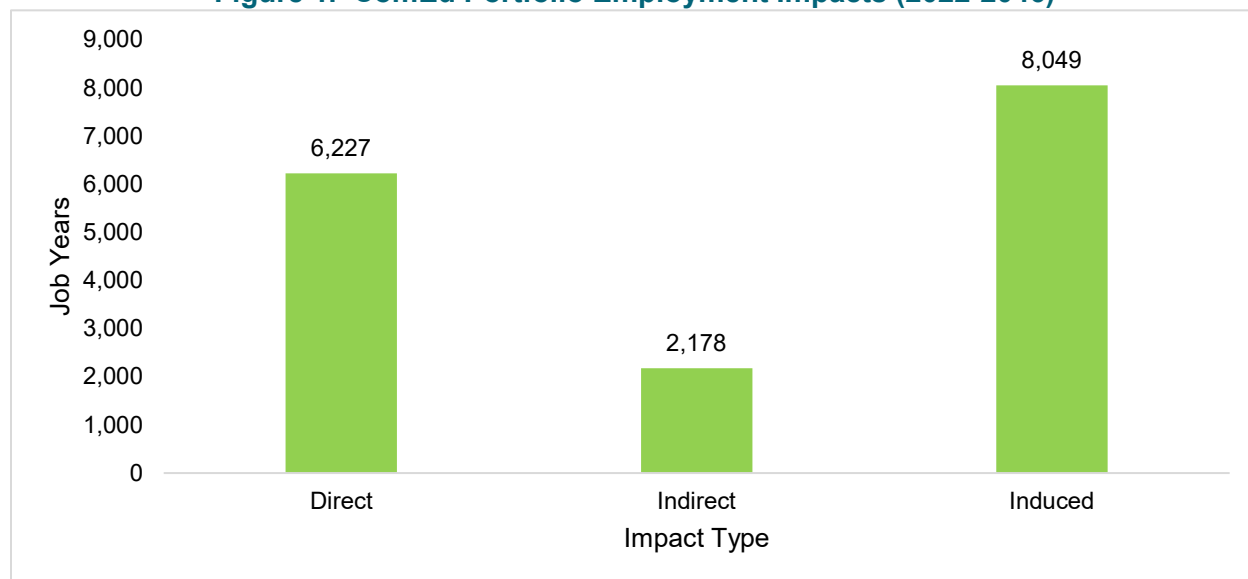
<sup>3</sup> Guidehouse used the summary of utility rates effective 3/21/22 as provided in a ComEd email on April 7, 2022.

<sup>4</sup> Consistent with previous economic NEI analyses, voltage optimization costs were assigned to Commercial, Residential, and Income Eligible customer portfolios in a 50%-25%-25% split, respectively, roughly approximating costs and energy savings associated with each portfolio.

- **Direct effects** may include but are not limited to the initial changes in employment and demand for regional production triggered by the implementation and management of utility energy efficiency programs.
- **Indirect effects** may include but are not limited to secondary impacts generated from business-to-business spending as firms and households directly impacted by the energy efficiency programs increase purchases from their suppliers who must in turn increase purchases from their suppliers and so forth as the initial expenditure ripples through interconnected industries.
- **Induced effects** may include but are not limited to secondary impacts generated from household to business spending as labor income changes that result from both direct and indirect activity affect the local economy.

Because the portfolio produces long-term economic effects as a result of persisting energy savings, employment impacts produced are not confined to a particular year but occur over the 2022-2046 time period.

**Figure 1. ComEd Portfolio Employment Impacts (2022-2046)**



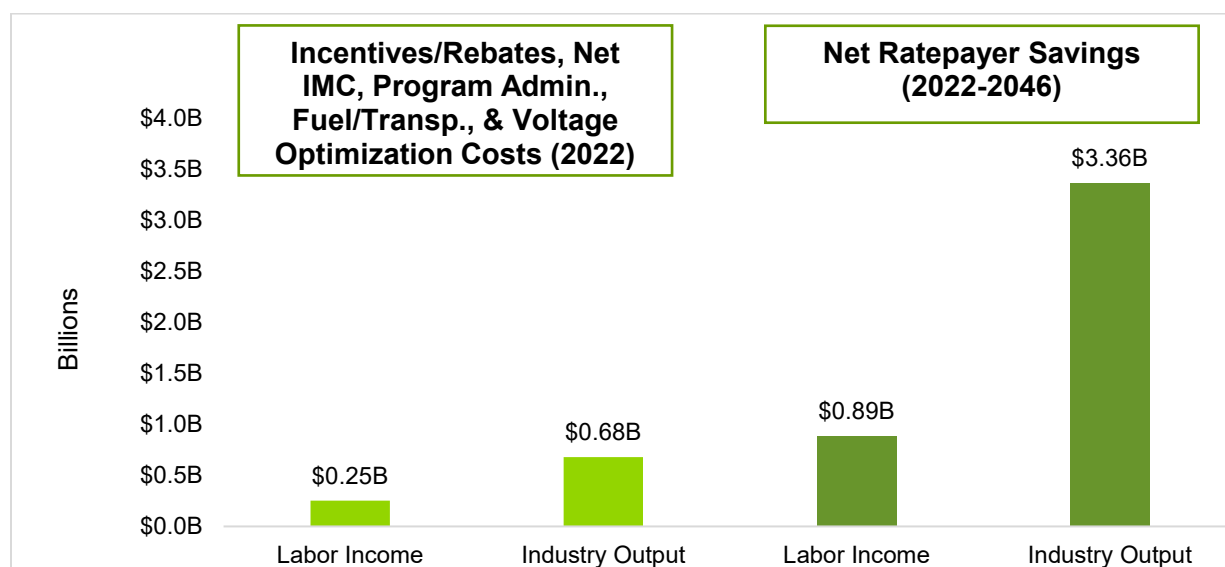
Source: Guidehouse analysis of ComEd CY2022 tracking data

Economic impacts in CY2022 result from initial spending triggered by the implementation and management of ComEd's CY2022 energy efficiency programs, including, but not limited to program incentives and administrative spending, and incremental measure spending resulting from the effects of the portfolio. The impacts beyond CY2022 are derived almost entirely from the persisting effects of ComEd's CY2022 energy efficiency programs in the form of net ratepayer bill savings realized by those who participated in ComEd's CY2022 programs. Impacts persist over a similar period as the cumulative persisting annual savings (CPAS) produced by the ComEd CY2022 portfolio.

## Industry Labor Income and Industry Output

Figure 2 presents labor income and industry output from the CY2022 ComEd energy efficiency portfolio separated into impacts resulting from 1) program spending and program-induced spending (incentives, rebates, net incremental costs, program administration, fuel/transportation expenditures, etc.) and 2) net ratepayer bill savings. The figure includes direct, indirect, and induced effects on labor income and industry output.

**Figure 2. ComEd CY2022 Energy Efficiency Portfolio Labor Income and Industry Output Impacts (2022-2046)**



Source: Guidehouse analysis of ComEd CY2022 tracking data

Table 2 presents a summary of the cumulative industry labor income and industry output impacts (“economic impacts”) of the CY2022 energy efficiency portfolio and voltage optimization investments (2022-2046).

**Table 2. Cumulative 2022-2046 Industry Labor Income and Industry Output Impacts from ComEd’s CY2022 Energy Efficiency Portfolio Investments (\$ Millions)**

| Impact Type  | Labor Income   | Industry Output |
|--------------|----------------|-----------------|
| Direct       | \$426          | \$1,184         |
| Indirect     | \$187          | \$556           |
| Induced      | \$527          | \$2,307         |
| <b>Total</b> | <b>\$1,141</b> | <b>\$4,047</b>  |

Source: Guidehouse analysis of ComEd CY2022 tracking data

## Appendix

Table 3 and Table 4 provide cumulative economic impacts and employment impacts in a format similar to that presented in the CY2018, CY2019, CY2020, and CY2021 analyses for the purpose of comparison.

**Table 3: ComEd CY2022 Energy Efficiency Portfolio Cumulative Economic Impacts (2022-2046)**

| Time Period        | Impact Type  | Job Years     | Labor Income   | Industry Output |
|--------------------|--------------|---------------|----------------|-----------------|
| 2022 – 2046        | Direct       | 6,228         | \$426M         | \$1.18M         |
| 2022 – 2046        | Indirect     | 2,178         | \$187M         | \$556M          |
| 2022 – 2046        | Induced      | 8,049         | \$527M         | \$2.31B         |
| <b>2022 – 2046</b> | <b>Total</b> | <b>16,454</b> | <b>\$1.14B</b> | <b>\$4.05B</b>  |
| 2021 – 2045        | Direct       | 7,757         | \$479M         | \$1.4B          |
| 2021 – 2045        | Indirect     | 3,114         | \$222M         | \$619M          |
| 2021 – 2045        | Induced      | 9,309         | \$503M         | \$2.02B         |
| <b>2021 – 2045</b> | <b>Total</b> | <b>20,180</b> | <b>\$1.21B</b> | <b>\$4.04B</b>  |
| 2020 – 2044        | Direct       | 7,823         | \$484M         | \$1.41B         |
| 2020 – 2044        | Indirect     | 3,145         | \$224M         | \$623M          |
| 2020 – 2044        | Induced      | 9,278         | \$501M         | \$2.01B         |
| <b>2020 – 2044</b> | <b>Total</b> | <b>20,246</b> | <b>\$1.21B</b> | <b>\$4.04B</b>  |
| 2019 – 2043        | Direct       | 6,583         | \$414M         | \$1.23B         |
| 2019 – 2043        | Indirect     | 2,706         | \$195M         | \$549M          |
| 2019 – 2043        | Induced      | 7,458         | \$403M         | \$1.59B         |
| <b>2019 – 2043</b> | <b>Total</b> | <b>16,747</b> | <b>\$1.01B</b> | <b>\$3.37B</b>  |
| 2018 – 2042        | Direct       | 5,562         | \$340M         | \$965M          |
| 2018 – 2042        | Indirect     | 2,241         | \$161M         | \$452M          |
| 2018 – 2042        | Induced      | 6,904         | \$375M         | \$1.53B         |
| <b>2018 – 2042</b> | <b>Total</b> | <b>14,707</b> | <b>\$876M</b>  | <b>\$2.94B</b>  |

**Table 4: ComEd Energy Efficiency Portfolio Economic Impacts by Periods (CY2018-CY2022)**

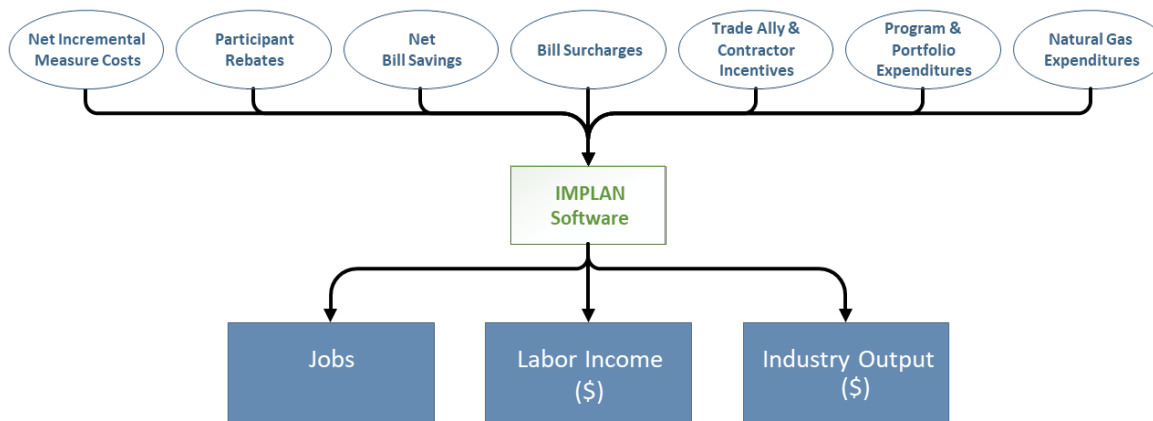
| Time Period | Impact Type | Job Years | Labor Income | Industry Output |
|-------------|-------------|-----------|--------------|-----------------|
| 2018 – 2042 | Total       | 14,707    | \$876M       | \$2.94B         |
| 2019 – 2043 | Total       | 16,747    | \$1.01B      | \$3.37B         |
| 2020 – 2044 | Total       | 20,246    | \$1.21B      | \$4.04B         |
| 2021 – 2045 | Total       | 20,180    | \$1.21B      | \$4.04B         |
| 2022 – 2046 | Total       | 16,460    | \$1.14B      | \$4.05B         |

### Economic Impact Assessment Methodology

The economic impact assessment for energy efficiency programs follows a three-step process depicted in Figure 3:

- 1) Data collection of the economic activities of the energy efficiency programs
- 2) Economic modeling of these activities using IMPLAN<sup>5</sup>
- 3) Analysis of the results – summarizing and assessing the economic measures (e.g., industry output, labor income, and jobs)

**Figure 3. Economic Impact Assessment Methodology**



Source: Guidehouse

<sup>5</sup> IMPLAN is an Input-Output modeling system that uses annual, regional data to map these buy-sell relationships so users can predict how specific economic changes will impact a given regional economy or estimate the effect of past or existing economic activity.