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Small and Midsize Business Program 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 Small and Midsize Business (SMB) program and presents 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 2023 SMB Program is offered by PGL and NSG, with Franklin Energy as the program implementer. The SMB Program seeks to secure energy savings through direct installation of low-cost efficiency measures, rebates for the installation of prescriptive retrofit measures, and custom rebates for non-prescriptive upgrades. This document addresses the impact evaluation of the prescriptive program only. A network of partner trade allies (PTA) promotes measures and assists in engaging customers to participate in site assessments to identify savings opportunities. To serve as a PTA, participation and customer satisfaction goals must be achieved. Customers using a PTA will be eligible for enhanced rebate levels. The small business direct install delivery path included kits for restaurant and grocery businesses. Each kit distributed had a label attached, along with an informational letter for each kit and installation instructions.

The SMB Program offered commercial food service (CFS) equipment incentives using program delivery channels. This path's goals are to reduce barriers for food service operators to purchasing energy efficient equipment and reduce energy usage in the commercial food service sector.

The PGL program had 147 participants in 2023 and completed 161 projects, as shown in Table 2-1.

Table 2-1. 2023 Volumetric Summary for PGL

Participation	Prescriptive	PTA	CFS	Custom	Total*
Private Sector					
Participants *	17	63	66	0	**144**
Installed Projects †	18	71	72	0	**158**
Measure Types Installed	13	15	13	0	**40**
Public Sector					
Participants *	2	1	0	0	**3**
Installed Projects †	2	1	0	0	**3**
Measure Types Installed	2	1	0	0	**3**
Program 2023 Total					
Participants *	19	64	66	0	**147**

Participation	Prescriptive	PTA	CFS	Custom	Total*
Installed Projects †	20	72	72	0	**161**
Measure Types Installed	15	16	13	0	**43**

* Participants are defined as the distinct count of primary contacts.
† Installed Projects are defined as the distinct count of project IDs
Source: Peoples Gas tracking data and Guidehouse evaluation team analysis.

Table 2-2 summarizes the installed measure quantities for PGL that are the basis for verified energy savings in the PGL service territory. The table identifies the measure list from projects installed in disadvantaged communities (DAC).

Table 2-2. 2023 Installed Measure Quantities for PGL

Program Category	Program Path	Measure	Quantity Unit	Installed Quantity
Private	Prescriptive/PTA-DAC	Boiler - Steam >=1500MBH, >=82% TE	MBH	3,220
	Prescriptive/PTA-DAC	Boiler Tune Up (COM)	MBH	8,537
	Prescriptive/PTA-DAC	Energy Star Fryer	Each	4
	Prescriptive/PTA-DAC	High Speed Washer - Laundromat	lb-capacity	1,750
	Prescriptive/PTA-DAC	Ozone Laundry	lb-capacity	1,335
	Prescriptive/PTA-DAC	Steam Traps - Dry Cleaner Rep. - Audit	Each	126
	Prescriptive/PTA-DAC	Steam Traps - HVAC Repair/Rep - Audit	Each	22
	Prescriptive/PTA	Boiler Tune Up - Process	MBH	7,756
	Prescriptive/PTA	Boiler Tune Up (COM)	MBH	215,304
	Prescriptive/PTA	Dock Door Seals	Each	2
	Prescriptive/PTA	Draft Controls, > 2,000 MBH -retrofit only	MBH	17,060
	Prescriptive/PTA	Energy Star Fryer	Each	1
	Prescriptive/PTA	High Speed Washer - Laundromat	lb-capacity	1,840
	Prescriptive/PTA	Hotel Low Flow Aerator/Restrictor	Each	466
	Prescriptive/PTA	Hotel Low Showerhead/Restrictor	Each	233
	Prescriptive/PTA	Linkageless controls -for new burners	MBH	42,260
	Prescriptive/PTA	Pipe Insulation - Steam Med 2.1" to 5"	LN FT	325
	Prescriptive/PTA	Pipe Insulation - Steam Small 1" to 2"	LN FT	384
	Prescriptive/PTA	Steam Traps - Dry Cleaner Rep. - Audit	Each	136
	Prescriptive/PTA	Steam Traps - HVAC Repair/Rep - Audit	Each	904
	Prescriptive/PTA	Steam Traps - HVAC Repair/Rep - No Audit	Each	20
	Prescriptive/PTA	Steam Traps - Industrial/Process Audit - 125 <= psig < 175	Each	2
	Prescriptive/PTA	Steam Traps - Industrial/Process Audit - 15 < psig < 30	Each	1
	Prescriptive/PTA	Steam Traps - Industrial/Process Audit - 75 <= psig < 125	Each	19
	Prescriptive/PTA	Steam Traps - Industrial/Process Audit - psig <= 15	Each	67
	Prescriptive/PTA	Tankless Water Heater 0.90 UEF	Each	398

Program Category	Program Path	Measure	Quantity Unit	Installed Quantity
	Prescriptive/PTA	Thermostat - Smart (COM)	Each	3
	CFS-DAC	Convection Oven	Each	2
	CFS-DAC	Fryer Standard Open Deep-Vat Fryer (French Fryer)	Each	5
	CFS	Automatic Conveyer Broiler Commercial > 26" Conveyor Width	Each	1
	CFS	Combination Oven Gas - <15 Pans	Each	12
	CFS	Combination Oven Gas - 15-30 Pans	Each	2
	CFS	Commercial Steam Cooker	Each	2
	CFS	Convection Oven	Each	8
	CFS	Dishwasher High Temp - Stationary Single Tank Door-Gas Bldg-Elec Boost	Each	1
	CFS	Dishwasher Low Temp - Multi Tank Conveyor - Gas Bldg - Elec Boost	Each	1
	CFS	Double Rack Oven	Double Oven	2
	CFS	Fryer Large Vat Open Deep-Vat Fryer	Each	2
	CFS	Fryer Standard Open Deep-Vat Fryer (French Fryer)	Each	58
	CFS	Pasta Cooker	Each	2
Public	Prescriptive/PTA	Boiler Tune Up (COM)	MBH	16,738
	Prescriptive/PTA	Steam Traps - HVAC Repair/Rep - Audit	Each	364
	Prescriptive/PTA	Thermostat - Smart (COM)	Each	5

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

The NSG program had 40 participants in 2023 and completed 50 projects, as shown in the following table.

Table 2-3. 2023 Volumetric Summary for NSG

Participation	Prescriptive	PTA	CFS	Custom	Total
Private Sector					
Participants *	6	34	5	0	**40**
Installed Projects †	7	37	6	0	**50**
Measure Types Installed	8	8	4	0	**20**
Public Sector					
Participants *	0		0	0	**0**
Installed Projects †	0		0	0	**0**
Measure Types Installed	0		0	0	**0**
Program 2023 Total					
Participants *	6	34	5	0	**40**

Participation	Prescriptive	PTA	CFS	Custom	Total
Installed Projects †	7	37	6	0	**50**
Measure Types Installed	8	8	4	0	**20**

* Participants are defined as the distinct count of primary contacts.
† Installed Projects are defined as the distinct count of project IDs
Source: North Shore Gas tracking data and Guidehouse evaluation team analysis.

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

Table 2-4. 2023 Installed Measure Quantities for NSG

Program Category	Program Path	Measure	Quantity Unit	Installed Quantity
Private	Prescriptive/PTA-DAC	Boiler - HW 300-2500MBtu, >88% TE	MBH	1,000
	Prescriptive/PTA-DAC	Steam Traps - Dry Cleaner Rep. - Audit	Each	32
	Prescriptive/PTA	Boiler - HW 300-2500MBtu, >88% TE	MBH	6,950
	Prescriptive/PTA	Boiler Tune Up - Process	MBH	1,260
	Prescriptive/PTA	Boiler Tune Up (COM)	MBH	8,810
	Prescriptive/PTA	Condensate tank Insulation (LP space heating)	SQ FT	50
	Prescriptive/PTA	Furnace > 95% AFUE (COM)	Each	6
	Prescriptive/PTA	Linkageless controls -for new burners	MBH	10,047
	Prescriptive/PTA	Pipe Insulation - DHW Small <1.25"	LN FT	50
	Prescriptive/PTA	Pipe Insulation - HW Medium 2.1" to 4"	LN FT	430
	Prescriptive/PTA	Pipe Insulation - HW Small 1" to 2"	LN FT	1,194
	Prescriptive/PTA	Pipe Insulation - Steam Med 2.1" to 5"	LN FT	280
	Prescriptive/PTA	Pipe Insulation - Steam Med Fitting	LN FT	53
	Prescriptive/PTA	Pipe Insulation - Steam Small 1" to 2"	LN FT	1,026
	Prescriptive/PTA	Stack Economizer (Conventional)	MBH	10,047
	Prescriptive/PTA	Steam Traps - Dry Cleaner Rep. - Audit	Each	202
	Prescriptive/PTA	Steam Traps - HVAC Repair/Rep - Audit	Each	24
	Prescriptive/PTA	Water Heater 95% TE - Laundromat	MBH	200
	CFS	Combination Oven Gas - <15 Pans	Each	2
	CFS	Convection Oven	Each	1
	CFS	Fryer Standard Open Deep-Vat Fryer (French Fryer)	Each	9
	CFS	Griddle Dual	Each	2

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

3. Program Savings Detail

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

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

Program Category	Program Path	Ex Ante Gross Savings (Therms)	Verified Gross RR*	Verified Gross Savings (Therms)	NTG†	Verified Net Savings (Therms)
Private						
	Prescriptive/PTA-DAC	127,581	99%	126,923	1.00	126,923
	Prescriptive/PTA	1,166,717	100%	1,165,787	0.93	1,084,221
	CFS-DAC	2,942	101%	2,981	1.00	2,981
	CFS	62,198	85%	52,992	0.80	42,394
Private Subtotal		**1,359,438**	**99%**	**1,348,053**	**0.93**	**1,255,888**
Public						
	Prescriptive/PTA	292,625	100%	292,535	0.93	272,085
Public Subtotal		**292,625**	**100%**	**292,535**	**0.93**	**272,085**
Total or Weighted Average		**1,652,063**	**99%**	**1,640,588**		**1,527,973**

* Realization Rate (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 website: https://www.ilsag.info/evaluator-ntg-recommendations-for-2023/. Projects in disadvantaged communities designated sites have a NTG of 1.0.
Source: Peoples Gas tracking data and Guidehouse evaluation team analysis.

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

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

Program Category	Program Path	Ex Ante Gross Savings (Therms)	Verified Gross RR*	Verified Gross Savings (Therms	NTG†	Verified Net Savings (Therms)
Private						
	Prescriptive/PTA-DAC	22,240	100%	22,240	1.00	22,240
	Prescriptive/PTA	195,461	99%	193,158	0.93	179,637
	CFS	5,997	100%	5,988	0.80	4,790
Private Subtotal		**222,141**	**99%**	**213,387**	**0.93**	**206,668**
Public Subtotal		**0**		**0**		**0**
Total or Weighted Average		**223,698**	**99%**	**221,387**		**206,668**

* Realization Rate (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/evaluator-ntg-recommendations-for-2023/. Projects in disadvantaged communities designated sites have a NTG of 1.0.
Source: North Shore Gas tracking data and Guidehouse evaluation team analysis.

4. Program Savings by Measure

The PGL program includes 43 measures, as shown in Table 4-1. The steam traps, pipe insulation, and boiler tune-up measures contributed the most savings.

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

Program Category	Program Path	Savings Category	Ex Ante Gross Savings (Therms)	Verified Gross RR*	Verified Gross Savings (Therms)	NTG†	Verified Net Savings (Therms)
Private	Prescriptive/PTA-DAC	Boiler - Steam >=1500MBH, >=82% TE	1,239	100%	1,239	1.00	1,239
	Prescriptive/PTA-DAC	Boiler Tune Up (COM)	4,043	68%	2,754	1.00	2,754
	Prescriptive/PTA-DAC	Energy Star Fryer	2,050	100%	2,050	1.00	2,050
	Prescriptive/PTA-DAC	High Speed Washer - Laundromat	4,881	100%	4,881	1.00	4,881
	Prescriptive/PTA-DAC	Ozone Laundry	16,560	100%	16,560	1.00	16,560
	Prescriptive/PTA-DAC	Steam Traps - Dry Cleaner Rep. - Audit	81,650	100%	81,650	1.00	81,650
	Prescriptive/PTA-DAC	Steam Traps - HVAC Repair/Rep - Audit	17,160	100%	17,160	1.00	17,160
	Prescriptive/PTA	Boiler Tune Up - Process	7,932	100%	7,932	0.93	7,377
	Prescriptive/PTA	Boiler Tune Up (COM)	97,899	91%	89,505	0.93	83,240
	Prescriptive/PTA	Dock Door Seals	470	100%	470	0.93	437
	Prescriptive/PTA	Draft Controls, > 2,000 MBH -retrofit only	2,788	100%	2,788	0.93	2,592
	Prescriptive/PTA	Energy Star Fryer	512	100%	512	0.93	477
	Prescriptive/PTA	High Speed Washer - Laundromat	5,132	100%	5,132	0.93	4,773
	Prescriptive/PTA	Hotel Low Flow Aerator/Restrictor	1,170	100%	1,170	0.93	1,088
	Prescriptive/PTA	Hotel Low Showerhead/ Restrictor	5,004	100%	5,004	0.93	4,654
	Prescriptive/PTA	Linkageless Controls -for New Burners	26,240	100%	26,240	0.93	24,403
	Prescriptive/PTA	Pipe Insulation - Steam Med 2.1" to 5"	4,164	100%	4,164	0.93	3,872
	Prescriptive/PTA	Pipe Insulation - Steam Small 1" to 2"	1,223	100%	1,223	0.93	1,138
	Prescriptive/PTA	Steam Traps - Dry Cleaner Rep. - Audit	88,130	100%	88,130	0.93	81,961
	Prescriptive/PTA	Steam Traps - HVAC Repair/Rep - Audit	698,368	101%	705,134	0.93	655,774
	Prescriptive/PTA	Steam Traps - HVAC Repair/Rep - No Audit	4,212	102%	4,283	0.93	3,984
	Prescriptive/PTA	Steam Traps - Industrial/Process Audit - 125 <= psig < 175	14,669	100%	14,669	0.93	13,643

Program Category	Program Path	Savings Category	Ex Ante Gross Savings (Therms)	Verified Gross RR*	Verified Gross Savings (Therms)	NTG†	Verified Net Savings (Therms)
	Prescriptive/PTA	Steam Traps - Industrial/Process Audit - 15 < psig < 30	758	102%	776	0.93	722
	Prescriptive/PTA	Steam Traps - Industrial/Process Audit - 75 <= psig < 125	99,821	101%	100,489	0.93	93,455
	Prescriptive/PTA	Steam Traps - Industrial/Process Audit - psig <= 15	107,423	100%	107,428	0.93	99,908
	Prescriptive/PTA	Tankless Water Heater 0.90 UEF	331	95%	315	1.00	315
	Prescriptive/PTA	Thermostat - Smart (COM)	471	90%	422	0.97	410
	CFS-DAC	Convection Oven	401	104%	419	1.00	419
	CFS-DAC	Fryer Standard Open Deep-Vat Fryer (French Fryer)	2,541	101%	2,562	1.00	2,562
	CFS	Automatic Conveyer Broiler Commercial > 26" Conveyor Width	2,976	132%	3,917	0.80	3,134
	CFS	Combination Oven Gas - <15 Pans	4,803	109%	5,213	0.80	4,170
	CFS	Combination Oven Gas - 15-30 Pans	1,085	85%	925	0.80	740
	CFS	Commercial Steam Cooker	3,008	100%	2,997	0.80	2,398
	CFS	Convection Oven	1,972	85%	1,675	0.80	1,340
	CFS	Dishwasher High Temp - Stationary Single Tank Door-Gas Bldg-Elec Boost	294	100%	294	0.80	235
	CFS	Dishwasher Low Temp - Multi Tank Conveyor - Gas Bldg - Elec Boost	1,022	77%	786	0.80	629
	CFS	Double Rack Oven	4,324	89%	3,861	0.80	3,089
	CFS	Fryer Large Vat Open Deep-Vat Fryer	1,146	73%	841	0.80	673
	CFS	Fryer Standard Open Deep-Vat Fryer (French Fryer)	38,808	77%	29,723	0.80	23,778
	CFS	Pasta Cooker	2,760	100%	2,760	0.80	2,208
Public	Prescriptive/PTA	Boiler Tune Up (COM)	7,926	100%	7,926	0.93	7,371
	Prescriptive/PTA	Steam Traps - HVAC Repair/Rep - Audit	283,913	100%	283,925	0.93	264,051
	Prescriptive/PTA	Thermostat - Smart (COM)	785	87%	684	0.97	663
Total or Weighted Average			**1,652,063**	**99%**	**1,640,588**		**1,527,973**

* Realization Rate (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 website: https://www.ilsag.info/evaluator-ntg-recommendations-for-2023/. Projects in disadvantaged communities designated sites have a NTG of 1.0.
Source: Peoples Gas tracking data and Guidehouse evaluation team analysis.

The NSG program includes 22 measures as shown in Table 4-2. The steam traps and boiler replacement measures contributed the most savings.

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

Program Category	Program Path	Savings Category	Ex Ante Gross Savings (Therms)	Verified Gross RR*	Verified Gross Savings (Therms)	NTG†	Verified Net Savings (Therms)
Private	Prescriptive/PTA-DAC	Boiler - HW 300-2500MBtu, >88% TE	1,504	100%	1,504	1.00	1,504
	Prescriptive/PTA-DAC	Steam Traps - Dry Cleaner Rep. - Audit	20,736	100%	20,736	1.00	20,736
	Prescriptive/PTA	Boiler - HW 300-2500MBtu, >88% TE	10,760	79%	8,513	0.93	7,917
	Prescriptive/PTA	Boiler Tune Up - Process	1,289	100%	1,289	0.93	1,198
	Prescriptive/PTA	Boiler Tune Up (COM)	3,739	100%	3,739	0.93	3,478
	Prescriptive/PTA	Condensate tank Insulation (LP space heating)	309	100%	309	0.93	288
	Prescriptive/PTA	Furnace > 95% AFUE (COM)	1,461	96%	1,396	0.93	1,298
	Prescriptive/PTA	Linkageless controls -for new burners	3,867	100%	3,867	0.93	3,597
	Prescriptive/PTA	Pipe Insulation - DHW Small <1.25"	94	130%	122	0.93	113
	Prescriptive/PTA	Pipe Insulation - HW Medium 2.1" to 4"	2,441	100%	2,441	0.93	2,270
	Prescriptive/PTA	Pipe Insulation - HW Small 1" to 2"	3,175	100%	3,175	0.93	2,952
	Prescriptive/PTA	Pipe Insulation - Steam Med 2.1" to 5"	3,587	100%	3,587	0.93	3,336
	Prescriptive/PTA	Pipe Insulation - Steam Med Fitting	857	100%	857	0.93	797
	Prescriptive/PTA	Pipe Insulation - Steam Small 1" to 2"	3,268	100%	3,268	0.93	3,040
	Prescriptive/PTA	Stack Economizer (Conventional)	10,628	100%	10,609	0.93	9,866
	Prescriptive/PTA	Steam Traps - Dry Cleaner Rep. - Audit	130,899	100%	130,899	0.93	121,736
	Prescriptive/PTA	Steam Traps - HVAC Repair/Rep - Audit	18,720	100%	18,720	0.93	17,410
	Prescriptive/PTA	Water Heater 95% TE - Laundromat	367	100%	367	0.93	341
	CFS	Combination Oven Gas - <15 Pans	940	92%	869	0.80	695
	CFS	Convection Oven	147	143%	209	0.80	167
	CFS	Fryer Standard Open Deep-Vat Fryer (French Fryer)	4,613	100%	4,612	0.80	3,690
	CFS	Griddle Dual	298	100%	298	0.80	238
Public			0		0		0
Total or Weighted Average			**223,698**	**99%**	**221,387**		**206,668**

* Realization Rate (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/evaluator-ntg-recommendations-for-2023/. Projects in disadvantaged communities designated sites have a NTG of 1.0.
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 the evaluation team'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 a discussion of all measures with realization rates above or below 100 percent. 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)	RR	Data Source(s)
Automatic Conveyer Broiler Commercial > 26" Conveyor Width	Each	2,976.18	3,917.27	132%	Illinois TRM v11.0, Section 4.2.22
Boiler - HW 300-2500MBtu, >88% TE	MBH	1.53	1.26	82%	Illinois TRM v11.0, Section 4.4.10
Boiler - Steam >=1500MBH, >=82% TE	MBH	0.38	0.38	100%	Illinois TRM v11.0, Section 4.4.10
Boiler Tune Up - Process	MBH	1.02	1.02	100%	Illinois TRM v11.0, Section 4.4.3
Boiler Tune Up (COM)	MBH	Varies	Varies	91%	Illinois TRM v11.0, Section 4.4.3
Combination Oven Gas - <15 Pans	Each	410.15	434.41	106%	Illinois TRM v11.0, Section 4.2.1
Combination Oven Gas - 15-30 Pans	Each	542.61	462.65	85%	Illinois TRM v11.0, Section 4.2.1
Commercial Steam Cooker	Each	1,503.88	1,498.69	100%	Illinois TRM v11.0, Section 4.2.3
Condensate tank Insulation (LP space heating)	SQ FT	6.18	6.18	100%	SMB Tracking Data
Convection Oven	Each	229.02	209.35	91%	Illinois TRM v11.0, Section 4.2.5
Dishwasher High Temp - Stationary Single Tank Door-Gas Bldg-Elec Boost	Each	294.00	293.51	100%	Illinois TRM v11.0, Section 4.2.6
Dishwasher Low Temp - Multi Tank Conveyor - Gas Bldg - Elec Boost	Each	1,022.06	786.20	77%	Illinois TRM v11.0, Section 4.2.6
Dock Door Seals	Each	234.95	234.95	100%	Illinois TRM v11.0, Section 4.8.29
Double Rack Oven	Double Oven	2,162.16	1,930.50	89%	Illinois TRM v11.0, Section 4.2.18
Draft Controls, > 2,000 MBH - retrofit only	MBH	0.16	0.16	100%	Illinois TRM v11.0, Section 4.4.21
Energy Star Fryer	Each	483.80	512.46	106%	Illinois TRM v11.0, Section 4.2.7
Fryer Large Vat Open Deep-Vat Fryer	Each	572.86	420.58	73%	Illinois TRM v11.0, Section 4.2.7

Measure	Unit Basis	Ex Ante Gross (therms/unit)	Verified Gross (therms/unit)	RR	Data Source(s)
Fryer Standard Open Deep-Vat Fryer (French Fryer)	Each	638.36	512.46	80%	Illinois TRM v11.0, Section 4.2.7
Furnace > 95% AFUE (COM)	Each	243.55	232.59	96%	Illinois TRM v11.0, Section 4.4.11
Griddle Dual	Each	149.00	148.89	100%	Illinois TRM v11.0, Section 4.2.8
High Speed Washer - Laundromat	lb-capacity	2.69	2.79	104%	Illinois TRM v11.0, Section 4.8.5
Hotel Low Flow Aerator/Restrictor	Each	2.51	2.51	100%	Illinois TRM v11.0, Section 4.8.5
Hotel Low Showerhead/Restrictor	Each	21.48	21.48	100%	Illinois TRM v11.0, Section 4.3.3
Linkageless controls -for new burners	MBH	0.58	0.58	100%	Illinois TRM v11.0, Section 4.4.21
Ozone Laundry	lb-capacity	12.40	12.40	108%	Illinois TRM v11.0, Section 4.3.6
Pasta Cooker	Each	1,380.00	1,380.00	100%	Illinois TRM v11.0, Section 4.2.17
Pipe Insulation - DHW Small <1.25"	LN FT	1.88	2.44	130%	Illinois TRM v11.0, Section 4.4.14
Pipe Insulation - HW Medium 2.1" to 4"	LN FT	5.68	5.68	100%	Illinois TRM v11.0, Section 4.4.14
Pipe Insulation - HW Small 1" to 2"	LN FT	2.66	2.66	100%	Illinois TRM v11.0, Section 4.4.14
Pipe Insulation - Steam Med 2.1" to 5"	LN FT	12.81	12.81	100%	Illinois TRM v11.0, Section 4.4.14
Pipe Insulation - Steam Med Fitting	LN FT	16.17	16.17	100%	Illinois TRM v11.0, Section 4.4.14
Pipe Insulation - Steam Small 1" to 2"	LN FT	3.19	3.19	100%	Illinois TRM v11.0, Section 4.4.14
Stack Economizer (Conventional)	MBH	1.06	1.06	100%	Illinois TRM v11.0, Section 4.4.29
Steam Traps - Dry Cleaner Rep. - Audit	Each	633.56	648.01	102%	Illinois TRM v11.0, Section 4.4.16
Steam Traps - HVAC Repair/Rep - Audit	Each	773.94	780.01	101%	Illinois TRM v11.0, Section 4.4.16
Steam Traps - HVAC Repair/Rep - No Audit	Each	210.60	214.17	102%	Illinois TRM v11.0, Section 4.4.16
Steam Traps - Industrial/Process Audit - 125 <= psig < 175	Each	7,334.75	7,334.75	100%	Illinois TRM v11.0, Section 4.4.16
Steam Traps - Industrial/Process Audit - 15 < psig < 30	Each	758.17	776.25	102%	Illinois TRM v11.0, Section 4.4.16
Steam Traps - Industrial/Process Audit - 75 <= psig < 125	Each	5,253.73	5,288.90	101%	Illinois TRM v11.0, Section 4.4.16
Steam Traps - Industrial/Process Audit - psig <= 15	Each	1,603.33	1,603.40	100%	Illinois TRM v11.0, Section 4.4.16
Tankless Water Heater 0.90 UEF	Each	0.83	0.79	95%	Illinois TRM v11.0, Section 4.3.1
Thermostat – Smart (COM)	Each	157.01	138.22	88%	Illinois TRM v11.0, Section 4.4.48

Measure	Unit Basis	Ex Ante Gross (therms/unit)	Verified Gross (therms/unit)	RR	Data Source(s)
Water Heater 95% TE-Laundromat	MBH	1.84	1.84	100%	Illinois TRM v11, Section 4.3.1

* 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.ilsag.info/technical-reference-manual.html**.
‡ Project files and monthly billing data provided by Peoples Gas and North Shore Gas. When conducted, on-site and telephone interview data collected by Guidehouse.

5.2 Findings and Recommendations

Finding 1. The evaluation team calculated gross realization rate of 91% for Boiler Tune-up (COM) measure. The evaluation relied on building type equivalent full load hours (EFLH) and climate zone information provided in the tracking data and the TRM v11 to calculate verified savings. Some building types provided in the tracking data did not use accurate assumptions. In particular, it was noted that non-Manufacturing ex ante values were used for listed Manufacturing properties for projects WO-4298188 (two locations) and WO-5293261, which have realization rates of 60% and 65%. Also, non-"Other" ex ante values were used for listed "Other" properties for project WO-4301552 (three locations), which have realization rates of 112% . Finally, several non-Office ex ante values were applied for listed Office properties. In particular, projects WO-4297144 (three locations), WO-4297220 (two locations), WO-4301533 and WO-5179651 (two locations) have realization rates of 87%. Project WO-4750180 (four locations) have realization rates of 144%.

> **Recommendation 1.** Ensure the program tracking data map the appropriate building type assumptions from the TRM for Boiler Tune-up savings.

Finding 2. For the Thermostat – Smart (COM) measure completed under the NSG program, the evaluation team calculated a gross realization rate of 90% using IL TRM v11 default values for the private sector and 87% for the public sector. The evaluation relied on the building type information in the tracking data and the TRM to establish the verified savings. It appears the ex ante savings used incorrect building type assumptions. The evaluation team noted that "Non-Profit" ex ante values were used for listed Church and Office properties for projects WO-4704630 (realization rate of 90%) and WO-5506561 (realization rate of 87%).

> **Recommendation 2.** Ensure the program tracking data inputs are used adequately to calculate savings for Smart Thermostats.

Finding 3. For the Boiler – HW 300-2500 MBH, >88% TE and the Furnace > 95% AFUE measure completed under the NSG program, the evaluation team calculated a gross realization rate of 79% and 96% respectively based on the inputs provided in the tracking data. In particular, non-Manufacturing ex ante values were applied for listed Manufacturing properties for projects WO-5345046 (realization rate of 69%) and WO-5352112 (two locations, realization rate of 60%).

Recommendation 3. Ensure the program tracking data inputs are used adequately to calculate savings for boilers and furnaces, and other measures when inputs are provided in the tracking data instead of using the MMDB average assumptions.

Finding 4. For the NSG measure Pipe Insulation – DHW Small <1.25", the evaluator calculated a gross realization rate of 130%. The verified energy savings was 2.44 therms/ft compare to the ex ante 1.88 therms/ft. The ex ante value was hardcoded so evaluation could not identify the source of the difference. .

Recommendation 4. The program should review the savings inputs for DHW pipe insulation and apply the IL TRM default or actual values appropriately to determine ex ante energy savings.

Finding 5. CFS projects completed under both the PGL and NSG programs had a combined realization rate of 87%. CFS projects completed under the PGL program had a realization rate of 86%. CFS projects completed under the NSG program had a gross realization rate of 100%. The measures had varying gross realization rates. In all cases, the program tracking data presented for evaluation did not include the manufacturer or model number of the equipment to effectively use the Energy Star Qualified Product List to capture key equipment data inputs for the energy efficient case calculation (e.g., idle energy, preheat energy, and cooking energy). Also, the program data did not provide baseline equipment information to allow calculation of baseline energy performance. Therefore, Guidehouse used the IL TRM v11 default values for both the baseline case and energy efficient case to calculate verified energy savings.

Recommendation 5. The program tracking data should be updated to provide all required information for verifying the ex ante savings. It is important that manufacturer information, including product model numbers, be provided all equipment. Also, equipment installed under the CFS program should be listed on the current Energy Star Qualified Product List. Any custom data inputs used to estimate ex ante savings that are different from Energy Star QPL values should be noted and explained.

Appendix A. Impact Analysis Methodology

Guidehouse calculated the verified gross savings for each measure type by conducting a review of the tracking data and applying the algorithms of the IL-TRM v11.[1] The evaluation team checked that the provided savings inputs from the tracking data matched the TRM and that custom inputs were properly used. Then, the tracking data and custom values used for the verified savings were adjusted from the tracking data, as necessary. The savings algorithms were applied to determine the verified savings of each measure. Verified gross realization rates are calculated by dividing the verified savings by the ex ante gross savings.

For measures in the CFS path, Guidehouse performed an additional tracking data verification step. For measures defined in the IL-TRM v11 as needing to be under ENERGY STAR certification, the evaluation team compared their efficient ENERGY STAR tracking data values to the ENERGY STAR QPLs[2] by manufacturer and model number; the team then updated tracking data values when these two documents disagreed. The evaluation team performed supplemental research for specification sheets for measures that did not need to be under ENERGY STAR certification as defined in the IL-TRM v10. This approach aligns with the process taken for the ComEd and Nicor Gas evaluations. Details of evaluation findings are provided in Appendix B.

The 2023 program did not have completed projects in the Custom path.

The evaluation team calculated verified net savings by multiplying the verified gross savings estimates by a NTGR deemed by a consensus process through the SAG.[3] Economically disadvantaged areas (DAC) were identified by census track and evaluation used a NTG of 1.00 for DAC projects' verified savings, based on Illinois Policy Manual 3.0.[4]

[1] Available on the Illinois Stakeholder Advisory Group website: https://www.ilsag.info/technical-reference-manual/il-statewide-technical-reference-manual-version-11-0/

[2] Found on the ENERGY STAR website: https://www.energystar.gov/products/commercial_food_service_equipment

[3] Available on the Illinois Stakeholder Advisory Group website https://www.ilsag.info/evaluator-ntg-recommendations-for-2023/.

[4] **https://www.ilsag.info/wp-content/uploads/IL_EE_Policy_Manual_Version_3.0_Final_11-3-2023**.

[5] Available on the Illinois Stakeholder Advisory Group website: https://www.ilsag.info/technical-reference-manual/il-statewide-technical-reference-manual-version-11-0/

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 Category	Program Path	Savings Category	Units	Quantity	Effective Useful Life	Ex Ante Gross Savings (Therms)	Verified Gross Savings (Therms)	Verified Net Savings (Therms)
Private	Prescriptive/PTA -DAC	Boiler - Steam >=1500MBH, >=82% TE	MBH	3,220	25	1,239	1,239	1,239
	Prescriptive/PTA -DAC	Boiler Tune Up (COM)	MBH	8,537	2	4,043	2,754	2,754
	Prescriptive/PTA -DAC	Energy Star Fryer	Each	4	12	2,050	2,050	2,050
	Prescriptive/PTA -DAC	High Speed Washer - Laundromat	lb-capacity	1,750	7	4,881	4,881	4,881
	Prescriptive/PTA -DAC	Ozone Laundry	lb-capacity	1,335	10	16,560	16,560	16,560
	Prescriptive/PTA -DAC	Steam Traps - Dry Cleaner Rep. - Audit	Each	126	6	81,650	81,650	81,650
	Prescriptive/PTA -DAC	Steam Traps - HVAC Repair/Rep - Audit	Each	22	6	17,160	17,160	17,160
	Prescriptive/PTA	Boiler Tune Up - Process	MBH	7,756	2	7,932	7,932	7,377
	Prescriptive/PTA	Boiler Tune Up (COM)	MBH	215,304	2	97,899	89,505	83,240
	Prescriptive/PTA	Dock Door Seals	Each	2	15	470	470	437
	Prescriptive/PTA	Draft Controls, > 2,000 MBH -retrofit only	MBH	17,060	20	2,788	2,788	2,592
	Prescriptive/PTA	Energy Star Fryer	Each	1	12	512	512	477
	Prescriptive/PTA	High Speed Washer - Laundromat	lb-capacity	1,840	7	5,132	5,132	4,773
	Prescriptive/PTA	Hotel Low Flow Aerator/Restrictor	Each	466	10	1,170	1,170	1,088
	Prescriptive/PTA	Hotel Low Showerhead/Restrictor	Each	233	10	5,004	5,004	4,654
	Prescriptive/PTA	Linkageless controls -for new burners	MBH	42,260	20	26,240	26,240	24,403
	Prescriptive/PTA	Pipe Insulation - Steam Med 2.1" to 5"	LN FT	325	15	4,164	4,164	3,872

Program Category	Program Path	Savings Category	Units	Quantity	Effective Useful Life	Ex Ante Gross Savings (Therms)	Verified Gross Savings (Therms)	Verified Net Savings (Therms)
	Prescriptive/PTA	Pipe Insulation - Steam Small 1" to 2"	LN FT	384	15	1,223	1,223	1,138
	Prescriptive/PTA	Steam Traps - Dry Cleaner Rep. - Audit	Each	136	6	88,130	88,130	81,961
	Prescriptive/PTA	Steam Traps - HVAC Repair/Rep - Audit	Each	904	6	698,368	705,134	655,774
	Prescriptive/PTA	Steam Traps - HVAC Repair/Rep - No Audit	Each	20	6	4,212	4,283	3,984
	Prescriptive/PTA	Steam Traps - Industrial/Process Audit - 125 <= psig < 175	Each	2	6	14,669	14,669	13,643
	Prescriptive/PTA	Steam Traps - Industrial/Process Audit - 15 < psig < 30	Each	1	6	758	776	722
	Prescriptive/PTA	Steam Traps - Industrial/Process Audit - 75 <= psig < 125	Each	19	6	99,821	100,489	93,455
	Prescriptive/PTA	Steam Traps - Industrial/Process Audit - psig <= 15	Each	67	6	107,423	107,428	99,908
	Prescriptive/PTA	Tankless Water Heater 0.90 UEF	Each	398	20	331	315	315
	Prescriptive/PTA	Thermostat - Smart (COM)	Each	3	11	471	422	410
	CFS-DAC	Convection Oven	Each	2	12	401	419	419
	CFS-DAC	Fryer Standard Open Deep-Vat Fryer (French Fryer)	Each	5	12	2,541	2,562	2,562
	CFS	Automatic Conveyer Broiler Commercial > 26" Conveyor Width	Each	1	12	2,976	3,917	3,134
	CFS	Combination Oven Gas - <15 Pans	Each	12	12	4,803	5,213	4,170
	CFS	Combination Oven Gas - 15-30 Pans	Each	2	12	1,085	925	740
	CFS	Commercial Steam Cooker	Each	2	12	3,008	2,997	2,398
	CFS	Convection Oven	Each	8	12	1,972	1,675	1,340
	CFS	Dishwasher High Temp - Stationary Single Tank Door-Gas Bldg-Elec Boost	Each	1	15	294	294	235
	CFS	Dishwasher Low Temp - Multi Tank	Each	1	20	1,022	786	629

Program Category	Program Path	Savings Category	Units	Quantity	Effective Useful Life	Ex Ante Gross Savings (Therms)	Verified Gross Savings (Therms)	Verified Net Savings (Therms)
		Conveyor - Gas Bldg - Elec Boost						
	CFS	Double Rack Oven	Double Oven	2	12	4,324	3,861	3,089
	CFS	Fryer Large Vat Open Deep-Vat Fryer	Each	2	12	1,146	841	673
	CFS	Fryer Standard Open Deep-Vat Fryer (French Fryer)	Each	58	12	38,808	29,723	23,778
	CFS	Pasta Cooker	Each	2	12	2,760	2,760	2,208
Public	Prescriptive/PTA	Boiler Tune Up (COM)	MBH	16,738	2	7,926	7,926	7,371
	Prescriptive/PTA	Steam Traps - HVAC Repair/Rep - Audit	Each	364	6	283,913	283,925	264,051
	Prescriptive/PTA	Thermostat - Smart (COM)	Each	5	11	785	684	663
Total or Weighted Average					**9.2**	**1,652,063**	**1,640,588**	**1,527,973**

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

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

Program Category	Program Path	Savings Category	Units	Quantity	Effective Useful Life	Ex Ante Gross Savings (Therms)	Verified Gross Savings (Therms)	Verified Net Savings (Therms)
Private	Prescriptive/PTA-DAC	Boiler - HW 300-2500MBtu, >88% TE	MBH	1,000	25	1,504	1,504	1,504
	Prescriptive/PTA-DAC	Steam Traps - Dry Cleaner Rep. - Audit	Each	32	6	20,736	20,736	20,736
	Prescriptive/PTA	Boiler - HW 300-2500MBtu, >88% TE	MBH	6,950	25	10,760	8,513	7,917
	Prescriptive/PTA	Boiler Tune Up - Process	MBH	1,260	3	1,289	1,289	1,198
	Prescriptive/PTA	Boiler Tune Up (COM)	MBH	8,810	3	3,739	3,379	3,478
	Prescriptive/PTA	Condensate tank Insulation (LP space heating)	SQ FT	50	15	309	309	288
	Prescriptive/PTA	Furnace > 95% AFUE (COM)	Each	6	16.5	1,461	1,396	1,298
	Prescriptive/PTA	Linkageless controls - for new burners	MBH	10,047	16	3,867	3,867	3,597
	Prescriptive/PTA	Pipe Insulation - DHW Small <1.25"	LN FT	50	15	94	122	113
	Prescriptive/PTA	Pipe Insulation - HW Medium 2.1" to 4"	LN FT	430	15	2,441	2,441	2,270

Program Category	Program Path	Savings Category	Units	Quantity	Effective Useful Life	Ex Ante Gross Savings (Therms)	Verified Gross Savings (Therms)	Verified Net Savings (Therms)
	Prescriptive/PTA	Pipe Insulation - HW Small 1" to 2"	LN FT	1,194	15	3,175	3,175	2,952
	Prescriptive/PTA	Pipe Insulation - Steam Med 2.1" to 5"	LN FT	280	15	3,587	3,587	3,336
	Prescriptive/PTA	Pipe Insulation - Steam Med Fitting	LN FT	53	15	857	857	797
	Prescriptive/PTA	Pipe Insulation - Steam Small 1" to 2"	LN FT	1,026	15	3,268	3,268	3,040
	Prescriptive/PTA	Stack Economizer (Conventional)	MBH	10,047	15	10,628	10,609	9,866
	Prescriptive/PTA	Steam Traps - Dry Cleaner Rep. - Audit	Each	202	6	130,899	130,899	121,736
	Prescriptive/PTA	Steam Traps - HVAC Repair/Rep - Audit	Each	24	6	18,720	18,720	17,410
	Prescriptive/PTA	Water Heater 95% TE - Laundromat	MBH	200	15	367	367	341
	CFS	Combination Oven Gas - <15 Pans	Each	2	12	940	869	695
	CFS	Convection Oven	Each	1	12	147	209	167
	CFS	Fryer Standard Open Deep-Vat Fryer (French Fryer)	Each	9	12	4,613	4,612	3,690
	CFS	Griddle Dual	Each	2	12	298	298	238
Total or Weighted Average					**6.8**	**223,698**	**221,387**	**206,668**

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