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|  | Income Eligible Single Family Impact Evaluation Report  Energy Efficiency Plan: Program Year 2023  (1/1/2023-12/31/2023) | | | |
|  | Prepared for:  Peoples Gas and North Shore Gas  DRAFT  March 22, 2024 | | | |
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# Introduction

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

# Program Description

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

The SFIE program has three paths:

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

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

Table ‑. 2023 SFIE Program Volumetric Summary for PGL

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

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

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

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

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

Table ‑. 2023 SFIE Program Installed Measure Quantities for PGL

| Program Path | Measure | Quantity Unit | Installed Quantity |
| --- | --- | --- | --- |
| IHWAP | Advanced Thermostat - Manual | Each | 17 |
| Advanced Thermostat - Programmable | Each | 3 |
| Air Sealing | Project | 58 |
| Attic Insulation | Sq. ft. | 53,114 |
| Basement/Sidewall Insulation | Sq. ft. | 3,282 |
| Low Flow Faucet Aerator - Bathroom | Each | 22 |
| Gas High Efficiency Boiler - ER | Each | 13 |
| DHW Pipe Insulation | Ln. ft. | 569 |
| Duct Sealing | Each | 4 |
| Floor Insulation Above Crawlspace | Sq. ft. | 1,531 |
| Gas High Efficiency Furnace - TOS | Each | 33 |
| Gas High Efficiency Furnace - ER | Each | 4 |
| Low Flow Showerhead | Each | 25 |
| Low Flow Faucet Aerator - Kitchen | Each | 9 |
| Programmable Thermostat | Each | 8 |
| Rim Joist Insulation | Sq. ft. | 1,161 |
| Gas Water Heater - ER | Each | 25 |
| Wall Insulation | Sq. ft. | 38,038 |
| Retrofits | Advanced Thermostat - Manual | Each | 14 |
| Advanced Thermostat - Programmable | Each | 38 |
| Air Sealing | Project | 415 |
| Attic Insulation | Sq. ft. | 288,651 |
| Basement/Sidewall Insulation | Sq. ft. | 10,382 |
| Low Flow Faucet Aerator - Bathroom | Each | 10 |
| Gas High Efficiency Boiler - TOS | Each | 4 |
| DHW Pipe Insulation | Ln. ft. | 2,267 |
| Duct Sealing | Each | 18 |
| Floor Insulation Above Crawlspace | Sq. ft. | 4,326 |
| Furnace Tune-Up | Each | 113 |
| Gas High Efficiency Furnace - TOS | Each | 8 |
| Low Flow Showerhead | Each | 17 |
| Low Flow Faucet Aerator - Kitchen | Each | 7 |
| Programmable Thermostat | Each | 50 |
| Rim Joist Insulation | Sq. ft. | 1,656 |
| Gas Water Heater - TOS | Each | 3 |
| Wall Insulation | Sq. ft. | 357,623 |
| HEA | Advanced Thermostat - Blended | Each | 4 |
| Advanced Thermostat - Manual | Each | 395 |
| Advanced Thermostat - Programmable | Each | 73 |
| Air Handler Filter Replacement | Each | 552 |
| Air Sealing | Project | 323 |
| Low Flow Faucet Aerator - Bathroom | Each | 958 |
| Boiler Pipe Insulation | Ln. ft. | 322 |
| DHW Pipe Insulation | Ln. ft. | 2,389 |
| Low Flow Showerhead | Each | 1,434 |
| Low Flow Faucet Aerator - Kitchen | Each | 624 |
| Programmable Thermostat | Each | 288 |
| Re-Program Thermostat | Each | 57 |
| Shower Flow Reducer | Each | 66 |

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

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

Table ‑. 2023 SFIE Program Volumetric Summary for NSG

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

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

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

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

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

Table ‑. 2023 SFIE Program Installed Measure Quantities for NSG

| Program Path | Measure | Quantity Unit | Installed Quantity |
| --- | --- | --- | --- |
| Retrofits | Advanced Thermostat - Manual | Each | 4 |
| Advanced Thermostat - Programmable | Each | 3 |
| Air Sealing | Project | 19 |
| Attic Insulation | Sq. ft. | 11 |
| Basement/Sidewall Insulation | Sq. ft. | 4 |
| Low Flow Faucet Aerator - Bathroom | Each | 11 |
| Boiler Tune-Up | Each | 1 |
| DHW Pipe Insulation | Ln. ft. | 15 |
| Duct Sealing | Each | 7 |
| Floor Insulation Above Crawlspace | Sq. ft. | 1 |
| Furnace Tune-Up | Each | 2 |
| Low Flow Showerhead | Each | 9 |
| Low Flow Faucet Aerator - Kitchen | Each | 7 |
| Programmable Thermostat | Each | 3 |
| Rim Joist Insulation | Sq. ft. | 11 |
| Gas Water Heater - TOS | Each | 1 |
| Wall Insulation | Sq. ft. | 6 |
| HEA | Advanced Thermostat - Manual | Each | 50 |
| Advanced Thermostat - Programmable | Each | 10 |
| Air Handler Filter Replacement | Each | 54 |
| Air Sealing | Project | 22 |
| Low Flow Faucet Aerator - Bathroom | Each | 57 |
| Boiler Pipe Insulation | Ln. ft. | 15 |
| DHW Pipe Insulation | Ln. ft. | 24 |
| Low Flow Showerhead | Each | 107 |
| Low Flow Faucet Aerator - Kitchen | Each | 31 |
| Programmable Thermostat | Each | 13 |
| Re-Program Thermostat | Each | 3 |
| Shower Flow Reducer | Each | 3 |

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

# Program Savings Detail

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

Table ‑. 2023 SFIE Program Annual Energy Savings Summary for PGL

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Program Path | Ex Ante Gross Savings (Therms) | Verified Gross RR\* | Verified Gross Savings (Therms) | NTG† | Verified  Net  Savings (Therms) |
| IHWAP | 46,348 | 99% | 45,890 | 1.00 | 45,890 |
| Retrofits | 382,576 | 100% | 380,896 | 1.00 | 380,896 |
| HEA | 95,102 | 100% | 95,084 | 1.00 | 95,084 |
| **Total or Weighted Average** | **524,025** | **100%** | **521,870** | **1.00** | **521,870** |

Note: Totals may not sum due to rounding.

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

† A deemed value. Available on the SAG web site: https://www.ilsag.info/ntg\_2023.

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

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

Table ‑. 2023 SFIE Program Annual Energy Savings Summary for NSG

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

\* 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\_2023.

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

# Program Savings by Measure

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

Table ‑. 2023 SFIE Program Annual Energy Savings by Measure for PGL

| Program Path | Savings Category | Ex Ante Gross Savings (Therms) | Verified Gross RR\* | Verified Gross Savings (Therms) | NTG† | Verified Net Savings (Therms) |
| --- | --- | --- | --- | --- | --- | --- |
| IHWAP | Advanced Thermostat - Manual | 1,640 | 100% | 1,640 | 1.00 | 1,640 |
| Advanced Thermostat - Programmable | 214 | 100% | 214 | 1.00 | 214 |
| Air Sealing | 6,003 | 100% | 6,019 | 1.00 | 6,019 |
| Attic Insulation | 11,895 | 99% | 11,752 | 1.00 | 11,752 |
| Basement/Sidewall Insulation | 223 | 100% | 223 | 1.00 | 223 |
| Low Flow Faucet Aerator - Bathroom | 14 | 100% | 14 | 1.00 | 14 |
| Gas High Efficiency Boiler - ER | 8,563 | 96% | 8,252 | 1.00 | 8,252 |
| DHW Pipe Insulation | 1,147 | 100% | 1,147 | 1.00 | 1,147 |
| Duct Sealing | 1,120 | 100% | 1,120 | 1.00 | 1,120 |
| Floor Insulation Above Crawlspace | 197 | 100% | 197 | 1.00 | 197 |
| Gas High Efficiency Furnace - TOS | 9,317 | 100% | 9,317 | 1.00 | 9,317 |
| Gas High Efficiency Furnace - ER | 509 | 100% | 509 | 1.00 | 509 |
| Low Flow Showerhead | 44 | 100% | 44 | 1.00 | 44 |
| Low Flow Faucet Aerator - Kitchen | 43 | 100% | 43 | 1.00 | 43 |
| Programmable Thermostat | 645 | 100% | 645 | 1.00 | 645 |
| Rim Joist Insulation | 114 | 100% | 113 | 1.00 | 113 |
| Gas Water Heater - ER | 979 | 100% | 979 | 1.00 | 979 |
| Wall Insulation | 3,682 | 99% | 3,663 | 1.00 | 3,663 |
| ***IHWAP Subtotal*** | ***46,348*** | ***99%*** | ***45,890*** | ***1.00*** | ***45,890*** |
| Retrofits | Advanced Thermostat - Manual | 1,435 | 100% | 1,435 | 1.00 | 1,435 |
| Advanced Thermostat - Programmable | 2,650 | 100% | 2,650 | 1.00 | 2,650 |
| Air Sealing | 233,215 | 100% | 232,946 | 1.00 | 232,946 |
| Attic Insulation | 68,692 | 99% | 67,777 | 1.00 | 67,777 |
| Basement/Sidewall Insulation | 2,249 | 100% | 2,247 | 1.00 | 2,247 |
| Low Flow Faucet Aerator - Bathroom | 10 | 100% | 10 | 1.00 | 10 |
| Gas High Efficiency Boiler - TOS | 687 | 100% | 687 | 1.00 | 687 |
| DHW Pipe Insulation | 4,571 | 100% | 4,571 | 1.00 | 4,571 |
| Duct Sealing | 10,705 | 100% | 10,705 | 1.00 | 10,705 |
| Floor Insulation Above Crawlspace | 620 | 97% | 600 | 1.00 | 600 |
| Furnace Tune-Up | 3,969 | 100% | 3,969 | 1.00 | 3,969 |
| Gas High Efficiency Furnace - TOS | 1,352 | 100% | 1,352 | 1.00 | 1,352 |
| Low Flow Showerhead | 53 | 100% | 53 | 1.00 | 53 |
| Low Flow Faucet Aerator - Kitchen | 58 | 100% | 58 | 1.00 | 58 |
| Programmable Thermostat | 3,416 | 100% | 3,416 | 1.00 | 3,416 |
| Rim Joist Insulation | 188 | 100% | 188 | 1.00 | 188 |
| Gas Water Heater - TOS | 64 | 100% | 64 | 1.00 | 64 |
| Wall Insulation | 48,642 | 99% | 48,167 | 1.00 | 48,167 |
| ***Retrofits Subtotal*** | ***382,576*** | ***100%*** | ***380,896*** | ***1.00*** | ***380,896*** |
| HEA | Advanced Thermostat - Blended | 312 | 100% | 312 | 1.00 | 312 |
| Advanced Thermostat - Manual | 40,338 | 100% | 40,338 | 1.00 | 40,338 |
| Advanced Thermostat - Programmable | 4,989 | 100% | 4,989 | 1.00 | 4,989 |
| Air Handler Filter Replacement | 4,380 | 100% | 4,380 | 1.00 | 4,380 |
| Air Sealing | 4,357 | 100% | 4,357 | 1.00 | 4,357 |
| Low Flow Faucet Aerator - Bathroom | 913 | 99% | 907 | 1.00 | 907 |
| Boiler Pipe Insulation | 225 | 100% | 225 | 1.00 | 225 |
| DHW Pipe Insulation | 4,628 | 100% | 4,629 | 1.00 | 4,629 |
| Low Flow Showerhead | 4,285 | 100% | 4,275 | 1.00 | 4,275 |
| Low Flow Faucet Aerator - Kitchen | 5,464 | 100% | 5,464 | 1.00 | 5,464 |
| Programmable Thermostat | 21,041 | 100% | 21,042 | 1.00 | 21,042 |
| Re-Program Thermostat | 3,972 | 100% | 3,972 | 1.00 | 3,972 |
| Shower Flow Reducer | 197 | 99% | 195 | 1.00 | 195 |
| ***HEA Subtotal*** | ***95,102*** | ***100%*** | ***95,084*** | ***1.00*** | ***95,084*** |
| **Total or Weighted Average** | | **524,025** | **100%** | **521,870** | **1.00** | **521,870** |

Note: Totals may not sum due to rounding.

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

† A deemed value. Available on the SAG web site: https://www.ilsag.info/ntg\_2023.

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

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

Table ‑. 2023 SFIE Program Annual Energy Savings by Measure for NSG

| Program Path | Savings Category | Ex Ante Gross Savings (Therms) | Verified Gross RR\* | Verified Gross Savings (Therms) | NTG† | Verified Net Savings (Therms) |
| --- | --- | --- | --- | --- | --- | --- |
| Retrofits | Advanced Thermostat – Manual | 410 | 100% | 410 | 1.00 | 410 |
| Advanced Thermostat - Programmable | 214 | 100% | 214 | 1.00 | 214 |
| Air Sealing | 1,086 | 100% | 1,086 | 1.00 | 1,086 |
| Attic Insulation | 867 | 100% | 867 | 1.00 | 867 |
| Basement/Sidewall Insulation | 79 | 100% | 79 | 1.00 | 79 |
| Low Flow Faucet Aerator - Bathroom | 24 | 100% | 24 | 1.00 | 24 |
| Boiler Tune-Up | 40 | 100% | 40 | 1.00 | 40 |
| DHW Pipe Insulation | 363 | 100% | 363 | 1.00 | 363 |
| Duct Sealing | 451 | 100% | 451 | 1.00 | 451 |
| Floor Insulation Above Crawlspace | 99 | 100% | 99 | 1.00 | 99 |
| Furnace Tune-Up | 131 | 100% | 131 | 1.00 | 131 |
| Low Flow Showerhead | 29 | 100% | 29 | 1.00 | 29 |
| Low Flow Faucet Aerator - Kitchen | 93 | 100% | 93 | 1.00 | 93 |
| Programmable Thermostat | 224 | 100% | 224 | 1.00 | 224 |
| Rim Joist Insulation | 121 | 100% | 121 | 1.00 | 121 |
| Gas Water Heater – TOS | 35 | 100% | 35 | 1.00 | 35 |
| Wall Insulation | 380 | 100% | 380 | 1.00 | 380 |
| ***Retrofits Subtotal*** | ***4,646*** | ***100%*** | ***4,646*** | ***1.00*** | ***4,646*** |
| HEA | Advanced Thermostat – Manual | 5,126 | 100% | 5,126 | 1.00 | 5,126 |
| Advanced Thermostat - Programmable | 714 | 100% | 714 | 1.00 | 714 |
| Air Handler Filter Replacement | 447 | 100% | 447 | 1.00 | 447 |
| Air Sealing | 273 | 100% | 273 | 1.00 | 273 |
| Low Flow Faucet Aerator - Bathroom | 107 | 100% | 107 | 1.00 | 107 |
| Boiler Pipe Insulation | 67 | 100% | 67 | 1.00 | 67 |
| DHW Pipe Insulation | 263 | 100% | 263 | 1.00 | 263 |
| Low Flow Showerhead | 459 | 100% | 459 | 1.00 | 459 |
| Low Flow Faucet Aerator - Kitchen | 293 | 100% | 293 | 1.00 | 293 |
| Programmable Thermostat | 931 | 100% | 931 | 1.00 | 931 |
| Re-Program Thermostat | 187 | 100% | 187 | 1.00 | 187 |
| Shower Flow Reducer | 10 | 100% | 10 | 1.00 | 10 |
| ***HEA Joint Subtotal*** | ***8,875*** | ***100%*** | ***8,875*** | ***1.00*** | ***8,875*** |
| **Total or Weighted Average** | | **13,521** | **100%** | **13,521** | **1.00** | **13,521** |

Note: Totals may not sum due to rounding.

\* 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\_2023.

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

# Impact Analysis Findings and Recommendations

## Impact Parameter Estimates

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

Table ‑. 2023 SFIE Program Verified Gross Savings Parameters

| Measure | Unit Basis | Ex Ante Gross (therms/unit) | Verified Gross (therms/unit) | Realization Rate | Data Source(s) |
| --- | --- | --- | --- | --- | --- |
| Advanced Thermostat - Blended | Each | 77.95 | 77.95 | 100% | Illinois  TRM, v11.0†, Section 5.3.16 and PGL/NSG Program Tracking Data (PTD\*) |
| Advanced Thermostat - Manual | Each | 101.76 | 101.76 | 100% | Illinois  TRM, v11.0†, Section 5.3.16 and PTD |
| Advanced Thermostat - Programmable | Each | 69.14 | 69.14 | 100% | Illinois  TRM, v11.0†, Section 5.3.16 and PTD |
| Air Handler Filter Replacement | Each | 7.93 | 7.93 | 100% | Illinois  TRM, v11.0†, Section 5.3.10 and PTD |
| Air Sealing | Project | 292.63 | 292.33 | 100% | Illinois  TRM, v11.0†, Section 5.6.1 and PTD |
| Attic Insulation | Sq. ft. | 0.23 | 0.23 | 99% | Illinois  TRM, v11.0†, Section 5.6.5 and PTD |
| Basement/Sidewall Insulation | Sq. ft. | 0.18 | 0.18 | 100% | Illinois  TRM, v11.0†, Section 5.6.2 and PTD |
| Low Flow Faucet Aerator - Bathroom | Each | 0.95 | 0.94 | 99% | Illinois  TRM, v11.0†, Section 5.4.4 and PTD |
| Boiler Pipe Insulation | Ln. ft. | 0.70 | 0.70 | 100% | Illinois  TRM, v11.0†, Section 5.3.2 and PTD |
| Boiler Tune-Up | Each | 39.54 | 39.63 | 100% | Illinois  TRM, v11.0†, Section 4.4.2 and PTD |
| Gas High Efficiency Boiler - TOS | Each | 658.67 | 634.76 | 96% | Illinois  TRM, v11.0†, Section 5.3.6 and PTD |
| Gas High Efficiency Boiler - ER | Each | 171.73 | 171.73 | 100% | Illinois  TRM, v11.0†, Section 5.3.6 and PTD |
| DHW Pipe Insulation | Ln. ft. | 1.98 | 1.98 | 100% | Illinois  TRM, v11.0†, Section 5.4.1 and PTD |
| Duct Sealing | Each | 423.30 | 423.31 | 100% | Illinois  TRM, v11.0†, Section 5.3.4 and PTD |
| Floor Insulation Above Crawlspace | Sq. ft. | 0.14 | 0.14 | 98% | Illinois  TRM, v11.0†, Section 5.6.3 and PTD |
| Furnace Tune-Up | Each | 35.66 | 35.66 | 100% | Illinois  TRM, v11.0†, Section 5.3.13 and PTD |
| Gas High Efficiency Furnace - TOS | Each | 282.34 | 282.34 | 100% | Illinois  TRM, v11.0†, Section 5.3.7 and PTD |
| Gas High Efficiency Furnace - ER | Each | 155.05 | 155.05 | 100% | Illinois  TRM, v11.0†, Section 5.3.7 and PTD |
| Low Flow Showerhead | Each | 2.98 | 2.97 | 100% | Illinois  TRM, v11.0†, Section 5.4.5 and PTD |
| Low Flow Faucet Aerator - Kitchen | Each | 8.71 | 8.71 | 100% | Illinois  TRM, v11.0†, Section 5.4.4 and PTD |
| Programmable Thermostat | Each | 72.13 | 72.14 | 100% | Illinois  TRM, v11.0†, Section 5.3.11 and PTD |
| Re-Program Thermostat | Each | 69.31 | 69.31 | 100% | Illinois  TRM, v11.0†, Section 5.3.11 and PTD |
| Rim Joist Insulation | Sq. ft. | 0.11 | 0.11 | 100% | Illinois  TRM, v11.0†, Section 5.6.6 and PTD |
| Shower Flow Reducer | Each | 3.01 | 2.98 | 99% | Illinois  TRM, v11.0†, Section 5.4.5 and PTD |
| Gas Water Heater - TOS | Each | 39.16 | 39.16 | 100% | Illinois  TRM, v11.0†, Section 5.4.2 and PTD |
| Gas Water Heater - ER | Each | 24.71 | 24.71 | 100% | Illinois  TRM, v11.0†, Section 5.4.2 and PTD |
| Wall Insulation | Sq. ft. | 0.13 | 0.13 | 99% | Illinois  TRM, v11.0†, Section 5.6.4 and PTD |

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

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

## Findings and Recommendations

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

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

**Finding 2.** The evaluation team identified 18 hot water end use measures, such as Low Flow Faucet Aerators, Low Flow Showerheads, and Shower Flow Reducers, with an RR of less than 100%. The evaluation team observed that those measures had a household factor (HF) less than 100%, this variable is defined in the TRM as the heating consumption of non-single-family households[[2]](#footnote-2). The evaluation team was unable to determine how HF would affect gross therms as the variable is not a savings input in the hot water end use measure TRM equations.

Measure IDs: MEA-2023.12.04-615456, MEA-2023.12.04-616134, MEA-2023.12.01-614742, MEA-2023.12.01-615117, MEA-2023.12.29-631661, MEA-2023.12.29-632805, MEA-2023.12.28-631039, MEA-2023.12.15-628207, MEA-2023.10.24-599094, MEA-2023.12.04-616133, MEA-2023.12.01-614743, MEA-2023.12.01-615118, MEA-2023.11.20-610145, MEA-2023.12.29-631662, MEA-2023.12.29-632806, MEA-2023.11.16-609013, MEA-2023.12.14-625314, MEA-2023.10.24-599095

**Recommendation 2.** Ensure the correct savings inputs are used when calculating hot water measures.

**Finding 3.** The tracking data had an incorrect or missing input capacity value for HVAC measures, Boiler Tune-Up, and Duct Sealing. The evaluation team was able to cross reference ComEd’s tracking data to retrieve the correct capacity values. The evaluation team noticed the incorrect input capacities used matched ComEd’s cooling input capacity, rather than the heating input capacity.

**Recommendation 3.** Ensure that the correct heating input capacity is provided in the tracking data for those measure types.

**Finding 4.** The evaluation team identified that the Gas high efficiency boilers – early replacements did not have an RR of 100%. The evaluation team assumed this was caused by the AFUE\_exist values provided in the tracking data. The evaluation team was able to use the deemed TRM value to calculate the correct savings.

**Recommendation 4.** Update the tracking data to reflect the correct AFUE\_exist values that are deemed in the TRM.

**Finding 5.** The evaluation team observed that 11 Furnace Tune-Up measures did not have an RR of 100%. The evaluation team concluded that the might be due to the tracking data Equipment Efficiency (Ei) input for those 11 measures. This field is used to determine gas savings from the TRM. The evaluation team was able to cross-reference the ComEd tracking data to obtain the missing inputs for a portion of these projects.

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

**Recommendation 5.** Ensure correct Furnace Tune-Up efficiency values are provided in the tracking data.

**Finding 6.** The evaluation team found one DHW Pipe Insulation measure with an RR of 114%,

measure ID: MEA-2023.12.15-626760. This occurrence might be due to the incorrect therm savings per foot of insulation value being used.

**Recommendation 6.** Ensure the correct therm savings per foot of insulation is being used, which can be found in the Resource Innovations Savings Calculator.

##### Impact Analysis Methodology

Guidehouse determined verified gross savings for each program measure by conducting a tracking system review. Guidehouse checked whether measure inputs matched deemed IL TRM (v11.0)[[3]](#footnote-3) values and validated custom inputs or adjusted as necessary. To be eligible, an IL-TRM measure must meet the physical, operational, and baseline characteristics as defined in the applicable version of IL-TRM. Verified gross RR are calculated by dividing the verified gross savings by the ex ante gross savings. In 2023, the net-to-gross (NTG) estimates used to calculate the net verified savings were defined by a consensus process through the Stakeholder Advisory Group (SAG)[[4]](#footnote-4).

##### 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‑. 2023 SFIE Program Verified Cost Effectiveness Inputs – PGL

| Program Path | Savings Category | Units | Quantity | Effective Useful Life | Ex Ante Gross Savings (Therms) | Verified Gross Savings (Therms) | Verified Net Savings (Therms) |
| --- | --- | --- | --- | --- | --- | --- | --- |
| IHWAP | Advanced Thermostat - Manual | Each | 17 | 11 | 1,640 | 1,640 | 1,640 |
| Advanced Thermostat - Programmable | Each | 3 | 11 | 214 | 214 | 214 |
| Air Sealing | Project | 58 | 20 | 6,003 | 6,019 | 6,019 |
| Attic Insulation | Sq. ft. | 53,114 | 20 | 11,895 | 11,752 | 11,752 |
| Basement/Sidewall Insulation | Sq. ft. | 3,282 | 20 | 223 | 223 | 223 |
| Low Flow Faucet Aerator - Bathroom | Each | 22 | 10 | 14 | 14 | 14 |
| Gas High Efficiency Boiler - ER | Each | 13 | 8 | 8,563 | 8,252 | 8,252 |
| DHW Pipe Insulation | Ln. ft. | 569 | 15 | 1,147 | 1,147 | 1,147 |
| Duct Sealing | Each | 4 | 20 | 1,120 | 1,120 | 1,120 |
| Floor Insulation Above Crawlspace | Sq. ft. | 1,531 | 20 | 197 | 197 | 197 |
| Gas High Efficiency Furnace - TOS | Each | 33 | 20 | 9,317 | 9,317 | 9,317 |
| Gas High Efficiency Furnace - ER | Each | 4 | 6 | 509 | 509 | 509 |
| Low Flow Showerhead | Each | 25 | 10 | 44 | 44 | 44 |
| Low Flow Faucet Aerator - Kitchen | Each | 9 | 10 | 43 | 43 | 43 |
| Programmable Thermostat | Each | 8 | 16 | 645 | 645 | 645 |
| Rim Joist Insulation | Sq. ft. | 1,161 | 20 | 114 | 113 | 113 |
| Gas Water Heater - ER | Each | 25 | 4 | 979 | 979 | 979 |
| Wall Insulation | Sq. ft. | 38,038 | 20 | 3,682 | 3,663 | 3,663 |
| Retrofits | Advanced Thermostat - Manual | Each | 14 | 11 | 1,435 | 1,435 | 1,435 |
| Advanced Thermostat - Programmable | Each | 38 | 11 | 2,650 | 2,650 | 2,650 |
| Air Sealing | Project | 415 | 20 | 233,215 | 232,946 | 232,946 |
| Attic Insulation | Sq. ft. | 288,651 | 20 | 68,692 | 67,777 | 67,777 |
| Basement/Sidewall Insulation | Sq. ft. | 10,382 | 20 | 2,249 | 2,247 | 2,247 |
| Low Flow Faucet Aerator - Bathroom | Each | 10 | 10 | 10 | 10 | 10 |
| Gas High Efficiency Boiler - TOS | Each | 4 | 25 | 687 | 687 | 687 |
| DHW Pipe Insulation | Ln. ft. | 2,267 | 15 | 4,571 | 4,571 | 4,571 |
| Duct Sealing | Each | 18 | 20 | 10,705 | 10,705 | 10,705 |
| Floor Insulation Above Crawlspace | Sq. ft. | 4,326 | 20 | 620 | 600 | 600 |
| Furnace Tune-Up | Each | 113 | 20 | 3,969 | 3,969 | 3,969 |
| Gas High Efficiency Furnace - TOS | Each | 8 | 20 | 1,352 | 1,352 | 1,352 |
| Low Flow Showerhead | Each | 17 | 10 | 53 | 53 | 53 |
| Low Flow Faucet Aerator - Kitchen | Each | 7 | 10 | 58 | 58 | 58 |
| Programmable Thermostat | Each | 50 | 16 | 3,416 | 3,416 | 3,416 |
| Rim Joist Insulation | Sq. ft. | 1,656 | 20 | 188 | 188 | 188 |
| Gas Water Heater - TOS | Each | 3 | 13 | 64 | 64 | 64 |
| Wall Insulation | Sq. ft. | 357,623 | 20 | 48,642 | 48,167 | 48,167 |
| HEA | Advanced Thermostat - Blended | Each | 4 | 11 | 312 | 312 | 312 |
| Advanced Thermostat - Manual | Each | 395 | 11 | 40,338 | 40,338 | 40,338 |
| Advanced Thermostat - Programmable | Each | 73 | 11 | 4,989 | 4,989 | 4,989 |
| Air Handler Filter Replacement | Each | 552 | 3 | 4,380 | 4,380 | 4,380 |
| Air Sealing | Project | 323 | 20 | 4,357 | 4,357 | 4,357 |
| Low Flow Faucet Aerator - Bathroom | Each | 958 | 10 | 913 | 907 | 907 |
| Boiler Pipe Insulation | Ln. ft. | 322 | 15 | 225 | 225 | 225 |
| DHW Pipe Insulation | Ln. ft. | 2,389 | 15 | 4,628 | 4,629 | 4,629 |
| Low Flow Showerhead | Each | 1,434 | 10 | 4,285 | 4,275 | 4,275 |
| Low Flow Faucet Aerator - Kitchen | Each | 624 | 10 | 5,464 | 5,464 | 5,464 |
| Programmable Thermostat | Each | 288 | 16 | 21,041 | 21,042 | 21,042 |
| Re-Program Thermostat | Each | 57 | 2 | 3,972 | 3,972 | 3,972 |
| Shower Flow Reducer | Each | 66 | 3 | 197 | 195 | 195 |
| **Total or Weighted Average** | |  |  | **18.1** | **524,025** | **521,870** | **521,870** |

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

Table B‑. 2023 SFIE Program Verified Cost Effectiveness Inputs – NSG

| Program Path | Savings Category | Units | Quantity | Effective Useful Life | Ex Ante Gross Savings (Therms) | Verified Gross Savings (Therms) | Verified Net Savings (Therms) |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Retrofits | Advanced Thermostat - Manual | Each | 4 | 11.00 | 410 | 410 | 410 |
| Advanced Thermostat - Programmable | Each | 3 | 11.00 | 214 | 214 | 214 |
| Air Sealing | Project | 19 | 20.00 | 1,086 | 1,086 | 1,086 |
| Attic Insulation | Sq. ft. | 11 | 20.00 | 867 | 867 | 867 |
| Basement/Sidewall Insulation | Sq. ft. | 4 | 20.00 | 79 | 79 | 79 |
| Low Flow Faucet Aerator - Bathroom | Each | 11 | 10.00 | 24 | 24 | 24 |
| Boiler Tune-Up | Each | 1 | 3.00 | 40 | 40 | 40 |
| DHW Pipe Insulation | Ln. ft. | 15 | 15.00 | 363 | 363 | 363 |
| Duct Sealing | Each | 7 | 20.00 | 451 | 451 | 451 |
| Floor Insulation Above Crawlspace | Sq. ft. | 1 | 20.00 | 99 | 99 | 99 |
| Furnace Tune-Up | Each | 2 | 3.00 | 131 | 131 | 131 |
| Low Flow Showerhead | Each | 9 | 10.00 | 29 | 29 | 29 |
| Low Flow Faucet Aerator - Kitchen | Each | 7 | 10.00 | 93 | 93 | 93 |
| Programmable Thermostat | Each | 3 | 16.00 | 224 | 224 | 224 |
| Rim Joist Insulation | Sq. ft. | 11 | 20.00 | 121 | 121 | 121 |
| Gas Water Heater - TOS | Each | 1 | 13.00 | 35 | 35 | 35 |
| Wall Insulation | Sq. ft. | 6 | 20.00 | 380 | 380 | 380 |
| HEA | Advanced Thermostat - Manual | Each | 50 | 11.00 | 5,126 | 5,126 | 5,126 |
| Advanced Thermostat - Programmable | Each | 10 | 11.00 | 714 | 714 | 714 |
| Air Handler Filter Replacement | Each | 54 | 3.00 | 447 | 447 | 447 |
| Air Sealing | Project | 22 | 20.00 | 273 | 273 | 273 |
| Low Flow Faucet Aerator - Bathroom | Each | 57 | 10.00 | 107 | 107 | 107 |
| Boiler Pipe Insulation | Ln. ft. | 15 | 15.00 | 67 | 67 | 67 |
| DHW Pipe Insulation | Ln. ft. | 24 | 15.00 | 263 | 263 | 263 |
| Low Flow Showerhead | Each | 107 | 10.00 | 459 | 459 | 459 |
| Low Flow Faucet Aerator - Kitchen | Each | 31 | 10.00 | 293 | 293 | 293 |
| Programmable Thermostat | Each | 13 | 16.00 | 931 | 931 | 931 |
| Re-Program Thermostat | Each | 3 | 2.00 | 187 | 187 | 187 |
| Shower Flow Reducer | Each | 3 | 3.00 | 10 | 10 | 10 |
| **Total or Weighted Average** | |  |  | **13.3** | **13,521** | **13,521** | **13,521** |

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

1. The utilities also have HEA market rate programs they implement, and Guidehouse evaluates separately from the IE HEA program. [↑](#footnote-ref-1)
2. IL TRM v11.0 page 172. [↑](#footnote-ref-2)
3. Illinois Statewide Technical Reference Manual for Energy Efficiency (IL-TRM) version 11.0 from <http://www.ilsag.info/technical-reference-manual.html.> [↑](#footnote-ref-3)
4. Available on the SAG website: [https://www.ilsag.info/evaluator-ntg-recommendations-for-2023/.](https://www.ilsag.info/evaluator-ntg-recommendations-for-2023/) [↑](#footnote-ref-4)