

2023-2025 ComEd Evaluation Plan

Presentation to SAG

December 6, 2022



Agenda

- Introduction
 - Evaluation Plan Schedule
 - The ComEd Portfolio
 - Electrification
 - Budget
- Residential and Income Eligible (IE) Programs
- Business Programs
- Special Topics Research
 - Non-Energy Impacts
 - PJM
- Evaluation Approaches
 - Evaluation Coordination

Introduction

Evaluation Plan Schedule

Step	Date
First Draft of 4-Year Plan	<u>October 26</u>
Presentation to IQWG	November 30
Presentation to SAG	December 6
Comments Due	December 13
Second Draft	December 20
Comments Due	January 3
Final	January 10

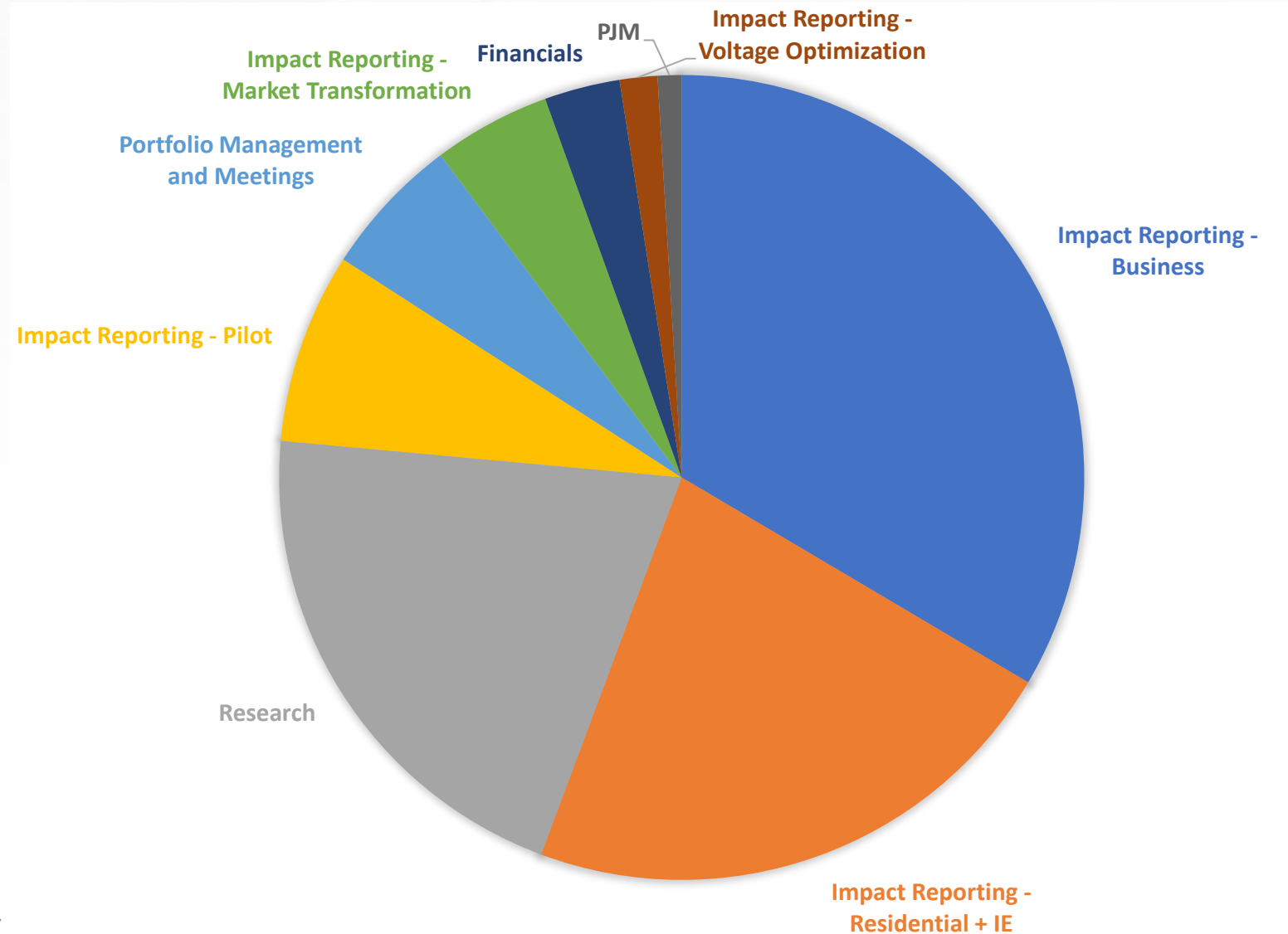
The ComEd Portfolio Plan – 2023

Residential and Income Eligible (IE) Programs	Budget (Programs Only)	Persisting Net MWh Savings
Retail/Online	11%	13%
Single-Family Upgrades	9%	4%
Multifamily Upgrades	9%	2%
Product Distribution	4%	9%
Behavior – Res/IE	2%	5%
New Construction – IE	1%	0%
Contractor/Midstream Rebates	1%	1%
Res/IE TOTAL	37%	33%

Business and Public Sector Programs	Budget (Programs Only)	Persisting Net MWh Savings
Small Business	23%	16%
Incentives	22%	18%
Targeted Systems	8%	6%
Midstream/Upstream	4%	12%
Behavior – Bus/Pub	2%	2%
New Construction – Bus/Pub	1%	1%
Assessments	1%	0%
Bus/Pub TOTAL	64%	55%
Multi-Segment and Portfolio-Level Activities		
Voltage Optimization	NA	10%
Research & Development	0%	1%
Electrification	3%	1%

Source: Commonwealth Edison's Revised Energy Efficiency and Demand Response Plan 2022-2025. Savings include converted therms.

CY2023 Evaluation Budget



Residential and IE Programs

Structure of the Evaluation – Residential Sector Programs

Program Type	Plan 6 Program
Direct to Consumer	Single-Family Upgrades
	Multifamily Upgrades
	Behavior - Res/IE
Channels	Retail/Online
	Product Distribution
	New Construction – IE
	Contractor/Midstream Rebates

- Promoted broadly as the ComEd Energy Efficiency Program
- Income Qualified services are embedded into ComEd's Plan 6 Residential program
- Evaluation reports differentiate between market rate and IE results

Residential Sector Program Components

Program Type	Program	Program Component	Savings Type
Direct to Consumer	Single-Family Upgrades	Home Energy Assessment	BOTH
		IE Upgrades	IE
		Illinois Home Weatherization Assistance Program (IHWAP)	IE
	Multifamily Upgrades	Multifamily Market Rate	MR
		IE Multifamily Upgrades	IE
		IHWAP	IE
		Public Housing Upgrades	IE
	Behavior - Res/IE	Home Energy Reports	MR
Channels	Retail/Online*	IE Retail Discounts	IE
		Lighting Discounts	MR
		Appliance Rebates	MR
		Appliance Recycling	IE
		Efficient Choice	MR
	Product Distribution	School Kits	BOTH
		IE Kits	IE
		Food Bank LED	IE
	New Construction - IE	Affordable Housing New Construction	IE
	Contractor/Midstream Rebates	Contractor/Midstream Rebates	MR

Structure of the Evaluation – Residential Sector Programs

		Impact Evaluations			
Program Type	Plan 6 Program	CY2022	CY2023	CY2024	CY2025
Direct to Consumer	Single-Family Upgrades	✓		✓	
	Multifamily Upgrades	✓		✓	
	Behavior - Res/IE	✓	✓	✓	✓
Channels	Retail/Online	✓	✓	✓	✓
	Product Distribution	✓	✓	✓	✓
	New Construction – IE	✓		✓	
	Contractor/Midstream Rebates	✓		✓	

Residential and IE NTG Evaluation Draft Timeline

Program	Component	Net Savings Research Tasks	CY2022	CY2023	CY2024	CY2025
Contractor Midstream Rebates	N/A	Contractor Free Ridership Survey		✓		
Contractor Midstream Rebates	N/A	Contractor Spillover Survey		✓		
Multifamily Upgrades	MF Market Rate	Customer Free Ridership Survey		✓		
Multifamily Upgrades	MF Market Rate	Customer Spillover Survey		✓		
Product Distribution	Elementary Education Kits	Customer Free Ridership Survey			✓	
Product Distribution	Elementary Education Kits	Customer Spillover Survey			✓	
Retail/Online	Appliance Rebates	Customer Free Ridership Survey		✓		✓
Retail/Online	Appliance Rebates	Customer Spillover Survey		✓		✓
Retail/Online	Appliance Recycling	Trade Ally/Retailer Free Ridership Survey		✓		✓
Retail/Online	Appliance Recycling	Trade Ally/Retailer Spillover Survey		✓		✓
Retail/Online	Efficient Choice	Customer Free Ridership Survey		✓	✓	✓
Retail/Online	IE Retail Discounts	Free Ridership Method TBD*				
Retail/Online	IE Retail Discounts	Spillover Method TBD*				
Retail/Online	Lighting Discounts	Free Ridership Method TBD*				
Retail/Online	Lighting Discounts	Spillover Method TBD*				
Single Family Upgrades	Home Energy Assessment	Customer Free Ridership Survey			✓	
Single Family Upgrades	Home Energy Assessment	Customer Spillover Survey			✓	

Note: Timeline reflects the **calendar year** that new recommendations will be presented to SAG.

* Lighting NTG research is on hold due to EISA (Energy Independence and Security Act) baselines and measure representation.

Evaluation Structure – Residential and IE Programs

Program Type	Plan 6 Program	Notes
Direct to Consumer	Single-Family Upgrades	<ul style="list-style-type: none"> Includes whole building weatherization services
	Multifamily Upgrades	<ul style="list-style-type: none"> Includes whole building weatherization services Public housing savings distinguished from other multifamily savings
	Behavior - Res/IE	
Channels	Retail/Online	<ul style="list-style-type: none"> Separate samples depending on the measure type or program component implementation strategy (e.g., Efficient Choice will have a separate approach)
	Product Distribution	<ul style="list-style-type: none"> Separate samples depending on the distribution strategy
	New Construction - IE	<ul style="list-style-type: none"> Includes whole building weatherization services
	Contractor/Midstream Rebates	

Residential and IE Pilots and Market Transformation Programs

Pilots and MT Programs with <u>Expected Evaluated Savings in 2023</u>	Pilot	MT Program
All Sectors		
Advanced Codes and Building Performance Standards		✓
Residential and IE		
ENERGY STAR Retail Products Platform		✓
IE Whole Home Electrification*	✓	
Heat Pump Water Heaters	✓	
Variable Speed Heat Pump as AC Replacement	✓	

Pilots and MT Programs with <u>Evaluation Support</u>	Pilot	MT Program
Residential and IE		
Air Source Heat Pump Contractor Training		✓
Communities of the Future Next Generation HVAC Demonstration		✓

*Savings to be claimed through existing Single Family Upgrades program.

Source: ComEd Emerging Technologies Team

Program Co-Delivery Research

Guidehouse is providing ComEd market research on potential program and pilot design options that co-deliver demand side management programs to residential, commercial, or industrial customers. ComEd plans to use this research to inform internal discussion regarding the creation of combined programs in its portfolio. This research will serve as an entry point into deeper research, if further desired by ComEd, into successful program designs and strategies that utilize this combined approach.

Research Objectives

Identify and describe existing program or pilot offerings at other utilities that co-deliver a combination of energy efficiency, demand response, EV, battery storage, renewable energy programs, etc. to utility customers. Specific to IE households, programs combining financial assistance and energy services.

Tasks

1. Conduct background research
2. Interview utility contacts
3. Synthesize and report findings

IE Multifamily Research

- IE non-impact evaluation research to support ComEd's compliance with the Plan 6 Stipulation Agreement
- Research is designed to gain insights from multiple ComEd IE program stakeholders including members of the Income Qualified Advisory Group North, Community Based Organizations, Community Action Agencies, IE program implementers, and multifamily building owners and managers
- The purpose is to develop recommendations leading to increased IE program participation

Research Activities	Description
IE Stakeholder Interviews	Interview IE local champions and stakeholders in ComEd's service territory to gain their insights on best practice recommendations that could increase IE program participation
IE Non-Participating Multifamily Building Owner and Manager Interviews	Identify awareness of ComEd's IE programs, participation barriers, and opportunities to identify and serve non-participating multifamily buildings
IE Program Outreach Best Practice Research	Identify peer utility best practices to engage IE populations

"Evaluation of Customer Engagement and Targeted Energy Efficiency Delivery Efforts: ComEd will direct its independent evaluator to perform one or more process evaluations of the Customer Engagement and Mapping of Assistance Needs and Targeting Delivery of Weatherization Services efforts described above during the Plan 6 Period and will share the results at a joint SAG and Committee meeting."

(Source: revised Stipulation Agreement, February 28, 2022, section IV.A.6.c)

Business Programs

Structure of the Evaluation – Business Programs

Program	Notes
Small Business	<ul style="list-style-type: none">• Includes Small Business Kits
Incentives	<ul style="list-style-type: none">• Separate samples for Standard and Custom projects• Streetlighting measures are included in Standard program
Targeted Systems	<ul style="list-style-type: none">• Separate samples for Retrocommissioning (RCx), Industrial Systems• RCx is offered as a joint program
Midstream	<ul style="list-style-type: none">• Includes new Commercial Food Service Equipment (CFSE) component• CFSE is offered as a joint program
Behavior Bus/Pub	
New Construction - Bus/Pub	
Assessments	

Business Sector Program Components

Program	Program Components
Small Business	Small Business (includes Small Business Kits)
Incentives	Standard (includes Street Lighting)
	Custom
Targeted Systems	RCx
	Industrial Systems
	Building Operator Certification (BOC)
	Virtual Commissioning (VCx)
Midstream	Instant Discounts
	Commercial Food Service Equipment (CFSE)
Behavior Bus/Pub	Strategic Energy Management
New Construction - Bus/Pub	Non-Residential New Construction
Assessments	Facility Assessments

Business Pilots and Market Transformation Programs

Pilots and MT Programs with <u>Expected Savings in 2023</u>	Pilot	MT Prog
Automated System Optimization	✓	
Refrigeration Thermal Energy Storage	✓	
Upstream Commercial Food Service Equipment	✓	
Industrial Energy Management Information Systems	✓	

Pilots and MT Programs with <u>Evaluation Support</u>	Pilot	MT Prog
All Sectors		
Advanced Codes and Building Performance Standards		✓
Business and Public Sector		
Variable Refrigerant Flow HVAC Systems in Colder Climates	✓	
Insulating Interior Shades	✓	
Very High Efficiency HVAC Retrofit	✓	

Source: Discussions with ComEd's Emerging Technologies Team

NTG Evaluation Draft Timeline – Business 1

Program	Component	Tasks	CY2022	CY2023	CY2024	CY2025
Midstream/Upstream	Instant Discounts	Net Savings Research – Customer Free Ridership Survey - Wave 1		✓		✓
Midstream/Upstream	Instant Discounts	Net Savings Research – Customer Free Ridership Survey - Wave 2		✓		✓
Midstream/Upstream	Instant Discounts	Net Savings Research – Customer Spillover Survey - Wave 1		✓		✓
Midstream/Upstream	Instant Discounts	Net Savings Research – Customer Spillover Survey - Wave 2		✓		✓
Midstream/Upstream	Instant Discounts	Net Savings Research – NTG Ratio Estimation		✓		✓
Midstream/Upstream	Instant Discounts	Net Savings Research – Trade Ally Free Ridership Survey		✓		✓
Midstream/Upstream	Instant Discounts	Net Savings Research – Trade Ally Spillover Survey		✓		✓
New Construction - Bus/Pub	Non-Residential New Construction	Net Savings Research - Customer Free Ridership Survey		✓		✓
Small Business	Small Business*	Net Savings Research – Customer Free Ridership Survey		✓		
Small Business	Small Business*	Net Savings Research – Customer Spillover Survey		✓		
Small Business	Small Business*	Net Savings Research – Trade Ally Free Ridership Survey		✓		
Small Business	Small Business*	Net Savings Research – Trade Ally Spillover Survey		✓		
Targeted Systems	RCx	Net Savings Research – Customer Free Ridership Survey			✓	
Targeted Systems	RCx	Net Savings Research – Customer Spillover Survey			✓	
Targeted Systems	RCx	Net Savings Research – EESP Free Ridership Survey			✓	
Targeted Systems	RCx	Net Savings Research – EESP Spillover Survey			✓	

*Includes Small Business Kits

Note: The timeline reflects the **calendar year** that new recommendations will be presented to SAG.

NTG Evaluation Draft Timeline – Business 2

Program	Component	Tasks	CY2022	CY2023	CY2024	CY2025
Incentives	Custom	Net Savings Research – Customer Free Ridership Survey	✓	✓	✓	✓
Incentives	Custom	Net Savings Research – Customer Spillover Survey	✓	✓	✓	✓
Incentives	Standard	Net Savings Research – Customer Free Ridership Survey			✓	
Incentives	Standard	Net Savings Research – Customer Spillover Survey			✓	
Incentives	Standard	Net Savings Research – Trade Ally Free Ridership Survey			✓	
Incentives	Standard	Net Savings Research – Trade Ally Spillover Survey			✓	
Targeted Systems	Industrial Systems	Net Savings Research – Customer Free Ridership Survey			✓	
Targeted Systems	Industrial Systems	Net Savings Research – Customer Spillover Survey			✓	

Note: The timeline reflects the **calendar year** that new recommendations will be presented to SAG.

NTG Evaluation Draft Timeline – Business Pilots

Sector	Component	Tasks	CY2022	CY2023	CY2024	CY2025
Business	Upstream Commercial Food Service Equipment	Net Savings Research – Customer Free Ridership Survey			✓	
Business	Upstream Commercial Food Service Equipment	Net Savings Research – Customer Spillover Survey			✓	

Note: The timeline reflects the **calendar year** that new recommendations will be presented to SAG.

Business Research

1. Compressed Air Leak Repair Effective Useful Life (EUL) Research | Q4 2021–Q4 2024

- **Joint study between ComEd and Ameren Illinois**
- **Key Objective:** Determine the EUL for compressed air leak repairs with intent to update the TRM
- **Research Approach:** longitudinal study to examine air leak repair failure rates over the course of 30 months

2. Business Energy Analyzer (BEA) Effective Useful Life (EUL) Research | Q3 2022–Q2 2023

- **Key Objective:** Determine the EUL of energy savings for customers that engage with BEA
- **Primary Research Questions:**
 - What energy efficiency measures are implemented by commercial customers as a result of receiving and evaluating energy utilization information and analysis provided to them by a utility-sponsored program, and what evidence is available on the persistence of savings from said measures?
 - Are there program design changes that could be implemented that would extend energy savings persistence?
- **Research Approach:**
 - **Task One:** Literature Review – Document examples in the industry of other similar programs/tools and their EULs
 - **Task Two:** Customer Survey Research – Collect information on types of measures BEA users implement as a result of the information received via the tool
 - **Task Three:** Program Redesign – Convene a meeting to discuss findings from tasks one and two to develop suggestions for redesign to deepen customer engagement

Special Topics Research

Non-Energy Impacts

- **Economic and Employment Impacts**

- Report produced annually by April 30 per CEJA
- Includes indirect and direct economic impacts and job-years
- Conducted since CY2018, methodology uses IMPLAN and program year cost and savings data

- **Societal Health Impacts**

- Analysis conducted annually to produce values for the TRC report due to ComEd and ICC by June 28
- Report on Societal NEIs produced annually in June
- Conducted since CY2020, methodology uses EPA tools AVERT and COBRA and portfolio savings data
- Analysis tools will be revised in accordance with AVERT and COBRA updates

- **Participant Impacts**

- Research underway with residents of single-family homes and multifamily buildings
- Research completed with building owners and property managers of multifamily buildings
- Monetized NEI results associated with single-family homes expected by Q4 2023
- Monetized NEI results associated with multifamily homes expected by Q4 2024
- Monetized NEI results associated with managing multifamily buildings expected by Q1 2023

PJM

- **Objective:** Support ComEd's annual portfolio capacity resource reporting to PJM
- **Approach:**
 1. Compile the PJM-compliant peak demand reductions from ComEd's portfolio
 2. Transform the data to match PJM's reporting requirements
 3. Apply current year evaluation factors to the data
 4. For the auction, incorporate ComEd's participation projections
 5. Prepare the updated reports for PJM
- **Timing:**
 - Follow the PJM-defined schedules for capacity auctions and reporting
 - Typically, February to July on an annual basis

Evaluation Approaches

**Summary of 2023-2025 Evaluation Activities
and Timelines**

Evaluation Activities Timeline Overview

Impact

- Waves of impact research throughout the year
- Final program data available January 30 of each year
- Final impact report, economic and employment impacts, and summary report due April 30 of each year
- TRC report is due June 30 of each year

Net to Gross

- Memos delivered as research is completed
- Draft recommendations September
- Final values October 1

Research

- Results presented as research is completed
- TRM, non-energy impacts, and other studies are ongoing

Impact Evaluation Approaches

- Basic Approach
 - TRM-based (majority of residential programs)
 - Custom and model-based (majority of business programs and pilots)
 - Population-level consumption data analysis
- Components
 - Savings Calculator and Workpaper Review
 - Program Tracking Data Review
 - Survey, Phone, or Virtual Verification
 - Onsite Verification
 - Impact Analysis in Waves

Evaluation Coordination

- **Guidehouse coordinates with the other utilities and their evaluation teams on an ongoing basis - this includes Ameren IL, Nicor Gas, PGL, and NSG**
- **Electric-Gas Joint Program Evaluations**
 - Some jointly delivered programs are evaluated by a single-team, producing a single report
 - Joint or coordinated programs and measures are evaluated separately in some cases
 - Evaluators calculate and report joint TRCs
- **Coordination on Process and TRM Research Studies**
 - TRM measure research considered on a case-by-case basis
 - Process research is done jointly when it is beneficial to do so
 - Statewide research
- **Coordination beyond specific programs occurs as follows**
 - SAG meetings, Illinois-wide issues
 - Illinois NTG Framework and Protocol Working Group
 - Illinois TRM Technical Advisory Committee
 - Evaluator coordination calls (monthly)

Questions, Feedback



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