|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Home Energy Rebates Impact Evaluation Report  Energy Efficiency Plan: Program Year 2024  (1/1/2024-12/31/2024) | | | |
|  | Prepared for:  Peoples Gas and North Shore Gas  DRAFT  April 20, 2025 | | | |
|  | Prepared by: | |  | |
|  | Marisa Rudolph  Guidehouse | | Robert Hodge  Guidehouse | |
| **guidehouse.com** |  |  |  |  |

**Submitted to:**

Peoples Gas

North Shore Gas

200 East Randolph Street

Chicago, IL 60601

**Submitted by:**

Guidehouse

150 N. Riverside Plaza, Suite 2100

Chicago, IL 60606

**Contact:**

|  |  |  |
| --- | --- | --- |
| Ed Balbis  Partner  561.644.9407  [**ebalbis@guidehouse.com**](mailto:ebalbis@guidehouse.com)  Charles Ampong Associate Director  608.446.3172  [**charles.ampong@guidehouse.com**](mailto:charles.ampong@guidehouse.com) | Jeff Erickson  Director  802.526.5113  **jeff.erickson@guidehouse.com** | Laura Agapay-Read  Associate Director  312.583.4178  **laura.agapay.read@guidehouse.com** |

Disclaimer: This report was prepared by Guidehouse for Peoples Gas Light and Coke Company (“PGL”) and North Shore Gas Company (“NSG”) based upon information provided by PGL and NSG and from other sources. Use of this report by any other party for whatever purpose should not, and does not, absolve such party from using due diligence in verifying the report’s contents. Neither Guidehouse nor any of its subsidiaries or affiliates assumes any liability or duty of care to such parties, and hereby disclaims any such liability.

Table of Contents

[Introduction 1](#_Toc195787667)

[Program Description 1](#_Toc195787668)

[Program Savings Detail 3](#_Toc195787669)

[Program Savings by Measure 4](#_Toc195787670)

[Impact Analysis Findings and Recommendations 10](#_Toc195787671)

[1.1 Impact Parameter Estimates 10](#_Toc195787672)

[1.2 Findings and Recommendations 12](#_Toc195787673)

[Appendix A. Impact Analysis Methodology A-1](#_Toc195787674)

[Appendix B. Program Specific Inputs for the Illinois TRC B-1](#_Toc195787675)

List of Tables, Figures, and Equations

[Table 1. 2024 Volumetric Summary for PGL 1](#_Toc195786985)

[Table 2. 2024 Installed Measure Quantities for PGL 1](#_Toc195786986)

[Table 3. 2024 Volumetric Summary for NSG 2](#_Toc195786987)

[Table 4. 2024 Installed Measure Quantities for NSG 2](#_Toc195786988)

[Table 5. 2024 Annual Energy Savings Summary for PGL 3](#_Toc195786989)

[Table 6. 2024 Annual Energy Savings Summary for NSG 3](#_Toc195786990)

[Table 7. 2024 Annual Energy Savings by Measure for PGL 4](#_Toc195786991)

[Table 8. 2024 Annual Energy Savings by Measure for NSG 7](#_Toc195786992)

[Table 9. Verified Gross Savings Parameters 10](#_Toc195786993)

[Table B‑1. Verified Cost Effectiveness Inputs – PGL B-1](#_Toc195786975)

[Table‑B‑2. Verified Cost Effectiveness Inputs – NSG B-2](#_Toc195786976)

# Introduction

This report presents the results of the impact evaluation of the Peoples Gas (PGL) and North Shore Gas (NSG) 2024 Home Energy Rebates 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 test. Program year 2024 covers January 1, 2024 through December 31, 2024.

# Program Description

The Home Energy Rebate Program provides rebates to PGL and NSG residential customers who make certain energy-saving improvements to their homes. The program is composed of two distinct offerings: 1) replacement of HVAC and other equipment, and 2) weatherization (Wx) improvements. The HVAC and other equipment offer incentives to provide customer-installed or contractor-installed energy efficient furnaces, boilers, and water heaters, as well as customer-installed programmable thermostats. The weatherization offers incentives to trade ally-installed home insulation measures, such as air sealing and duct sealing. In 2022 and beyond, ComEd processed rebates for advanced thermostats, and PGL and NSG reimbursed ComEd for the gas portion (“ComEd Marketplace”), removing the need for participants to complete separate rebate applications for natural gas and electricity.

The PGL program had 3,621 participants in 2024 and completed 3,904 projects as shown in the following table.

Table 1. 2024 Volumetric Summary for PGL

| Participation | ComEd Marketplace | HVAC | Weatherization | Total |
| --- | --- | --- | --- | --- |
| Participants \* | 2,500 | 895 | 226 | 3,621 |
| Installed Projects † | 2,503 | 1,122 | 279 | 3,904 |
| Measure Types Installed ‡ | 6 | 11 | 6 | 23 |

\* Participants are defined as the number of distinct account numbers with realized gas savings.

† Installed Projects represent the unique count of work orders completed.

‡ Measure types are defined as the number of distinct measure IDs with realized gas savings.

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 for PGL.

Table 2. 2024 Installed Measure Quantities for PGL

| Program Path | Measure | Quantity Unit | Installed Quantity |
| --- | --- | --- | --- |
| ComEd Marketplace | Smart Thermostat | Each | 2,503 |
| HVAC | Boiler - DHW Two-In-One >=88% AFUE | Each | 28 |
| Boiler - HW <300MBtu, >=88% AFUE | Each | 23 |
| Boiler - Steam <=300MBH, >=82.5% AFUE | Each | 1 |
| Furnace > 95% Afue | Each | 9 |
| Furnace >= 97% Afue | Each | 198 |
| Furnace >95% <97% Afue | Each | 477 |
| Indirect Water Heater, >=88% Afue | Each | 1 |
| Programmable Thermostat-Baseline Manual | Each | 29 |
| Smart Thermostat | Each | 284 |
| Tankless Water Heater>=0.82 Energy Factor | Each | 1 |
| Tankless Water Heater>=0.95 UEF | Each | 65 |
| Weatherization | Air Sealing with Attic Insulation | CFM | 95,600 |
| Air Sealing | CFM | 58,410 |
| Attic Insulation | SQFT | 119,308 |
| Duct Sealing | CFM | 3,588 |
| Foundation Insulation | SQFT | 2,023 |
| Wall Insulation | SQFT | 5,326 |

Source: Peoples Gas tracking data and Guidehouse evaluation team analysis

The NSG program had 1,320 participants in 2024 and completed 1,525 projects as shown in the following table.

Table 3. 2024 Volumetric Summary for NSG

| Participation | ComEd Marketplace | HVAC | Weatherization | Total |
| --- | --- | --- | --- | --- |
| Participants \* | 460 | 720 | 140 | 1,320 |
| Installed Projects † | 461 | 887 | 177 | 1,525 |
| Measure Types Installed ‡ | 6 | 8 | 6 | 20 |

\* Participants are defined as the number of distinct account numbers with realized gas savings.

† Installed Projects represent the unique count of work orders completed.

‡ Measure types are defined as the number of distinct measure IDs with realized gas savings.

*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 Path | Measure | Quantity Unit | Installed Quantity |
| --- | --- | --- | --- |
| ComEd Marketplace | Smart Thermostat | Each | 461 |
| HVAC | Boiler - DHW Two-In-One >=88% AFUE | Each | 6 |
| Boiler - HW <300MBtu, >=88% AFUE | Each | 13 |
| Furnace > 95% Afue | Each | 3 |
| Furnace >= 97% Afue | Each | 240 |
| Furnace >95% <97% Afue | Each | 440 |
| Programmable Thermostat-Baseline Manual | Each | 5 |
| Smart Thermostat | Each | 156 |
| Tankless Water Heater>=0.95 UEF | Each | 28 |
| Weatherization | Air Sealing with Attic Insulation | CFM | 68,234 |
| Air Sealing | CFM | 38,540 |
| Attic Insulation | SQFT | 99,571 |
| Duct Sealing | CFM | 7,297 |
| Foundation Insulation | SQFT | 489 |
| Wall Insulation | SQFT | 3,652 |

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

# Program Savings Detail

Table 5 summarizes the energy savings the PGL Home Energy Rebates Program achieved by path in 2024.

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† | NSPO‡ | Verified Net Savings (Therms) |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Non-Disadvantaged Communities** | ComEd Marketplace | 125,900 | 100% | 125,900 | 0.95 | 1.083 | 129,532 |
| HVAC | 155,063 | 100% | 155,127 | Varies | 1.083 | 126,927 |
| Weatherization | 18,776 | 100% | 18,755 | Varies | 1.083 | 17,995 |
| ***Non-DAC Subtotal*** |  | ***299,739*** | ***100%*** | ***299,781*** |  |  | ***274,454*** |
| **Disadvantaged Communities\*\*** | ComEd Marketplace | 69,207 | 100% | 69,207 | 1.03 | N/A | 71,283 |
| HVAC | 31,921 | 100% | 32,115 | 1.00 | N/A | 32,115 |
| Weatherization | 8,452 | 100% | 8,450 | 1.00 | N/A | 8,450 |
| ***DAC Subtotal*** |  | ***109,581*** | ***100%*** | ***109,772*** |  |  | ***111,848*** |
| **Total** |  | **409,320** | **100%** | **409,554** |  |  | **386,303** |

\* 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/>.

\*\* For DAC projects, if deemed NTG is multiplied by 1.083 Non-Participant Spillover factor (NPSO) and the resulted NTG value is less than 1.00, the evaluation assigned a DAC NTG of 1.00. If the resulted NTG value is >1.00, evaluation used the >1.00 value for net savings impact.

‡ Non-participant spillover (NPSO) factor of 1.083.

Source: Evaluation team analysis

Table 6 summarizes the energy savings the NSG Home Energy Rebates 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) |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Non-Disadvantaged Communities** | ComEd Marketplace | 33,588 | 100% | 33,588 | 0.95 | 1.083 | 34,557 |
| HVAC | 164,493 | 100% | 164,535 | Varies | 1.083 | 133,768 |
| Weatherization | 25,385 | 100% | 25,380 | Varies | 1.083 | 24,304 |
| ***Non-DAC Subtotal*** |  | ***223,466*** | ***100%*** | ***223,503*** |  |  | ***192,629*** |
| **Disadvantaged Communities** | ComEd Marketplace | 4,069 | 100% | 4,069 | 1.03 | N/A | 4,191 |
| HVAC | 5,143 | 100% | 5,143 | 1.00 | N/A | 5,143 |
| Weatherization | 316 | 100% | 316 | 1.00 | N/A | 316 |
| ***DAC Subtotal*** |  | ***9,528*** | ***100%*** | ***9,528*** |  |  | ***9,650*** |
| **Total** |  | **232,994** | **100%** | **233,031** |  |  | **202,279** |

\* 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/>.

\*\* For DAC projects, if deemed NTG is multiplied by 1.083 Non-Participant Spillover factor (NPSO) and the resulted NTG value is less than 1.00, the evaluation assigned a DAC NTG of 1.00. If the resulted NTG value is >1.00, evaluation used the >1.00 value for net savings impact.

‡ Non-participant spillover (NPSO) factor of 1.083.

Source: Evaluation team analysis

# Program Savings by Measure

The PGL program includes 23 measures as shown in the following table. The Advanced Thermostats and Furnaces contributed the most savings.

Table 7. 2024 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† | NSPO‡ | Verified  Net Savings  (Therms) |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Non-DAC** | ComEd  Marketplace | Smart Thermostat | 125,900 | 100% | 125,900 | 0.95 | 1.083 | 129,532 |
| HVAC | Boiler - DHW Two-In-One >=88% AFUE | 5,736 | 100% | 5,736 | 0.74 | 1.083 | 4,597 |
| Boiler - HW <300MBtu, >=88% AFUE | 3,404 | 101% | 3,448 | 0.74 | 1.083 | 2,763 |
| Furnace > 95% Afue | 1,258 | 101% | 1,270 | 0.74 | 1.083 | 1,017 |
| Furnace >= 97% Afue | 41,429 | 100% | 41,429 | 0.74 | 1.083 | 33,202 |
| Furnace >95% <97% Afue | 82,199 | 100% | 82,200 | 0.74 | 1.083 | 65,876 |
| Indirect Water Heater, >=88% Afue | 65 | 100% | 65 | 0.74 | 1.083 | 52 |
| Programmable Thermostat-Baseline Manual | 1,122 | 100% | 1,122 | 0.74 | 1.083 | 899 |
| Smart Thermostat | 16,037 | 100% | 16,038 | 0.89 | 1.083 | 15,458 |
| Tankless Water Heater>=0.82 Energy Factor | 60 | 100% | 60 | 0.74 | 1.083 | 48 |
| Tankless Water Heater>=0.95 UEF | 3,753 | 100% | 3,760 | 0.74 | 1.083 | 3,014 |
| Weatherization | Air Sealing with Attic Insulation | 4,514 | 100% | 4,514 | 0.89 | 1.083 | 4,351 |
| Air Sealing | 3,463 | 100% | 3,463 | 0.88 | 1.083 | 3,301 |
| Attic Insulation | 8,394 | 100% | 8,394 | 0.89 | 1.083 | 8,091 |
| Duct Sealing | 1,740 | 100% | 1,740 | 0.87 | 1.083 | 1,639 |
| Foundation Insulation | 132 | 84% | 111 | 0.88 | 1.083 | 105 |
| Wall Insulation | 533 | 100% | 533 | 0.88 | 1.083 | 508 |
| ***Non-DAC Subtotal*** |  |  | ***299,739*** | ***100%*** | ***299,781*** |  |  | ***274,454*** |
| **DAC** | ComEd  Marketplace | Smart Thermostat | 69,207 | 100% | 69,207 | 1.03 | N/A | 71,283 |
| HVAC | Boiler - DHW Two-In-One >=88% AFUE | 1,378 | 114% | 1,564 | 1.00 | N/A | 1,564 |
| Boiler - HW <300MBtu, >=88% AFUE | 852 | 100% | 852 | 1.00 | N/A | 852 |
| Boiler - Steam <=300MBH, >=82.5% AFUE | 15.60 | 100% | 15.60 | 1.00 | N/A | 15.60 |
| Furnace > 95% Afue | 629 | 101% | 635 | 1.00 | N/A | 635 |
| Furnace >= 97% Afue | 5,714 | 100% | 5,714 | 1.00 | N/A | 5,714 |
| Furnace >95% <97% Afue | 17,824 | 100% | 17,824 | 1.00 | N/A | 17,824 |
| Programmable Thermostat-Baseline Manual | 685 | 100% | 685 | 1.00 | N/A | 685 |
| Smart Thermostat | 3,979 | 100% | 3,980 | 1.00 | N/A | 3,980 |
| Tankless Water Heater>=0.95 UEF | 843 | 100% | 845 | 1.00 | N/A | 845 |
| Weatherization | Air Sealing with Attic Insulation | 1,434 | 100% | 1,434 | 1.00 | N/A | 1,434 |
| Air Sealing | 1,318 | 100% | 1,318 | 1.00 | N/A | 1,318 |
| Attic Insulation | 3,963 | 100% | 3,963 | 1.00 | N/A | 3,963 |
| Duct Sealing | 1,621 | 100% | 1,621 | 1.00 | N/A | 1,621 |
| Foundation Insulation | 17 | 87% | 14 | 1.00 | N/A | 14 |
| Wall Insulation | 100 | 100% | 100 | 1.00 | N/A | 100 |
| ***DAC Subtotal*** |  |  | ***109,581*** | ***100%*** | ***109,772*** |  |  | ***111,848*** |
| **Total** |  |  | **409,320** | **100%** | **409,554** |  |  | **386,303** |

\* 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/>. Disadvantaged communities (DAC) designated sites based on census tract have an NTG of 1.00. If a measure has NTG>1.0, this value should be used even if the project is found in the DAC area.

‡ The market rate net savings were multiplied by a residential non-participant spillover (NPSO) factor of 1.083 (not applicable to DAC sites). If an NPSO is applied, then the overall NTG will be the NTG>1.0 multiplied by the NPSO.

Source: Evaluation team analysis

The NSG program includes 20 measures as shown in the following table. The Advanced Thermostats and Furnaces contributed the most savings.

Table 8. 2024 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† | NSPO‡ | Verified  Net Savings (Therms) |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Non-DAC | ComEd Marketplace | Smart Thermostat | 33,588 | 100% | 33,588 | 0.95 | 1.083 | 34,557 |
| HVAC | Boiler - DHW Two-In-One >=88% AFUE | 1,564 | 100% | 1,564 | 0.74 | 1.083 | 1,254 |
| Boiler - HW <300MBtu, >=88% AFUE | 3,106 | 102% | 3,168 | 0.74 | 1.083 | 2,539 |
| Furnace > 95% Afue | 657 | 97% | 635 | 0.74 | 1.083 | 509 |
| Furnace >= 97% Afue | 55,953 | 100% | 55,953 | 0.74 | 1.083 | 44,842 |
| Furnace >95% <97% Afue | 89,118 | 100% | 89,119 | 0.74 | 1.083 | 71,422 |
| Programmable Thermostat-Baseline Manual | 312 | 100% | 312 | 0.74 | 1.083 | 250 |
| Smart Thermostat | 11,733 | 100% | 11,734 | 0.89 | 1.083 | 11,310 |
| Tankless Water Heater>=0.95 UEF | 2,049 | 100% | 2,050 | 0.74 | 1.083 | 1,653 |
| Weatherization | Air Sealing with Attic Insulation | 4,078 | 100% | 4,078 | 0.89 | 1.083 | 3,931 |
| Air Sealing | 3,104 | 100% | 3,104 | 0.88 | 1.083 | 2,958 |
| Attic Insulation | 12,226 | 100% | 12,226 | 0.89 | 1.083 | 11,784 |
| Duct Sealing | 5,560 | 100% | 5,560 | 0.87 | 1.083 | 5,239 |
| Foundation Insulation | 36 | 85% | 30 | 0.88 | 1.083 | 29 |
| Wall Insulation | 381 | 100% | 381 | 0.88 | 1.083 | 363 |
| ***Non-DAC Subtotal*** |  | ***223,466*** | ***100%*** | ***223,503*** |  |  | ***192,629*** |
| **DAC** | ComEd Marketplace | Smart Thermostat | 4,069 | 100% | 4,069 | 1.03 | N/A | 4,191 |
| HVAC | Furnace >= 97% Afue | 1,191 | 100% | 1,190 | 1.00 | N/A | 1,190 |
| Furnace >95% <97% Afue | 3,145 | 100% | 3,145 | 1.00 | N/A | 3,145 |
| Smart Thermostat | 807 | 100% | 807 | 1.00 | N/A | 807 |
| Weatherization | Air Sealing with Attic Insulation | 167 | 100% | 167 | 1.00 | N/A | 167 |
| Air Sealing | 51 | 100% | 50.84 | 1.00 | N/A | 50.84 |
| Attic Insulation | 98 | 100% | 98 | 1.00 | N/A | 98 |
| ***DAC Subtotal*** |  |  | ***9,528*** | ***100%*** | ***9,528*** |  |  | ***9,650*** |
| **Total** |  |  | **232,994** | **100%** | **233,031** |  |  | **202,279** |

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) |
| --- | --- | --- | --- | --- | --- |
| Smart Thermostat | Each | Varies | Varies | 100% | Illinois  TRM, v12.0†, Section 5.3.16, Program Tracking Data (PTD\*)  PTD\* MMDB‡ |
| PTD,Boiler - DHW Two-In-One >=88% AFUE | Each | 260.72,  334.86 | 260.72,  521.43 | 100%, 156% | Section 5.3.17, PTD, MMDB |
| Boiler - HW <300MBtu, >=88% AFUE | Each | Varies | Varies | 100%, 114% | Section 5.3.6, PTD, MMDB |
| Boiler - Steam <=300MBH, >=82.5% AFUE | Each | 15.6 | 15.6 | 100% | Section 5.3.6, PTD, MMDB |
| Furnace > 95% Afue | Each | 209.69,  238.1 | 211.59 | 88%, 100% | Section 5.3.7, PTD, MMDB |
| Furnace >= 97% Afue | Each | 238.1,  476.2 | 238.1,  476.2 | 100% | Section 5.3.7, PTD, MMDB |
| Furnace >95% <97% Afue | Each | 209.69,  419.39 | 209.69,  419.39 | 100% | Section 5.3.7, PTD, MMDB |
| Indirect Water Heater, >=88% Afue | Each | 65.17 | 65.17 | 100% | Section 5.4.2, PTD, MMDB |
| Programmable Thermostat-Baseline Manual | Each | 62.31 | 62.31 | 100% | Section 5.3.11, PTD, MMDB |
| Tankless Water Heater>=0.82 Energy Factor | Each | 60.46 | 60.46 | 100% | Section 5.4.2, PTD, MMDB |
| Tankless Water Heater>=0.95 UEF | Each | Varies | Varies | 100%, 102% | Section 5.4.2, PTD, MMDB |
| Air Sealing with Attic Insulation | CFM | Varies | Varies | 100% | Section 5.6.1, PTD, MMDB |
| Air Sealing | CFM | Varies | Varies | 100% | Section 5.6.1, PTD, MMDB |
| Attic Insulation | SQFT | Varies | Varies | 100% | Section 5.6.5, PTD, MMDB |
| Duct Sealing | CFM | Varies | Varies | 100% | Section 5.3.4, PTD, MMDB |
| Foundation Insulation | SQFT | Varies | Varies | 85% | Section 5.6.2, PTD, MMDB |
| Wall Insulation | SQFT | Varies | Varies | 100% | Section 5.6.4, PTD, MMDB |

\* 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.

‡ MMDB – Master Measure Database calculator

## Findings and Recommendations

**Finding 1.** All instances of boiler efficiency measures where quantity is one resulted in a 100% realization rate. However, we found discrepancy in savings for three projects, two Hot Water Boilers (WO-6465442 and WO-5970570) and one Combination Boiler (WO-6801797), that had a quantity of two in the tracking data. The realization rate was 114% for the 2 HW boilers and 156% for the combination boiler.

**Recommendation 1.** Ensure the quantity and actual Input Capacity values for Hot Water Boilers reflect what was installed and included in tracking data. Check that all the input values for Combination Boilers match what is deemed in the MMDB and TRM.

**Finding 2.** Ex-ante savings for one Furnace labeled as AFUE ≥ 95 in tracking data (WO-5776999) used inputs for a AFUE ≥ 97 tier furnace (Input Capacity = 87,796, Efficient Furnace Annual Fuel Utilization Efficiency Rating = 97.5%). Guidehouse assumed the measure label from tracking data was correct and used AFUE ≥ 95 inputs for this measure (Input Capacity = 84,305, Efficient Furnace Annual Fuel Utilization Efficiency Rating = 96.0%), resulting in a realization rate of 88% for WO-5776999.

**Recommendation 2.** Ensure measure labels are correct for all Furnaces. Denote accurate AFUE value in measure label for all AFUE ≥ 97 tier Furnaces.

**Finding 3.** Ex-ante savings for eight Tankless Water Heaters used 2023 MMDB values for Uniform Energy Factor Rating for efficient equipment (94%). Guidehouse calculated savings using the 2024 Uniform Energy Factor Rating of 95%, resulting in a realization rate of 101.7% for these eight measures. The Project IDs affected are WO-6173228, WO-5920017, WO-6173197, WO-6173245, WO-6041279, WO-5934689, WO-5914773, and WO-6319968.

**Recommendation 3.** Ensure ex-ante savings reflect 2024 MMDB savings values or latest MMDB values for all measures.

**Finding 4.** All instances of Foundation Insulation resulted in realization rates less than 100%. Guidehouse used inputs listed in the 2024 MMDB to calculate savings (R Old = 7.42, R New = Efficient R Value, Framing Factor = 25%, HDD = 4,798, nHeat = 72%, Basement Heat Adjustment = 63%).

**Recommendation 4.** Ensure that the provided R-values are correct and the ex-ante savings reflect 2024 MMDB input values.

##### Impact Analysis Methodology

The evaluation team used the same impact methodology for each component. Verified gross savings were determined for each program measure by:

* Reviewing the savings algorithm inputs in the measure workbook for agreement with the IL-TRM v12.0 and IL-TRM Errata, where applicable.
* Validating the savings algorithm was applied correctly.
* Cross-checking per-unit savings values in the program tracking data with the verified values in the measure workbook (MMDB) or in Guidehouse’s calculations if the workbook did not agree with the IL-TRM v12.0.
* Multiplying the verified per-unit savings value by the quantity reported in the tracking data. The team calculated verified net savings by multiplying the verified gross savings estimates by a NTG ratio. In Program Year 2024, NTG estimates used to calculate the net verified savings were based on past evaluation research and defined by a consensus process through the Illinois SAG.
* For DAC postal codes or census tract, the evaluation team utilized a NTG ratio of 1.0.
* Use deemed non-participant spillover value of 1.083.

##### 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 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) |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ComEd Marketplace | Smart Thermostat | TRUE | Each | 2,503 | 11.00 | NO | - | 195,107 | 195,107 | 200,815 |
| HVAC | Boiler - DHW Two-In-One >=88% AFUE | TRUE | Each | 28 | 21.50 | YES | - | 7,114 | 7,300 | 6,161 |
| Boiler - HW <300MBtu, >=88% AFUE | TRUE | Each | 23 | 25.00 | YES | - | 4,256 | 4,300 | 3,615 |
| Boiler - Steam <=300MBH, >=82.5% AFUE | TRUE | Each | 1 | 25.00 | YES | - | 15.60 | 15.60 | 15.60 |
| Furnace > 95% Afue | TRUE | Each | 9 | 20.00 | YES | - | 1,887 | 1,904 | 1,652 |
| Furnace >= 97% Afue | TRUE | Each | 198 | 20.00 | YES | - | 47,144 | 47,144 | 38,917 |
| Furnace >95% <97% Afue | TRUE | Each | 477 | 20.00 | YES | - | 100,022 | 100,023 | 83,700 |
| Indirect Water Heater, >=88% Afue | FALSE | Each | 1 | 13.00 | NO | - | 65 | 65 | 52 |
| Programmable Thermostat-Baseline Manual | TRUE | Each | 29 | 16.00 | NO | - | 1,807 | 1,807 | 1,584 |
| Smart Thermostat | TRUE | Each | 284 | 11.00 | NO | - | 20,017 | 20,017 | 19,438 |
| Tankless Water Heater>=0.82 Energy Factor | FALSE | Each | 1 | 13.00 | NO | - | 60 | 60 | 48 |
| Tankless Water Heater>=0.95 UEF | TRUE | Each | 65 | 13.00 | NO | - | 4,596 | 4,605 | 3,858 |
| Weatherization | Air Sealing with Attic Insulation | TRUE | CFM | 95,600 | 20.00 | NO | - | 5,948 | 5,948 | 5,785 |
| Air Sealing | TRUE | CFM | 58,410 | 20.00 | NO | - | 4,782 | 4,782 | 4,619 |
| Attic Insulation | TRUE | SQFT | 119,308 | 30.00 | NO | - | 12,357 | 12,357 | 12,054 |
| Duct Sealing | TRUE | CFM | 3,588 | 20.00 | NO | - | 3,360 | 3,360 | 3,260 |
| Foundation Insulation | TRUE | SQFT | 2,023 | 30.00 | NO | - | 148 | 125 | 120 |
| Wall Insulation | TRUE | SQFT | 5,326 | 30.00 | NO | - | 634 | 634 | 609 |
| **Total or Weighted Average** |  |  |  |  | **15.6** |  |  | **409,320** | **409,554** | **386,303** |

Source: Evaluation team analysis

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

| 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) |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ComEd Marketplace | Smart Thermostat | TRUE | Each | 461 | 11.00 | NO | - | 37,656 | 37,656 | 38,747 |
| HVAC | Boiler - DHW Two-In-One >=88% AFUE | FALSE | Each | 6 | 21.50 | YES | - | 1,564 | 1,564 | 1,254 |
| Boiler - HW <300MBtu, >=88% AFUE | FALSE | Each | 13 | 25.00 | YES | - | 3,106 | 3,168 | 2,539 |
| Furnace > 95% Afue | FALSE | Each | 3 | 20.00 | YES | - | 657 | 635 | 509 |
| Furnace >= 97% Afue | TRUE | Each | 240 | 20.00 | YES | - | 57,144 | 57,144 | 46,033 |
| Furnace >95% <97% Afue | TRUE | Each | 440 | 20.00 | YES | - | 92,264 | 92,265 | 74,567 |
| Programmable Thermostat-Baseline Manual | FALSE | Each | 5 | 16.00 | NO | - | 312 | 312 | 250 |
| Smart Thermostat | TRUE | Each | 156 | 11.00 | NO | - | 12,540 | 12,541 | 12,117 |
| Tankless Water Heater>=0.95 UEF | FALSE | Each | 28 | 13.30 | NO | - | 2,049 | 2,050 | 1,643 |
| Weatherization | Air Sealing with Attic Insulation | TRUE | CFM | 68,234 | 20.00 | NO | - | 4,245 | 4,245 | 4,098 |
| Air Sealing | TRUE | CFM | 38,540 | 20.00 | NO | - | 3,155 | 3,155 | 3,009 |
| Attic Insulation | TRUE | SQFT | 99,571 | 30.00 | NO | - | 12,324 | 12,324 | 11,883 |
| Duct Sealing | FALSE | CFM | 7,297 | 20.00 | NO | - | 5,560 | 5,560 | 5,239 |
| Foundation Insulation | FALSE | SQFT | 489 | 30.00 | NO | - | 36 | 30 | 29 |
| Wall Insulation | FALSE | SQFT | 3,652 | 30.00 | NO | - | 381 | 381 | 363 |
| **Total or Weighted Average** |  |  |  |  | **18.6** |  |  | **232,994** | **233,031** | **202,279** |

Source: Evaluation team analysis