

Home Energy Savings Impact Evaluation Report

**Energy Efficiency Plan: Program Year 2024
(1/1/2024-12/31/2024)**

Prepared for:

Nicor Gas Company

FINAL

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Table of Contents

Introduction	1
Program Description	1
Program Savings Detail	2
Program Savings by Measure	3
Impact Analysis Findings and Recommendations	5
Impact Parameter Estimates.....	5
Findings and Recommendations.....	6
Appendix A. Impact Analysis Methodology	A-1
Appendix B. Program Specific Inputs for the Illinois TRC	B-1

List of Tables, Figures, and Equations

Table 1. 2024 Volumetric Findings Detail.....	1
Table 2. 2024 Installed Measure Quantities.....	2
Table 3. 2024 Annual Energy Savings Summary.....	2
Table 4. 2024 Annual Energy Savings by Measure.....	3
Table 5. Verified Gross Savings Parameters.....	5
Table B-1. Verified Cost Effectiveness Inputs.....	B-1

Introduction

This report presents the impact evaluation results of the Nicor Gas 2024 Home Energy Savings (HES) program and a summary of the energy impacts for the total program, as well as relevant measure and program structure details. The appendices present the impact analysis methodology and Illinois total resource cost (TRC) inputs. Program year 2024 covers January 1, 2024, through December 31, 2024.

Program Description

The HES program includes an assessment and direct install (DI) component jointly implemented by Nicor Gas and ComEd and a rebate component for air sealing, insulation, and duct sealing work completed by approved contractors. This report focuses on natural gas savings achieved by Nicor Gas program participants. Savings from electricity measures are included in a separate evaluation report delivered to ComEd.

The HES program provides a free home energy assessment (HEA) performed by an energy advisor. The energy advisor collects information about the home's energy use by examining the heating system (e.g., furnace or boiler), cooling system (air conditioner), water heater, and attic (if accessible). The energy advisor provides a customized report with recommendations identifying additional ways the customer can save energy and money. As part of the energy assessment and when appropriate, the energy advisor installs DI measures. The DI measures include showerheads, faucet aerators for bathrooms and kitchen, hot water pipe insulation, and a programmable or advanced thermostat. A Self-Assessment Program (SAP) option was added in 2023.

In addition to the free HEA and free DI measures, the HES program offers rebates for prescriptive building shell air sealing and insulation (ASI) measures for eligible homes, installed by an approved contractor, including air sealing, attic insulation, duct sealing, basement sidewall insulation, and wall insulation. Air sealing includes sealing gaps and cracks in a wall where air can enter or exit. The contractor performs a blower door test to measure the air leakage in the home. To receive the instant discount for attic insulation, a participant must have air sealing and attic insulation installed at the same time.

Starting in 2022 and continuing in 2023, the HES program included a Smart Thermostat Initiative path, through which Nicor Gas offered Nest-E thermostats to program participants to upgrade their existing thermostats.

The program had 4,115 participants in 2024 and completed 4,121 projects as shown in Table 1.

Table 1. 2024 Volumetric Findings Detail

Participation	Prescriptive (ASI)	Self Assessment (SAP)	Smart Thermostat Initiative	Total
Participants *	1,989	1,964	162	4,115
Installed Projects †	1,992	1,965	164	4,121
Measure Types Installed ‡	6	10	11	27

* Participants are defined as the distinct count of addresses.

† Installed Projects are defined as the distinct count of project IDs.

‡ Measure Types Installed are defined as the distinct count of Nicor Gas measure names.

Source: Nicor Gas tracking data and evaluation team analysis.

Table 2 summarizes the installed measure quantities that are the basis for verified energy savings.

Table 2. 2024 Installed Measure Quantities

Program Path	Measure	Quantity Unit	Installed Quantity
Prescriptive (ASI)	Air Sealing	Projects	1,114
	Air Sealing Without Attic Insulation	Projects	754
	Attic Insulation	Square Feet	1,378,260
	Basement/Sidewall Insulation	Square Feet	31,506
	Duct Sealing	Projects	765
	Wall Insulation	Square Feet	35,589
Self Assessment (SAP)	Advanced Thermostat (DI) - Blended	Each	289
	Air Sealing - Door Sweep	Each	2,482
	Bathroom Aerator SF (DI)	Each	2,989
	Boiler Pipe Insulation	Linear Feet	219
	DHW Pipe Insulation	Linear Feet	3,894
	Handheld Showerhead (DI) SF	Each	946
	Kitchen Aerator SF (DI)	Each	1,052
	Programmable Thermostat (DI)	Each	358
	Shower Flow Reducer	Each	1,261
	Showerhead (DI) SF	Each	585
Smart Thermostat Initiative	Advanced Thermostat (DI) - Blended	Each	16
	Advanced Thermostat (DI) - Manual	Each	21
	Advanced Thermostat (DI) - Programmable	Each	111
	Air Filter Replacement	Each	101
	Air Sealing - Door Sweep	Each	68
	Bathroom Aerator SF (DI)	Each	50
	DHW Pipe Insulation	Linear Feet	156
	Handheld Showerhead (DI) SF	Each	5
	Kitchen Aerator SF (DI)	Each	7
	Shower Flow Reducer	Each	1
Showerhead (DI) SF	Each	43	

Source: Nicor Gas tracking data and evaluation team analysis.

Program Savings Detail

Table 3 summarizes the energy savings the HES Program achieved by path in 2024.

Table 3. 2024 Annual Energy Savings Summary

Program Category	Program Path	Ex Ante Gross Savings (Therms)	Verified Gross RR*	Verified Gross Savings (Therms)	NTG†	NSPO‡	Verified Net Savings (Therms)
Non-Disadvantaged Communities	Prescriptive (ASI)	365,464	1.00	365,461	0.95	1.048	362,881
	Self Assessment (SAP)	72,489	1.00	72,469	1.08	1.048	81,842
	Smart Thermostat Initiative	11,620	1.00	11,620	0.98	1.048	11,917
<i>Non-DAC Subtotal</i>		449,573	1.00	449,550			456,640
Disadvantaged Communities	Prescriptive (ASI)	142,179	1.00	142,179	1.02	1.048	148,952
	Self Assessment (SAP)	21,590	1.00	21,497	1.08	1.048	24,114
	Smart Thermostat Initiative	362	1.00	362	1.03	1.048	377

Program Category	Program Path	Ex Ante Gross Savings (Therms)	Verified Gross RR*	Verified Gross Savings (Therms)	NTG† NSPO‡	Verified Net Savings (Therms)
<i>DAC Subtotal</i>		164,131	1.00	164,038		173,443
Total		613,704	1.00	613,588		630,082

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

† NTG, Net to Gross is the deemed value available on the SAG website: <https://www.ilsag.info/evaluator-ntg-recommendations-for-2024/>. The NTG shown in this table are the weighted average of the deemed measure NTG values within the program paths.

‡ Based on SAG Policy, for DAC projects, If deemed NTG is multiplied by 1.048 Non-Participant Spillover factor (NPSO) and the resulted NTG value is less than 1.00, the evaluation assigned a DAC NTG of 1.00. If the resulted NTG value is >1.00, evaluation used the >1.00 value for calculation of net savings impact.

Source: Evaluation team analysis.

Program Savings by Measure

The program includes 51 measures as shown in Table 4. The Duct Sealing and Attic Insulation contributed the most savings.

Table 4. 2024 Annual Energy Savings by Measure

Program Category	Program Path	Savings Category	Ex Ante Gross Savings (Therms)	Verified Gross RR*	Verified Gross Savings (Therms)	NTG †	NSPO ‡	Verified Net Savings (Therms)
Non-Disadvantaged Communities	Prescriptive (ASI)	Air Sealing	62,235	1.00	62,224	0.88	1.048	57,386
		Air Sealing Without Attic Insulation	42,621	1.00	42,629	0.93	1.048	41,548
		Attic Insulation	104,034	1.00	104,022	0.89	1.048	97,023
		Basement/Sidewall Insulation	21,476	1.00	21,487	0.95	1.048	21,392
		Duct Sealing	131,522	1.00	131,522	1.03	1.048	141,970
		Wall Insulation	3,577	1.00	3,577	0.95	1.048	3,561
	Self Assessment (SAP)	Advanced Thermostat (DI) - Blended	20,064	1.00	20,064	0.96	1.048	20,186
		Air Sealing - Door Sweep	9,793	1.00	9,793	1.07	1.048	10,981
		Bathroom Aerator SF (DI)	1,932	1.00	1,932	1.17	1.048	2,369
		Boiler Pipe Insulation	70	1.06	73.82	1.07	1.048	83
		DHW Pipe Insulation	6,235	1.00	6,235	1.07	1.048	6,992
		Handheld Showerhead (DI) SF	6,623	1.00	6,623	1.17	1.048	8,121
		Kitchen Aerator SF (DI)	6,043	1.00	6,044	1.17	1.048	7,410
		Programmable Thermostat (DI)	8,737	1.00	8,712	1.07	1.048	9,769
		Shower Flow Reducer	8,884	1.00	8,884	1.17	1.048	10,894
		Showerhead (DI) SF	4,109	1.00	4,109	1.17	1.048	5,038
	Smart Thermostat Initiative	Advanced Thermostat (DI) - Blended	427	1.00	427	0.96	1.048	430
		Advanced Thermostat (DI) - Manual	1,948	1.00	1,948	0.96	1.048	1,960
		Advanced Thermostat (DI) - Programmable	7,492	1.00	7,492	0.96	1.048	7,538
		Air Filter Replacement	760	1.00	760	1.07	1.048	853
Air Sealing - Door Sweep		475	1.00	475	1.07	1.048	532	
Bathroom Aerator SF (DI)		62	1.00	62	1.17	1.048	76	
		DHW Pipe Insulation	285	1.00	285	1.07	1.048	320
		Handheld Showerhead (DI) SF	10	1.00	10	1.17	1.048	12
		Kitchen Aerator SF (DI)	39	1.00	39	1.17	1.048	48

Program Category	Program Path	Savings Category	Ex Ante Gross Savings (Therms)	Verified Gross RR*	Verified Gross Savings (Therms)	NTG †	NSPO ‡	Verified Net Savings (Therms)
		Shower Flow Reducer	1	1.00	1	1.17	1.048	1
		Showerhead (DI) SF	120	1.00	120	1.17	1.048	147
Non-DAC Subtotal			449,573	1.00	449,549			456,639
		Air Sealing**	6,131	1.00	6,131	1.00	N/A	6,131
		Air Sealing Without Attic Insulation**	37,325	1.00	37,325	1.00	N/A	37,325
	Prescriptive (ASI)	Attic Insulation**	12,103	1.00	12,103	1.00	N/A	12,103
		Basement/Sidewall Insulation**	1,222	1.00	1,222	1.00	N/A	1,222
		Duct Sealing	85,257	1.00	85,257	1.03	1.048	92,029
		Wall Insulation**	143	1.00	143	1.00	N/A	143
		Advanced Thermostat (DI) – Blended**	6,126	1.00	6,126	1.01	N/A	6,163
		Air Sealing - Door Sweep	2,186	1.00	2,186	1.07	1.048	2,452
		Bathroom Aerator SF (DI)	441	0.99	435	1.17	1.048	534
	Self Assessment (SAP)	Boiler Pipe Insulation	27	1.05	28	1.07	1.048	31
		DHW Pipe Insulation	1,379	1.00	1,379	1.07	1.048	1,546
		Handheld Showerhead (DI) SF	1,668	0.99	1,658	1.17	1.048	2,033
		Kitchen Aerator SF (DI)	1,615	1.00	1,615	1.17	1.048	1,980
		Programmable Thermostat (DI)	5,020	0.99	4,962	1.07	1.048	5,564
		Shower Flow Reducer	2,137	1.00	2,126	1.17	1.048	2,607
		Showerhead (DI) SF	992	0.99	982	1.17	1.048	1,204
		Advanced Thermostat (DI) – Manual**	205	1.00	205	1.01	N/A	206
		Advanced Thermostat (DI) – Programmable**	71	1.00	71	1.01	N/A	72
	Smart Thermostat Initiative	Air Filter Replacement	31	1.00	31	1.07	1.048	35
		Air Sealing - Door Sweep	22	1.00	22	1.07	1.048	25
		DHW Pipe Insulation	11	1.00	11	1.07	1.048	13
		Handheld Showerhead (DI) SF	1	1.00	1	1.17	1.048	1
		Kitchen Aerator SF (DI)	14	1.00	14	1.17	1.048	17
		Showerhead (DI) SF	6	1.00	6	1.17	1.048	7
DAC Subtotal			164,132	1.00	164,038			173,443
Total			613,704	1.00	613,588			630,082

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

† NTG, Net to Gross is the deemed value available on the SAG website: <https://www.ilsag.info/evaluator-ntg-recommendations-for-2024/>.

** Based on SAG Policy, for DAC projects, If deemed NTG is multiplied by 1.048 Non-Participant Spillover factor (NPSO) and the resulted NTG value is less than 1.00, the evaluation assigned a DAC NTG of 1.00. If the resulted NTG value is >1.00, evaluation used the >1.00 value for calculation of net savings impact.

‡ Non-participant spillover (NPSO) factor of 1.048. savings impact.

Source: Evaluation team analysis.

Impact Analysis Findings and Recommendations

Impact Parameter Estimates

Table 5 shows the unit therm savings and realization rate findings by measure from our review. The realization rate is the ratio of the verified savings to the ex ante savings. Following the table, we provide findings and recommendations, including discussion of all measures with realization rates above or below 100%. Appendix A provides a description of the impact analysis methodology.

Table 5. Verified Gross Savings Parameters

Measure	Unit Basis	Ex Ante Gross (Therms/unit)	Verified Gross (Therms/unit)	Realization Rate	Data Source(s)
Advanced Thermostat (DI) - Blended	Each	Varies	Varies	100%	TRM Section 5.3.16†, PTD*
Advanced Thermostat (DI) - Manual	Each	102.51	102.51	100%	TRM Section 5.3.16†, PTD*
Advanced Thermostat (DI) - Programmable	Each	71.36	71.36	100%	TRM Section 5.3.16†, PTD*
Air Filter Replacement	Each	7.84	7.84	100%	TRM Section 5.3.21†, PTD*
Air Sealing	Projects	Varies	Varies	78%, 100%	TRM Section 5.6.1†, PTD*
Air Sealing - Door Sweep	Each	Varies	Varies	100%	TRM Section 5.6.1†, PTD*
Air Sealing Without Attic Insulation	Projects	Varies	Varies	100%, 112%	TRM Section 5.6.1†, PTD*
Attic Insulation	Square Feet	Varies	Varies	77%, 100%	TRM Section 5.6.5†, PTD*
Basement/Sidewall Insulation	Square Feet	Varies	Varies	100%, 112%	TRM Section 5.6.5†, PTD*
Bathroom Aerator SF (DI)	Each	Varies	Varies	53%, 100%	TRM Section 5.4.4†, PTD*
Boiler Pipe Insulation	Linear Feet	1.37, 1.53	1.37, 1.53, 2.74, 3.06	100%, 200%	TRM Section 5.3.2†, PTD*
DHW Pipe Insulation	Linear Feet	6.05, 11.41, 12.10	6.04, 11.41, 12.10	100%	TRM Section 5.4.1†, PTD*
Duct Sealing	Projects	Varies	Varies	100%	TRM Section 5.3.4†, PTD*
Handheld Showerhead (DI) SF	Each	Varies	Varies	72%, 100%	TRM Section 5.4.4†, PTD*
Kitchen Aerator SF (DI)	Each	Varies	Varies	100%	TRM Section 5.4.4†, PTD*
Programmable Thermostat (DI)	Each	Varies	Varies	100%	TRM Section 5.3.11†, PTD*
Shower Flow Reducer	Each	Varies	Varies	100%	TRM Section 5.4.4†, PTD*
Showerhead (DI) SF	Each	Varies	Varies	72%, 100%	TRM Section 5.4.4†, PTD*
Wall Insulation	Square Feet	Varies	Varies	100%	TRM Section 5.6.4†, PTD*

* Program Tracking Data (PTD) provided by Nicor Gas, extract dated January 30, 2025.

† State of Illinois Technical Reference Manual version 12.0 from <http://www.ilsag.info/technical-reference-manual.html>.

Findings and Recommendations

Overall, the findings listed below had a minor impact on the savings, with the program-level realization rate being 100%.

Finding 1. For 2 projects, the reported zip code from the tracking data was located outside of Illinois (e.g. PID-2024.03.03-217112, PID-2024.07.03-229621). Climate zones were blank for 175 projects (e.g. PID-2024.01.10-209492, PID-2024.01.31-211860, PID-2024.02.06-212033, etc.). Guidehouse assumed the reported county reflected the correct climate zone.

Recommendation 1. Ensure that the zip code reported in the "Project" tab of the tracking data aligns with the county and the climate zone included in the tracking data.

Finding 2. Four instances of Boiler Pipe Insulation showed a quantity of 6 in the tracking data where ex ante savings reflected a quantity of 3 (MEA-2024.10.01-780179, MEA-2024.11.13-807931, MEA-2024.11.13-808175, and MEA-2024.12.10-821853). Guidehouse used the reported quantity (6) for the verified savings calculation.

Recommendation 2. Ensure the correct quantity is reflected for Boiler Pipe Insulation in the tracking data. Update gross ex ante savings values for these four measures to reflect quantity 6 if that is the correct quantity.

Finding 3. Eight instances of Low Flow Showerheads had "ResidentialBuildingType" column as N/A in the tracking data (MEA-2024.03.12-664677, MEA-2024.03.12-664674, MEA-2024.06.18-724277, MEA-2024.08.27-764492, MEA-2024.08.27-764493, MEA-2024.08.27-765042, MEA-2024.11.27-816858, MEA-2024.11.27-817131). Guidehouse assumed Single Family for these eight measures.

Recommendation 3. Ensure the ResidentialBuildingType column in the "Project" tab of tracking data is populated for all measures.

Finding 4. Four instances of Low Flow Bathroom Aerators had ResidentialBuildingType column as N/A in the tracking data (MEA-2024.03.12-664671, MEA-2024.06.18-724275, MEA-2024.08.27-764491, and MEA-2024.11.27-816856). Guidehouse assumed Single Family for these four measures.

Recommendation 4. Ensure the ResidentialBuildingType column in the "Project" tab of tracking data is populated for all measures.

Finding 5. Guidehouse could not reconcile the savings for two instances of Air Sealing (MEA-2024.09.25-777436 and MEA-2024.10.12-785899), one instance of Attic Insulation (MEA-2024.10.12-785900), and one instance of Basement/Sidewall Insulation (MEA-2024.09.25-777435) where realization rates are not 100%. Guidehouse used the savings parameters provided in the tracking data for these measures.

Recommendation 5. Ensure the actual/custom values in the tracking data align with what is used for the ex ante savings calculation.

Appendix A. Impact Analysis Methodology

The evaluation team used the same impact methodology for each component. Verified gross savings were determined for each program measure by:

- Reviewing the savings algorithm inputs in the final 2024 tracking data for agreement with the IL-TRM v12.0 and IL-TRM Errata, where applicable.
- Validating the savings algorithm was applied correctly.
- Cross-checking per-unit savings values in the program tracking data with the verified values in Guidehouse's calculations.
- Multiplying the verified per-unit savings value by the quantity reported in the tracking data. The team calculated verified net savings by multiplying the verified gross savings estimates by a NTG ratio. In Program Year 2024, NTG estimates used to calculate the net verified savings were based on past evaluation research and defined by a consensus process through the Illinois SAG.
- For DAC projects, If deemed NTG is multiplied by 1.048 Non-Participant Spillover factor (NPSO) and the resulted NTG value is less than 1.00, the evaluation assigned a DAC NTG of 1.00. If the resulted NTG value is >1.00, evaluation used the >1.00 value for calculation of net savings impact.

Appendix B. Program Specific Inputs for the Illinois TRC

Table B-1 shows the Total Resource Cost (TRC) cost-effectiveness analysis inputs available at the time of producing this impact evaluation report. Additional required cost data (e.g., measure costs, program level incentive and non-incentive costs) are not included in this table 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.

Table B-1. Verified Cost Effectiveness Inputs

Program Path	Savings Category	Units	Quantity	Effective Useful Life	Ex Ante Gross Savings (Therms)	Verified Gross Savings (Therms)	Verified Net Savings (Therms)
Prescriptive (ASI)	Air Sealing	Projects	1,114	20.00	68,365	68,355	63,516
	Air Sealing Without Attic Insulation	Projects	754	20.00	79,945	79,953	78,872
	Attic Insulation	Square Feet	13,78,260	30.00	116,136	116,125	109,126
	Basement/Sidewall Insulation	Square Feet	31,506	30.00	22,698	22,709	22,614
	Duct Sealing	Projects	765	18.50	216,778	216,778	233,999
	Wall Insulation	Square Feet	35,589	30.00	3,720	3,720	3,705
	Self Assessment (SAP)	Advanced Thermostat (DI) - Blended	Each	289	11.00	26,189	26,189
Air Sealing - Door Sweep		Each	2,482	20.00	11,979	11,979	13,433
Bathroom Aerator SF (DI)		Each	2,989	10.00	2,373	2,367	2,903
Boiler Pipe Insulation		Linear Feet	219	15.00	96	102	114
DHW Pipe Insulation		Linear Feet	3,894	15.00	7,614	7,614	8,538
Handheld Showerhead (DI) SF		Each	946	10.00	8,291	8,281	10,153
Kitchen Aerator SF (DI)		Each	1,052	10.00	7,658	7,658	9,390
Programmable Thermostat (DI)		Each	358	11.00	13,756	13,674	15,333
Shower Flow Reducer		Each	1,261	10.00	11,021	11,011	13,501
Showerhead (DI) SF		Each	585	10.00	5,101	5,091	6,242
Smart Thermostat Initiative	Advanced Thermostat (DI) - Blended	Each	5	11.00	427	427	430
	Advanced Thermostat (DI) - Manual	Each	21	11.00	2,153	2,153	2,166
	Advanced Thermostat (DI) - Programmable	Each	111	11.00	7,564	7,564	7,610
	Air Filter Replacement	Each	101	3.00	792	792	888

Program Path	Savings Category	Units	Quantity	Effective Useful Life	Ex Ante Gross Savings (Therms)	Verified Gross Savings (Therms)	Verified Net Savings (Therms)
	Air Sealing - Door Sweep	Each	68	20.00	497	497	557
	Bathroom Aerator SF (DI)	Each	50	10.00	62	62	76
	DHW Pipe Insulation	Linear Feet	156	15.00	297	297	333
	Handheld Showerhead (DI) SF	Each	5	10.00	11	11	13
	Kitchen Aerator SF (DI)	Each	7	10.00	53	53	65
	Shower Flow Reducer	Each	1	10.00	1	1	1
	Showerhead (DI) SF	Each	43	10.00	126	126	154
				18.08	613,704	613,588	630,082

Source: Evaluation team analysis