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|  | Small and Midsize Business Impact Evaluation ReportEnergy Efficiency Plan: Program Year 2024 (1/1/2024-12/31/2024) |
|  | Prepared for: Peoples Gas and North Shore GasDRAFTApril 28, 2025 |
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# Introduction

This report presents the results of the impact evaluation of the Peoples Gas (PGL) and North Shore Gas (NSG) 2024 Small and Midsize Business (SMB) programs. It presents a summary of the energy impacts for the total program and broken out by relevant measure and program structure details. The appendices present the impact analysis methodology and inputs to the TRC calculations. Program year 2024 covers January 1, 2024 through December 31, 2024.

# Program Description

The 2024 SMB Program is offered by PGL and NSG. 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 program had 140 participants in 2024 and completed 155 projects as shown in the following table.

Table 1. 2024 Volumetric Summary for PGL

| Participation | PTA/Px | CFS | Custom | Total |
| --- | --- | --- | --- | --- |
| Private Sector |  |  |  |  |
| Participants \* | 88 | 51 | 1 | 140 |
| Installed Projects † | 100 | 54 | 1 | 155 |
| Measure Types Installed ‡ | 28 | 12 | 1 | 41 |

\* Participants are defined as unique account numbers.

† Installed Projects are defined as unique project IDs.

‡ Measure types are defined as unique measures implemented by the program.

Source: Peoples Gas tracking data and Guidehouse evaluation team analysis

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

Table 2. 2024 Installed Measure Quantities for PGL

| Program Category | Program Path | Measure | Quantity Unit | Installed Quantity |
| --- | --- | --- | --- | --- |
| Private | PTA/Px | Boiler - Steam >=2500MBH >=83% TE | MBH | 5,474 |
| PTA/Px | Boiler Tune Up - Process | MBH | 3,695 |
| PTA/Px | Boiler Tune Up (COM) | MBH | 154,004 |
| PTA/Px | DCV - Kitchen | HP | 2 |
| PTA/Px | Demand Controlled Ventilation (Gas Heating) | SQ FT | 2,505 |
| PTA/Px | Draft Controls, > 2,000 MBH -retrofit only | MBH | 29,454 |
| PTA/Px | Energy Star Dishwasher | Each | 1 |
| PTA/Px | Energy Star Fryer | Each | 5 |
| PTA/Px | Furnace > 95% AFUE (COM) | Each | 2 |
| PTA/Px | High Speed Washer - Laundromat | lb-capacity | 5,560 |
| PTA/Px | Large Gas Water Heater | MBH | 398 |
| PTA/Px | Linkageless controls -for new burners | MBH | 25,530 |
| PTA/Px | Pipe Insulation - DHW Medium 1.25-2" | LN FT | 16 |
| PTA/Px | Pipe Insulation - DHW Small <1.25" | LN FT | 5 |
| PTA/Px | Pipe Insulation - Steam Small 1" to 2" | LN FT | 1,116 |
| PTA/Px | Pipe Insulation - Steam Small Fitting | LN FT | 103 |
| PTA/Px | Steam Traps - Dry Cleaner Rep. - Audit | Each | 105 |
| PTA/Px | Steam Traps - HVAC Repair/Rep - Audit | Each | 760 |
| PTA/Px | Steam Traps - Industrial/Process Audit - 15 <= psig < 30 | Each | 2 |
| PTA/Px | Steam Traps - Industrial/Process Audit - 30 <= psig < 75 | Each | 6 |
| PTA/Px | Steam Traps - Industrial/Process Audit - psig <= 15 | Each | 21 |
| PTA/Px | Tankless Water Heater 0.90 UEF | Each | 199 |
| PTA/Px | Water Heater 0.67 EF (Com) | Each | 2 |
| PTA/Px | Water Heater 95% TE - Laundromat | MBH | 995 |
| PTA/Px-DAC | Boiler Tune Up - Process | MBH | 16,494 |
| PTA/Px-DAC | Energy Star Fryer | Each | 4 |
| PTA/Px-DAC | High Speed Washer - Laundromat | lb-capacity | 9,223 |
| PTA/Px-DAC | OzoneLaundryLaundromat | lb-capacity | 5,803 |
| PTA/Px-DAC | Steam Traps - Dry Cleaner Rep. - Audit | Each | 116 |
| PTA/Px-DAC | Steam Traps - HVAC Repair/Rep - Audit | Each | 139 |
| PTA/Px-DAC | Steam Traps - Industrial/Process Audit - 75 <= psig < 125 | Each | 6 |
| PTA/Px-DAC | Steam Traps - Industrial/Process Audit - psig <= 15 | Each | 1 |
| PTA/Px-DAC | Water Heater 95% TE - Laundromat | MBH | 1,194 |
| CFS | Combination Oven >30 Pans | Each | 2 |
| CFS | Combination Oven Gas - <15 Pans | Each | 2 |
| CFS | Combination Oven Gas - 15-30 Pans | Each | 4 |
| CFS | Commercial Steam Cooker | Each | 1 |
| CFS | Convection Oven | Each | 1 |
| CFS | Conveyor Oven | Each | 4 |
| CFS | Fryer Large Vat Open Deep-Vat Fryer | Each | 1 |
| CFS | Fryer Standard Open Deep-Vat Fryer (French Fryer) | Each | 48 |
| CFS | Griddle Dual | Each | 8 |
| CFS | Griddle Gas | Each | 10 |
| CFS | Infrared Salamander Broiler | Each | 1 |
| CFS | Pasta Cooker | Each | 1 |
| CFS-DAC | Convection Oven | Each | 4 |
| CFS-DAC | Fryer Standard Open Deep-Vat Fryer (French Fryer) | Each | 15 |
| CFS-DAC | Griddle Dual | Each | 1 |
| CFS-DAC | Griddle Gas | Each | 1 |
| Custom-DAC | Custom | Each | 1 |

Source: Peoples Gas tracking data and Guidehouse evaluation team analysis

The NSG program had 46 participants in 2024 and completed 54 projects as shown in the following table.

Table 3. 2024 Volumetric Summary for NSG

| Participation | PTA/Px | CFS | Custom | Total |
| --- | --- | --- | --- | --- |
| Private Sector |  |  |  |  |
| Participants \* | 42 | 3 | 1 | 46 |
| Installed Projects † | 50 | 3 | 1 | 54 |
| Measure Types Installed ‡ | 8 | 3 | 1 | 12 |

\* Participants are defined as unique account numbers.

† Installed Projects are defined as unique project IDs.

‡ Measure types are defined as unique measures implemented by the program.

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

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

Table 4. 2024 Installed Measure Quantities for NSG

| Program Category | Program Path | Measure | Quantity Unit | Installed Quantity |
| --- | --- | --- | --- | --- |
| Private | PTA/Px | Boiler - HW 300-2500MBtu, >88% TE | MBH | 999 |
|  | PTA/Px | Boiler Tune Up - Process | MBH | 29,923 |
|  | PTA/Px | Energy Star Fryer | Each | 5 |
|  | PTA/Px | Large Gas Water Heater | MBH | 300 |
|  | PTA/Px | Pipe Insulation - Steam Small 1" to 2" | LN FT | 1,270 |
|  | PTA/Px | Pipe Insulation - Steam Small Fitting | LN FT | 127 |
|  | PTA/Px | Steam Traps - Dry Cleaner Rep. - Audit | Each | 240 |
|  | PTA/Px-DAC | Steam Traps - Dry Cleaner Rep. - Audit | Each | 49 |
|  | PTA/Px-DAC | Steam Traps - HVAC Repair/Rep - Audit | Each | 18 |
|  | CFS | Combination Oven >30 Pans | Each | 1 |
|  | CFS | Fryer Large Vat Open Deep-Vat Fryer | Each | 1 |
|  | CFS | Griddle Gas | Each | 1 |
|  | Custom | Custom | Each | 1 |

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

# Program Savings Detail

Table 5 summarizes the energy savings the PGL SMB Program achieved by path in 2024. The savings are broken into those achieved from disadvantaged communities (DAC) or non-DAC.

Table 5. 2024 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, Non-DAC | PTA/Px | 837,132 | 1.00 | 840,182 | 0.93 | 781,368 |
|  | CFS | 55,054 | 1.11 | 60,849 | 0.80 | 48,679 |
| ***Private, Non-DAC Subtotal*** | ***892,186*** | ***1.01*** | ***901,031*** |  | ***830,047*** |
| Private, DAC | PTA/Px-DAC | 335,529 | 1.01 | 337,406 | 1.00 | 337,406 |
|  | CFS-DAC | 12,518 | 0.95 | 11,942 | 1.00 | 11,942 |
|  | Custom-DAC | 40,943 | 1.44 | 58,806 | 1.00 | 58,806 |
| ***Private, DAC Subtotal*** | ***388,990*** | ***1.05*** | ***408,154*** | ***1.00*** | ***408,154*** |
| **Total**  |  | **1,281,176** | **1.02** | **1,309,185** |  | **1,238,201** |

\* 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, participants in disadvantaged communities (DAC) based on their census tract and with consumption under 35,000 Therms are assigned a NTG of 1.00.

Source: Evaluation team analysis

Table 6 summarizes the energy savings the NSG SMB Program achieved by path in 2024.

Table 6. 2024 Annual Energy Savings Summary for NSG

| Program Category | Program Path | Ex Ante Gross Savings (Therms) | Verified Gross RR\* | Verified Gross Savings (Therms) | NTG† | NSPO‡ | Verified Net Savings (Therms) |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Private, Non-DAC | PTA/Px | 194,657 | 1.01 | 195,995 | 0.93 | 1.08 | 182,276 |
|  | CFS | 1,886 | 0.90 | 1,706 | 0.80 |  | 1,365 |
|  | Custom | 6,167 | 1.00 | 6,167 | 0.93 |  | 5,736 |
| ***Private, Non-DAC Subtotal*** | ***202,710*** | ***1.01*** | ***203,868*** |  |  | ***189,377*** |
| Private, DAC | PTA/Px-DAC | 45,792 | 1.01 | 46,046 | 1.00 |  | 46,046 |
| ***Private, DAC Subtotal*** | ***45,792*** | ***1.01*** | ***46,046*** | ***1.00*** |  | ***46,046*** |
| **Total**  |  | **248,502** | **1.01** | **249,914** |  |  | **235,423** |

† 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, participants in disadvantaged communities (DAC) based on their census tract and with consumption under 35,000 Therms are assigned a NTG of 1.00.

Source: Evaluation team analysis

# Program Savings by Measure

The PGL program includes 50 measures as shown in the following table. The steam traps and ozone laundry measures contributed the most savings.

Table 7. 2024 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) |
| --- | --- | --- | --- | --- | --- | --- |
| PTA/Px | Boiler - Steam >=2500MBH >=83% TE | 4,169 | 1.00 | 4,169 | 0.93 | 3,877 |
| PTA/Px | Boiler Tune Up - Process | 3,779 | 1.00 | 3,779 | 0.93 | 3,514 |
| PTA/Px | Boiler Tune Up (COM) | 66,012 | 0.94 | 62,107 | 0.93 | 57,760 |
| PTA/Px | DCV - Kitchen | 1,548 | 1.00 | 1,548 | 0.93 | 1,440 |
| PTA/Px | Demand Controlled Ventilation (Gas Heating) | 308 | 1.00 | 308 | 0.93 | 287 |
| PTA/Px | Draft Controls, > 2,000 MBH -retrofit only | 4,519 | 1.00 | 4,519 | 0.93 | 4,202 |
| PTA/Px | Energy Star Dishwasher | 462 | 1.00 | 462 | 0.93 | 430 |
| PTA/Px | Energy Star Fryer | 2,563 | 1.00 | 2,563 | 0.93 | 2,383 |
| PTA/Px | Furnace > 95% AFUE (COM) | 416 | 0.99 | 412 | 0.93 | 384 |
| PTA/Px | High Speed Washer - Laundromat | 15,508 | 1.00 | 15,508 | 0.93 | 14,422 |
| PTA/Px | Large Gas Water Heater | 292 | 1.00 | 292 | 0.93 | 271 |
| PTA/Px | Linkageless controls -for new burners | 14,735 | 1.00 | 14,735 | 0.93 | 13,703 |
| PTA/Px | Pipe Insulation - DHW Medium 1.25-2" | 58.00 | 1.05 | 61.00 | 0.93 | 56.00 |
| PTA/Px | Pipe Insulation - DHW Small <1.25" | 9.00 | 1.14 | 11.00 | 0.93 | 10.00 |
| PTA/Px | Pipe Insulation - Steam Small 1" to 2" | 7,453 | 0.59 | 4,404 | 0.93 | 4,095 |
| PTA/Px | Pipe Insulation - Steam Small Fitting | 527 | 0.77 | 406 | 0.93 | 378 |
| PTA/Px | Steam Traps - Dry Cleaner Rep. - Audit | 68,041 | 1.00 | 68,073 | 0.93 | 63,308 |
| PTA/Px | Steam Traps - HVAC Repair/Rep - Audit | 592,786 | 1.02 | 602,860 | 0.93 | 560,660 |
| PTA/Px | Steam Traps - Industrial/Process Audit - 15 <= psig < 30 | 1,516 | 1.00 | 1,517 | 0.93 | 1,411 |
| PTA/Px | Steam Traps - Industrial/Process Audit - 30 <= psig < 75 | 16,666 | 1.00 | 16,666 | 0.93 | 15,499 |
| PTA/Px | Steam Traps - Industrial/Process Audit - psig <= 15 | 33,670 | 1.00 | 33,670 | 0.93 | 31,313 |
| PTA/Px | Tankless Water Heater 0.90 UEF | 141 | 1.11 | 157 | 0.93 | 146 |
| PTA/Px | Water Heater 0.67 EF (Com) | 131 | 1.00 | 131 | 0.93 | 122 |
| PTA/Px | Water Heater 95% TE - Laundromat | 1,826 | 1.00 | 1,826 | 0.93 | 1,698 |
| CFS | Combination Oven >30 Pans | 1,530 | 0.91 | 1,391 | 0.80 | 1,113 |
| CFS | Combination Oven Gas - <15 Pans | 1,016 | 0.97 | 990 | 0.80 | 792 |
| CFS | Combination Oven Gas - 15-30 Pans | 3,732 | 0.66 | 2,470 | 0.80 | 1,976 |
| CFS | Commercial Steam Cooker | 1,515 | 1.01 | 1,535 | 0.80 | 1,228 |
| CFS | Convection Oven | 127 | 1.65 | 210 | 0.80 | 168 |
| CFS | Conveyor Oven | 4,574 | 0.77 | 3,538 | 0.80 | 2,831 |
| CFS | Fryer Large Vat Open Deep-Vat Fryer | 697 | 0.60 | 421 | 0.80 | 336 |
| CFS | Fryer Standard Open Deep-Vat Fryer (French Fryer) | 33,362 | 1.25 | 41,576 | 0.80 | 33,261 |
| CFS | Griddle Dual | 4,803 | 1.17 | 5,611 | 0.80 | 4,489 |
| CFS | Griddle Gas | 2,077 | 0.72 | 1,486 | 0.80 | 1,189 |
| CFS | Infrared Salamander Broiler | 240 | 1.00 | 240 | 0.80 | 192 |
| CFS | Pasta Cooker | 1,380 | 1.00 | 1,380 | 0.80 | 1,104 |
| PTA/Px-DAC | Boiler Tune Up - Process | 16,869 | 1.00 | 16,869 | 1.00 | 16,869 |
| PTA/Px-DAC | Energy Star Fryer | 2,050 | 1.00 | 2,050 | 1.00 | 2,050 |
| PTA/Px-DAC | High Speed Washer - Laundromat | 25,725 | 1.00 | 25,725 | 1.00 | 25,725 |
| PTA/Px-DAC | OzoneLaundryLaundromat | 71,981 | 1.00 | 71,981 | 1.00 | 71,981 |
| PTA/Px-DAC | Steam Traps - Dry Cleaner Rep. - Audit | 75,170 | 1.00 | 75,204 | 1.00 | 75,204 |
| PTA/Px-DAC | Steam Traps - HVAC Repair/Rep - Audit | 108,417 | 1.02 | 110,260 | 1.00 | 110,260 |
| PTA/Px-DAC | Steam Traps - Industrial/Process Audit - 75 <= psig < 125 | 31,522 | 1.00 | 31,522 | 1.00 | 31,522 |
| PTA/Px-DAC | Steam Traps - Industrial/Process Audit - psig <= 15 | 1,603 | 1.00 | 1,603 | 1.00 | 1,603 |
| PTA/Px-DAC | Water Heater 95% TE - Laundromat | 2,191 | 1.00 | 2,191 | 1.00 | 2,191 |
| CFS-DAC | Convection Oven | 806 | 0.88 | 706 | 1.00 | 706 |
| CFS-DAC | Fryer Standard Open Deep-Vat Fryer (French Fryer) | 10,429 | 0.99 | 10,349 | 1.00 | 10,349 |
| CFS-DAC | Griddle Dual | 604 | 1.22 | 738 | 1.00 | 738 |
| CFS-DAC | Griddle Gas | 678 | 0.22 | 149 | 1.00 | 149 |
| Custom-DAC | Custom | 40,943 | 1.44 | 58,806 | 1.00 | 58,806 |
| **Total** |  | **1,281,176** | **1.02** | **1,309,185** |  | **1,238,201** |

\* 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, participants in disadvantaged communities (DAC) based on their census tract and with consumption under 35,000 Therms are assigned a NTG of 1.00.

Source: Evaluation team analysis

The NSG program includes 13 measures as shown in the following table. The steam traps and boiler tune-up measures contributed the most savings.

Table 8. 2024 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) |
| --- | --- | --- | --- | --- | --- | --- |
| PTA/Px | Boiler - HW 300-2500MBtu, >88% TE | 1503 | 1.00 | 1,502 | 0.93 | 1,397 |
| PTA/Px | Boiler Tune Up - Process | 30603 | 1.00 | 30,603 | 0.93 | 28,461 |
| PTA/Px | Energy Star Fryer | 2562 | 1.00 | 2,563 | 0.93 | 2,383 |
| PTA/Px | Large Gas Water Heater | 220 | 1.00 | 220 | 0.93 | 205 |
| PTA/Px | Pipe Insulation - Steam Small 1" to 2" | 4046 | 1.24 | 5,011 | 0.93 | 4,661 |
| PTA/Px | Pipe Insulation - Steam Small Fitting | 199 | 2.52 | 501 | 0.93 | 466 |
| PTA/Px | Steam Traps - Dry Cleaner Rep. - Audit | 155523 | 1.00 | 155,595 | 0.93 | 144,704 |
| CFS | Combination Oven >30 Pans | 685 | 1.02 | 696 | 0.80 | 557 |
| CFS | Fryer Large Vat Open Deep-Vat Fryer | 611 | 0.69 | 421 | 0.80 | 336 |
| CFS | Griddle Gas | 590 | 1.00 | 590 | 0.80 | 472 |
| Custom | Custom | 6167 | 1.00 | 6,167 | 0.93 | 5,736 |
| PTA/Px-DAC | Steam Traps - Dry Cleaner Rep. - Audit | 31753 | 1.00 | 31,767 | 1.00 | 31,767 |
| PTA/Px-DAC | Steam Traps - HVAC Repair/Rep - Audit | 14040 | 1.02 | 14,278 | 1.00 | 14,278 |
|  |  | 248502 | 1.01 | 249,914 |  | 235,423 |

Source: Evaluation team analysis

# Impact Analysis Findings and Recommendations

## Impact Parameter Estimates

Table 9 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 percent. Appendix 1 provides a description of the impact analysis methodology.

Table 9. Verified Gross Savings Parameters

| Measure | Unit Basis | Ex Ante Gross (therms/unit) | Verified Gross (therms/unit) | Realization Rate | Data Source(s) |
| --- | --- | --- | --- | --- | --- |
| Boiler - HW 300-2500MBtu, >88% TE | MBH | 1.5 | 1.5 | 1.00 | Illinois TRM v12.0, Section 4.4.10 |
| Boiler - Steam >=2500MBH >=83% TE | MBH | 0.76 | 0.76 | 1.00 | Illinois TRM v12.0, Section 4.4.10 |
| Boiler Tune Up - Process | MBH | 1.02 | 1.02 | 1.00 | Illinois TRM v12.0, Section 4.4.3 |
| Boiler Tune Up (COM) | MBH | 0.43 | 0.4 | 0.93 | Illinois TRM v12.0, Section 4.4.3 |
| Combination Oven >30 Pans | Each | 738.35 | 695.67 | 0.94 | Illinois TRM v12.0, Section 4.2.1  |
| Combination Oven Gas - <15 Pans | Each | 508.23 | 494.75 | 0.97 | Illinois TRM v12.0, Section 4.2.1  |
| Combination Oven Gas - 15-30 Pans | Each | 932.89 | 617.52 | 0.66 | Illinois TRM v12.0, Section 4.2.1  |
| Commercial Steam Cooker | Each | 1514.66 | 1535.4 | 1.01 | Illinois TRM v12.0, Section 4.2.3  |
| Convection Oven | Each | 186.77 | 183.29 | 0.98 | Illinois TRM v12.0, Section 4.2.5 |
| Conveyor Oven | Each | 1143.61 | 884.56 | 0.77 | Illinois TRM v12.0, Section 4.2.4 |
| DCV - Kitchen | HP | 774 | 774 | 1.00 | Illinois TRM v12.0, Section 4.2.16 |
| Demand Controlled Ventilation (Gas Heating) | SQ FT | 0.12 | 0.12 | 1.00 | Illinois TRM v12.0, Section 4.4.19 |
| Draft Controls, > 2,000 MBH -retrofit only | MBH | 0.15 | 0.15 | 1.00 | Illinois TRM v12.0, Section 4.4.21 |
| Energy Star Dishwasher | Each | 462 | 462 | 1.00 | Illinois TRM v12.0, Section 4.2.6 |
| Energy Star Fryer | Each | 512.5 | 512.5 | 1.00 | Illinois TRM v12.0, Section 4.2.7 |
| Fryer Large Vat Open Deep-Vat Fryer | Each | 654.09 | 420.6 | 0.64 | Illinois TRM v12.0, Section 4.2.7 |
| Fryer Standard Open Deep-Vat Fryer (French Fryer) | Each | 695.1 | 824.21 | 1.19 | Illinois TRM v12.0, Section 4.2.7 |
| Furnace > 95% AFUE (COM) | Each | 208.21 | 206.24 | 0.99 | Illinois TRM v12.0, Section 4.4.11 |
| Griddle Dual | Each | 600.70 | 705.46 | 1.17 | Illinois TRM v12.0, Section 4.2.8 |
| Griddle Gas | Each | 278.81 | 185.44 | 0.67 | Illinois TRM v12.0, Section 4.2.8 |
| High Speed Washer - Laundromat | lb-capacity | 2.79 | 2.79 | 1.00 | Illinois TRM v12.0, Section 4.8.5 |
| Infrared Salamander Broiler | Each | 240 | 240 | 1.00 | Illinois TRM v12.0, Section 4.2.14 |
| Large Gas Water Heater | MBH | 0.73 | 0.73 | 1.00 | Illinois TRM v12.0, Section 4.3.1 |
| Linkageless controls -for new burners | MBH | 0.58 | 0.58 | 1.00 | Illinois TRM v12.0, Section 4.4.21 |
| OzoneLaundryLaundromat | lb-capacity | 12.4 | 12.4 | 1.00 | Illinois TRM v12.0, Section 4.3.6 |
| Pasta Cooker | Each | 1380 | 1380 | 1.00 | Illinois TRM v12.0, Section 4.2.17 |
| Pipe Insulation - DHW Medium 1.25-2" | LN FT | 3.63 | 3.79 | 1.04 | Illinois TRM v12.0, Section 4.4.14 |
| Pipe Insulation - DHW Small <1.25" | LN FT | 1.88 | 2.15 | 1.14 | Illinois TRM v12.0, Section 4.4.14 |
| Pipe Insulation - Steam Small 1" to 2" | LN FT | 4.82 | 3.95 | 0.82 | Illinois TRM v12.0, Section 4.4.14 |
| Pipe Insulation - Steam Small Fitting | LN FT | 3.16 | 3.95 | 1.25 | Illinois TRM v12.0, Section 4.4.14 |
| Steam Traps - Dry Cleaner Rep. - Audit | Each | 648.01 | 648.31 | 1.00 | Illinois TRM v12.0, Section 4.4.16 |
| Steam Traps - HVAC Repair/Rep - Audit | Each | 779.98 | 793.24 | 1.02 | Illinois TRM v12.0, Section 4.4.16 |
| Steam Traps - Industrial/Process Audit - 15 <= psig < 30 | Each | 758.17 | 758.41 | 1.00 | Illinois TRM v12.0, Section 4.4.16 |
| Steam Traps - Industrial/Process Audit - 30 <= psig < 75 | Each | 2777.66 | 2777.67 | 1.00 | Illinois TRM v12.0, Section 4.4.16 |
| Steam Traps - Industrial/Process Audit - 75 <= psig < 125 | Each | 5253.73 | 5253.73 | 1.00 | Illinois TRM v12.0, Section 4.4.16 |
| Steam Traps - Industrial/Process Audit - psig <= 15 | Each | 1603.33 | 1603.33 | 1.00 | Illinois TRM v12.0, Section 4.4.16 |
| Tankless Water Heater 0.90 UEF | Each | 0.71 | 0.79 | 1.11 | Illinois TRM v12.0, Section 4.3.1 |
| Water Heater 0.67 EF (Com) | Each | 65.62 | 65.62 | 1.00 | Illinois TRM v12.0, Section 4.3.1 |
| Water Heater 95% TE - Laundromat | MBH | 1.84 | 1.84 | 1.00 | Illinois TRM v12.0, Section 4.3.1 |
| Custom | Each | Vary | Vary | 1.38 | Project File Review, Monthly Billing Data, Site Verification |

\* Program Tracking Data (PTD) provided by Peoples Gas and North Shore Gas; extract dated January 30, 2025.

† State of Illinois Technical Reference Manual version 12.0 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.

## Findings and Recommendations

**Finding 1.** For the Tankless Water measure under the PGL program, the evaluation team calculated gross realization rates of 111% using IL TRM v12 default values. Evaluators used the 199 MBH value in the tracker file to select IL TRM v12 gas storage tank capacity default option of 120 gallons for the baseline case. The building type provided is a brewery with some retail sales and other facility uses. The evaluator categorized the building type as “Other Commercial” based on this information.

**Recommendation 1.** Therm savings are dependent on selecting the appropriate building type and baseline gas storage tank capacity in the calculation. The implementor should carefully apply IL TRM v12 default values in ex ante savings calculations.

**Finding 2.** For the Steam Traps – HVAC Repair/Rep – Audit measure under both the PGL Program and NSG Program the evaluation team calculated gross realization rates of 102% using IL TRM v12 default values. The implementer team applied inconsistent building type to ex-ante savings in the tracking data, which evaluation corrected to align with the TRM inputs.

**Recommendation 2.** The implementor should carefully apply IL TRM v12 default values for building type in ex ante savings calculations.

**Finding 3.** Pipe insulation measures had varying verified gross realization rates. The evaluation team used 3E Plus v4.1 in its heat loss calculation and IL TRM v12 default values in calculating gross therm savings. The implementor appears to use a proprietary method for calculating heat loss. Also, the source used for many inputs were not provided.

**Recommendation 3.** The implementor should consider using the widely accepted 3E Plus heat loss calculation solution in calculating ex ante gross therm savings. Also, the implementor should provide the sources of all inputs used in the pipe insulation calculation.

**Finding 4.** For the Boiler Tune-up (COM) measures under the PGL program, the evaluation team calculated gross realization rates of 94%, using IL TRM v12 default values. In most cases, the evaluation team agrees with the building types and the EFLH value used by the implementer, but using the heating capacity values provided in the quantity field produce different savings realization rate for some projects.

**Recommendation 4.** Therm savings are highly dependent on the boiler capacity used in the calculation. Ensure the program data inputs are used adequately to calculate savings for Boiler Tune-up (COM) measures.

**Finding 5.** The evaluation team compares tracking data inputs against the Energy Star Qualified Product List (QPL) according to manufacturer and model number for Food Service Equipment. There are a few instances where the evaluation team could not utilize the QPL and therefore defaulted to the TRM. CFS measures had varying verified gross realization rates as presented in Table 9.

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

**Finding 6**. For Custom project WO-5912071, the evaluation team calculated a gross realization rate of 144%. The evaluation team could not interpret the ex ante calculation, therefore, the savings calculation methodology was revised to capture baseline usage and post installation usage separately based on water temperatures and flows. In the updated verified calculations, the heat reclamation savings were accounted for using a higher water inlet temperature for a portion of the flow. The verified therm savings was 58,806 therms compared to the ex ante value of 40,943 therms**.**

**Recommendation 6.** The implementor team should provide sufficient detail in its calculation to introduce the calculation methodology to support the resultant savings.

##### 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 v12.[[1]](#footnote-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 v12 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]](#footnote-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.

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]](#footnote-3) Economically disadvantaged areas (DAC) were identified by census track and evaluation used a NTG of 1.00 for projects in DAC areas, based on Illinois Policy Manual 3.0.[[4]](#footnote-4)

##### 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 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 Category | Program Path | Savings Category | DAC Project | Units | Quantity | Effective Useful Life | Early Replacement Flag† | Verified Gross Annual Water Savings (Gallons) | Ex Ante Gross Savings (Therms) | Verified Gross Savings (Therms) | Verified Net Savings (Therms) |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Private | PTA/Px | Boiler - Steam >=2500MBH >=83% TE | FALSE | MBH | 5,474 | 25.00 | NO |  | 4,169 | 4,169 | 3,877 |
|  | PTA/Px | Boiler Tune Up - Process | FALSE | MBH | 3,695 | 3.00 | NO |  | 3,779 | 3,779 | 3,514 |
|  | PTA/Px | Boiler Tune Up (COM) | FALSE | MBH | 154,004 | 3.00 | NO |  | 66,012 | 62,107 | 57,760 |
|  | PTA/Px | DCV - Kitchen | FALSE | HP | 2.00 | 20.00 | NO |  | 1,548 | 1,548 | 1,440 |
|  | PTA/Px | Demand Controlled Ventilation (Gas Heating) | FALSE | SQ FT | 2,505 | 10.00 | NO |  | 308 | 308 | 287 |
|  | PTA/Px | Draft Controls, > 2,000 MBH -retrofit only | FALSE | MBH | 29,454 | 20.00 | NO |  | 4,519 | 4,519 | 4,202 |
|  | PTA/Px | Energy Star Dishwasher | FALSE | Each | 1.00 | 15.00 | NO |  | 462 | 462 | 430 |
|  | PTA/Px | Energy Star Fryer | FALSE | Each | 5.00 | 12.00 | NO |  | 2,563 | 2,563 | 2,383 |
|  | PTA/Px | Furnace > 95% AFUE (COM) | FALSE | Each | 2.00 | 16.00 | NO |  | 416 | 412 | 384 |
|  | PTA/Px | High Speed Washer - Laundromat | FALSE | lb-capacity | 5,560 | 7.00 | NO |  | 15,508 | 15,508 | 14,422 |
|  | PTA/Px | Large Gas Water Heater | FALSE | MBH | 398 | 15.00 | NO |  | 292 | 292 | 271 |
|  | PTA/Px | Linkageless controls -for new burners | FALSE | MBH | 25,530 | 16.00 | NO |  | 14,735 | 14,735 | 13,703 |
|  | PTA/Px | Pipe Insulation - DHW Medium 1.25-2" | FALSE | LN FT | 16.00 | 15.00 | NO |  | 58.00 | 61.00 | 56.00 |
|  | PTA/Px | Pipe Insulation - DHW Small <1.25" | FALSE | LN FT | 5.00 | 15.00 | NO |  | 9.00 | 11.00 | 10.00 |
|  | PTA/Px | Pipe Insulation - Steam Small 1" to 2" | FALSE | LN FT | 1,116 | 15.00 | NO |  | 7,453 | 4,404 | 4,095 |
|  | PTA/Px | Pipe Insulation - Steam Small Fitting | FALSE | LN FT | 103 | 15.00 | NO |  | 527 | 406 | 378 |
|  | PTA/Px | Steam Traps - Dry Cleaner Rep. - Audit | FALSE | Each | 105 | 6.00 | NO | 565,268 | 68,041 | 68,073 | 63,308 |
|  | PTA/Px | Steam Traps - HVAC Repair/Rep - Audit | FALSE | Each | 760 | 6.00 | NO | 10,448,571 | 592,786 | 602,860 | 560,660 |
|  | PTA/Px | Steam Traps - Industrial/Process Audit - 15 <= psig < 30 | FALSE | Each | 2.00 | 6.00 | NO | 12,920 | 1,516 | 1,517 | 1,411 |
|  | PTA/Px | Steam Traps - Industrial/Process Audit - 30 <= psig < 75 | FALSE | Each | 6.00 | 6.00 | NO | 139,635 | 16,666 | 16,666 | 15,499 |
|  | PTA/Px | Steam Traps - Industrial/Process Audit - psig <= 15 | FALSE | Each | 21.00 | 6.00 | NO | 288,711 | 33,670 | 33,670 | 31,313 |
|  | PTA/Px | Tankless Water Heater 0.90 UEF | FALSE | Each | 199 | 20.00 | NO |  | 141 | 157 | 146 |
|  | PTA/Px | Water Heater 0.67 EF (Com) | FALSE | Each | 2.00 | 15.00 | NO |  | 131 | 131 | 122 |
|  | PTA/Px | Water Heater 95% TE - Laundromat | FALSE | MBH | 995 | 15.00 | NO |  | 1,826 | 1,826 | 1,698 |
|  | CFS | Combination Oven >30 Pans | FALSE | Each | 2.00 | 12.00 | NO |  | 1,530 | 1,391 | 1,113 |
|  | CFS | Combination Oven Gas - <15 Pans | FALSE | Each | 2.00 | 12.00 | NO |  | 1,016 | 990 | 792 |
|  | CFS | Combination Oven Gas - 15-30 Pans | FALSE | Each | 4.00 | 12.00 | NO |  | 3,732 | 2,470 | 1,976 |
|  | CFS | Commercial Steam Cooker | FALSE | Each | 1.00 | 12.00 | NO |  | 1,515 | 1,535 | 1,228 |
|  | CFS | Convection Oven | FALSE | Each | 1.00 | 12.00 | NO |  | 127 | 210 | 168 |
|  | CFS | Conveyor Oven | FALSE | Each | 4.00 | 12.00 | NO |  | 4,574 | 3,538 | 2,831 |
|  | CFS | Fryer Large Vat Open Deep-Vat Fryer | FALSE | Each | 1.00 | 12.00 | NO |  | 697 | 421 | 336 |
|  | CFS | Fryer Standard Open Deep-Vat Fryer (French Fryer) | FALSE | Each | 48.00 | 12.00 | NO |  | 33,362 | 41,576 | 33,261 |
|  | CFS | Griddle Dual | FALSE | Each | 8.00 | 12.00 | NO |  | 4,803 | 5,611 | 4,489 |
|  | CFS | Griddle Gas | FALSE | Each | 10.00 | 12.00 | NO |  | 2,077 | 1,486 | 1,189 |
|  | CFS | Infrared Salamander Broiler | FALSE | Each | 1.00 | 12.00 | NO |  | 240 | 240 | 192 |
|  | CFS | Pasta Cooker | FALSE | Each | 1.00 | 12.00 | NO |  | 1,380 | 1,380 | 1,104 |
|  | PTA/Px-DAC | Boiler Tune Up - Process | TRUE | MBH | 16,494 | 3.00 | NO |  | 16,869 | 16,869 | 16,869 |
|  | PTA/Px-DAC | Energy Star Fryer | TRUE | Each | 4.00 | 12.00 | NO |  | 2,050 | 2,050 | 2,050 |
|  | PTA/Px-DAC | High Speed Washer - Laundromat | TRUE | lb-capacity | 9,223 | 7.00 | NO |  | 25,725 | 25,725 | 25,725 |
|  | PTA/Px-DAC | OzoneLaundryLaundromat | TRUE | lb-capacity | 5,803 | 10.00 | NO | 1,386,917 | 71,981 | 71,981 | 71,981 |
|  | PTA/Px-DAC | Steam Traps - Dry Cleaner Rep. - Audit | TRUE | Each | 116 | 6.00 | NO | 624,486 | 75,170 | 75,204 | 75,204 |
|  | PTA/Px-DAC | Steam Traps - HVAC Repair/Rep - Audit | TRUE | Each | 139 | 6.00 | NO | 1,910,989 | 108,417 | 110,260 | 110,260 |
|  | PTA/Px-DAC | Steam Traps - Industrial/Process Audit - 75 <= psig < 125 | TRUE | Each | 6.00 | 6.00 | NO | 261,380 | 31,522 | 31,522 | 31,522 |
|  | PTA/Px-DAC | Steam Traps - Industrial/Process Audit - psig <= 15 | TRUE | Each | 1.00 | 6.00 | NO | 13,748 | 1,603 | 1,603 | 1,603 |
|  | PTA/Px-DAC | Water Heater 95% TE - Laundromat | TRUE | MBH | 1,194 | 15.00 | NO |  | 2,191 | 2,191 | 2,191 |
|  | CFS-DAC | Convection Oven | TRUE | Each | 4.00 | 12.00 | NO |  | 806 | 706 | 706 |
|  | CFS-DAC | Fryer Standard Open Deep-Vat Fryer (French Fryer) | TRUE | Each | 15.00 | 12.00 | NO |  | 10,429 | 10,349 | 10,349 |
|  | CFS-DAC | Griddle Dual | TRUE | Each | 1.00 | 12.00 | NO |  | 604 | 738 | 738 |
|  | CFS-DAC | Griddle Gas | TRUE | Each | 1.00 | 12.00 | NO |  | 678 | 149 | 149 |
|  | Custom-DAC | Custom | TRUE | Each | 1.00 | 1.00 | NO |  | 40,943 | 58,806 | 58,806 |
| **Total or Weighted Average** |  |  |  |  | **7.27** |  | **15,652,625** | **1,281,176** | **1,309,185** | **1,238,201** |

Source: Evaluation team analysis

Table B‑2. Verified Cost Effectiveness Inputs – NSG

| Program Category | Program Path | Savings Category | DAC Project | Units | Quantity | Effective Useful Life | Early Replacement Flag† | Verified Gross Annual Water Savings (Gallons) | Ex Ante Gross Savings (Therms) | Verified Gross Savings (Therms) | Verified Net Savings (Therms) |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Private | PTA/Px | Boiler - HW 300-2500MBtu, >88% TE | FALSE | MBH | 999 | 25.00 | NO |  | 1,503 | 1,502 | 1,397 |
|  | PTA/Px | Boiler Tune Up - Process | FALSE | MBH | 29,923 | 3.00 | NO |  | 30,603 | 30,603 | 28,461 |
|  | PTA/Px | Energy Star Fryer | FALSE | Each | 5.00 | 12.00 | NO |  | 2,562 | 2,563 | 2,383 |
|  | PTA/Px | Large Gas Water Heater | FALSE | MBH | 300 | 15.00 | NO |  | 220 | 220 | 205 |
|  | PTA/Px | Pipe Insulation - Steam Small 1" to 2" | FALSE | LN FT | 1,270 | 15.00 | NO |  | 4,046 | 5,011 | 4,661 |
|  | PTA/Px | Pipe Insulation - Steam Small Fitting | FALSE | LN FT | 127 | 15.00 | NO |  | 199 | 501 | 466 |
|  | PTA/Px | Steam Traps - Dry Cleaner Rep. - Audit | FALSE | Each | 240 | 6.00 | NO | 1,292,040 | 155,523 | 155,595 | 144,704 |
|  | CFS | Combination Oven >30 Pans | FALSE | Each | 1.00 | 12.00 | NO |  | 685 | 696 | 557 |
|  | CFS | Fryer Large Vat Open Deep-Vat Fryer | FALSE | Each | 1.00 | 12.00 | NO |  | 611 | 421 | 336 |
|  | CFS | Griddle Gas | FALSE | Each | 1.00 | 12.00 | NO |  | 590 | 590 | 472 |
|  | Custom | Custom | FALSE | Each | 1.00 | 1.00 | NO |  | 6,167 | 6,167 | 5,736 |
|  | PTA/Px-DAC | Steam Traps - Dry Cleaner Rep. - Audit | TRUE | Each | 49.00 | 6.00 | NO | 263,792 | 31,753 | 31,767 | 31,767 |
|  | PTA/Px-DAC | Steam Traps - HVAC Repair/Rep - Audit | TRUE | Each | 18.00 | 6.00 | NO | 248,361 | 14,040 | 14,278 | 14,278 |
| **Total or Weighted Average** |  |  |  |  | **4.32** |  | **1,804,193** | **248,502** | **249,914** | **235,423** |

Source: Evaluation team analysis

1. Available on the Illinois Stakeholder Advisory Group website: <https://www.ilsag.info/technical-reference-manual/il-statewide-technical-reference-manual-version-12-0/> [↑](#footnote-ref-1)
2. Found on the ENERGY STAR website: <https://www.energystar.gov/products/commercial_food_service_equipment> [↑](#footnote-ref-2)
3. Available on the Illinois Stakeholder Advisory Group website https://www.ilsag.info/evaluator-ntg-recommendations-for-2023/. [↑](#footnote-ref-3)
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/> [↑](#footnote-ref-4)