



Income Eligible Single Family Impact Evaluation Report

Energy Efficiency Plan: Program Year 2023
(1/1/2023-12/31/2023)

Prepared for:

Peoples Gas and North Shore Gas

FINAL

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1. Introduction

This report presents the results of the impact evaluation of the Peoples Gas (PGL) and North Shore Gas (NSG) 2023 Single Family Income Eligible (SFIE) programs and a summary of the energy impacts for the total program as well as relevant measure and program structure details. The appendix presents the impact analysis methodology. Program year 2023 covers January 1, 2023 through December 31, 2023.

2. Program Description

The SFIE program offers installation of energy efficiency measures for qualifying homeowners with a household income at or below 80% of the area median income (AMI). Eligible measures include programmable and advanced thermostats, water efficiency devices, weatherization measures, pipe insulation, heating and cooling equipment, and custom energy-saving measures for eligible properties. The program also offers installation of health and safety measures, including vents, electrical repairs, and asbestos and mold remediation.

The SFIE program has three paths, all implemented by Resource Innovations:

- The **SFIE Retrofits Program path** offers direct install products and no-cost weatherization services for customers. The PGL and NSG program is delivered jointly with ComEd through approved agencies or partners (e.g., Chicago Bungalow Association) that perform outreach and intake.
- The **Single Family – Illinois Home Weatherization Assistance Program (IHWAP) path** is administered by ComEd, PGL, NSG, and Nicor Gas. The program provides weatherization services to low-income residents through local community action agencies or not-for-profit agencies.
- The **Home Energy Assessment (HEA) Program path**¹ is administered by ComEd, Nicor Gas, PGL, and NSG. The HEA program offers energy-saving products installed in homes at no-cost to the customer. Homeowners can reduce their energy and water use with the installation of products available to owners of single-family homes, two-flats, and individually metered condos and townhomes. Renters also are eligible with permission from their landlords.

¹ The utilities also implement HEA market rate programs, which Guidehouse evaluates separately from the IE HEA program.

Table 2-1 presents the PGL SFIE program, which had 2,328 participants in 2023 and completed 2,357 projects.

Table 2-1. 2023 Volumetric Summary for PGL

Participation	IHWAP	Retrofits	HEA	Total
Participants *	60	353	1,915	2,328
Installed Projects †	60	369	1,928	2,357

* Participants are defined as unique site addresses. Total unique participants are 2,328.

† Installed Projects are defined as unique account numbers. Total unique account numbers are 2,357.

Source: Peoples Gas tracking data and Guidehouse evaluation team analysis.

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

Table 2-2. 2023 Installed Measure Quantities for PGL

Program Path	Measure	Quantity Unit	Installed Quantity	
IHWAP	Advanced Thermostat - Manual	Each	17	
	Advanced Thermostat - Programmable	Each	3	
	Air Sealing	Project	58	
	Attic Insulation	Sq. ft.	53,114	
	Basement/Sidewall Insulation	Sq. ft.	3,282	
	Low Flow Faucet Aerator - Bathroom	Each	22	
	Gas High Efficiency Boiler - ER	Each	13	
	DHW Pipe Insulation	Ln. ft.	569	
	Duct Sealing	Each	4	
	Floor Insulation Above Crawlspace	Sq. ft.	1,531	
	Gas High Efficiency Furnace - TOS	Each	4	
	Gas High Efficiency Furnace - ER	Each	33	
	Low Flow Showerhead	Each	25	
	Low Flow Faucet Aerator - Kitchen	Each	9	
	Programmable Thermostat	Each	8	
	Rim Joist Insulation	Sq. ft.	1,161	
	Gas Water Heater - ER	Each	25	
	Wall Insulation	Sq. ft.	38,038	
	Retrofits	Advanced Thermostat - Manual	Each	14
		Advanced Thermostat - Programmable	Each	38
Air Sealing		Project	415	
Attic Insulation		Sq. ft.	288,651	

Program Path	Measure	Quantity Unit	Installed Quantity
	Basement/Sidewall Insulation	Sq. ft.	10,382
	Low Flow Faucet Aerator - Bathroom	Each	10
	Gas High Efficiency Boiler - TOS	Each	4
	DHW Pipe Insulation	Ln. ft.	2,267
	Duct Sealing	Each	18
	Floor Insulation Above Crawlspace	Sq. ft.	4,326
	Furnace Tune-Up	Each	113
	Gas High Efficiency Furnace - TOS	Each	8
	Low Flow Showerhead	Each	17
	Low Flow Faucet Aerator - Kitchen	Each	7
	Programmable Thermostat	Each	50
	Rim Joist Insulation	Sq. ft.	1,656
	Gas Water Heater - TOS	Each	3
	Wall Insulation	Sq. ft.	357,623
	Advanced Thermostat - Blended	Each	4
	Advanced Thermostat - Manual	Each	395
	Advanced Thermostat - Programmable	Each	73
	Air Handler Filter Replacement	Each	552
	Air Sealing	Project	323
	Low Flow Faucet Aerator - Bathroom	Each	958
HEA	Boiler Pipe Insulation	Ln. ft.	322
	DHW Pipe Insulation	Ln. ft.	2,389
	Low Flow Showerhead	Each	1,434
	Low Flow Faucet Aerator - Kitchen	Each	624
	Programmable Thermostat	Each	288
	Re-Program Thermostat	Each	57
	Shower Flow Reducer	Each	66

Source: Peoples Gas tracking data and Guidehouse evaluation team analysis.

Table 2-3 presents the NSG SFIE program, which had 201 participants and completed projects in 2023.

Table 2-3. 2023 Volumetric Summary for NSG

Participation	Retrofits	HEA - Joint	Total
Participants *	19	182	201
Installed Projects †	19	182	201

* Participants are defined as unique site addresses. Total unique participants are 201.

† Installed Projects are defined as unique account numbers. Total unique account numbers are 201.

Source: North Shore Gas tracking data and Guidehouse evaluation team analysis.

Table 2-4 summarizes the installed measure quantities that are the basis for verified energy savings.

Table 2-4. 2023 Installed Measure Quantities for NSG

Program Path	Measure	Quantity Unit	Installed Quantity	
Retrofits	Advanced Thermostat - Manual	Each	5	
	Advanced Thermostat - Programmable	Each	3	
	Air Sealing	Project	19	
	Attic Insulation	Sq. ft.	11830	
	Basement/Sidewall Insulation	Sq. ft.	788	
	Low Flow Faucet Aerator - Bathroom	Each	23	
	Boiler Tune-Up	Each	1	
	DHW Pipe Insulation	Ln. ft.	180	
	Duct Sealing	Each	7	
	Floor Insulation Above Crawlspace	Sq. ft.	532	
	Furnace Tune-Up	Each	2	
	Low Flow Showerhead	Each	10	
	Low Flow Faucet Aerator - Kitchen	Each	8	
	Programmable Thermostat	Each	4	
	Rim Joist Insulation	Sq. ft.	1190	
	Gas Water Heater - TOS	Each	1	
	Wall Insulation	Sq. ft.	3883	
	HEA	Advanced Thermostat - Manual	Each	50
		Advanced Thermostat - Programmable	Each	10
Air Handler Filter Replacement		Each	57	
Air Sealing		Project	22	
Low Flow Faucet Aerator - Bathroom		Each	115	
Boiler Pipe Insulation		Ln. ft.	95	

Program Path	Measure	Quantity Unit	Installed Quantity
	DHW Pipe Insulation	Ln. ft.	138
	Low Flow Showerhead	Each	148
	Low Flow Faucet Aerator - Kitchen	Each	35
	Programmable Thermostat	Each	14
	Re-Program Thermostat	Each	3
	Shower Flow Reducer	Each	3

Source: North Shore Gas tracking data and Guidehouse evaluation team analysis.

3. Program Savings Detail

Table 3-1 summarizes the energy savings the PGL SFIE Program achieved by path in 2023.

Table 3-1. 2023 Annual Energy Savings Summary for PGL

Program Path	Ex Ante Gross Savings (Therms)	Verified Gross RR*	Verified Gross Savings (Therms)	NTG†	Verified Net Savings (Therms)
IHWAP	46,348	99%	45,890	1.00	45,890
Retrofits	382,576	100%	380,896	1.00	380,896
HEA	95,102	100%	95,101	1.00	95,101
Total or Weighted Average	524,025	100%	521,887	1.00	521,887

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) is a deemed value. Available on the SAG web site: https://www.ilsag.info/ntg_2023.

Source: Peoples Gas tracking data and Guidehouse evaluation team analysis.

Table 3-2 summarizes the energy savings the NSG SFIE Program achieved by path in 2023.

Table 3-2. 2023 Annual Energy Savings Summary for NSG

Program Path	Ex Ante Gross Savings (Therms)	Verified Gross RR*	Verified Gross Savings (Therms)	NTG†	Verified Net Savings (Therms)
Retrofits	4,646	100%	4,646	1.00	4,646
HEA	8,875	100%	8,875	1.00	8,875
Total or Weighted Average	13,521	100%	13,521	1.00	13,521

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

† A deemed value. Available on the SAG web site: https://www.ilsag.info/ntg_2023.

Source: North Shore Gas tracking data and Guidehouse evaluation team analysis.

4. Program Savings by Measure

Table 4-1 summarizes the energy savings by measure level for the three PGL program paths. The IHWAP and Retrofits program paths both included 18 measures. The IHWAP path had a realization rate (RR) of 99%, while the Retrofits path had an RR of 100%. The Attic Insulation and the Gas High Efficiency Furnace – Time of Sale measures contributed the most savings in the IHWAP path, and the Air Sealing and Attic Insulation measures contributed the most savings in the Retrofits path. The HEA program path included 13 measures and had an RR of 100%. Advanced Thermostat – Manual and Programmable Thermostat measures contributed the most savings within the HEA path.

Table 4-1. 2023 Annual Energy Savings by Measure for PGL

Program Path	Savings Category	Ex Ante Gross Savings (Therms)	Verified Gross RR*	Verified Gross Savings (Therms)	NTG†	Verified Net Savings (Therms)
IHWAP	Advanced Thermostat - Manual	1,640	100%	1,640	1.00	1,640
	Advanced Thermostat - Programmable	214	100%	214	1.00	214
	Air Sealing	6,003	100%	6,019	1.00	6,019
	Attic Insulation	11,895	99%	11,752	1.00	11,752
	Basement/Sidewall Insulation	223	100%	223	1.00	223
	Low Flow Faucet Aerator - Bathroom	14	100%	14	1.00	14
	Gas High Efficiency Boiler - ER	8,563	96%	8,252	1.00	8,252
	DHW Pipe Insulation	1,147	100%	1,147	1.00	1,147
	Duct Sealing	1,120	100%	1,120	1.00	1,120
	Floor Insulation Above Crawlspace	197	100%	197	1.00	197
	Gas High Efficiency Furnace - TOS	509	100%	509	1.00	509
	Gas High Efficiency Furnace - ER	9,317	100%	9,317	1.00	9,317
	Low Flow Showerhead	44	100%	44	1.00	44
	Low Flow Faucet Aerator - Kitchen	43	100%	43	1.00	43

Program Path	Savings Category	Ex Ante Gross Savings (Therms)	Verified Gross RR*	Verified Gross Savings (Therms)	NTG†	Verified Net Savings (Therms)
	Programmable Thermostat	645	100%	645	1.00	645
	Rim Joist Insulation	114	100%	113	1.00	113
	Gas Water Heater - ER	979	100%	979	1.00	979
	Wall Insulation	3,682	99%	3,663	1.00	3,663
	IHWAP Subtotal	46,348	99%	45,890	1.00	45,890
	Advanced Thermostat - Manual	1,435	100%	1,435	1.00	1,435
	Advanced Thermostat - Programmable	2,650	100%	2,650	1.00	2,650
	Air Sealing	233,215	100%	232,946	1.00	232,946
	Attic Insulation	68,692	99%	67,777	1.00	67,777
	Basement/Sidewall Insulation	2,249	100%	2,247	1.00	2,247
	Low Flow Faucet Aerator - Bathroom	10	100%	10	1.00	10
	Gas High Efficiency Boiler - TOS	687	100%	687	1.00	687
	DHW Pipe Insulation	4,571	100%	4,571	1.00	4,571
	Duct Sealing	10,705	100%	10,705	1.00	10,705
Retrofits	Floor Insulation Above Crawlspace	620	97%	600	1.00	600
	Furnace Tune-Up	3,969	100%	3,969	1.00	3,969
	Gas High Efficiency Furnace - TOS	1,352	100%	1,352	1.00	1,352
	Low Flow Showerhead	53	100%	53	1.00	53
	Low Flow Faucet Aerator - Kitchen	58	100%	58	1.00	58
	Programmable Thermostat	3,416	100%	3,416	1.00	3,416
	Rim Joist Insulation	188	100%	188	1.00	188
	Gas Water Heater - TOS	64	100%	64	1.00	64
	Wall Insulation	48,642	99%	48,167	1.00	48,167
	Retrofits Subtotal	382,576	100%	380,896	1.00	380,896
	Advanced Thermostat - Blended	312	100%	312	1.00	312
	Advanced Thermostat - Manual	40,338	100%	40,338	1.00	40,338
	Advanced Thermostat - Programmable	4,989	100%	4,989	1.00	4,989
	Air Handler Filter Replacement	4,380	100%	4,380	1.00	4,380
	Air Sealing	4,357	100%	4,357	1.00	4,357
HEA	Low Flow Faucet Aerator - Bathroom	913	100%	913	1.00	913
	Boiler Pipe Insulation	225	100%	225	1.00	225
	DHW Pipe Insulation	4,628	100%	4,628	1.00	4,628
	Low Flow Showerhead	4,285	100%	4,285	1.00	4,285
	Low Flow Faucet Aerator - Kitchen	5,464	100%	5,464	1.00	5,464
	Programmable Thermostat	21,041	100%	21,042	1.00	21,042

Program Path	Savings Category	Ex Ante Gross Savings (Therms)	Verified Gross RR*	Verified Gross Savings (Therms)	NTG†	Verified Net Savings (Therms)
	Re-Program Thermostat	3,972	100%	3,972	1.00	3,972
	Shower Flow Reducer	197	100%	197	1.00	197
	HEA Subtotal	95,102	100%	95,101	1.00	95,101
	Total or Weighted Average	524,025	100%	521,887	1.00	521,887

Note: Totals may not sum due to rounding.

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

† A deemed value. Available on the SAG web site: https://www.ilsag.info/ntg_2023.

Source: Peoples Gas tracking data and Guidehouse evaluation team analysis.

Table 4-2 summarized the energy savings by measure level for the three NSG program paths. The Retrofits program path included 17 measures, with an RR of 100%. The Air Sealing and Attic Insulation measures contributed the most savings in the Retrofits path. The HEA-Joint program path included 12 measures and had an RR of 100%. Advanced Thermostat – Manual and Programmable Thermostat measures contributed the most savings within the HEA-Joint path.

Table 4-2. 2023 Annual Energy Savings by Measure for NSG

Program Path	Savings Category	Ex Ante Gross Savings (Therms)	Verified Gross RR*	Verified Gross Savings (Therms)	NTG†	Verified Net Savings (Therms)
Retrofits	Advanced Thermostat – Manual	410	100%	410	1.00	410
	Advanced Thermostat - Programmable	214	100%	214	1.00	214
	Air Sealing	1,086	100%	1,086	1.00	1,086
	Attic Insulation	867	100%	867	1.00	867
	Basement/Sidewall Insulation	79	100%	79	1.00	79
	Low Flow Faucet Aerator - Bathroom	24	100%	24	1.00	24
	Boiler Tune-Up	40	100%	40	1.00	40
	DHW Pipe Insulation	363	100%	363	1.00	363
	Duct Sealing	451	100%	451	1.00	451
	Floor Insulation Above Crawlspace	99	100%	99	1.00	99
	Furnace Tune-Up	131	100%	131	1.00	131
	Low Flow Showerhead	29	100%	29	1.00	29
	Low Flow Faucet Aerator - Kitchen	93	100%	93	1.00	93
	Programmable Thermostat	224	100%	224	1.00	224
	Rim Joist Insulation	121	100%	121	1.00	121
	Gas Water Heater – TOS	35	100%	35	1.00	35
	Wall Insulation	380	100%	380	1.00	380

Program Path	Savings Category	Ex Ante Gross Savings (Therms)	Verified Gross RR*	Verified Gross Savings (Therms)	NTG†	Verified Net Savings (Therms)
	Retrofits Subtotal	4,646	100%	4,646	1.00	4,646
	Advanced Thermostat – Manual	5,126	100%	5,126	1.00	5,126
	Advanced Thermostat - Programmable	714	100%	714	1.00	714
	Air Handler Filter Replacement	447	100%	447	1.00	447
	Air Sealing	273	100%	273	1.00	273
	Low Flow Faucet Aerator - Bathroom	107	100%	107	1.00	107
	Boiler Pipe Insulation	67	100%	67	1.00	67
HEA	DHW Pipe Insulation	263	100%	263	1.00	263
	Low Flow Showerhead	459	100%	459	1.00	459
	Low Flow Faucet Aerator - Kitchen	293	100%	293	1.00	293
	Programmable Thermostat	931	100%	931	1.00	931
	Re-Program Thermostat	187	100%	187	1.00	187
	Shower Flow Reducer	10	100%	10	1.00	10
	HEA Joint Subtotal	8,875	100%	8,875	1.00	8,875
Total or Weighted Average		13,521	100%	13,521	1.00	13,521

Note: Totals may not sum due to rounding.

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

† A deemed value. Available on the SAG web site: https://www.ilsag.info/ntg_2023.

Source: North Shore Gas tracking data and Guidehouse team analysis.

5. Impact Analysis Findings and Recommendations

5.1 Impact Parameter Estimates

Table 5-1 shows the unit therm savings and realization rate findings by measure from Guidehouse's review. The realization rate is the ratio of the verified savings to the ex ante savings. Following Table 5-1 are findings and recommendations, including discussion of all measures with realization rates above or below 100 percent. 5.2 Appendix A provides a description of the impact analysis methodology.

Table 5-1. 2023 Verified Gross Savings Parameters

Measure	Unit Basis	Ex Ante Gross (therms/unit)	Verified Gross (therms/unit)	Realization Rate	Data Source(s)
Advanced Thermostat - Blended	Each	77.95	77.95	100%	Illinois TRM, v11.0†, Section 5.3.16 and PGL/NSG Program Tracking Data (PTD*)

Measure	Unit Basis	Ex Ante Gross (therms/unit)	Verified Gross (therms/unit)	Realization Rate	Data Source(s)
Advanced Thermostat - Manual	Each	101.76	101.76	100%	Illinois TRM, v11.0†, Section 5.3.16 and PTD
Advanced Thermostat - Programmable	Each	69.14	69.14	100%	Illinois TRM, v11.0†, Section 5.3.16 and PTD
Air Handler Filter Replacement	Each	7.93	7.93	100%	Illinois TRM, v11.0†, Section 5.3.10 and PTD
Air Sealing	Project	333.70	333.35	100%	Illinois TRM, v11.0†, Section 5.6.1 and PTD
Attic Insulation	Sq. ft.	0.23	0.23	99%	Illinois TRM, v11.0†, Section 5.6.5 and PTD
Basement/Sidewall Insulation	Sq. ft.	0.18	0.18	100%	Illinois TRM, v11.0†, Section 5.6.2 and PTD
Low Flow Faucet Aerator - Bathroom	Each	0.95	0.95	100%	Illinois TRM, v11.0†, Section 5.4.4 and PTD
Boiler Pipe Insulation	Ln. ft.	0.70	0.70	100%	Illinois TRM, v11.0†, Section 5.3.2 and PTD
Boiler Tune-Up	Each	39.54	39.54	100%	Illinois TRM, v11.0†, Section 4.4.2 and PTD
Gas High Efficiency Boiler - TOS	Each	171.73	171.73	100%	Illinois TRM, v11.0†, Section 5.3.6 and PTD
Gas High Efficiency Boiler - ER	Each	658.67	634.76	96%	Illinois TRM, v11.0†, Section 5.3.6 and PTD
DHW Pipe Insulation	Ln. ft.	1.98	1.98	100%	Illinois TRM, v11.0†, Section 5.4.1 and PTD
Duct Sealing	Each	423.30	423.31	100%	Illinois TRM, v11.0†, Section 5.3.4 and PTD
Floor Insulation Above Crawlspace	Sq. ft.	0.14	0.14	98%	Illinois TRM, v11.0†, Section 5.6.3 and PTD
Furnace Tune-Up	Each	35.66	35.66	100%	Illinois TRM, v11.0†, Section 5.3.13 and PTD
Gas High Efficiency Furnace - TOS	Each	155.05	155.05	100%	Illinois TRM, v11.0†, Section 5.3.7 and PTD
Gas High Efficiency Furnace - ER	Each	282.34	282.34	100%	Illinois TRM, v11.0†, Section 5.3.7 and PTD
Low Flow Showerhead	Each	2.98	2.98	100%	Illinois TRM, v11.0†, Section 5.4.5 and PTD
Low Flow Faucet Aerator - Kitchen	Each	8.71	8.71	100%	Illinois TRM, v11.0†, Section 5.4.4 and PTD
Programmable Thermostat	Each	72.13	72.14	100%	Illinois TRM, v11.0†, Section 5.3.11 and PTD

Measure	Unit Basis	Ex Ante Gross (therms/unit)	Verified Gross (therms/unit)	Realization Rate	Data Source(s)
Re-Program Thermostat	Each	69.31	69.31	100%	Illinois TRM, v11.0†, Section 5.3.11 and PTD
Rim Joist Insulation	Sq. ft.	0.11	0.11	100%	Illinois TRM, v11.0†, Section 5.6.6 and PTD
Shower Flow Reducer	Each	3.01	3.01	100%	Illinois TRM, v11.0†, Section 5.4.5 and PTD
Gas Water Heater - TOS	Each	24.71	24.71	100%	Illinois TRM, v11.0†, Section 5.4.2 and PTD
Gas Water Heater - ER	Each	39.16	39.16	100%	Illinois TRM, v11.0†, Section 5.4.2 and PTD
Wall Insulation	Sq. ft.	0.13	0.13	99%	Illinois TRM, v11.0†, Section 5.6.4 and PTD

* Program Tracking Data (PTD) provided by Peoples Gas and North Shore Gas; extract dated January 30, 2024.

† State of Illinois Technical Reference Manual version 11.0 from <http://www.ilsaq.info/technical-reference-manual.html>.

5.2 Findings and Recommendations

Finding 1. The tracking data did not provide equipment age which is necessary to determine the correct η_{heat} value for Air Sealing, Attic, Basement/Sidewall, Floor Above Crawlspace, Rim Joist, and Wall Insulation measures. The evaluation team was able to cross reference ComEd's tracking data to retrieve that information but was unable to do so for measures with a gas boiler heating system type. For the gas boiler measures, η_{heat} value of 0.72 were used, sourced from the TRM v11.0.

Recommendation 1. Update the tracking data to include the equipment age for all shell end use and space heating measures.

Finding 2. The tracking data had an incorrect or missing input capacity value for HVAC measures, Boiler Tune-Up and Duct Sealing. The tracking data had a field measure labeled as "Capacity", which did not specify whether the input capacity was a cooling or heating measure. The evaluation team cross referenced ComEd's tracking data, and identified that the PGL and NSG field measure "Capacity" matched ComEd's "Existing_Cooling_System_Est_Capacity" field, rather than their "Existing_Heating_System_Est_Capacity". The evaluation team used ComEd's heating input capacity to correctly calculate these measures.

Recommendation 2. Update the tracking data to include both heating and cooling input capacity to ensure there are no issues when populating these fields.

Finding 3. The evaluation team verified the Gas High Efficiency Boilers – early replacements did not have an RR of 100%. This was due to the tracking data not providing age of equipment, which is used to determine the AFUE_{exist} variable, by derating the "Existing_Heating_System_AFUE" value. The evaluation team used the TRM deemed value for AFUE_{exist}, 61.6%..

Recommendation 3. Update the tracking data to include age of equipment for HVAC measures.

Finding 4. The evaluation team found 11 Furnace Tune-Up measures did not have a RR of 100%. The evaluation team concluded the tracking data did not have the correct Eff_{before} input for those 11 measures. This field is used to determine gas savings from the TRM. The evaluation team was able to cross-reference the ComEd tracking data to obtain the correct Eff_{before} input for these projects.

Measure IDs: MEA-2023.01.17-469916, MEA-2022.12.24-461602, MEA-2023.02.02-472192, MEA-2023.02.14-473691, MEA-2023.02.16-474070, MEA-2023.01.20-470674, MEA-2023.01.20-470649, MEA-2022.12.20-457778, MEA-2023.02.14-473706, MEA-2023.01.30-471467, MEA-2023.01.13-469624.

Recommendation 4. Ensure the correct Eff_{before} input is provided in the tracking data, field labeled as "Existing_Heating_System_AFUE".

Finding 5. The evaluation team initially calculated a verified gross RR of 114% for the DHW Pipe Insulation measure ID: MEA-2023.12.15-626760. The verified savings used a pipe length of 4ft as found in the tracking data. Upon further clarification from the program manager to use unrounded value of 3.5 ft, we recalculated the RR to 100%.

Recommendation 5. Ensure the length provided for DHW Pipe Insulation is not rounded but kept to at least one decimal digit in the tracking data column labeled "Total Quantity".

Appendix A. Impact Analysis Methodology

Guidehouse determined verified gross savings for each program measure by conducting a tracking system review. Guidehouse checked whether measure inputs matched deemed IL TRM (v11.0)² values and validated custom inputs or adjusted as necessary. To be eligible, an IL-TRM measure must meet the physical, operational, and baseline characteristics as defined in the applicable version of IL-TRM. Verified gross RR are calculated by dividing the verified gross savings by the ex ante gross savings. In 2023, the NTG estimates used to calculate the net verified savings were defined by a consensus process through the Stakeholder Advisory Group (SAG).³

² Illinois Statewide Technical Reference Manual for Energy Efficiency (IL-TRM) version 11.0 from <http://www.ilsaq.info/technical-reference-manual.html>.

³ Available on the SAG website: <https://www.ilsaq.info/evaluator-ntg-recommendations-for-2023/>.

Appendix B. Program Specific Inputs for the Illinois TRC

Table B-1 and Table B-2 show the Total Resource Cost (TRC) cost-effectiveness analysis inputs 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 Table B-1 and Table B-2 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. 2023 Verified Cost Effectiveness Inputs – PGL

Program Path	Savings Category	Units	Quantity	Effective Useful Life	Ex Ante Gross Savings (Therms)	Verified Gross Savings (Therms)	Verified Net Savings (Therms)
IHWAP	Advanced Thermostat - Manual	Each	17	11.0	1,640	1,640	1,640
	Advanced Thermostat - Programmable	Each	3	11.0	214	214	214
	Air Sealing	Project	58	20.0	6,003	6,019	6,019
	Attic Insulation	Sq. ft.	53,114	20.0	11,895	11,752	11,752
	Basement/Sidewall Insulation	Sq. ft.	3,282	20.0	223	223	223
	Low Flow Faucet Aerator - Bathroom	Each	22	10.0	14	14	14
	Gas High Efficiency Boiler - ER	Each	13	8.0	8,563	8,252	8,252
	DHW Pipe Insulation	Ln. ft.	569	15.0	1,147	1,147	1,147
	Duct Sealing	Each	4	20.0	1,120	1,120	1,120
	Floor Insulation Above Crawlspace	Sq. ft.	1,531	20.0	197	197	197
	Gas High Efficiency Furnace - TOS	Each	4	6.0	509	509	509
	Gas High Efficiency Furnace - ER	Each	33	20.0	9,317	9,317	9,317
	Low Flow Showerhead	Each	25	10.0	44	44	44
	Low Flow Faucet Aerator - Kitchen	Each	9	10.0	43	43	43
	Programmable Thermostat	Each	8	16.0	645	645	645
	Rim Joist Insulation	Sq. ft.	1,161	20.0	114	113	113
	Gas Water Heater - ER	Each	25	4.0	979	979	979
	Wall Insulation	Sq. ft.	38,038	20.0	3,682	3,663	3,663
Retrofits	Advanced Thermostat - Manual	Each	14	11.0	1,435	1,435	1,435
	Advanced Thermostat - Programmable	Each	38	11.0	2,650	2,650	2,650
	Air Sealing	Project	415	20.0	233,215	232,946	232,946
	Attic Insulation	Sq. ft.	288,651	20.0	68,692	67,777	67,777
	Basement/Sidewall Insulation	Sq. ft.	10,382	20.0	2,249	2,247	2,247
	Low Flow Faucet Aerator - Bathroom	Each	10	10.0	10	10	10
	Gas High Efficiency Boiler - TOS	Each	4	25.0	687	687	687
	DHW Pipe Insulation	Ln. ft.	2,267	15.0	4,571	4,571	4,571
	Duct Sealing	Each	18	20.0	10,705	10,705	10,705
	Floor Insulation Above Crawlspace	Sq. ft.	4,326	20.0	620	600	600

Program Path	Savings Category	Units	Quantity	Effective Useful Life	Ex Ante Gross Savings (Therms)	Verified Gross Savings (Therms)	Verified Net Savings (Therms)
	Furnace Tune-Up	Each	113	20.0	3,969	3,969	3,969
	Gas High Efficiency Furnace - TOS	Each	8	20.0	1,352	1,352	1,352
	Low Flow Showerhead	Each	17	10.0	53	53	53
	Low Flow Faucet Aerator - Kitchen	Each	7	10.0	58	58	58
	Programmable Thermostat	Each	50	16.0	3,416	3,416	3,416
	Rim Joist Insulation	Sq. ft.	1,656	20.0	188	188	188
	Gas Water Heater - TOS	Each	3	13.0	64	64	64
	Wall Insulation	Sq. ft.	357,623	20.0	48,642	48,167	48,167
	Advanced Thermostat - Blended	Each	4	11.0	312	312	312
	Advanced Thermostat - Manual	Each	395	11.0	40,338	40,338	40,338
	Advanced Thermostat - Programmable	Each	73	11.0	4,989	4,989	4,989
	Air Handler Filter Replacement	Each	552	3.0	4,380	4,380	4,380
	Air Sealing	Project	323	20.0	4,357	4,357	4,357
	Low Flow Faucet Aerator - Bathroom	Each	958	10.0	913	913	913
HEA	Boiler Pipe Insulation	Ln. ft.	322	15.0	225	225	225
	DHW Pipe Insulation	Ln. ft.	2,389	15.0	4,628	4,628	4,628
	Low Flow Showerhead	Each	1,434	10.0	4,285	4,285	4,285
	Low Flow Faucet Aerator - Kitchen	Each	624	10.0	5,464	5,464	5,464
	Programmable Thermostat	Each	288	16.0	21,041	21,042	21,042
	Re-Program Thermostat	Each	57	2.0	3,972	3,972	3,972
	Shower Flow Reducer	Each	66	3.0	197	197	197
Total or Weighted Average				18.1	524,025	521,887	521,887

Source: Peoples Gas tracking data and Guidehouse evaluation team analysis.

Table B-2. 2023 Verified Cost Effectiveness Inputs – NSG

Program Path	Savings Category	Units	Quantity	Effective Useful Life	Ex Ante Gross Savings (Therms)	Verified Gross Savings (Therms)	Verified Net Savings (Therms)
	Advanced Thermostat - Manual	Each	5	11.0	410	410	410
	Advanced Thermostat - Programmable	Each	3	11.0	214	214	214
	Air Sealing	Project	19	20.0	1,086	1,086	1,086
	Attic Insulation	Sq. ft.	11830	20.0	867	867	867
Retrofits	Basement/Sidewall Insulation	Sq. ft.	788	20.0	79	79	79
	Low Flow Faucet Aerator - Bathroom	Each	23	10.0	24	24	24
	Boiler Tune-Up	Each	1	3.0	40	40	40
	DHW Pipe Insulation	Ln. ft.	180	15.0	363	363	363
	Duct Sealing	Each	7	20.0	451	451	451

Program Path	Savings Category	Units	Quantity	Effective Useful Life	Ex Ante Gross Savings (Therms)	Verified Gross Savings (Therms)	Verified Net Savings (Therms)
	Floor Insulation Above Crawlspace	Sq. ft.	532	20.0	99	99	99
	Furnace Tune-Up	Each	2	3.0	131	131	131
	Low Flow Showerhead	Each	10	10.0	29	29	29
	Low Flow Faucet Aerator - Kitchen	Each	8	10.0	93	93	93
	Programmable Thermostat	Each	4	16.0	224	224	224
	Rim Joist Insulation	Sq. ft.	1190	20.0	121	121	121
	Gas Water Heater - TOS	Each	1	13.0	35	35	35
	Wall Insulation	Sq. ft.	3883	20.0	380	380	380
HEA	Advanced Thermostat - Manual	Each	50	11.0	5,126	5,126	5,126
	Advanced Thermostat - Programmable	Each	10	11.0	714	714	714
	Air Handler Filter Replacement	Each	57	3.0	447	447	447
	Air Sealing	Project	22	20.0	273	273	273
	Low Flow Faucet Aerator - Bathroom	Each	115	10.0	107	107	107
	Boiler Pipe Insulation	Ln. ft.	95	15.0	67	67	67
	DHW Pipe Insulation	Ln. ft.	138	15.0	263	263	263
	Low Flow Showerhead	Each	148	10.0	459	459	459
	Low Flow Faucet Aerator - Kitchen	Each	35	10.0	293	293	293
	Programmable Thermostat	Each	14	16.0	931	931	931
	Re-Program Thermostat	Each	3	2.0	187	187	187
	Shower Flow Reducer	Each	3	3.0	10	10	10
	Total or Weighted Average				13.3	13,521	13,521

Source: North Shore Gas tracking data and Guidehouse evaluation team analysis.