



# ComEd Variable Speed Heat Pump as AC Replacement Pilot Impact Evaluation Report

Energy Efficiency/Demand Response Plan:  
Program Year 2022 (CY2022)  
(1/1/2022-12/31/2022)

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## Introduction

This report presents the results of the impact evaluation of the Variable Speed Heat Pump as Air Conditioner Replacement (VSHP as AC) Pilot for the program year from January 1 to December 31, 2022 (CY2022). The pilot was designed to promote the installation of VSHPs as a replacement to existing AC units. The program seeks to enhance energy efficiency and reduce greenhouse gas emissions by promoting the use of VSHPs. During the CY2022 program year, a total of 24 projects were carried out, wherein each project involved replacing one AC unit with a VSHP to meet the heating and cooling requirements of the project site. The existing furnaces were retained and continue to operate under extremely cold weather conditions, while the heat pumps operate at moderate temperatures.

## Program Savings Detail

Table 1 summarizes the incremental energy and demand savings the VSHP as AC Pilot achieved in CY2022.

**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)	CY2020 Net Carryover Savings	CY2021 Net Carryover Savings	Verified Net Savings†
Electric Energy Savings - Direct‡	kWh	0		32,247	0.80			25,798
Electric Energy Savings - Converted from Gas§	kWh							
Electric Energy Savings - Indirect from Fuel Switching (through Electrification)	kWh	859,856	0.45	383,883	0.80			307,107
Total Electric Energy Savings#	kWh	859,856	0.48	416,130	0.80			332,904
Secondary Water Savings	kWh							
Summer Peak** Demand Savings	kW			16	0.80			13

\* Ex ante and verified gross savings exclude gross carryover savings from CY2020 and CY2021.

† The “Verified Net Savings” in row one (Electric Energy Savings - Direct) excludes carryover savings as they do not 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.

§ Gas savings converted to kWh by multiplying therms \* 29.31 (which is based on 100,000 Btu/therm and 3,412 Btu/kWh). The evaluation team will determine which gas savings will be converted to kWh and counted toward ComEd’s electric savings goal while producing the portfolio-wide Summary Report.

|| Electrification savings from fuel switching measures excluding direct efficiency savings calculated from net electric savings from an 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 Gas, and the Electrification Savings from fuel switching.

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

- The program-level NTG values are calculated as verified net/verified gross. The program-level analysis typically used measure-level deemed NTG values, which are listed here: <https://www.ilsag.info/evaluator-ntg-recommendations-for-2022>.

Source: Evaluation team analysis

## Cumulative Persistent Annual Savings

Table 2 shows the cumulative persisting annual savings (CPAS) for the measures installed in CY2022.

Table 2. CPAS – Electric

Savings Category	Verified Gross Savings (kWh)	Lifetime Net Savings (kWh)†	CPAS Verified Net kWh Savings											
			2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	
CY2022 Program Total Contribution to CPAS	416,130	4,420,166					332,904	332,904	332,904	332,904	332,904	332,904	332,904	242,274
Historic Program Total Contribution to CPAS‡														
Program Total CPAS	416,130	4,420,166	0	0	0	0	332,904	332,904	332,904	332,904	332,904	332,904	332,904	242,274
CY2022 Program Incremental Expiring Savings§									0	0	0	0	0	90,630
Historic Program Incremental Expiring Savings								0	0	0	0	0	0	0
Program Total Incremental Expiring Savings#								0	0	0	0	0	0	90,630

  

Savings Category	Verified Gross Savings (kWh)	Lifetime Net Savings (kWh)†	CPAS Verified Net kWh Savings											
			2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	
CY2022 Program Total Contribution to CPAS	416,130	4,420,166	242,274	242,274	242,274	242,274	242,274	242,274	242,274	242,274	242,274	242,274	0	0
Historic Program Total Contribution to CPAS‡														
Program Total CPAS	416,130	4,420,166	242,274	242,274	242,274	242,274	242,274	242,274	242,274	242,274	242,274	242,274	0	0
CY2022 Program Incremental Expiring Savings§			0	0	0	0	0	0	0	0	0	0	242,274	0
Historic Program Incremental Expiring Savings			0	0	0	0	0	0	0	0	0	0	0	0
Program Total Incremental Expiring Savings#			0	0	0	0	0	0	0	0	0	0	242,274	0

  

Savings Category	Verified Gross Savings (kWh)	Lifetime Net Savings (kWh)†	CPAS Verified Net kWh Savings											
			2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	
CY2022 Program Total Contribution to CPAS	416,130	4,420,166	0	0	0	0	0	0	0	0	0	0	0	0
Historic Program Total Contribution to CPAS‡														
Program Total CPAS	416,130	4,420,166	0	0	0	0	0	0	0	0	0	0	0	0
CY2022 Program Incremental Expiring Savings§			0	0	0	0	0	0	0	0	0	0	0	0
Historic Program Incremental Expiring Savings			0	0	0	0	0	0	0	0	0	0	0	0
Program Total Incremental Expiring Savings#			0	0	0	0	0	0	0	0	0	0	0	0

† 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