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|  | Small and Midsize Business Program Impact Evaluation Report  Energy Efficiency Plan: Program Year 2023  (1/1/2023-12/31/2023) | | | |
|  | Prepared for:  Peoples Gas and North Shore Gas  DRAFT  May 1, 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 Small and Midsize Business (SMB) programs and presents a summary of the energy impacts for the total program, as well as relevant measure and program structure details. The appendix presents the impact analysis methodology. Program year 2023 covers January 1, 2023 through December 31, 2023.

# Program Description

The 2023 SMB Program is offered by Peoples Gas and North Shore Gas (PGL and NSG) with 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. 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. 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 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 to reduce energy usage in the commercial food service sector.

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

Table 2‑1. 2023 Volumetric Summary for PGL

| Participation | Prescriptive/PTA | CFS | Custom | Total |
| --- | --- | --- | --- | --- |
| **Private Sector** |  |  |  |  |
| Participants \* | 78 | 66 | 0 | **144** |
| Installed Projects † | 86 | 72 | 0 | **158** |
| Measure Types Installed | 27 | 13 | 0 | **40** |
| **Public Sector** |  |  |  |  |
| Participants \* | 3 | 0 | 0 | **3** |
| Installed Projects † | 3 | 0 | 0 | **3** |
| Measure Types Installed | 3 | 0 | 0 | **3** |
| **Program 2023 Total** |  |  |  |  |
| Participants \* | 81 | 66 | 0 | **147** |
| Installed Projects † | 89 | 72 | 0 | **161** |
| Measure Types Installed | 30 | 13 | 0 | **43** |

\* Participants are defined as

† Installed Projects are defined as

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. The table shows measure list from projects installed in disadvantaged communities (DAC).

Table 2‑2. 2023 Installed Measure Quantities for PGL

| Program Category | Program Path | Measure | Quantity Unit | Installed Quantity |
| --- | --- | --- | --- | --- |
| Private | Prescriptive/PTA-DAC | Boiler - Steam >=1500MBH, >=82% TE | MBH | 3,220 |
|  | Prescriptive/PTA-DAC | Boiler Tune Up (COM) | MBH | 8,537 |
|  | Prescriptive/PTA-DAC | Energy Star Fryer | Each | 4 |
|  | Prescriptive/PTA-DAC | High Speed Washer - Laundromat | lb-capacity | 1,750 |
|  | Prescriptive/PTA-DAC | Ozone Laundry | lb-capacity | 1,335 |
|  | Prescriptive/PTA-DAC | Steam Traps - Dry Cleaner Rep. - Audit | Each | 126 |
|  | Prescriptive/PTA-DAC | Steam Traps - HVAC Repair/Rep - Audit | Each | 22 |
|  | Prescriptive/PTA | Boiler Tune Up - Process | MBH | 7,756 |
|  | Prescriptive/PTA | Boiler Tune Up (COM) | MBH | 215,304 |
|  | Prescriptive/PTA | Dock Door Seals | Each | 2 |
|  | Prescriptive/PTA | Draft Controls, > 2,000 MBH -retrofit only | MBH | 17,060 |
|  | Prescriptive/PTA | Energy Star Fryer | Each | 1 |
|  | Prescriptive/PTA | High Speed Washer - Laundromat | lb-capacity | 1,840 |
|  | Prescriptive/PTA | Hotel Low Flow Aerator/Restrictor | Each | 466 |
|  | Prescriptive/PTA | Hotel Low Showerhead/Restrictor | Each | 233 |
|  | Prescriptive/PTA | Linkageless controls -for new burners | MBH | 42,260 |
|  | Prescriptive/PTA | Pipe Insulation - Steam Med 2.1" to 5" | LN FT | 325 |
|  | Prescriptive/PTA | Pipe Insulation - Steam Small 1" to 2" | LN FT | 384 |
|  | Prescriptive/PTA | Steam Traps - Dry Cleaner Rep. - Audit | Each | 136 |
|  | Prescriptive/PTA | Steam Traps - HVAC Repair/Rep - Audit | Each | 904 |
|  | Prescriptive/PTA | Steam Traps - HVAC Repair/Rep - No Audit | Each | 20 |
|  | Prescriptive/PTA | Steam Traps - Industrial/Process Audit - 125 <= psig < 175 | Each | 2 |
|  | Prescriptive/PTA | Steam Traps - Industrial/Process Audit - 15 < psig < 30 | Each | 1 |
|  | Prescriptive/PTA | Steam Traps - Industrial/Process Audit - 75 <= psig < 125 | Each | 19 |
|  | Prescriptive/PTA | Steam Traps - Industrial/Process Audit - psig <= 15 | Each | 67 |
|  | Prescriptive/PTA | Tankless Water Heater 0.90 UEF | Each | 398 |
|  | Prescriptive/PTA | Thermostat - Smart (COM) | Each | 3 |
|  | CFS-DAC | Convection Oven | Each | 2 |
|  | CFS-DAC | Fryer Standard Open Deep-Vat Fryer (French Fryer) | Each | 5 |
|  | CFS | Automatic Conveyer Broiler Commercial > 26" Conveyor Width | Each | 1 |
|  | CFS | Combination Oven Gas - <15 Pans | Each | 12 |
|  | CFS | Combination Oven Gas - 15-30 Pans | Each | 2 |
|  | CFS | Commercial Steam Cooker | Each | 2 |
|  | CFS | Convection Oven | Each | 8 |
|  | CFS | Dishwasher High Temp - Stationary Single Tank Door-Gas Bldg-Elec Boost | Each | 1 |
|  | CFS | Dishwasher Low Temp - Multi Tank Conveyor - Gas Bldg - Elec Boost | Each | 1 |
|  | CFS | Double Rack Oven | Double Oven | 2 |
|  | CFS | Fryer Large Vat Open Deep-Vat Fryer | Each | 2 |
|  | CFS | Fryer Standard Open Deep-Vat Fryer (French Fryer) | Each | 58 |
|  | CFS | Pasta Cooker | Each | 2 |
| Public | Prescriptive/PTA | Boiler Tune Up (COM) | MBH | 16,738 |
|  | Prescriptive/PTA | Steam Traps - HVAC Repair/Rep - Audit | Each | 364 |
|  | Prescriptive/PTA | Thermostat - Smart (COM) | Each | 5 |

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

The NSG program had 46 participants in 2023 and completed 50 projects as shown in the following table.

Table 2‑3. 2023 Volumetric Summary for NSG

| Participation | Prescriptive/PTA | CFS | Custom | Total |
| --- | --- | --- | --- | --- |
| **Private Sector** |  |  |  |  |
| Participants \* | 41 | 5 | 0 | **46** |
| Installed Projects † | 44 | 6 | 0 | **50** |
| Measure Types Installed | 18 | 4 | 0 | **22** |
|  |  |  |  |  |
| **Public Sector** |  |  |  |  |
| Participants \* | 0 | 0 | 0 | **0** |
| Installed Projects † | 0 | 0 | 0 | **0** |
| Measure Types Installed | 0 | 0 | 0 | **0** |
| **Program 2023 Total** |  |  |  |  |
| Participants \* | 41 | 5 | 0 | **46** |
| Installed Projects † | 44 | 6 | 0 | **50** |
| Measure Types Installed | 18 | 4 | 0 | **22** |

\* Participants are defined as

† Installed Projects are defined as

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

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

Table 2‑4. 2023 Installed Measure Quantities for NSG

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

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

# Program Savings Detail

Table 3‑1 summarizes the energy savings the PGL Small and Midsize Business Program achieved by path in 2023.

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

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

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

† A deemed value. Available on the SAG web site: https://www.ilsag.info/evaluator-ntg-recommendations-for-2023/. Projects in disadvantaged communities designated sites have a NTG of 1.0.

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

Table 3‑2 summarizes the energy savings the NSG Small and Midsize Business Program achieved by path in 2023.

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

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

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

† A deemed value. Available on the SAG web site: https://www.ilsag.info/evaluator-ntg-recommendations-for-2023/. Projects in disadvantaged communities designated sites have a NTG of 1.0.

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

# Program Savings by Measure

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

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

| Program Category | Program Path | Savings Category | Ex Ante Gross Savings (Therms) | Verified Gross RR\* | Verified  Gross  Savings (Therms) | NTG† | Verified  Net  Savings (Therms) |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Private | Prescriptive/PTA-DAC | Boiler - Steam >=1500MBH, >=82% TE | 1,239 | 100% | 1,239 | 1.00 | 1,239 |
|  | Prescriptive/PTA-DAC | Boiler Tune Up (COM) | 4,043 | 68% | 2,754 | 1.00 | 2,754 |
|  | Prescriptive/PTA-DAC | Energy Star Fryer | 2,050 | 100% | 2,050 | 1.00 | 2,050 |
|  | Prescriptive/PTA-DAC | High Speed Washer - Laundromat | 4,881 | 100% | 4,881 | 1.00 | 4,881 |
|  | Prescriptive/PTA-DAC | Ozone Laundry | 16,560 | 100% | 16,560 | 1.00 | 16,560 |
|  | Prescriptive/PTA-DAC | Steam Traps - Dry Cleaner Rep. - Audit | 81,650 | 100% | 81,650 | 1.00 | 81,650 |
|  | Prescriptive/PTA-DAC | Steam Traps - HVAC Repair/Rep - Audit | 17,160 | 100% | 17,160 | 1.00 | 17,160 |
|  | Prescriptive/PTA | Boiler Tune Up - Process | 7,932 | 100% | 7,932 | 0.93 | 7,377 |
|  | Prescriptive/PTA | Boiler Tune Up (COM) | 97,899 | 91% | 89,505 | 0.93 | 83,240 |
|  | Prescriptive/PTA | Dock Door Seals | 470 | 100% | 470 | 0.93 | 437 |
|  | Prescriptive/PTA | Draft Controls, > 2,000 MBH -retrofit only | 2,788 | 100% | 2,788 | 0.93 | 2,592 |
|  | Prescriptive/PTA | Energy Star Fryer | 512 | 100% | 512 | 0.93 | 477 |
|  | Prescriptive/PTA | High Speed Washer - Laundromat | 5,132 | 100% | 5,132 | 0.93 | 4,773 |
|  | Prescriptive/PTA | Hotel Low Flow Aerator/Restrictor | 1,170 | 100% | 1,170 | 0.93 | 1,088 |
|  | Prescriptive/PTA | Hotel Low Showerhead/ Restrictor | 5,004 | 100% | 5,004 | 0.93 | 4,654 |
|  | Prescriptive/PTA | Linkageless Controls -for New Burners | 26,240 | 100% | 26,240 | 0.93 | 24,403 |
|  | Prescriptive/PTA | Pipe Insulation - Steam Med 2.1" to 5" | 4,164 | 100% | 4,164 | 0.93 | 3,872 |
|  | Prescriptive/PTA | Pipe Insulation - Steam Small 1" to 2" | 1,223 | 100% | 1,223 | 0.93 | 1,138 |
|  | Prescriptive/PTA | Steam Traps - Dry Cleaner Rep. - Audit | 88,130 | 100% | 88,130 | 0.93 | 81,961 |
|  | Prescriptive/PTA | Steam Traps - HVAC Repair/Rep - Audit | 698,368 | 101% | 705,134 | 0.93 | 655,774 |
|  | Prescriptive/PTA | Steam Traps - HVAC Repair/Rep - No Audit | 4,212 | 102% | 4,283 | 0.93 | 3,984 |
|  | Prescriptive/PTA | Steam Traps - Industrial/Process Audit - 125 <= psig < 175 | 14,669 | 100% | 14,669 | 0.93 | 13,643 |
|  | Prescriptive/PTA | Steam Traps - Industrial/Process Audit - 15 < psig < 30 | 758 | 102% | 776 | 0.93 | 722 |
|  | Prescriptive/PTA | Steam Traps - Industrial/Process Audit - 75 <= psig < 125 | 99,821 | 101% | 100,489 | 0.93 | 93,455 |
|  | Prescriptive/PTA | Steam Traps - Industrial/Process Audit - psig <= 15 | 107,423 | 100% | 107,428 | 0.93 | 99,908 |
|  | Prescriptive/PTA | Tankless Water Heater 0.90 UEF | 331 | 95% | 315 | 1.00 | 315 |
|  | Prescriptive/PTA | Thermostat - Smart (COM) | 471 | 90% | 422 | 0.97 | 410 |
|  | CFS-DAC | Convection Oven | 401 | 104% | 419 | 1.00 | 419 |
|  | CFS-DAC | Fryer Standard Open Deep-Vat Fryer (French Fryer) | 2,541 | 101% | 2,562 | 1.00 | 2,562 |
|  | CFS | Automatic Conveyer Broiler Commercial > 26" Conveyor Width | 2,976 | 132% | 3,917 | 0.80 | 3,134 |
|  | CFS | Combination Oven Gas - <15 Pans | 4,803 | 109% | 5,213 | 0.80 | 4,170 |
|  | CFS | Combination Oven Gas - 15-30 Pans | 1,085 | 85% | 925 | 0.80 | 740 |
|  | CFS | Commercial Steam Cooker | 3,008 | 100% | 2,997 | 0.80 | 2,398 |
|  | CFS | Convection Oven | 1,972 | 85% | 1,675 | 0.80 | 1,340 |
|  | CFS | Dishwasher High Temp - Stationary Single Tank Door-Gas Bldg-Elec Boost | 294 | 100% | 294 | 0.80 | 235 |
|  | CFS | Dishwasher Low Temp - Multi Tank Conveyor - Gas Bldg - Elec Boost | 1,022 | 77% | 786 | 0.80 | 629 |
|  | CFS | Double Rack Oven | 4,324 | 89% | 3,861 | 0.80 | 3,089 |
|  | CFS | Fryer Large Vat Open Deep-Vat Fryer | 1,146 | 73% | 841 | 0.80 | 673 |
|  | CFS | Fryer Standard Open Deep-Vat Fryer (French Fryer) | 38,808 | 77% | 29,723 | 0.80 | 23,778 |
|  | CFS | Pasta Cooker | 2,760 | 100% | 2,760 | 0.80 | 2,208 |
| Public | Prescriptive/PTA | Boiler Tune Up (COM) | 7,926 | 100% | 7,926 | 0.93 | 7,371 |
|  | Prescriptive/PTA | Steam Traps - HVAC Repair/Rep - Audit | 283,913 | 100% | 283,925 | 0.93 | 264,051 |
|  | Prescriptive/PTA | Thermostat - Smart (COM) | 785 | 87% | 684 | 0.97 | 663 |
| **Total or Weighted Average** | | | **1,652,063** | **99%** | **1,640,588** |  | **1,527,973** |

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

† A deemed value. Available on the SAG web site: https://www.ilsag.info/evaluator-ntg-recommendations-for-2023/. Projects in disadvantaged communities designated sites have a NTG of 1.0.

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

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

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

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

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

† A deemed value. Available on the SAG web site: https://www.ilsag.info/evaluator-ntg-recommendations-for-2023/. Projects in disadvantaged communities designated sites have a NTG of 1.0.

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

# Impact Analysis Findings and Recommendations

## Impact Parameter Estimates

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

Table 5‑1. 2023 Verified Gross Savings Parameters

| Measure | Unit Basis | Ex Ante Gross (therms/unit) | Verified  Gross (therms/unit) | Realization Rate | Data Source(s) |
| --- | --- | --- | --- | --- | --- |
| Automatic Conveyer Broiler Commercial > 26" Conveyor Width | Each | 2,976.18 | 3,917.27 | 132% | Illinois TRM v11.0, Section 4.2.22 |
| Boiler - HW 300-2500MBtu, >88% TE | MBH | 1.53 | 1.26 | 82% | Illinois TRM v11.0, Section 4.4.10 |
| Boiler - Steam >=1500MBH, >=82% TE | MBH | 0.38 | 0.38 | 100% | Illinois TRM v11.0, Section 4.4.10 |
| Boiler Tune Up - Process | MBH | 1.02 | 1.02 | 100% | Illinois TRM v11.0, Section 4.4.3 |
| Boiler Tune Up (COM) | MBH | Varies | Varies | 91% | Illinois TRM v11.0, Section 4.4.3 |
| Combination Oven Gas - <15 Pans | Each | 410.15 | 434.41 | 106% | Illinois TRM v11.0, Section 4.2.1 |
| Combination Oven Gas - 15-30 Pans | Each | 542.61 | 462.65 | 85% | Illinois TRM v11.0, Section 4.2.1 |
| Commercial Steam Cooker | Each | 1,503.88 | 1,498.69 | 100% | Illinois TRM v11.0, Section 4.2.3 |
| Condensate tank Insulation (LP space heating) | SQ FT | 6.18 | 6.18 | 100% | SMB Tracking Data |
| Convection Oven | Each | 229.02 | 209.35 | 91% | Illinois TRM v11.0, Section 4.2.5 |
| Dishwasher High Temp - Stationary Single Tank Door-Gas Bldg-Elec Boost | Each | 294.00 | 293.51 | 100% | Illinois TRM v11.0, Section 4.2.6 |
| Dishwasher Low Temp - Multi Tank Conveyor - Gas Bldg - Elec Boost | Each | 1,022.06 | 786.20 | 77% | Illinois TRM v11.0, Section 4.2.6 |
| Dock Door Seals | Each | 234.95 | 234.95 | 100% | Illinois TRM v11.0, Section 4.8.29 |
| Double Rack Oven | Double Oven | 2,162.16 | 1,930.50 | 89% | Illinois TRM v11.0, Section 4.2.18 |
| Draft Controls, > 2,000 MBH -retrofit only | MBH | 0.16 | 0.16 | 100% | Illinois TRM v11.0, Section 4.4.21 |
| Energy Star Fryer | Each | 483.80 | 512.46 | 106% | Illinois TRM v11.0, Section 4.2.7 |
| Fryer Large Vat Open Deep-Vat Fryer | Each | 572.86 | 420.58 | 73% | Illinois TRM v11.0, Section 4.2.7 |
| Fryer Standard Open Deep-Vat Fryer (French Fryer) | Each | 638.36 | 512.46 | 80% | Illinois TRM v11.0, Section 4.2.7 |
| Furnace > 95% AFUE (COM) | Each | 243.55 | 232.59 | 96% | Illinois TRM v11.0, Section 4.4.11 |
| Griddle Dual | Each | 149.00 | 148.89 | 100% | Illinois TRM v11.0, Section 4.2.8 |
| High Speed Washer - Laundromat | lb-capacity | 2.69 | 2.79 | 104% | Illinois TRM v11.0, Section 4.8.5 |
| Hotel Low Flow Aerator/Restrictor | Each | 2.51 | 2.51 | 100% | Illinois TRM v11.0, Section 4.8.5 |
| Hotel Low Showerhead/Restrictor | Each | 21.48 | 21.48 | 100% | Illinois TRM v11.0, Section 4.3.3 |
| Linkageless controls -for new burners | MBH | 0.58 | 0.58 | 100% | Illinois TRM v11.0, Section 4.4.21 |
| Ozone Laundry | lb-capacity | 12.40 | 12.40 | 108% | Illinois TRM v11.0, Section 4.3.6 |
| Pasta Cooker | Each | 1,380.00 | 1,380.00 | 100% | Illinois TRM v11.0, Section 4.2.17 |
| Pipe Insulation - DHW Small <1.25" | LN FT | 1.88 | 2.44 | 130% | Illinois TRM v11.0, Section 4.4.14 |
| Pipe Insulation - HW Medium 2.1" to 4" | LN FT | 5.68 | 5.68 | 100% | Illinois TRM v11.0, Section 4.4.14 |
| Pipe Insulation - HW Small 1" to 2" | LN FT | 2.66 | 2.66 | 100% | Illinois TRM v11.0, Section 4.4.14 |
| Pipe Insulation - Steam Med 2.1" to 5" | LN FT | 12.81 | 12.81 | 100% | Illinois TRM v11.0, Section 4.4.14 |
| Pipe Insulation - Steam Med Fitting | LN FT | 16.17 | 16.17 | 100% | Illinois TRM v11.0, Section 4.4.14 |
| Pipe Insulation - Steam Small 1" to 2" | LN FT | 3.19 | 3.19 | 100% | Illinois TRM v11.0, Section 4.4.14 |
| Stack Economizer (Conventional) | MBH | 1.06 | 1.06 | 100% | Illinois TRM v11.0, Section 4.4.29 |
| Steam Traps - Dry Cleaner Rep. - Audit | Each | 633.56 | 648.01 | 102% | Illinois TRM v11.0, Section 4.4.16 |
| Steam Traps - HVAC Repair/Rep - Audit | Each | 773.94 | 780.01 | 101% | Illinois TRM v11.0, Section 4.4.16 |
| Steam Traps - HVAC Repair/Rep - No Audit | Each | 210.60 | 214.17 | 102% | Illinois TRM v11.0, Section 4.4.16 |
| Steam Traps - Industrial/Process Audit - 125 <= psig < 175 | Each | 7,334.75 | 7,334.75 | 100% | Illinois TRM v11.0, Section 4.4.16 |
| Steam Traps - Industrial/Process Audit - 15 < psig < 30 | Each | 758.17 | 776.25 | 102% | Illinois TRM v11.0, Section 4.4.16 |
| Steam Traps - Industrial/Process Audit - 75 <= psig < 125 | Each | 5,253.73 | 5,288.90 | 101% | Illinois TRM v11.0, Section 4.4.16 |
| Steam Traps - Industrial/Process Audit - psig <= 15 | Each | 1,603.33 | 1,603.40 | 100% | Illinois TRM v11.0, Section 4.4.16 |
| Tankless Water Heater 0.90 UEF | Each | 0.83 | 0.79 | 95% | Illinois TRM v11.0, Section 4.3.1 |
| Thermostat – Smart (COM) | Each | 157.01 | 138.22 | 88% | Illinois TRM v11.0, Section 4.4.48 |
| Water Heater 95% TE- Laundromat | MBH | 1.84 | 1.84 | 100% | Illinois TRM v11, Section 4.3.1 |

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

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

‡ Project files and monthly billing data provided by Peoples Gas and North Shore Gas. When conducted, on-site and telephone interview data collected by Guidehouse.

## Findings and Recommendations

**Finding 1.** The evaluation team calculated gross realization rate of 91% for Boiler Tune-up (COM) measure. The evaluation relied on building type equivalent full load hours (EFLH) and climate zone information provided in the tracking data and the TRM v11 to calculate verified savings. Some building types provided in the tracking data did not use the accurate assumptions.

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

**Finding 2.** For the Thermostat – Smart (COM) measure completed under the NSG program, the evaluation team calculated a gross realization rate of 90% using IL TRM v11 default values for the private sector and 87% for the public sector. The evaluation relied on the building type information in the tracking data and the TRM to establish the verified savings. It appears the ex ante savings used incorrect building type assumptions.

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

**Finding 3.** For the Boiler – HW 300-2500 MBH, >88% TE and the Furnace > 95% AFUE measure completed under the NSG program, the evaluation team calculated a gross realization rate of 79% and 96% respectively based on the inputs provided in the tracking data. It appears the ex ante applied average or incorrect building type assumptions (e.g. applied the “Other” building type to a manufacturing facility).

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

**Finding 4.** For the NSG measure Pipe Insulation – DHW Small <1.25”, the evaluator calculated a gross realization rate of 130%. The implementor incorrectly used customized hours instead of the IL TRM v11 default value of 8,766 hours for domestic hot water applications.

**Recommendation 4.** The program should apply the IL TRM default value for annual EFLH hours for domestic hot water pipe insulation therm savings.

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

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

##### Impact Analysis Methodology

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

For measures in the CFS path, Guidehouse performed an additional tracking data verification step. For measures defined in the IL-TRM v11 as needing to be under ENERGY STAR certification, the evaluation team compared their efficient ENERGY STAR tracking data values to the ENERGY STAR QPLs[[2]](#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. Details of evaluation findings are provided in Appendix B.

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

The evaluation team calculated verified net savings by multiplying the verified gross savings estimates by a NTGR deemed by a consensus process through the SAG.[[3]](#footnote-3) Economically disadvantaged areas (DAC) were identified by census track and evaluation used NTG of 1.00 for DAC projects’ verified savings, based on Illinois Policy Manual 3.0.[[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‑1: 2023 Verified Cost Effectiveness Inputs – PGL

| Program Category | | Program Path | | Savings Category | Units | Quantity | Effective Useful Life | Ex Ante Gross Savings (Therms) | Verified Gross Savings (Therms) | Verified Net Savings (Therms) |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Private | Prescriptive/PTA-DAC | | Boiler - Steam >=1500MBH, >=82% TE | | MBH | 3,220 | 25 | 1,239 | 1,239 | 1,239 |
|  | Prescriptive/PTA-DAC | | Boiler Tune Up (COM) | | MBH | 8,537 | 2 | 4,043 | 2,754 | 2,754 |
|  | Prescriptive/PTA-DAC | | Energy Star Fryer | | Each | 4 | 12 | 2,050 | 2,050 | 2,050 |
|  | Prescriptive/PTA-DAC | | High Speed Washer - Laundromat | | lb-capacity | 1,750 | 7 | 4,881 | 4,881 | 4,881 |
|  | Prescriptive/PTA-DAC | | Ozone Laundry | | lb-capacity | 1,335 | 10 | 16,560 | 16,560 | 16,560 |
|  | Prescriptive/PTA-DAC | | Steam Traps - Dry Cleaner Rep. - Audit | | Each | 126 | 6 | 81,650 | 81,650 | 81,650 |
|  | Prescriptive/PTA-DAC | | Steam Traps - HVAC Repair/Rep - Audit | | Each | 22 | 6 | 17,160 | 17,160 | 17,160 |
|  | Prescriptive/PTA | | Boiler Tune Up - Process | | MBH | 7,756 | 2 | 7,932 | 7,932 | 7,377 |
|  | Prescriptive/PTA | | Boiler Tune Up (COM) | | MBH | 215,304 | 2 | 97,899 | 89,505 | 83,240 |
|  | Prescriptive/PTA | | Dock Door Seals | | Each | 2 | 15 | 470 | 470 | 437 |
|  | Prescriptive/PTA | | Draft Controls, > 2,000 MBH -retrofit only | | MBH | 17,060 | 20 | 2,788 | 2,788 | 2,592 |
|  | Prescriptive/PTA | | Energy Star Fryer | | Each | 1 | 12 | 512 | 512 | 477 |
|  | Prescriptive/PTA | | High Speed Washer - Laundromat | | lb-capacity | 1,840 | 7 | 5,132 | 5,132 | 4,773 |
|  | Prescriptive/PTA | | Hotel Low Flow Aerator/Restrictor | | Each | 466 | 10 | 1,170 | 1,170 | 1,088 |
|  | Prescriptive/PTA | | Hotel Low Showerhead/Restrictor | | Each | 233 | 10 | 5,004 | 5,004 | 4,654 |
|  | Prescriptive/PTA | | Linkageless controls -for new burners | | MBH | 42,260 | 20 | 26,240 | 26,240 | 24,403 |
|  | Prescriptive/PTA | | Pipe Insulation - Steam Med 2.1" to 5" | | LN FT | 325 | 15 | 4,164 | 4,164 | 3,872 |
|  | Prescriptive/PTA | | Pipe Insulation - Steam Small 1" to 2" | | LN FT | 384 | 15 | 1,223 | 1,223 | 1,138 |
|  | Prescriptive/PTA | | Steam Traps - Dry Cleaner Rep. - Audit | | Each | 136 | 6 | 88,130 | 88,130 | 81,961 |
|  | Prescriptive/PTA | | Steam Traps - HVAC Repair/Rep - Audit | | Each | 904 | 6 | 698,368 | 705,134 | 655,774 |
|  | Prescriptive/PTA | | Steam Traps - HVAC Repair/Rep - No Audit | | Each | 20 | 6 | 4,212 | 4,283 | 3,984 |
|  | Prescriptive/PTA | | Steam Traps - Industrial/Process Audit - 125 <= psig < 175 | | Each | 2 | 6 | 14,669 | 14,669 | 13,643 |
|  | Prescriptive/PTA | | Steam Traps - Industrial/Process Audit - 15 < psig < 30 | | Each | 1 | 6 | 758 | 776 | 722 |
|  | Prescriptive/PTA | | Steam Traps - Industrial/Process Audit - 75 <= psig < 125 | | Each | 19 | 6 | 99,821 | 100,489 | 93,455 |
|  | Prescriptive/PTA | | Steam Traps - Industrial/Process Audit - psig <= 15 | | Each | 67 | 6 | 107,423 | 107,428 | 99,908 |
|  | Prescriptive/PTA | | Tankless Water Heater 0.90 UEF | | Each | 398 | 20 | 331 | 315 | 315 |
|  | Prescriptive/PTA | | Thermostat - Smart (COM) | | Each | 3 | 11 | 471 | 422 | 410 |
|  | CFS-DAC | | Convection Oven | | Each | 2 | 12 | 401 | 419 | 419 |
|  | CFS-DAC | | Fryer Standard Open Deep-Vat Fryer (French Fryer) | | Each | 5 | 12 | 2,541 | 2,562 | 2,562 |
|  | CFS | | Automatic Conveyer Broiler Commercial > 26" Conveyor Width | | Each | 1 | 12 | 2,976 | 3,917 | 3,134 |
|  | CFS | | Combination Oven Gas - <15 Pans | | Each | 12 | 12 | 4,803 | 5,213 | 4,170 |
|  | CFS | | Combination Oven Gas - 15-30 Pans | | Each | 2 | 12 | 1,085 | 925 | 740 |
|  | CFS | | Commercial Steam Cooker | | Each | 2 | 12 | 3,008 | 2,997 | 2,398 |
|  | CFS | | Convection Oven | | Each | 8 | 12 | 1,972 | 1,675 | 1,340 |
|  | CFS | | Dishwasher High Temp - Stationary Single Tank Door-Gas Bldg-Elec Boost | | Each | 1 | 15 | 294 | 294 | 235 |
|  | CFS | | Dishwasher Low Temp - Multi Tank Conveyor - Gas Bldg - Elec Boost | | Each | 1 | 20 | 1,022 | 786 | 629 |
|  | CFS | | Double Rack Oven | | Double Oven | 2 | 12 | 4,324 | 3,861 | 3,089 |
|  | CFS | | Fryer Large Vat Open Deep-Vat Fryer | | Each | 2 | 12 | 1,146 | 841 | 673 |
|  | CFS | | Fryer Standard Open Deep-Vat Fryer (French Fryer) | | Each | 58 | 12 | 38,808 | 29,723 | 23,778 |
|  | CFS | | Pasta Cooker | | Each | 2 | 12 | 2,760 | 2,760 | 2,208 |
| Public | Prescriptive/PTA | | Boiler Tune Up (COM) | | MBH | 16,738 | 2 | 7,926 | 7,926 | 7,371 |
|  | Prescriptive/PTA | | Steam Traps - HVAC Repair/Rep - Audit | | Each | 364 | 6 | 283,913 | 283,925 | 264,051 |
|  | Prescriptive/PTA | | Thermostat - Smart (COM) | | Each | 5 | 11 | 785 | 684 | 663 |
| **Total or Weighted Average** | | |  | |  |  | **9.2** | **1,652,063** | **1,640,588** | **1,527,973** |

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

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

| Program Category | Program Path | Savings Category | Units | Quantity | Effective Useful Life | Ex Ante Gross Savings (Therms) | Verified Gross Savings (Therms) | Verified Net Savings (Therms) |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Private | Prescriptive/PTA-DAC | Boiler - HW 300-2500MBtu, >88% TE | MBH | 1,000 | 25 | 1,504 | 1,504 | 1,504 |
|  | Prescriptive/PTA-DAC | Steam Traps - Dry Cleaner Rep. - Audit | Each | 32 | 6 | 20,736 | 20,736 | 20,736 |
|  | Prescriptive/PTA | Boiler - HW 300-2500MBtu, >88% TE | MBH | 6,950 | 25 | 10,760 | 8,513 | 7,917 |
|  | Prescriptive/PTA | Boiler Tune Up - Process | MBH | 1,260 | 3 | 1,289 | 1,289 | 1,198 |
|  | Prescriptive/PTA | Boiler Tune Up (COM) | MBH | 8,810 | 3 | 3,739 | 3,379 | 3,478 |
|  | Prescriptive/PTA | Condensate tank Insulation (LP space heating) | SQ FT | 50 | 15 | 309 | 309 | 288 |
|  | Prescriptive/PTA | Furnace > 95% AFUE (COM) | Each | 6 | 16.5 | 1,461 | 1,396 | 1,298 |
|  | Prescriptive/PTA | Linkageless controls -for new burners | MBH | 10,047 | 16 | 3,867 | 3,867 | 3,597 |
|  | Prescriptive/PTA | Pipe Insulation - DHW Small <1.25" | LN FT | 50 | 15 | 94 | 122 | 113 |
|  | Prescriptive/PTA | Pipe Insulation - HW Medium 2.1" to 4" | LN FT | 430 | 15 | 2,441 | 2,441 | 2,270 |
|  | Prescriptive/PTA | Pipe Insulation - HW Small 1" to 2" | LN FT | 1,194 | 15 | 3,175 | 3,175 | 2,952 |
|  | Prescriptive/PTA | Pipe Insulation - Steam Med 2.1" to 5" | LN FT | 280 | 15 | 3,587 | 3,587 | 3,336 |
|  | Prescriptive/PTA | Pipe Insulation - Steam Med Fitting | LN FT | 53 | 15 | 857 | 857 | 797 |
|  | Prescriptive/PTA | Pipe Insulation - Steam Small 1" to 2" | LN FT | 1,026 | 15 | 3,268 | 3,268 | 3,040 |
|  | Prescriptive/PTA | Stack Economizer (Conventional) | MBH | 10,047 | 15 | 10,628 | 10,609 | 9,866 |
|  | Prescriptive/PTA | Steam Traps - Dry Cleaner Rep. - Audit | Each | 202 | 6 | 130,899 | 130,899 | 121,736 |
|  | Prescriptive/PTA | Steam Traps - HVAC Repair/Rep - Audit | Each | 24 | 6 | 18,720 | 18,720 | 17,410 |
|  | Prescriptive/PTA | Water Heater 95% TE - Laundromat | MBH | 200 | 15 | 367 | 367 | 341 |
|  | CFS | Combination Oven Gas - <15 Pans | Each | 2 | 12 | 940 | 869 | 695 |
|  | CFS | Convection Oven | Each | 1 | 12 | 147 | 209 | 167 |
|  | CFS | Fryer Standard Open Deep-Vat Fryer (French Fryer) | Each | 9 | 12 | 4,613 | 4,612 | 3,690 |
|  | CFS | Griddle Dual | Each | 2 | 12 | 298 | 298 | 238 |
| **Total or Weighted Average** | | |  |  | **6.8** | **223,698** | **221,387** | **206,668** |

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

1. 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-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)