



Income Eligible Single Family Program Impact Evaluation Report

**Energy Efficiency Plan: Program Year 2022
(1/1/2022-12/31/2022)**

Prepared for:

Nicor Gas Company

FINAL

June 7, 2023

Prepared by:

Naksha Roy
Guidehouse

Ryan Wall
Guidehouse

Submitted to:

Nicor Gas Company
1844 Ferry Road
Naperville, IL 60563

Submitted by:

Guidehouse
150 N. Riverside Plaza, Suite 2100
Chicago, IL 60606

Contact:

Ed Balbis
Partner
561.644.9407
ebalbis@guidehouse.com

Stu Slote
Director
802.526.5113
stu.slote@guidehouse.com

Laura Agapay-Read
Associate Director
312.583.4178
laura.agapay.read@guidehouse.com

Charles Ampong
Associate Director
608.446.3172
charles.ampong@guidehouse.com

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1. Introduction

This report presents the results of the impact evaluation of the Nicor Gas 2022 Income Eligible Single Family (SFIE) program. This report presents the results of the impact evaluation for the measures installed through the program, broken out by relevant measure and program structure details. The appendices present the impact analysis methodology and Illinois total resource cost (TRC) inputs. Program year 2022 covers January 1, 2022, through December 31, 2022.

2. Program Description

The SFIE program has two implementation paths administered by Nicor Gas: (1) Illinois Home Weatherization Assistance Program (IHWAP) and (2) Retrofits (contractor channel). Both paths include installation of water heating measures (faucet aerators, showerheads, gas water heaters); advanced and programmable thermostats; air sealing, attic, duct, and rim insulation; and high efficiency boilers and furnaces:

- The IHWAP program path provides retrofits to single family households in Nicor Gas service areas with incomes at or below 80% of the area median income.
- The Retrofit program path offers assessments, direct installation of energy efficiency measures, replacement of inefficient equipment, technical assistance, and educational information for customers to further save money on energy bills. Home Energy Assessment (HEA) Kit, which is part of the Retrofit program path, consists of 16 feet of weather stripping, 1 shower timer, and 1 door sweep.

Resource Innovations implements these program paths, which are jointly offered by ComEd, Peoples Gas, North Shore Gas, and Nicor Gas and delivered through community action agencies. Table 2-1 shows the allocation percentages to Nicor Gas and ComEd for each joint program path, which were applied to verified savings calculations.

Table 2-1. 2022 ComEd & Nicor Gas Therms Allocations

Program Path	Nicor Gas	ComEd
Income Eligible Single-Family IHWAP	61%	39%
Income Eligible Single-Family Retrofit	61%	39%

Source: Nicor Gas and evaluation team analysis

Two additional program implementation paths administered by Nicor Gas with 100% therms allocation to Nicor Gas include:

1. Bloomington-Normal or Joint Ameren Illinois and Nicor Gas Energy Efficiency Offering (EEO), consisting of Ameren-Nicor Gas service area measures, including Bloomington-Normal Program (BNP) with kits (Kit BNP), all referred to as “EEO” program path in this report
2. Energy Savings Kits (ESK), which is delivered jointly with ComEd

These paths include installation of water heating efficiency measures (faucet aerators, showerheads, gas water heaters); advanced and programmable thermostats; air sealing, attic, duct, and rim insulation; and high efficiency boilers and furnaces.

The Ameren-Nicor Gas service area, or EEO program path, offered kits of water efficiency and air sealant measures (reported as Kit BN in the Nicor Gas tracking data). This kit included domestic hot water pipe insulation, a thermostatic shower valve, a low flow showerhead, low flow kitchen and bathroom aerators, a shower timer, and air sealant materials (gaskets, foam tape, V-seal tape, door sweeps, and caulk).

The ESK program path provided an option of free energy savings kits of water efficiency or air sealant measures (reported as Kit 2, Kit 4, and Kit 5 in the Nicor Gas tracking data):

- Kit 2 and Kit 2 MF included low flow showerheads (SH, two per kit), a kitchen aerator (KA), a shower timer (ST), and bathroom aerators (BA, two per kit)
- Kit 4 included 12 electrical switch/outlet gaskets, 1 door sweep, 30 linear feet of rope caulk, and 34 linear feet of weatherstripping
- Kit 5, which is a joint kit with ComEd, included gas measures are a bathroom aerator, a kitchen aerator, a showerhead, a shower timer, four outlet gaskets, four switch gaskets, 17 feet of foam tape/ weatherstripping roll.

Table 2-2 summarizes the number of participants, projects, and installed measure quantities that are the basis for verified energy savings for each program path.

Table 2-2. 2022 Volumetric Summary Findings Detail

Participation	Quantity Unit	IHWAP	Retrofit	Energy Savings Kits (ESK)	EEO	Total
Participants *		298	1104	6245	145	7792
Installed Projects †		300	1212	6271	146	7929
Advanced Thermostat - Manual	Each	125	27	0	15	167
Advanced Thermostat - Programmable	Each	19	140	0	33	192
Air Sealing	Projects	291	834	0	23	1148
Attic Insulation	Sq. ft.	304	929	0	24	1257
Basement Sidewall Insulation	Sq. ft.	79	75	0	0	154
Boiler Pipe Insulation	Ln. ft	0	1	0	0	1
Duct Insulation and Sealing	Projects	39	162	0	0	201
Floor Insulation	Sq. ft.	18	176	0	0	194
Furnace Tune-Up	Each	29	295	0	5	329
Gas High Efficiency Boiler - ER	Each	7	1	0	0	8
Gas High Efficiency Boiler - TOS	Each	6	5	0	1	12

Participation	Quantity Unit	IHWAP	Retrofit	Energy Savings Kits (ESK)	EEO	Total
Gas High Efficiency Furnace - ER	Each	155	0	0	0	155
Gas High Efficiency Furnace - TOS	Each	64	81	0	10	155
Gas Water Heater - ER	Each	84	1	0	5	90
Gas Water Heater - TOS	Each	31	34	0	8	73
HEA Kit	Each	0	19	0	0	19
HW Pipe Insulation	Ln. ft.	2126	1927	0	37	4090
Kit 2	Each	0	0	7	0	7
Kit 2 MF	Each	0	0	5	0	5
Kit 4	Each	0	0	204	0	204
Kit 5	Each	0	0	6055	0	6055
Kit BN	Each	0	0	0	87	87
Low Flow Faucet Aerator - Bathroom	Each	172	326	0	16	514
Low Flow Faucet Aerator - Kitchen	Each	44	130	0	4	178
Low Flow Showerhead	Each	124	469	0	16	609
Programmable Thermostat	Each	49	83	0	0	132
Rim Insulation	Sq. ft.	140	141	0	16	297
Wall Insulation	Sq. ft.	61	265	0	2	328

* Participants are defined as unique site addresses.

† Installed projects are defined as unique vendor project IDs.

Source: Nicor Gas tracking data and Guidehouse evaluation team analysis

3. Program Savings Detail

Table 3-1 summarizes the energy savings for each Income Eligible program path in 2022.

Table 3-1. 2022 Annual Energy Savings Summary

Program Path	Ex Ante Gross Savings (Therms)	Verified Gross RR*	Verified Gross Savings (Therms)	NTG†	Verified Net Savings (Therms)
Retrofit	265,816	100%	265,816	1.00	265,816
IHWAP	105,154	100%	105,154	1.00	105,154
Energy Savings Kits (ESK)	101,518	100%	101,518	1.00	101,518
EEO (incl Kit BNP)	12,996	100%	12,995	1.00	12,995
Total or Weighted Average	485,484	100%	485,483	1.00	485,483

Note: Totals may not sum due to rounding.

* Realization rate (RR) is the ratio of verified gross savings to ex ante gross savings based on evaluation research findings.

† Net-to Gross (NTG): A deemed value. Available on the Stakeholder Advisory Group (SAG) website:

<https://www.ilsag.info/evaluator-ntg-recommendations-for-2022/>.

Source: Guidehouse evaluation team analysis

4. Program Savings by Measure

Table 4-1 summarized the energy savings by measure for the four program paths. The IHWAP and Retrofit program paths, which included 21 measures and the HEA Kit offering, both had overall program path realization rate (RR) of 100%. The Gas High Efficiency Furnace – Early Replacement and Attic Insulation measures contributed the most savings in the IHWAP program path, and the Air Sealing and Attic Insulation measures contributed the most savings in the Retrofits program path.

EEO and ESK program paths together consisted of 16 measures and five different kit offerings and had overall program path RR of 100%. Kit BN and Advanced Thermostat – Programmable measures contributed the most savings in the EEO program path, and Kit 4 and Kit 5 offerings contributed the most savings in the ESK program path.

Table 4-1. 2022 Annual Energy Savings by Measure

Program Path	End Use Type	Savings Category	Ex Ante Gross Savings (Therms)	Verified Gross RR*	Verified Gross Savings (Therms)	NTG+	Verified Net Savings (Therms)
IHWAP	HVAC	Gas High Efficiency Furnace - ER	25,885	100%	25,884	1.00	25,884
	Shell	Attic Insulation	18,979	100%	18,979	1.00	18,979
	Shell	Air Sealing	15,208	100%	15,208	1.00	15,208
	HVAC	Duct Insulation and Sealing	8,691	100%	8,691	1.00	8,691
	HVAC	Advanced Thermostat - Manual	7,799	100%	7,799	1.00	7,799
	Shell	Basement Sidewall Insulation	6,243	100%	6,243	1.00	6,243
	HVAC	Gas High Efficiency Furnace - TOS	5,337	100%	5,337	1.00	5,337
	Shell	Wall Insulation	2,956	100%	2,956	1.00	2,956
	Hot Water	HW Pipe Insulation	2,780	100%	2,780	1.00	2,780
	Hot Water	Gas Water Heater - ER	2,062	100%	2,062	1.00	2,062
	HVAC	Programmable Thermostat	1,966	100%	1,966	1.00	1,966
	HVAC	Gas High Efficiency Boiler - ER	1,922	100%	1,922	1.00	1,922
	Shell	Rim Insulation	1,393	100%	1,393	1.00	1,393
	Shell	Floor Insulation	845	100%	845	1.00	845
	HVAC	Advanced Thermostat - Programmable	820	100%	820	1.00	820
	HVAC	Furnace Tune-Up	811	100%	812	1.00	812
	HVAC	Gas High Efficiency Boiler - TOS	604	100%	604	1.00	604
	Hot Water	Gas Water Heater - TOS	426	100%	426	1.00	426
	Hot Water	Low Flow Showerhead	168	100%	168	1.00	168

Program Path	End Use Type	Savings Category	Ex Ante Gross Savings (Therms)	Verified Gross RR*	Verified Gross Savings (Therms)	NTG+	Verified Net Savings (Therms)
	Hot Water	Low Flow Faucet Aerator - Kitchen	159	100%	159	1.00	159
	Hot Water	Low Flow Faucet Aerator - Bathroom	99	100%	99	1.00	99
		IHWAP Subtotal	105,154	100%	105,154	1.00	105,154
	Shell	Attic Insulation	93,687	100%	93,687	1.00	93,687
	Shell	Air Sealing	67,899	100%	67,899	1.00	67,899
	HVAC	Furnace Tune-Up	30,385	100%	30,385	1.00	30,385
	Shell	Wall Insulation	16,458	100%	16,458	1.00	16,458
	HVAC	Duct Insulation and Sealing	13,640	100%	13,640	1.00	13,640
	Shell	Basement Sidewall Insulation	9,423	100%	9,423	1.00	9,423
	Shell	Floor Insulation	9,005	100%	9,005	1.00	9,005
	HVAC	Gas High Efficiency Furnace - TOS	7,745	100%	7,745	1.00	7,745
	HVAC	Advanced Thermostat - Programmable	6,086	100%	6,086	1.00	6,086
	HVAC	Programmable Thermostat	3,402	100%	3,402	1.00	3,402
	Hot Water	HW Pipe Insulation	2,602	100%	2,602	1.00	2,602
Retrofit	HVAC	Advanced Thermostat - Manual	1,758	100%	1,758	1.00	1,758
	Hot Water	Low Flow Showerhead	907	100%	906	1.00	906
	Hot Water	Low Flow Faucet Aerator - Kitchen	731	100%	731	1.00	731
	Shell	Rim Insulation	586	100%	586	1.00	586
	Hot Water	Gas Water Heater - TOS	460	100%	460	1.00	460
	HVAC	Gas High Efficiency Boiler - TOS	415	100%	415	1.00	415
	HVAC	Gas High Efficiency Boiler - ER	226	100%	226	1.00	226
	Hot Water	Low Flow Faucet Aerator - Bathroom	222	100%	222	1.00	222
	Hot Water, Shell	HEA Kit	150	100%	150	1.00	150
	Hot Water	Gas Water Heater - ER	27	100%	27	1.00	27
	HVAC	Boiler Pipe Insulation	0.4	100%	0.4	1.00	0.4
		Retrofit Subtotal	265,816	100%	265,816	1.00	265,816
	Hot Water, Shell	Kit BN	3,970	100%	3,970	1.00	3,970
EEO	HVAC	Advanced Thermostat - Programmable	2,078	100%	2,078	1.00	2,078
	Shell	Attic Insulation	1,820	100%	1,820	1.00	1,820

Program Path	End Use Type	Savings Category	Ex Ante Gross Savings (Therms)	Verified Gross RR*	Verified Gross Savings (Therms)	NTG†	Verified Net Savings (Therms)
	HVAC	Advanced Thermostat - Manual	1,381	100%	1,381	1.00	1,381
	HVAC	Gas High Efficiency Furnace - TOS	924	100%	924	1.00	924
	Shell	Air Sealing	910	100%	910	1.00	910
	Hot Water	HW Pipe Insulation	592	100%	592	1.00	592
	Hot Water	Gas Water Heater - ER	312	100%	312	1.00	312
	Hot Water	Gas Water Heater - TOS	293	100%	293	1.00	293
	Shell	Rim Insulation	226	100%	226	1.00	226
	HVAC	Furnace Tune-Up	139	100%	139	1.00	139
	HVAC	Gas High Efficiency Boiler - TOS	112	100%	112	1.00	112
	Hot Water	Low Flow Showerhead	76	100%	76	1.00	76
	Shell	Wall Insulation	62	100%	62	1.00	62
	Hot Water	Low Flow Faucet Aerator - Kitchen	62	100%	62	1.00	62
	Hot Water	Low Flow Faucet Aerator - Bathroom	38	100%	38	1.00	38
		EEO Subtotal	12,996	100%	12,995	1.00	12,995
ESK	Hot Water	Kit 5	96,668	100%	96,668	1.00	96,668
	Shell	Kit 4	4,510	100%	4,510	1.00	4,510
	Hot Water	Kit 2	182	100%	182	1.00	182
	Hot Water	Kit 2 MF	158	100%	158	1.00	158
		ESK Subtotal	101,518	100%	101,518	1.00	101,518
Total or Weighted Average			485,484	100%	485,483	1.00	485,483

* RR is the ratio of verified gross savings to ex ante gross savings based on evaluation research findings.

† Net-to-Gross: A deemed value. Available on the SAG website: <https://www.ilsag.info/evaluator-ntg-recommendations-for-2022/>.

Source: Nicor Gas tracking data and Guidehouse evaluation team analysis

5. Impact Analysis Findings and Recommendations

5.1 Impact Parameter Estimates

The following tables show the per-unit therms savings and RR findings for each measure from the evaluations team review of the IHWAP and Retrofit program paths. The RR is the ratio of the verified savings to the ex ante savings. Following the tables are findings and recommendations, including discussion of all measures with RR above or below 100%. Appendix A provides a description of the impact analysis methodology.

Table 5-1. Verified Gross Savings Parameters – IHWAP

Measure	Unit Basis	Ex Ante Gross (therms/unit)	Verified Gross (therms/unit)	Realization Rate	Data Source(s)
Advanced Thermostat - Manual	Each	62.39	62.39	100%	Illinois TRM, v10.0†, Section 5.3.16 and Program Tracking Data (PTD*)
Advanced Thermostat - Programmable	Each	43.14	43.14	100%	Illinois TRM, v10.0†, Section 5.3.16 and PTD
Air Sealing	Projects	52.26	52.26	100%	Illinois TRM, v10.0, Section 5.6.1, and PTD
Attic Insulation	Sq. ft.	0.07	0.07	100%	Illinois TRM, v10.0, Section 5.6.5, and PTD
Basement Sidewall Insulation	Sq. ft.	0.25	0.25	100%	Illinois TRM, v10.0, Section 5.6.2, and PTD
Duct Insulation and Sealing	Projects	222.84	222.84	100%	Illinois TRM, v10.0, Section 5.3.4, and PTD
Floor Insulation	Sq. ft.	0.11	0.11	100%	Illinois TRM, v10.0, Section 5.6.3, and PTD
Furnace Tune-Up	Each	27.97	28.00	100%	Illinois TRM, v10.0, Section 5.3.13, and PTD
Gas High Efficiency Boiler - ER	Each	274.54	274.53	100%	Illinois TRM, v10.0, Section 5.3.6, and PTD
Gas High Efficiency Boiler - TOS	Each	100.59	100.59	100%	Illinois TRM, v10.0, Section 5.3.6, and PTD
Gas High Efficiency Furnace - ER	Each	167.00	167.00	100%	Illinois TRM, v10.0, Section 5.3.7, and PTD
Gas High Efficiency Furnace - TOS	Each	83.39	83.39	100%	Illinois TRM, v10.0, Section 5.3.7, and PTD
Gas Water Heater - ER	Each	24.55	24.55	100%	Illinois TRM, v10.0, Section 5.4.2, and PTD
Gas Water Heater - TOS	Each	13.75	13.75	100%	Illinois TRM, v10.0, Section 5.4.2, and PTD
HW Pipe Insulation	Lin. Ft.	1.27	1.27	100%	Illinois TRM, v10.0, Section 5.4.1, and PTD
Low Flow Faucet Aerator - Bathroom	Each	0.55	0.55	100%	Illinois TRM, v10.0, Section 5.4.4, and PTD
Low Flow Faucet Aerator - Kitchen	Each	3.61	3.61	100%	Illinois TRM, v10.0, Section 5.4.4, and PTD
Low Flow Showerhead	Each	1.36	1.36	100%	Illinois TRM, v10.0, Section 5.4.5, and PTD
Programmable Thermostat	Each	40.13	40.13	100%	Illinois TRM, v10.0, Section 5.3.11, and PTD
Rim Insulation	Sq. ft.	0.08	0.08	100%	Illinois TRM, v10.0, Section 5.6.6, and PTD

Measure	Unit Basis	Ex Ante Gross (therms/unit)	Verified Gross (therms/unit)	Realization Rate	Data Source(s)
Wall Insulation	Sq. ft.	0.07	0.07	100%	Illinois TRM, v10.0, Section 5.6.4, and PTD

* Program tracking data (PTD) provided by Nicor Gas, extract dated January 31, 2023. Some numbers are rounded to two digits so differences in ex ante and verified per-unit savings may not be too obvious.

† Illinois Statewide Technical Reference Manual (IL-TRM) version 10.0 from <http://www.ilsaq.info/technical-reference-manual.html>.

Source: Nicor Gas tracking data and Guidehouse evaluation team analysis

Table 5-2. Verified Gross Savings Parameters – Retrofit

Measure	Unit Basis	Ex Ante Gross (therms/unit)	Verified Gross (therms/unit)	Realization Rate	Data Source(s)
Advanced Thermostat - Manual	Each	65.10	65.10	100%	Illinois TRM, v10.0†, Section 5.3.16 and Nicor Gas Program Tracking Data (PTD)
Advanced Thermostat - Programmable	Each	43.47	43.47	100%	Illinois TRM, v10.0†, Section 5.3.16 and Nicor Gas PTD
Air Sealing	Projects	81.41	81.41	100%	Illinois TRM, v10.0†, Section 5.6.1 and Nicor Gas PTD
Attic Insulation	Sq. ft.	0.12	0.12	100%	Illinois TRM, v10.0†, Section 5.6.5 and Nicor Gas PTD
Basement Sidewall Insulation	Sq. ft.	0.41	0.41	100%	Illinois TRM, v10.0†, Section 5.6.2 and Nicor Gas PTD
Boiler Pipe Insulation	Projects	0.43	0.43	100%	Illinois TRM, v10.0†, Section 5.3.2, Program Calculator, and Nicor Gas PTD
Duct Insulation and Sealing	Each	84.20	84.20	100%	Illinois TRM, v10.0†, Section 5.3.4 and Nicor Gas PTD
Floor Insulation	Sq. ft.	0.09	0.09	100%	Illinois TRM, v10.0†, Section 5.6.3 and Nicor Gas PTD
Furnace Tune-Up	Each	103.00	103.00	100%	Illinois TRM, v10.0†, Section 5.3.13 and Nicor Gas PTD
Gas High Efficiency Boiler - ER	Each	225.97	225.97	100%	Illinois TRM, v10.0†, Section 5.3.6 and Nicor Gas PTD
Gas High Efficiency Boiler - TOS	Each	83.09	83.09	100%	Illinois TRM, v10.0†, Section 5.3.6 and Nicor Gas PTD
Gas High Efficiency Furnace - TOS	Each	95.62	95.62	100%	Illinois TRM, v10.0†, Section 5.3.7 and Nicor Gas PTD
Gas Water Heater - ER	Each	26.75	26.75	100%	Illinois TRM, v10.0†, Section 5.4.2 and Nicor Gas PTD

Measure	Unit Basis	Ex Ante Gross (therms/unit)	Verified Gross (therms/unit)	Realization Rate	Data Source(s)
Gas Water Heater - TOS	Each	13.54	13.54	100%	Illinois TRM, v10.0†, Section 5.4.2 and Nicor Gas PTD
HEA Kit	Each	7.87	7.87	100%	Illinois TRM, v10.0†, Section 5.6.1, 5.6.4 and Nicor Gas PTD
HW Pipe Insulation	Lin. Ft.	1.30	1.30	100%	Illinois TRM, v10.0†, Section 5.4.1 and Nicor Gas PTD
Low Flow Faucet Aerator - Bathroom	Each	0.67	0.67	100%	Illinois TRM, v10.0†, Section 5.4.4 and Nicor Gas PTD
Low Flow Faucet Aerator - Kitchen	Each	5.63	5.62	100%	Illinois TRM, v10.0†, Section 5.4.4 and Nicor Gas PTD
Low Flow Showerhead	Each	1.93	1.93	100%	Illinois TRM, v10.0†, Section 5.4.5 and Nicor Gas PTD
Programmable Thermostat	Each	40.99	40.99	100%	Illinois TRM, v10.0†, Section 5.3.11 and Nicor Gas PTD
Rim Insulation	Sq. ft.	0.08	0.08	100%	Illinois TRM, v10.0†, Section 5.6.6 and Nicor Gas PTD
Wall Insulation	Sq. ft.	0.08	0.08	100%	Illinois TRM, v10.0†, Section 5.6.4 and Nicor Gas PTD

* PTD provided by Nicor Gas, extract dated January 31, 2023.

† IL-TRM v10.0 from <http://www.ilsag.info/technical-reference-manual.html>.

Source: Nicor Gas tracking data and Guidehouse evaluation team analysis

Table 5-3. Verified Gross Savings Parameters – EEO

Measure	Unit Basis	Ex Ante Gross (therms/unit)	Verified Gross (therms/unit)	Realization Rate	Data Source(s)
Advanced Thermostat - Manual	Each	92.10	92.10	100%	Illinois TRM, v10.0, Section 5.3.16, and PTD
Advanced Thermostat - Programmable	Each	62.96	62.96	100%	Illinois TRM, v10.0, Section 5.3.16, and PTD
Air Sealing	Projects	39.59	39.58	100%	Illinois TRM, v10.0, Section 5.6.1, and PTD
Attic Insulation	Sq. ft.	0.07	0.07	100%	Illinois TRM, v10.0, Section 5.6.5, and PTD
Furnace Tune-Up	Each	27.83	27.83	100%	Illinois TRM, v10.0, Section 5.3.13 and PTD
Gas High Efficiency Boiler - TOS	Each	111.67	111.67	100%	Illinois TRM, v10.0, Section 5.3.6, and PTD
Gas High Efficiency Furnace - TOS	Sq. ft.	92.44	92.44	100%	Illinois TRM, v10.0, Section 5.3.7, and PTD
Gas Water Heater - ER	Each	62.45	62.45	100%	Illinois TRM, v10.0, Section 5.4.2, and PTD

Measure	Unit Basis	Ex Ante Gross (therms/unit)	Verified Gross (therms/unit)	Realization Rate	Data Source(s)
Gas Water Heater - TOS	Each	36.67	36.67	100%	Illinois TRM, v10.0, Section 5.4.2, and PTD
HW Pipe Insulation	Lin. Ft.	2.08	2.08	100%	Illinois TRM, v10.0, Section 5.4.1, and PTD
Kit BN	Kit	45.64	45.64	100%	Illinois TRM, v10.0, Program Calculator, and PTD
Low Flow Faucet Aerator - Bathroom	Each	1.63	1.64	100%	Illinois TRM, v10.0, Section 5.4.4, and PTD
Low Flow Faucet Aerator - Kitchen	Each	15.45	15.45	100%	Illinois TRM, v10.0, Section 5.4.4, and PTD
Low Flow Showerhead	Each	4.45	4.45	100%	Illinois TRM, v10.0, Section 5.4.5, and PTD
Rim Insulation	Sq. ft.	0.13	0.13	100%	Illinois TRM, v10.0, Section 5.6.6, and PTD
Wall Insulation	Sq. ft.	0.12	0.12	100%	Illinois TRM, v10.0, Section 5.6.4, and PTD

* PTD provided by Nicor Gas, extract dated January 31, 2023.

† IL-TRM v10.0 from <http://www.ilsag.info/technical-reference-manual.html>.

Source: Nicor Gas tracking data and Guidehouse evaluation team analysis

Table 5-4. Verified Gross Savings Parameters – ESK

Measure	Unit Basis	Ex Ante Gross (therms/unit)	Verified Gross (therms/unit)	Realization Rate	Data Source(s)
Kit 2	Kit	25.99	25.99	100%	Illinois TRM, v10.0, Sections 5.4.4, 5.4.5, and 5.4.9, PTD, and Program Calculator
Kit 2 MF	Kit	31.43	31.43	100%	Illinois TRM, v10.0, Sections 5.4.4, 5.4.5, and 5.4.9, PTD, and Program Calculator
Kit 4	Kit	22.11	22.11	100%	Illinois TRM, v10.0, Section 5.6.1, and PTD
Kit 5	Kit	15.96	15.96	100%	Illinois TRM, v10.0, Sections 5.4.4 and 5.4.5, PTD, and Program Calculator

* PTD provided by Nicor Gas, extract dated January 31, 2023.

† IL-TRM v10.0 from <http://www.ilsag.info/technical-reference-manual.html>.

Source: Nicor Gas tracking data and Guidehouse evaluation team analysis

5.2 Findings and Recommendations

Finding 1. The Nicor Gas tracking data did not provide total gross annual therms savings for joint utility projects. The “Gross Annual Therms Savings” field in the tracking data only contained the therms savings allocated to Nicor Gas. The evaluation team matched the Measure ID from Nicor Gas tracking data to project IDs in the ComEd tracking data to determine and verify each project’s total gross annual therms savings.

Recommendation 1. Include a Total Gross Annual Therms Savings field for each project in the Nicor Gas tracking data.

Finding 2. In the tracking data, the “Conditioned Basement” field was empty for several Duct Insulation and Sealing projects. This field is used to determine the percentage conditioned space for the TRF_heat value in the TRM. The evaluation team was able to cross-reference ComEd tracking data to obtain any missing inputs or information for these projects.

Example projects: MEA-2022.01.18-273210, MEA-2022.01.07-272564, MEA-2022.01.07-272509, MEA-2022.01.13-273156, MEA-2022.01.19-273386, MEA-2022.01.19-273355, MEA-2022.01.21-273599

Recommendation 2. Update the tracking data to provide information for all duct and sealing savings inputs parameters consistent with the TRM requirements.

Finding 3. The evaluation team calculated 100% realization rates for all Kit 5 measures after reviewing supplemental calculations provided by Nicor Gas to justify the tracking data ex ante savings. In ex ante calculations, deemed values for Unknown and/or weighted averages of SF and MF are used for several inputs (e.g. %FossilDHW, Household, FPH, and EPG_gas). In the program tracking data, the evaluation team did not find the Household type or DHW fuel type for Kit 5 projects and therefore agrees with the methodology of using Unknown or weighted average values for inputs.

Recommendation 3. Collect and provide Household and DHW fuel for kit projects as additional fields in the program tracking data to clarify building type and fuel type.

Finding 4. The evaluation team initially calculated 1% realization rate for two Furnace Tune-Up projects (MEA-2022.10.29-428539 and MEA-2022.10.29-428537) from the Retrofit program path. Nicor Gas and the program implementer subsequently clarified the source of the discrepancy and the evaluation team updated savings for these projects to represent the correct efficiency values and calculated 100% realization rates. The Furnace Tune-Up measure realization rate was updated to 100%.

Recommendation 4. Ensure correct Furnace Tune-Up efficiency values are provided in the tracking data.

Appendix A. Impact Analysis Methodology

Guidehouse followed algorithms outlined in IL-TRM v10.0¹ to calculate verified gross savings for the income Eligible programs. To be eligible, a TRM measure must meet the physical, operational, and baseline characteristics as defined in the applicable version of the TRM. The evaluation team verified that these algorithms and appropriate deemed input parameters were correctly applied and validated custom parameters that were used. Guidehouse calculated verified net savings by multiplying verified gross savings by a deemed net-to-gross (NTG) of 1.00. Verified gross RR are calculated by dividing the verified gross savings by the ex ante gross savings.

¹ Illinois Statewide Technical Reference Manual (IL-TRM) version 10.0 from <http://www.ilsag.info/technical-reference-manual.html>.

Appendix B. Program Specific Inputs for the Illinois TRC

Tables B-1 show the TRC cost-effectiveness analysis inputs for the Nicor Gas Income Eligible program paths available at the time of producing this impact evaluation report. Currently, additional required cost data (e.g., measure costs, program-level incentive and non-incentive costs) are not included in these tables and will be provided to the evaluation team later. Guidehouse will include annual and lifetime water savings and greenhouse gas reductions in the end of year summary report.

Tables B-1. Verified Cost-Effectiveness Inputs

Program Path	End Use Type	Savings Category	Units	Quantity	Effective Useful Life	Ex Ante Gross Savings (Therms)	Verified Gross Savings (Therms)	Verified Net Savings (Therms)
IHWAP	HVAC	Advanced Thermostat - Manual	Each	125	11	7,799	7,799	7,799
	HVAC	Advanced Thermostat - Programmable	Each	19	11	820	820	820
	HVAC	Duct Insulation and Sealing	Projects	39	20	8,691	8,691	8,691
	HVAC	Furnace Tune-Up	Each	29	3	811	812	812
	HVAC	Gas High Efficiency Boiler - ER	Each	7	25	1,922	1,922	1,922
	HVAC	Gas High Efficiency Boiler - TOS	Each	6	25	604	604	604
	HVAC	Gas High Efficiency Furnace - ER	Each	155	20	25,885	25,884	25,884
	HVAC	Gas High Efficiency Furnace - TOS	Each	64	20	5,337	5,337	5,337
	HVAC	Programmable Thermostat	Each	49	8	1,966	1,966	1,966
	Hot Water	Gas Water Heater - ER	Each	84	15	2,062	2,062	2,062
	Hot Water	Gas Water Heater - TOS	Each	31	15	426	426	426
	Hot Water	HW Pipe Insulation	Lin. Ft.	2,192	15	2,780	2,780	2,780
	Hot Water	Low Flow Faucet Aerator - Bathroom	Each	179	10	99	99	99
	Hot Water	Low Flow Faucet Aerator - Kitchen	Each	44	10	159	159	159

Program Path	End Use Type	Savings Category	Units	Quantity	Effective Useful Life	Ex Ante Gross Savings (Therms)	Verified Gross Savings (Therms)	Verified Net Savings (Therms)
	Hot Water	Low Flow Showerhead	Each	124	10	168	168	168
	Shell	Air Sealing	Projects	291	20	15,208	15,208	15,208
	Shell	Attic Insulation	Sq. ft.	269,115	20	18,979	18,979	18,979
	Shell	Basement Sidewall Insulation	Sq. ft.	24,771	20	6,243	6,243	6,243
	Shell	Floor Insulation	Each	7,938	20	845	845	845
	Shell	Rim Insulation	Sq. ft.	17,634	20	1,393	1,393	1,393
	Shell	Wall Insulation	Sq. ft.	43,555	20	2,956	2,956	2,956
	HVAC	Advanced Thermostat - Manual	Each	27	11	1,758	1,758	1,758
	HVAC	Advanced Thermostat - Programmable	Each	140	11	6,086	6,086	6,086
	HVAC	Boiler Pipe Insulation	Projects	1	15	0.4	0.4	0.4
	HVAC	Duct Insulation and Sealing	Each	162	20	13,640	13,640	13,640
	HVAC	Furnace Tune-Up	Each	295	3	30,385	30,385	30,385
	HVAC	Gas High Efficiency Boiler - ER	Each	1	25	226	226	226
	HVAC	Gas High Efficiency Boiler - TOS	Each	5	25	415	415	415
Retrofit	HVAC	Gas High Efficiency Furnace - TOS	Each	81	20	7,745	7,745	7,745
	HVAC	Programmable Thermostat	Each	83	8	3,402	3,402	3,402
	Hot Water	Gas Water Heater - ER	Each	1	13	27	27	27
	Hot Water	Gas Water Heater - TOS	Each	34	13	460	460	460
	Hot Water, Shell	HEA Kit	Each	19	14.5	150	150	150
	Hot Water	HW Pipe Insulation	Lin. Ft.	1,998	15	2,602	2,602	2,602
	Hot Water	Low Flow Faucet Aerator - Bathroom	Each	332	10	222	222	222
	Hot Water	Low Flow Faucet Aerator - Kitchen	Each	130	10	731	731	731

Program Path	End Use Type	Savings Category	Units	Quantity	Effective Useful Life	Ex Ante Gross Savings (Therms)	Verified Gross Savings (Therms)	Verified Net Savings (Therms)
	Hot Water	Low Flow Showerhead	Each	469	10	907	906	906
	Shell	Air Sealing	Projects	834	20	67,899	67,899	67,899
	Shell	Attic Insulation	Sq. ft.	753,052	20	93,687	93,687	93,687
	Shell	Basement Sidewall Insulation	Sq. ft.	22,744	20	9,423	9,423	9,423
	Shell	Floor Insulation	Sq. ft.	98,418	20	9,005	9,005	9,005
	Shell	Rim Insulation	Sq. ft.	7,720	20	586	586	586
	Shell	Wall Insulation	Sq. ft.	201,279	20	16,458	16,458	16,458
	HVAC	Advanced Thermostat - Manual	Each	15	11	1,381	1,381	1,381
	HVAC	Advanced Thermostat - Programmable	Each	33	11	2,078	2,078	2,078
	HVAC	Furnace Tune-Up	Each	5	3	139	139	139
	HVAC	Gas High Efficiency Boiler - TOS	Each	1	25	112	112	112
	HVAC	Gas High Efficiency Furnace - TOS	Sq. ft.	10	20	924	924	924
	Hot Water	Gas Water Heater - ER	Each	5	13	312	312	312
	Hot Water	Gas Water Heater - TOS	Each	8	13	293	293	293
EEO	Hot Water	HW Pipe Insulation	Lin. Ft.	285	15	592	592	592
	Hot Water	Low Flow Faucet Aerator - Bathroom	Each	23	10	38	38	38
	Hot Water	Low Flow Faucet Aerator - Kitchen	Each	4	10	62	62	62
	Hot Water	Low Flow Showerhead	Each	17	10	76	76	76
	Shell	Air Sealing	Projects	23	20	910	910	910
	Shell	Attic Insulation	Sq. ft.	25211	20	1,820	1,820	1,820
	Shell	Rim Insulation	Sq. ft.	1686	20	226	226	226
	Shell	Wall Insulation	Sq. ft.	511	20	62	62	62
	Hot Water, Shell	Kit BN	Kit	87	17.03	3,970	3,970	3,970
	Hot Water	Kit 2	Each	7	10	182	182	182

Program Path	End Use Type	Savings Category	Units	Quantity	Effective Useful Life	Ex Ante Gross Savings (Therms)	Verified Gross Savings (Therms)	Verified Net Savings (Therms)
	Hot Water	Kit 2 MF	Each	5	10	158	158	158
	Shell	Kit 4	Each	204	20	4,510	4,510	4,510
	Hot Water	Kit 5	Lin. Ft.	6055	10	96,668	96,668	96,668
Total or Weighted Average					16.5	485,484	485,483	485,483

Source: Nicor Gas tracking data and Guidehouse evaluation team analysis