



Small and Midsize Business Impact Evaluation Report

Energy Efficiency Plan Year 2020
(1/1/2020-12/31/2020)

Presented to

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) 2020 Small and Midsize Business (SMB) Program. It presents a summary of the energy impacts for the total program and broken out by relevant measure and program structure details. Appendix A presents the impact analysis methodology. Program year 2020 covers January 1, 2020 through December 31, 2020.

2. Program Description

The 2020 SMB Program is offered by Peoples Gas and North Shore Gas (PGL and NSG) with Franklin Energy Services (Franklin Energy) operating 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. In addition to the previous year small business restaurant kits, the 2020 direct install path included several new kits, including general kits, kits for motels, and kits for schools/grocery/hotel. The kits were distributed to each business with attached labels on all the kits, along with an informational letter for each kit, and installation instructions.

The PGL program had 380 participants in 2020 and completed 474 projects, as shown in Table 2-1.

Table 2-1. 2020 Volumetric Summary for PGL

Participation	Direct Install	Prescriptive	Custom	Total
Participants *	107	267	6	380
Installed Projects †	133	335	6	474
Measure Types Installed	2	23	5	30

* Participants are defined as unique number of project site addresses.

† Installed Projects are defined as the unique number of Project IDs.

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



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

Table 2-2. 2020 Measure Quantities for PGL

Program Path	Measure	Quantity Unit	Installed or Distributed* Quantity
Direct Install	Kit	Each	134
	Pre Rinse Sprayer	Each	1
Prescriptive	Boiler Tune Up - Process	MBH	92,741
	Boiler Tune Up - Space Heating	MBH	521,103
	DCV - Gas Heating	Square Feet	104,663
	DCV - Kitchen	HP	310
	DHW Storage Tank Insulation	Square Feet	78
	Direct Fired Heaters	MBH	1,350
	Dishwasher	Each	1
	Draft Controls	MBH	13,292
	Fryer	Each	15
	High Efficiency Boiler	MBH	31,496
	High Efficiency Furnace	Each	1
	High Speed Washer	lbs-capacity	5,695
	Infrared Heater	MBH	100
	Large Gas Water Heater	MBH	3,198
	Linkageless Controls	MBH	44,400
	Pipe Insulation	Linear Feet	6,370
	Prescriptive Change	Each	4,771
	Programmable Thermostat	Each	42
	Smart Thermostat	Each	71
	Steam Traps - Dry Cleaner	Each	496
	Steam Traps - HVAC Repair/Rep	Each	2,036
	Steam Traps - Industrial Rep	Each	60
	Water Heater	MBH	991
Custom	Boiler Combustion Controls	Each	1
	Space Conditioning Controls	Each	1
	HVAC - Controls	Each	1
	Process - Other	Each	2
	Other – Flow Limiters	Each	1

* Volume for kits is the quantity distributed.

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



The NSG program had 879 participants in 2020 and completed 990 projects, as shown in Table 2-3.

Table 2-3. 2020 Volumetric Summary for NSG

Participation	Direct Install	Prescriptive	Custom	Total
Participants*	857	86	2	879
Installed Projects †	868	120	2	990
Measure Types Installed	2	18	2	22

* Participants are defined as unique number of project site addresses. A project site may participate in multiple paths, so total count may not equal sum of the path counts.

† Installed Projects are defined as the unique number of Project IDs.

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

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

Table 2-4. 2020 Measure Quantities for NSG

Program Path	Measure	Quantity Unit	Installed or Distributed* Quantity
Direct Install	Kit	Each	868
	Pre Rinse Sprayer	Each	2
	Boiler Reset Controls	MBH	3,600
	Boiler Tune Up - Process	MBH	22,228
	Boiler Tune Up - Space Heating	MBH	29,081
	Condensate Tank Insulation	Square Feet	246
	DCV - Gas Heating	Square Feet	45,884
	DHW Storage Tank Insulation	Square Feet	201
	Dishwasher	Each	1
	Fryer	Each	8
Prescriptive	High Efficiency Furnace	Each	1
	Large Gas Water Heater	MBH	199
	Pipe Insulation	Linear Feet	2,380
	Prescriptive Change	Each	11,157
	Programmable Thermostat	Each	70
	Smart Thermostat	Each	11
	Steam Traps - Dry Cleaner	Each	323
	Steam Traps - HVAC Repair/Rep	Each	36
	Steam Traps - Industrial Rep	Each	7
	Steamer	Each	2
Custom	HVAC - DCV	Each	1
	Process - Boiler Combustion Controls	Each	1

* Volume for kits is the quantity distributed.

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



3. Savings Summary

Table 3-1. summarizes the energy savings the PGL program achieved by path in 2020.

Table 3-1. 2020 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)
Direct Install	14,222	100%	14,222	0.95	13,511
Prescriptive	1,684,185	100%	1,684,120	0.92	1,549,390
Custom	51,832	93%	48,434	0.92	44,559
Total or Weighted Average	1,750,239	100%	1,746,776	0.92	1,607,460

* 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/ntg_2020.

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

Table 3-2 summarizes the energy savings the NSG program achieved by path in 2020.

Table 3-2. 2020 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)
Direct Install	51,721	96%	49,403	0.95	46,933
Prescriptive	281,127	100%	281,085	0.92	258,599
Custom	21,306	100%	21,306	0.92	19,602
Total or Weighted Average	354,154	99%	351,794	0.92	325,134

* 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/ntg_2020.

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



4. Program Savings by Measure

The PGL program includes 30 measures, as shown in Table 4-1. The steam traps, boiler tune-up, and demand controlled ventilation (DCV) measures contributed the most savings.

Table 4-1. 2020 Annual Energy Savings by Measure for PGL

Program Path	Research Category	Ex Ante Gross Savings (Therms)	Verified Gross RR*	Verified Gross Savings (Therms)	NTG†	Verified Net Savings (Therms)	
Direct Install	Kit	14,048	100%	14,047	0.95	13,345	
	Pre Rinse Sprayer	175	100%	175	0.95	166	
	Boiler Tune Up - Process	94,847	100%	94,850	0.92	87,262	
	Boiler Tune Up - Space Heating	246,756	100%	246,766	0.92	227,025	
	DCV - Gas Heating	7,118	100%	7,117	0.92	6,548	
	DCV - Kitchen	239,553	100%	239,553	0.92	220,389	
	DHW Storage Tank Insulation	418	100%	418	0.92	384	
	Direct Fired Heaters	3,398	100%	3,398	0.92	3,126	
	Dishwasher	294	100%	294	0.92	270	
	Draft Controls	1,968	100%	1,969	0.92	1,811	
Prescriptive	Fryer	7,618	100%	7,618	0.92	7,009	
	High Efficiency Boiler	20,068	100%	20,068	0.92	18,463	
	High Efficiency Furnace	247	100%	247	0.92	227	
	High Speed Washer	26,477	100%	26,474	0.92	24,356	
	Infrared Heater	301	100%	301	0.92	277	
	Large Gas Water Heater	10,302	100%	10,301	0.92	9,477	
	Linkageless Controls	24,986	100%	24,987	0.92	22,988	
	Pipe Insulation	39,067	100%	38,945	0.92	35,830	
	Prescriptive Change	4,818	100%	4,818	0.92	4,433	
	Programmable Thermostat	6,690	100%	6,691	0.92	6,156	
	Smart Thermostat	11,087	100%	11,084	0.92	10,198	
	Steam Traps - Dry Cleaner	253,338	100%	253,363	0.92	233,094	
	Steam Traps - HVAC Repair/Rep	607,674	100%	607,698	0.92	559,082	
	Steam Traps - Industrial Rep	75,341	100%	75,338	0.92	69,311	
	Water Heater	1,820	100%	1,821	0.92	1,675	
	Custom	Boiler Combustion Controls	5,273	100%	5,273	0.92	4,851
		Space Conditioning Controls	8,410	96%	8,053	0.92	7,409



Program Path	Research Category	Ex Ante Gross Savings (Therms)	Verified Gross RR*	Verified Gross Savings (Therms)	NTG†	Verified Net Savings (Therms)
	HVAC - Controls	6,167	100%	6,184	0.92	5,689
	Process - Other	26,150	100%	26,150	0.92	24,058
	Other – Flow Limiters	5,831	48%	2,773	0.92	2,552
Total or Weighted Average		1,750,238	100%	1,746,776	0.92	1,607,460

* 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/ntg_2020.

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

The NSG program includes 22 measures as shown in the following table. The steam traps and kit measures contributed the most savings.

Table 4-2. 2020 Annual Energy Savings by Measure for NSG

Program Path	Research Category	Ex Ante Gross Savings (Therms)	Verified Gross RR*	Verified Gross Savings (Therms)	NTG†	Verified Net Savings (Therms)
Direct Install	Kit	51,372	95%	49,053	0.95	46,601
	Pre Rinse Sprayer	349	100%	349	0.95	332
	Boiler Reset Controls	4,833	100%	4,833	0.92	4,446
	Boiler Tune Up - Process	22,733	100%	22,733	0.92	20,915
	Boiler Tune Up - Space Heating	13,772	100%	13,771	0.92	12,669
	Condensate Tank Insulation	1,521	100%	1,520	0.92	1,399
	DCV - Gas Heating	3,120	100%	3,120	0.92	2,871
	DHW Storage Tank Insulation	1,076	100%	1,076	0.92	990
Prescriptive	Dishwasher	545	100%	546	0.92	502
	Fryer	4,063	100%	4,063	0.92	3,738
	High Efficiency Furnace	247	100%	247	0.92	227
	Large Gas Water Heater	641	100%	641	0.92	590
	Pipe Insulation	12,432	100%	12,381	0.92	11,391
	Prescriptive Change	11,157	100%	11,157	0.92	10,265
	Programmable Thermostat	11,154	100%	11,151	0.92	10,259
	Smart Thermostat	1,717	100%	1,717	0.92	1,580
	Steam Traps - Dry Cleaner	164,976	100%	164,992	0.92	151,793
	Steam Traps - HVAC Repair/Rep	11,794	100%	11,794	0.92	10,850



Program Path	Research Category	Ex Ante Gross Savings (Therms)	Verified Gross RR*	Verified Gross Savings (Therms)	NTG†	Verified Net Savings (Therms)
	Steam Traps - Industrial Rep	12,336	100%	12,334	0.92	11,347
	Steamer	3,009	100%	3,008	0.92	2,767
	HVAC - DCV	1,677	100%	1,677	0.92	1,543
Custom	Process - Boiler Combustion Controls	19,629	100%	19,629	0.92	18,059
Total or Weighted Average		354,154	99%	351,794	0.92	325,134

* 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/ntg_2020.

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 the table, we provide findings and recommendations, including discussion of all measures with realization rates above or below 100 percent. Appendix A provides a description of the impact analysis methodology. Appendix B provides the Total Resource Cost (TRC) cost-effectiveness analysis inputs available at the time of producing this impact evaluation report.

Table 5-1. Verified Gross Savings Parameters

Measure	Unit Basis	Ex Ante Gross (therms/unit)	Verified Gross (therms/unit)	Realization Rate	Data Source(s)
Boiler Reset Controls	MBH	1.34	1.34	100%	TRM v8.0, † Section 4.4.4
Boiler Tune Up - Process	MBH	1.02	1.02	100%	TRM v8.0, Section 4.4.3
Boiler Tune Up - Space Heating	MBH	0.47	0.47	100%	TRM v8.0, Section 4.4.2
Condensate Tank Insulation	Square Feet	6.18	6.18	100%	SMB Tracking Data*
DCV - Gas Heating	Square Feet	0.07	0.07	100%	TRM v8.0, Section 4.4.19
DCV - Kitchen	HP	777.9	774.00	100%	TRM v8.0, Section 4.2.16
DHW Storage Tank Insulation	Square Feet	5.36	5.35	100%	SMB Tracking Data
Direct Fired Heaters	MBH	2.52	2.52	100%	TRM v8.0, Section 4.2.6
Dishwasher	Each	420.84	420.00	100%	TRM v8.0, Section 4.4.40
Draft Controls	MBH	0.15	0.15	100%	TRM v8.0, Section 4.4.23
Fryer	Each	508.82	507.90	100%	TRM v8.0, Section 4.2.7
High Efficiency Boiler	MBH	0.69	0.69	100%	TRM v8.0, Section 4.4.10
High Efficiency Furnace	Each	247.58	247.09	100%	TRM v8.0, Section 4.4.11
High Speed Washer	lbs-capacity	4.65	4.65	100%	TRM v8.0, Section 4.8.5
Infrared Heater	MBH	3.01	3.01	100%	TRM v8.0, Section 4.4.12

Measure	Unit Basis	Ex Ante Gross (therms/unit)	Verified Gross (therms/unit)	Realization Rate	Data Source(s)
Other Kits (General, Motel, Grocery)	Each	Vary	Vary	95%	TRM v8.0, SMB Tracking Data, 2021 MMDB
Restaurant Kits	Each	104.83	104.83	100%	TRM v8.0, SMB Tracking Data, 2021 MMDB
Large Gas Water Heater	MBH	3.22	3.22	100%	TRM v8.0, Section 4.3.1
Linkageless Controls	MBH	0.56	0.56	100%	TRM v8.0, Section 4.4.21
Pipe Insulation	Linear Feet	14.98	14.95	100%	TRM v8.0, Section 4.4.14
Pre Rinse Sprayer	Each	174.65	174.65	100%	TRM v8.0, Section 4.2.11
Prescriptive Change	Each	1.01	1.01	100%	SMB Tracking Data
Programmable Thermostat	Each	159.6	159.31	100%	TRM v8.0, Section 4.4.48
Smart Thermostat	Each	156.43	156.12	100%	TRM v8.0, Section 4.4.48
Steam Traps - Dry Cleaner	Each	511.83	510.81	100%	TRM v8.0, Section 4.4.16
Steam Traps - HVAC Repair/Rep	Each	321.87	321.23	100%	TRM v8.0, Section 4.4.16
Steam Traps - Industrial Rep	Each	1,647.07	1,643.78	100%	TRM v8.0, Section 4.4.16
Steamer	Each	1,504.35	1,503.88	100%	TRM v8.0, Section 4.2.3
Water Heater	MBH	1.84	1.84	100%	TRM v8.0, Section 4.3.5
Custom Measures	Each	Vary	Vary	95%	Project File Review, Monthly Billing Data, Phone Interview‡

* SMB Program Tracking Data (PTD) provided by Peoples Gas and North Shore Gas, extract dated February 1, 2021.

† State of Illinois Technical Reference Manual version 8.0 from <http://www.ilsag.info/technical-reference-manual.html>.

‡ Project files and monthly billing data provided by Peoples Gas and North Shore Gas, including telephone interview data collected by Guidehouse.

5.1.1 Small Business Kits

North Shore Gas distributed new small business kits for the 2020 program year. These include general kits, kits for motels, and kits for schools/grocery/hotel. The savings for the kits by building type are not in the 2020 MMDB. Guidehouse used the 2021 MMDB and TRM v8.0 to analyze the savings. The verified per unit savings match up with the per unit savings in the 2021 MMDB, but do not align with the tracking data numbers.



Table 5-2. Per Unit Savings for Kit Types

Measure Name	Ex Ante Gross Therms Per Unit	Verified Gross Therms Per Unit	2021 MMDB Therms Per Unit	Realization Rate
Small Business Kit	104.8	104.8	104.8	100%
Kit - General	47.6	45.2	45.2	95%
Kit - School/Hotel/Grocery	114.1	108.2	108.2	95%
Kit - Motel	140.8	134.5	134.5	96%

Source: PGL and NSG tracking data and Guidehouse team analysis.

Recommendation 1. Review the savings values in the tracking data and align with the calculated values in the MMDB.

5.1.2 Kits Net-to-Gross Ratio

The ex ante net savings in the tracking data used a net-to-gross (NTG) of 0.92. Since the Kit consists of direct install measures, implemented as self-installation due to COVID restrictions, Guidehouse used the deemed NTG for Assessment/Direct Install of 0.95 to calculate the verified net savings. The measure has a 100% verified gross realization rate, but the verified net savings is higher than the tracked savings.

Recommendation 2. Update the ex ante net savings in the tracking data to use the deemed direct install NTG of 0.95 to calculate the net savings for all the kits.

5.2 Custom Findings and Recommendations

Table 5-3 summarizes the results of evaluation verification of custom projects from 2020. Evaluation project reviews were conducted for two sampling waves during 2020, and in one final sample drawn from end of year final data. Key findings and recommendations follow the table.

**Table 5-3. Summary of Custom Project M&V Results**

Project ID	Utility	Measure Description	Gross Realization Rate	Evaluation Wave	Summary of Adjustments
4203789	PGL	Boiler Combustion Controls	100%	1	NA
5624012	PGL	Space Conditioning Controls	95.8%	1	Updated hours and temperature setpoint
4709408	PGL	HVAC - Controls	100%	2	NA
4992454	PGL	Process - Other	100%	2	NA
5952014	NSG	HVAC - DCV	100%	2	NA
5849441	NSG	Process - Boiler Combustion Controls	100%	Final Data	NA
5990570	PGL	Other – Flow Limiters	47.6%	Final Data	Updated showers per day value
6036017	PGL	Process - Other	100%	Final Data	NA

Source: PGL and NSG tracking data and Guidehouse team analysis.

5.2.1 Project 5624012 – Space Conditioning Controls

This project involves replacing zone valves to reduce overheating. The project description in the savings calculation states, “To verify the space temperature, a post inspection task has been created for a later date.” While the post-inspection for this project did include pictures of the installed equipment, it did not confirm this detail. Guidehouse contacted the customer and confirmed the temperature setpoint and occupied hours in the savings calculation. The adjusted values result in a realization rate of 96%.

Recommendation 3. Guidehouse recommends that post-inspections confirm calculation inputs as well as equipment installation.

5.2.2 Project 5990570 – Flow Limiters

This project installed flow limiters to the showerheads in guest rooms at a hotel. The evaluation team found that the implementer’s assessment of total water used was based on non-TRM sources of total sink and shower water consumption. Although this was hotel specific information, the primary source¹ calculated daily usage (gallons per day) from a 13-minute logged shower duration and existing showerhead flow rates (3.5 gallons per minute). Guidehouse accepted the logged shower duration but not the flow rate. The 3.5-gpm showerhead value is based on a 2002 report and does not reflect the current showerhead stock. Guidehouse calculated the verified shower water usage using a shower length of 13 minutes, a baseline showerhead flow rate of 2.23 gpm (custom input), and TRM default values for the remainder of the algorithm inputs. Also, the evaluation team concluded that the ex ante assumption of 2 showers/person/day is not justified or provided in the reference supporting documents. The verified savings relied on the TRM v8.0 residential average of 0.6 which with 1.5 guests/room produces 0.9 showers/person/day.

¹ “Hotel Water Conservation: A Seattle Demonstration” Seattle Public Utilities. July 2002.



Recommendation 4. The evaluation team recommends that the supporting references for custom assumptions be provided and explained in the calculation file. This particular assumption was based on two pieces of information (shower length and flow rate) one which reasonably applies to this project (13 minute shower length) and another that does not (3.5 gpm). Providing written explanation of these assumptions and inputs would facilitate quality control reviews, both internally and externally.

5.3 Historical Realization Rates and Net-to-Gross (NTG) Values

Table 5-4 shows the historical gross realization rates and NTG values for the Small Business Program. Beginning in GPY4 (20xx), the NTG values shown are a savings weighted average from the various measures and deemed NTGs that vary by measure and program path.

Table 5-4. Historical Realization Rates and NTG Values

Program Year	PGL Verified Gross RR	NSG Verified Gross RR	PGL NTG	NSG NTG
GPY1 (2011-12)	99%	99%	0.99	0.99
GPY2 (2012-13)	102%	102%	0.99	0.99
GPY3 (2013-14)	100%	102%	0.99	0.99
GPY4 (2014-15)	106%	102%	0.94	0.99
GPY5 (2015-16)	98%	100%	0.93	0.93
GPY6 (2016-2017)	112%	153%	0.93	0.93
2018	101%	100%	0.82	0.92
2019	100%	100%	0.92	0.93
2020	100%	99%	0.92	0.92

Source: Guidehouse evaluation research.



Appendix A. Impact Analysis Methodology

Guidehouse determined verified gross savings for each program measure by:

1. Reviewing the savings algorithm inputs in the 2020 MMDB and 2021 MMDB, wherever necessary, for agreement with TRM v8.0² or evaluation research for non-deemed measures.
2. Validating that the savings algorithm was applied correctly.
3. Cross-checking per-unit savings values in the tracking data with the verified values in the measure workbook, or in Guidehouse's calculations if the workbook did not agree with the TRM.
4. Multiplying the verified per-unit savings value by the quantity reported in the tracking data.
5. Conducting engineering file review of a sample of custom projects.

Engineering Review of Project Files

For each selected custom project, an in-depth application review is performed to assess the engineering methods, parameters and assumptions used to generate all ex ante impact estimates. For each measure in the sampled project, engineers estimated verified gross savings based on their review of documentation and engineering analysis.

To support this review, the implementation contractor provided project documentation in electronic format for each sampled project. Documentation included some or all scanned files of hardcopy application forms and supporting documentation from the applicant (invoices, measure specification sheets, and vendor proposals), pre-inspection reports and photos, post inspection reports and photos, and calculation spreadsheets.

² Because the Illinois TRM provides multiple options for selecting input assumptions, Franklin Energy produces a "Master Measure Database" spreadsheet that documents their approach to compliance with the Illinois TRM.



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. 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 – PGL

Program Path	Research Category	Units	Quantity	Effective Useful Life	Ex Ante Gross Savings (Therms)	Verified Gross Savings (Therms)	Verified Net Savings (Therms)
Direct Install	Kit	Each	134	5.0	14,048	14,047	13,345
	Pre Rinse Sprayer	Each	1	5.0	175	175	166
Prescriptive	Boiler Tune Up - Process	MBH	92,741	3.0	94,847	94,850	87,262
	Boiler Tune Up - Space Heating	MBH	521,103	3.0	246,756	246,766	227,025
	DCV - Gas Heating	Square Feet	104,663	10.0	7,118	7,117	6,548
	DCV - Kitchen	HP	310	15.0	239,553	239,553	220,389
	DHW Storage Tank Insulation	Square Feet	78	15.0	418	418	384
	Direct Fired Heaters	MBH	1,350	15.0	3,398	3,398	3,126
	Dishwasher	Each	1	20.0	294	294	270
	Draft Controls	MBH	13,292	16.0	1,968	1,969	1,811
	Fryer	Each	15	15.0	7,618	7,618	7,009
	High Efficiency Boiler	MBH	31,496	25.0	20,068	20,068	18,463
	High Efficiency Furnace	Each	1	16.5	247	247	227
	High Speed Washer	lbs-capacity	5,695	7.0	26,477	26,474	24,356
	Infrared Heater	MBH	100	12.0	301	301	277
	Large Gas Water Heater	MBH	3,198	15.0	10,302	10,301	9,477
	Linkageless Controls	MBH	44,400	16.0	24,986	24,987	22,988
	Pipe Insulation	Linear Feet	6,370	15.0	39,067	38,945	35,830
	Prescriptive Change	Each	4,771	6.0	4,818	4,818	4,433
	Programmable Thermostat	Each	42	4.0	6,690	6,691	6,156
	Smart Thermostat	Each	71	11.0	11,087	11,084	10,198
	Steam Traps - Dry Cleaner	Each	496	6.0	253,338	253,363	233,094



Program Path	Research Category	Units	Quantity	Effective Useful Life	Ex Ante Gross Savings (Therms)	Verified Gross Savings (Therms)	Verified Net Savings (Therms)
	Steam Traps - HVAC Repair/Rep	Each	2,036	6.0	607,674	607,698	559,082
	Steam Traps - Industrial Rep	Each	60	6.0	75,341	75,338	69,311
	Water Heater	MBH	992	15.0	1,820	1,821	1,675
Custom	Boiler Combustion Controls	Each	1	18.0	5,273	5,273	4,851
	Space Conditioning Controls	Each	1	13.0	8,410	8,053	7,409
	HVAC - Controls	Each	1	15.0	6,167	6,184	5,689
	Process - Other	Each	2	15.0	26,150	26,150	24,058
	Other - Other	Each	1	13.0	5,831	2,773	2,552
Total or Weighted Average			833,422	7.6	1,750,238	1,746,776	1,607,460

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

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

Program Path	Research Category	Units	Quantity	Effective Useful Life	Ex Ante Gross Savings (Therms)	Verified Gross Savings (Therms)	Verified Net Savings (Therms)
Direct Install	Other Kit (General, Motel, Grocery)	Each	807	10.0	44,977	42,658	40,525
	Restaurant Kit	Each	61	5.0	6,395	6,395	6,075
	Pre Rinse Sprayer	Each	2	5.0	349	349	332
Prescriptive	Boiler Reset Controls	MBH	3,600	20.0	4,833	4,833	4,446
	Boiler Tune Up - Process	MBH	22,228	3.0	22,733	22,733	20,915
	Boiler Tune Up - Space Heating	MBH	29,081	3.0	13,772	13,771	12,669
	Condensate Tank Insulation	Square Feet	246	15.0	1,521	1,520	1,399
	DCV - Gas Heating	Square Feet	45,884	10.0	3,120	3,120	2,871
	DHW Storage Tank Insulation	Square Feet	201	15.0	1,076	1,076	990
	Dishwasher	Each	1	20.0	545	546	502
	Fryer	Each	8	15.0	4,063	4,063	3,738
	High Efficiency Furnace	Each	1	16.5	247	247	227
	Large Gas Water Heater	MBH	199	15.0	641	641	590
	Pipe Insulation	Linear Feet	2,380	15.0	12,432	12,381	11,391
	Prescriptive Change	Each	11,157	6.0	11,157	11,157	10,265
	Programmable Thermostat	Each	70	4.0	11,154	11,151	10,259
	Smart Thermostat	Each	11	11.0	1,717	1,717	1,580
	Steam Traps - Dry Cleaner	Each	323	6.0	164,976	164,992	151,793
	Steam Traps - HVAC Repair/Rep	Each	36	6.0	11,794	11,794	10,850
	Steam Traps - Industrial Rep	Each	7	6.0	12,336	12,334	11,347
	Steamer	Each	2	12.0	3,009	3,008	2,767
	HVAC - DCV	Each	1	15.0	1,677	1,677	1,543
	Custom	Process - Boiler Combustion Controls	Each	1	20.0	19,629	19,629
Total or Weighted Average			116,307	7.8	354,154	351,794	325,134

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