

Multi-Family Market Rate Program Impact Evaluation Report

Energy Efficiency Plan: Program Year 2025

(01/01/2025-12/31/2025)

Prepared for:

Peoples Gas and North Shore Gas

PEOPLES GAS® | NORTH SHORE GAS®

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1 Introduction

This report presents the results of the impact evaluation of the Peoples Gas (PGL) and North Shore Gas (NSG) 2025 Multi-Family Market Rate (MF MR) program. It presents a summary of the energy impacts for the total program and broken out by relevant measure and program structure details. Appendix A presents the impact analysis methodology. Appendix B presents the Total Resource Cost (TRC) cost-effectiveness analysis inputs. Program year 2025 covers January 1 to December 31, 2025.

2 Program Description

The MF MR Program is designed to provide a “one-stop-shop” to multi-family property owners and managers of buildings with three or more units to achieve comprehensive improvements in energy efficiency that previously would have required accessing multiple programs. The delivery approach consists of four paths, described below.

- The Joint path is offered jointly with ComEd and provides a free assessment and no-cost direct installation (DI) of in-unit (IU) measures in residential multi-family buildings with three or more living units.
- The Prescriptive Rebate path provides standardized incentives for energy efficient equipment based on the size and efficiency of the equipment installed or on a per unit basis.
- The Partner Trade Ally (PTA) path provides standardized incentives for energy efficient equipment, similar to the Prescriptive Rebate path. Additionally, the PTA path provides higher incentives to a network of partner trade allies (PTAs) who are selected, screened, and registered with the Multi-Family Program. In turn, the PTAs offer larger rebates than prescriptive rebates to their customers to install energy efficient products.
- The Custom path provides technical services and custom rebates for non-standard building improvement upgrades as well as incentive opportunities for energy efficient new construction projects in multi-family buildings.

The PGL program had 125 participants in 2025 and completed 264 projects as shown in Table 1.

Table 1. 2025 Volumetric Summary for PGL

Participation	Joint	PTA	Prescriptive	Custom	Total
Participants *	13	82	19	11	125
Installed Projects †	140	94	19	11	264
Measure Types Installed ‡	5	8	9	2	20

* Participants are defined as distinct count of gas account numbers.

† Installed Projects are defined as distinct count of project IDs.

‡ Measure Types Installed are defined as distinct count of PGL measures; total reflects unique measures across paths.

Source: Peoples Gas tracking data and evaluation team analysis.

Table 2 summarizes the installed measure quantities that are the basis for verified energy savings for PGL. The disadvantaged communities (DAC) designation represents measures installed in disadvantaged areas based on census tracts.

Table 2. 2025 Installed Measure Quantities for PGL

Program Category	Program Path	Measure	Quantity Unit	Installed Quantity
Non-DAC	Joint	Faucet Aerator (IU)	Unit	138
		Low Flow Showerheads (IU)	Unit	84
		Pipe Insulation	LN FT	18
		Programmable Thermostats	Unit	10
		Shower Timer	Unit	102
	PTA	Boiler Chemical Descaling	MBH Input	89,154
		Boiler Tune Up	MBH Input	80,517
		High Efficiency Boiler	Unit	12
		On Demand DHW Controls	Living Units	142
		Pipe Insulation	LN FT	15,571
		Pipe Insulation - Fittings and Valves	Unit	23
		Steam Pipe Averaging Controls	Living Units	197
		Steam Trap	Unit	3,251
	Prescriptive	Advanced Thermostat (CA)	Unit	1
		Advanced Thermostat (IU)	Unit	3
		Central Water Heater	Living Units	326
		Central Water Heater	Unit	3
		Gas High Efficiency Furnace	Unit	5
		High Efficiency Boiler	Unit	5
		Steam Pipe Averaging Controls	Living Units	191

Program Category	Program Path	Measure	Quantity Unit	Installed Quantity
DAC	Custom	HVAC – Custom	Unit	8
		Process – Custom	Unit	3
	Joint	Faucet Aerator (IU) – DAC	Unit	14
		Low Flow Showerheads (IU) – DAC	Unit	4
		Programmable Thermostats – DAC	Unit	6
		Shower Timer – DAC	Unit	39
	PTA	Boiler Tune Up – DAC	MBH Input	16,524
		DHW Boiler Tune-up – DAC	Living Units	512
		On Demand DHW Controls – DAC	Living Units	30
		Pipe Insulation – DAC	LN FT	548
		Pipe Insulation – DAC - Fittings and Valves	Unit	7
		Steam Pipe Averaging Controls – DAC	Living Units	30
		Steam Trap – DAC	Unit	346
		Advanced Thermostat (IU) – DAC	Unit	3
		Direct Fired Heater – DAC	MBH Input	5,157
	Prescriptive	High Efficiency Boiler – DAC	Unit	6
		Programmable Thermostat – DAC	Unit	1
		Water Heater (COM) – DAC	Unit	2

Source: Peoples Gas tracking data and evaluation team analysis.

The NSG MF MR program had 5 participants in 2025 and completed 360 projects as shown in the following Table 3.

Table 3. 2025 Volumetric Summary for NSG

Participation	Joint	PTA (Gas Only)	Prescriptive	Total
Participants *	2	2	1	5
Installed Projects †	357	2	1	360
Measure Types Installed ‡	3	3	2	7

* Participants are defined as distinct count of gas account numbers.

† Installed Projects are defined as distinct count of project IDs.

‡ Measure Types Installed are defined as distinct count of NSG measures; total reflects unique measures across paths

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 for NSG.

Table 4. 2025 Installed Measure Quantities for NSG

Program Category	Program Path	Measure	Quantity Unit	Installed Quantity
Non-DAC	Joint	Faucet Aerator (IU)	Unit	57
		Low Flow Showerheads (IU)	Unit	29
		Programmable Thermostats	Unit	2
	PTA	Pipe Insulation	LN FT	1,240
	Prescriptive	Boiler Reset Controls	MBH Input	5,507
		Boiler Tune Up	MBH Input	5,507
DAC	PTA	Boiler Tune Up – DAC	MBH Input	1,028
		DHW Boiler Tune-up – DAC	Living Units	10
		Pipe Insulation – DAC	LN FT	197

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

3 Program Savings Detail

Table 5 summarizes the energy savings the PGL Multifamily Market Rate Program achieved by path in 2025.

Table 5. 2025 Annual Energy Savings Summary for PGL

Program Category	Program Path	Ex Ante Gross Savings (Therms)	Verified Gross RR*	Verified Gross Savings (Therms)	NTG†	NPSO‡	Verified Net Savings (Therms)
Non-DAC	Joint	2,640	100%	2,640	0.99	1.083	2,843
	PTA	793,813	104%	827,992	0.88	1.083	789,110
	Prescriptive	26,890	98%	26,264	0.87	1.083	24,746
	Custom	101,116	89%	89,905	0.87	1.083	84,709
Non-DAC Subtotal		924,460	102%	946,801			901,408
DAC	PTA	79,774	106%	84,546	1.00	N/A	84,546
	Prescriptive	49,577	100%	49,608	1.00	N/A	49,608
	Joint	523	100%	523	1.05	N/A	551
DAC Subtotal		129,874	104%	134,676			134,704
Total		1,054,333	103%	1,081,478			1,036,112

Note: Savings and realization rates presented in this table are subject to rounding and may not sum precisely to totals or reproduce verified savings.

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

† The program path NTG value is calculated as Verified Net/Verified Gross. The program-level analysis typically used measure-level deemed NTG values (see Table 4), which are listed here: <https://www.ilsag.info/evaluator-ntg-recommendations-for-2025>.

‡ The market rate net savings were multiplied by a residential non-participant spillover (NPSO) factor of 1.083. Based on SAG Policy, if deemed NTG is multiplied by the NPSO and the resulted NTG value is less than 1.00, the evaluation assigned NTG of 1.00 to projects in DAC zones. If the resulted NTG value is >1.00, the evaluation used the >1.00 value for calculation of net savings impact. Source: Evaluation team analysis.

Table 6 summarizes the energy savings the NSG Multifamily Program achieved by path in 2025.

Table 6. 2025 Annual Energy Savings Summary for NSG

Program Category	Program Path	Ex Ante Gross Savings (Therms)	Verified Gross RR	Verified Gross Savings (Therms)	NTG†	NPSO‡	Verified Net Savings (Therms)
Non-DAC	Joint	830	100%	830	1.01	1.083	904
	PTA	3,966	100%	3,966	0.88	1.083	3,780
	Prescriptive	9,899	100%	9,899	0.87	1.083	9,327
Non-DAC Subtotal		14,695	100%	14,695			14,011
DAC	PTA	1,094	100%	1,094	1.00	N/A	1,094
DAC Subtotal		1,094	100%	1,094			1,094
Total		15,789	100%	15,789			15,105

Footnotes are defined similarly as found in Table 5.

Source: Evaluation team analysis.

4 Program Savings by Measure

The PGL MF MR program includes 20 measures as shown in the following Table 7. Steam Trap and Pipe Insulation contributed the most savings.

Table 7. 2025 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†	NPSO‡	Verified Net Savings (Therms)
Non-DAC	Joint	Faucet Aerator (IU)	768	100%	768	1.01	1.083	840
		Low Flow Showerheads (IU)	1,038	100%	1,038	1.01	1.083	1,136
		Pipe Insulation	44	100%	44	0.96	1.083	46
		Programmable Thermostats	405	100%	405	0.96	1.083	421
		Shower Timer	385	100%	385	0.96	1.083	400
		Non-DAC Joint Subtotal	2,640	100%	2,640			2,843
	PTA	Boiler Chemical Descaling	37,021	100%	37,021	0.88	1.083	35,283
		Boiler Tune Up	37,742	100%	37,742	0.88	1.083	35,970
		High Efficiency Boiler	21,301	100%	21,301	0.88	1.083	20,301
		On Demand DHW Controls	8,903	100%	8,903	0.88	1.083	8,485
		Pipe Insulation	80,566	100%	80,566	0.88	1.083	76,782
		Steam Pipe Averaging Controls	13,033	92%	12,034	0.88	1.083	11,469
		Steam Trap	595,247	107%	630,424	0.88	1.083	600,820
		Non-DAC PTA Subtotal	793,813	105%	827,992			789,110
	Prescriptive	Advanced Thermostat (CA)	68	100%	68	0.87	1.083	64
		Advanced Thermostat (IU)	148	112%	167	0.87	1.083	157
		Central Water Heater	3,233	100%	3,218	0.87	1.083	3,032
		Gas High Efficiency Furnace	630	154%	969	0.87	1.083	913
		High Efficiency Boiler	10,174	100%	10,174	0.87	1.083	9,586
		Steam Pipe Averaging Controls	12,636	92%	11,668	0.87	1.083	10,994
		Non-DAC Prescriptive Subtotal	26,890	98%	26,264			24,746
	Custom	HVAC – Custom	90,768	85%	77,478	0.87	1.083	73,001
		Process – Custom	10,348	120%	12,427	0.87	1.083	11,709
		Non-DAC Custom Subtotal	101,116	89%	89,905			84,709
Non-DAC Subtotal			924,460	102%	946,801			901,408

Program Category	Program Path	Savings Category	Ex Ante Gross Savings (Therms)	Verified Gross RR*	Verified Gross Savings (Therms)	NTG†	NPSO‡	Verified Net Savings (Therms)
DAC	Joint	Faucet Aerator (IU) – DAC	83	100%	83	1.10	N/A	91
		Low Flow Showerheads (IU) – DAC	49	100%	49	1.10	N/A	54
		Programmable Thermostats – DAC	243	100%	243	1.04	N/A	253
		Shower Timer – DAC	147	100%	147	1.04	N/A	153
		DAC Joint Subtotal	523	100%	523			551
	PTA	Boiler Tune Up – DAC	7,746	100%	7,746	1.00	N/A	7,746
		DHW Boiler Tune-up – DAC	1,434	100%	1,439	1.00	N/A	1,439
		On Demand DHW Controls – DAC	1,881	100%	1,881	1.00	N/A	1,881
		Pipe Insulation – DAC	4,127	100%	4,127	1.00	N/A	4,127
		Steam Pipe Averaging Controls – DAC	1,985	92%	1,833	1.00	N/A	1,833
		Steam Trap – DAC	62,601	108%	67,520	1.00	N/A	67,520
		DAC PTA Subtotal	79,774	106%	84,546			84,546
	Prescriptive	Advanced Thermostat (IU) – DAC	139	120%	167	1.00	N/A	167
		Direct Fired Heater – DAC	12,849	100%	12,849	1.00	N/A	12,849
		High Efficiency Boiler – DAC	36,478	100%	36,478	1.00	N/A	36,478
		Programmable Thermostat – DAC	37	109%	41	1.00	N/A	41
		Water Heater (COM) - DAC	74	100%	74	1.00	N/A	74
		DAC Prescriptive Subtotal	49,577	100%	49,608			49,608
	DAC Subtotal		129,874	104%	134,676			134,704
	Total		1,054,333	103%	1,081,478			1,036,112

Note: Savings and realization rates presented in this table are subject to rounding and may not sum precisely to totals or reproduce verified savings.

* 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-2025/>.

‡ The market rate net savings were multiplied by a residential non-participant spillover (NPSO) factor of 1.083. Based on SAG Policy, if deemed NTG is multiplied by the NPSO and the resulted NTG value is less than 1.00, the evaluation assigned NTG of 1.00 to projects in DAC zones. If the resulted NTG value is >1.00, the evaluation used the >1.00 value for calculation of net savings impact. Source: Evaluation team analysis.

The NSG MF MR program includes 7 measures as shown in Table 8. The Boiler Reset Controls and Pipe Insulation measures contributed the most savings.

Table 8. 2025 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†	NPSO‡	Verified Net Savings (Therms)
Non-DAC	Joint	Faucet Aerator (IU)	391	100%	391	1.01	1.083	428
		Low Flow Showerheads (IU)	358	100%	359	1.01	1.083	392
		Programmable Thermostats	81	100%	81	0.96	1.083	84
		Non-DAC Joint Subtotal	830	100%	830			904
	PTA	Pipe Insulation	3,966	100%	3,966	0.88	1.083	3,780
		Prescriptive	Boiler Reset Controls	7,318	100%	7,318	0.87	1.083
	Boiler Tune Up		2,581	100%	2,581	0.87	1.083	2,432
		Non-DAC Prescriptive Subtotal	13,865	100%	13,865			13,107
Non-DAC Subtotal			14,695	100%	14,695			14,011
DAC	PTA	Boiler Tune Up – DAC	482	100%	482	1.00	N/A	482
		DHW Boiler Tune-up – DAC	28	100%	28	1.00	N/A	28
		Pipe Insulation – DAC	584	100%	584	1.00	N/A	584
		DAC PTA Subtotal	1,094	100%	1,094			1,094
DAC Subtotal			1,094	100%	1,094			1,094
Total			15,789	100%	15,789			15,105

Footnotes are defined similarly as found in Table 7.

Source: Evaluation team analysis.

5 Impact Analysis Findings and Recommendations

The evaluation team developed several findings and recommendations based on the 2025 evaluation. The overall impact of these findings on the program resulted in a 103% and 100% realization rates for Peoples Gas and North Shore Gas, respectively.

5.1 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%. Appendix A 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	Illinois TRM, v13.0 Section†,
Advanced Thermostat (CA)	Unit	68.45	68.45	100%	4.4.48
Advanced Thermostat (IU)	Unit	Varies	55.53	116%	5.3.16
Boiler Chemical Descaling	MBH Input	0.42	0.42	100%	4.4.49
Boiler Reset Controls	MBH Input	1.33	1.33	100%	4.4.4
Boiler Tune Up	MBH Input	Varies	0.47	100%	4.4.2
Central Water Heater	Unit	9.49	9.45	100%	4.3.7
Central Water Heater	Living Units	45.97	45.97	100%	4.3.7
DHW Boiler Tune-up	Living Units	2.80	2.29	82%	4.3.10
Direct Fired Heater	MBH Input	2.49	2.49	100%	4.4.39
Gas High Efficiency Furnace	Unit	125.91	193.70	154%	5.3.7
High Efficiency Boiler	Unit	Varies	Varies	100%	4.4.10
HVAC – Custom	Unit	Varies	Varies	85%	Project File Review, Monthly Billing Data‡
Faucet Aerator (IU)	Unit	Varies	Varies	100%	5.4.4
Low Flow Showerheads (IU)	Unit	12.36	12.36	100%	5.4.5
On Demand DHW Controls	Living Units	62.70	62.70	100%	4.3.8
Pipe Insulation	LN FT	Varies	Varies	100%	4.4.14
Pipe Insulation – Fittings and Valves	Unit	Varies	Varies	100%	4.4.14
Process – Custom	Unit	Varies	Varies	120%	Project File Review, Monthly Billing Data‡

Measure	Unit Basis	Ex Ante Gross (therms/unit)	Verified Gross (therms/unit)	Realization Rate	Illinois TRM, v13.0 Section†,
Programmable Thermostats	Unit	Varies	40.50	109%	5.3.11
Reprogrammable Thermostat	Unit	40.50	40.50	100%	5.3.11
Shower Timer	Unit	3.78	3.78	100%	5.4.9
Steam Pipe Averaging Controls	Living Units	66.16	61.09	92%	4.4.36
Steam Trap	Unit	Varies	195.14	107%	4.4.16
Water Heater (COM)	Unit	37.09	37.08	100%	4.3.10

† State of Illinois Technical Reference Manual version 13.0 from <http://www.ilsag.info/technical-reference-manual.html>.

‡ Project files and monthly billing data provided by Peoples Gas.

Source: Program tracking data and evaluation team analysis.

5.2 Findings and Recommendations

The evaluation team developed findings and recommendations based on the 2025 evaluation, organized by path type in the following sections.

5.2.1 Cross-Cutting

Finding 1. For all the 16 instances of boiler replacement measures listed below, the tracking data did not report boiler input capacity.

- Hot Water Boiler-PG MF Pres
- Hot Water Boiler-PG MF PTA
- Steam Boiler-PG MF Pres
- Steam Boiler-PG MF PTA

The evaluation team reviewed the available inputs reported in the tracking data and confirmed alignment with applicable IL-TRM guidance. The missing inputs are required to fully replicate and evaluate these measures and should be reported in future program years.

Recommendation 1. Ensure all inputs relevant to the savings calculation are reported in the tracking data.

Finding 2. For all 14 instances of the *1 Pipe Steam Averaging Controls-PG MF PTA* and 2 instances of *1 Pipe Steam Averaging Controls-PG MF Pres* measures (WO-6966455 and WO-6966480), the ex ante savings calculations applied a Non-Participant Spillover (NPSO) of 1.083 to the gross therm savings. The evaluation team calculated gross savings excluding the NPSO factor. This measure accounts for 16% of PGL Prescriptive and 2% of PGL PTA component's reported gross Therms savings, and the impact of this adjustment resulted in a realization rate of 92% for these measures.

Recommendation 2. Ensure that gross savings are calculated excluding NPSO.

5.2.2 Prescriptive

Finding 3. For 3 out of 4 instances of the *IU-Smart Thermostat-PG MF Pres* measures (WO-8095934, WO-8095713 and WO-7860560), the ex ante savings calculations applied a 7.1% Heating Reduction factor, applicable when the existing thermostat is Programmable. However, tracking data did not report existing thermostat type. Hence, the evaluation team applied the Heating Reduction factor of 8.5%, corresponding to an Unknown existing thermostat type, consistent with IL-TRM v13.0. This measure accounts for 0.4% of PGL Prescriptive component's reported gross Therms savings, and the impact of this adjustment resulted in a realization rate of 116% for this measure.

Recommendation 3. Apply the default heating reduction factor from the applicable IL-TRM when the existing thermostat type is unknown.

Finding 4. For all five instances of *Water Heater 88% TE-Central Plant-Units-PG MF Pres* measure, ex ante calculations considered number of people in multifamily household (MFHH) as 2.1, consistent with IL-TRM v12.0. The evaluation team updated MFHH to 2.09, consistent with Section 4.3.7 IL-TRM v13.0. This measure accounts for 4.2% of PGL Prescriptive component's reported gross Therms savings, and the impact of this adjustment resulted in a realization rate of 99.5% for this measure.

Recommendation 4. Use multi-family household assumption that is consistent with Section 4.3.7 of the IL-TRM.

Finding 5. For all instances of the *IU-Furnace >95% AFUE-PG MF Pres* measure, the ex ante savings calculations applied a Multifamily Household Factor of 0.65. The evaluation team did not apply the scaling Factor to be consistent with Section 5.3.7 of IL-TRM v13.0. This measure accounts for 0.8% of PGL Prescriptive component's reported gross Therms savings, and the impact of this adjustment resulted in a realization rate of 154% for this measure.

Recommendation 5. Use inputs and algorithm from Section 5.3.7 of the IL-TRM to calculate savings.

5.2.3 Partner Trade Ally

Finding 6. For all instances of *F&T/Inverted Bucket Steam Traps-HVAC with Audit-PG MF PTA*, *Radiator Steam Traps-HVAC with Audit-PG MF PTA* and *Steam Traps-HVAC No Audit-PG MF PTA* measures, the ex ante savings calculations applied EFLH values of either 1,540 hours (MF High-Rise) or 1,782 hours (MF Mid-Rise). However, the tracking data did not report Building Type for these measures. As a result, the evaluation team applied an EFLH value of 1,661 hours (the average of 1,540 and 1,782) across all instances. Table 10 provides information on instances using MF Mid-Rise or MF High-Rise EFLH values. This measure accounts for 75% of PGL PTA component's reported gross Therms savings, and the impact of this adjustment resulted in a realization rate of 106% for this measure.

Table 10. Instances with EFLH discrepancy

Measure	Ex Ante Building Type	Heating EFLH (Hours)	Impacted Instances	Total Instances
F&T/Inverted Bucket Steam Traps-HVAC with Audit-PG MF PTA	MF High-Rise	1,540	16	20
	MF Mid-Rise	1,782	4	
Radiator Steam Traps-HVAC with Audit-PG MF PTA	MF High-Rise	1,540	24	28
	MF Mid-Rise	1,782	4	
Steam Traps-HVAC No Audit-PG MF PTA	MF High-Rise	1,540	1	1

Source: Program tracking data and evaluation team analysis.

Recommendation 6. Ensure building type is reported in the tracking data and calculate savings using EFLH consistent with the reported building type.

Finding 7. For all instances of *DHW Boiler Tune-Up-PG MF PTA* and *DHW Boiler Tune-Up-NSG MF PTA* measures, the tracking data did not report incoming and outgoing water temperatures. The evaluation team was able to replicate the ex ante savings which appeared to apply a rounded incoming water temperature of 51°F, compared to 50.7°F specified in the IL-TRM v13.0.. This measure accounts for 0.2% of PGL PTA and 0.6% of NSG PTA component's reported gross Therms savings, and the impact of this adjustment resulted in a realization rate of 100.4% for this measure.

Recommendation 7. Use incoming water temperature as specified in Section 4.3.10 of the IL-TRM.

Finding 8. For four out of 20 instances of *F&T/Inverted Bucket Steam Traps-HVAC with Audit-PG MF PTA* measure, the ex ante savings calculations applied a NTG ratio of 0.87, applicable to stream trap measures under the Prescriptive program. The evaluation team applied a 0.88 NTG ratio, applicable to the PTA program, consistent with CY2025 ILSAG – evaluator NTG recommendation¹. This measure accounts for 75% of PGL PTA component's reported gross Therms savings, and the impact of this adjustment increased net savings for this measure.

Recommendation 8. Ensure quality control to use appropriate deemed NTG ratio for the program paths.

5.2.4 Custom

Finding 9. For six instances of *HVAC – Other – PG MF Custom* and all three instances of *Process – Other – PG MF Custom* measures, ex ante calculation assumed a uniform balance point temperature of 65°F. The evaluation team determined the actual balance point temperature of the building using historical monthly utility consumption and the corresponding actual average monthly temperature data², selecting the balance point that produced the best fit between monthly therm consumption and heating degree days. The difference between ex ante and ex post balance point temperatures is provided in Table 11 below. These measures account for 100% of PGL Custom component's reported gross Therms savings, and the impact of adjustments from Findings 8 – 12 resulted in a realization rate of 85% for HVAC – Other and 120% for Process – Other measures.

Table 11. Balance Point Temperature discrepancy – Custom measure

Measure	Work Order ID	Balance Point Temperature – Ex Ante	Balance Point Temperature – Ex Post *
HVAC – Other – PG MF Custom	WO-5770434	65°F	72°F
	WO-7022224	65°F	60°F
	WO-6994879	65°F	60°F
	WO-6989785	65°F	73°F
	WO-7022061	65°F	71°F

¹ Net to Gross is the deemed value available on the SAG website: <https://www.ilsag.info/evaluator-ntg-recommendations-for-2025/>

² NOAA Climate Data Online <https://www.ncei.noaa.gov/cdo-web/>

	WO-6346458	65°F	72°F
Process – Other – PG MF Custom	WO-7173695	65°F	66°F
	WO-7208901	65°F	69°F
	WO-7173670	65°F	69°F

Source: Program tracking data, project documentation and evaluation team analysis.

Recommendation 9. Determine building specific balance point temperature using actual Therm consumption and weather data, and incorporate it into custom calculations.

Finding 10. For all instances of *HVAC – Other – PG MF Custom* and *Process – Other – PG MF Custom* measures, ex ante savings were normalized using Typical Meteorological Year 3 (TMY3) weather data (1991 – 2005). The evaluation team updated the savings using a more recent TMY dataset (2009 – 2023). These measures account for 100% of PGL Custom component’s reported gross Therms savings and the impact of adjustments from Findings 8 – 12 resulted in a realization rate of 85% for HVAC – Other and 120% for Process – Other measures.

Recommendation 10. Use a more recent, representative TMY weather dataset (TMYx) to calculate custom billing analysis savings.

Finding 11. For six instances of *HVAC – Other – PG MF Custom* and all three instances of *Process – Other – PG MF Custom* measures, ex ante calculations estimated the annual baseload as the average therm consumption during June through September. The evaluation team estimated annual baseload using a regression-based approach, modeling the relationship between monthly Heating Degree Days (HDD) and therm consumption to separate weather-dependent and base load components. Monthly HDD was calculated using building-specific balance point temperature as shown in Table 11³. The difference between ex ante and ex post annual baseload is provided in Table 12. These measures account for 100% of PGL Custom component’s reported gross Therms savings, and the impact of adjustments from Findings 8 – 12 resulted in a realization rate of 85% for HVAC – Other and 120% for Process – Other measures.

Table 12. Yearly Base Consumption discrepancy – Custom measure

Measure	Work Order ID	Ex ante Annual Baseload – (Therms)	Ex post Annual Baseload – (Therms)
HVAC – Other – PG MF Custom	WO-5770434	123,733	118,577
	WO-7022224	231,079	237,075
	WO-6994879	34,205	40,323
	WO-6989785	12,665	25,640
	WO-7022061	34,205	27,511
	WO-6346458	135,294	121,282

³ Ibid

Process – Other – PG MF Custom	WO-7173695	42,008	42,282
	WO-7208901	55,440	56,061
	WO-7173670	55,440	56,061

Source: Program tracking data, project documentation and evaluation team analysis.

Recommendation 11. Estimate annual baseload using a regression-based method with monthly therm consumption and temperature data.

Finding 12. For three instances of *HVAC – Other – PG MF Custom* and three instances of *Process – Other – PG MF Custom* measures, the ex ante savings calculated main boiler combustion efficiency by averaging the main and backup boiler efficiencies. The evaluation team used the main boiler efficiency to calculate verified savings as the custom calculator indicates that the main boiler accounts for 100% of the operating time share. The difference between ex ante and ex post boiler efficiencies is provided in the Table 13 .

Table 13. Boiler Efficiency discrepancy – Custom measure

Measure	Work Order ID	Main Boiler Efficiency – Pre Installation (Ex Ante)	Main Boiler Efficiency – Pre Installation (Ex Post)	Main Boiler Efficiency – Post Installation (Ex Ante)	Main Boiler Efficiency – Post Installation (Ex Post)
HVAC – Other – PG MF Custom	WO-7173701	76.4%	76.8%	80.3%	80.0%
	WO-6989785	73.8%	71.0%	77.1%	74.3%
	WO-7022061	75.7%	73.2%	79.0%	76.4%
Process – Other – PG MF Custom	WO-7173695	74.7%	79.2%	77.7%	82.0%
	WO-7208901	81.2%	79.0%	83.7%	82.5%
	WO-7173670	83.7%	81.9%	85.4%	84.3%

Source: Program tracking data, project documentation and evaluation team analysis.

Recommendation 12. Ensure that all reported boiler efficiencies align with actual values as documented in project application files.

Finding 13. For one instance of *HVAC – Other – PG MF Custom* measure (WO-7173732), therm savings reported in the tracking data did not align with the ex ante calculator. The evaluation team utilized the ex ante calculator to calculate verified savings.

Recommendation 13. Ensure that savings reported in the tracking data align with measure calculators like the Master Measure Database (MMDB).

Finding 14. For all instances of *HVAC – Other – PG MF Custom* and *Process – Other – PG MF Custom* measures, ex ante did not apply a NPSO of 1.083 to calculate Net Savings. The evaluation team calculated verified net savings including an NPSO of 1.083. These measures account for 100% of PGL Custom

component's reported gross Therms savings, and the impact of this adjustment resulted in an increase in net savings by 8.3% for this measure.

Recommendation 14. When reporting net savings in the tracking data, ensure that the NPSO of 1.083 is used to calculate ex ante net savings.

Appendix A. 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 v13.0 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 or Guidehouse's calculations if the MMDB workbook did not agree with the IL-TRM v13.0.
- 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 an NTG ratio. In Program Year 2025, 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.
- The market rate net savings were multiplied by a residential non-participant spillover (NPSO) factor of 1.083. Based on SAG Policy, if deemed NTG is multiplied by the NPSO and the resulted NTG value is less than 1.00, the evaluation assigned NTG of 1.00 to projects in DAC zones. If the resulted NTG value is >1.00, the evaluation used the >1.00 value for calculation of net savings impact.

Appendix B. Program Specific Inputs for the Illinois TRC

The Table 14 and Table 15 below show the Total Resource Cost (TRC) cost-effectiveness analysis inputs available at the time of producing this impact evaluation report. Additional required cost data (e.g., measure costs, program level incentive and non-incentive costs) are not included in these tables 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 14. Verified Cost Effectiveness Inputs – PGL

Program Category	Program Path	Savings Category	DAC Project	Units	Quantity	Effective Useful Life	Early Replacement Flag†	Verified Gross Annual Water Savings (Gallons)	Ex Ante Gross Savings (Therms)	Verified Gross Savings (Therms)	Verified Net Savings (Therms)
Non-DAC	Joint	Faucet Aerator (IU)	FALSE	Unit	138	10.0	NO	149,488	768	768	840
		Low Flow Showerheads (IU)	FALSE	Unit	84	10.0	NO	164,846	1,038	1,039	1,136
		Pipe Insulation	FALSE	LN FT	18	15.0	NO	-	44	44	46
		Programmable Thermostats	FALSE	Unit	10	16.0	NO	-	405	405	421
		Shower Timer	FALSE	Unit	102	2.0	NO	1,133	385	385	400
	PTA	Boiler Chemical Descaling	FALSE	MBH Input	89,154	6.0	NO	-	37,021	37,021	35,283
		Boiler Tune Up	FALSE	MBH Input	80,517	3.0	NO	-	37,742	37,742	35,970
		High Efficiency Boiler	FALSE	Unit	12	25.0	NO	-	21,301	21,301	20,301
		On Demand DHW Controls	FALSE	Living Units	142	15.0	NO	-	8,903	8,903	8,485
		Pipe Insulation	FALSE	LN FT	15,571	15.0	NO	-	79,797	79,797	76,050
		Pipe Insulation – Fittings and Valves	FALSE	Unit	23	15.0	NO	-	769	769	733
		Steam Pipe Averaging Controls	FALSE	Living Units	197	20.0	NO	-	13,033	12,034	11,469
		Steam Trap	FALSE	Unit	3,251	6.0	NO	37,025,125	595,247	630,424	600,820
	Prescriptive	Advanced Thermostat (CA)	FALSE	Unit	1	11.0	NO	-	68	68	64
		Advanced Thermostat (IU)	FALSE	Unit	3	11.0	NO	-	148	167	157
		Central Water Heater	FALSE	Unit	326	15.0	NO	-	3,095	3,080	2,902
		Central Water Heater	FALSE	Living Units	3	15.0	NO	-	138	138	130

Program Category	Program Path	Savings Category	DAC Project	Units	Quantity	Effective Useful Life	Early Replacement Flag†	Verified Gross Annual Water Savings (Gallons)	Ex Ante Gross Savings (Therms)	Verified Gross Savings (Therms)	Verified Net Savings (Therms)
DAC	Custom	Gas High Efficiency Furnace	FALSE	Unit	5	20.0	NO	-	630	969	913
		High Efficiency Boiler	FALSE	Unit	5	25.0	NO	-	10,174	10,174	9,586
		Steam Pipe Averaging Controls	FALSE	Living Units	191	20.0	NO	-	12,636	11,668	10,994
		HVAC – Custom	FALSE	Unit	8	14.9	NO	-	90,768	77,478	73,001
		Process – Custom	FALSE	Unit	3	8.0	NO	-	10,348	12,427	11,709
	Joint	Faucet Aerator (IU) – DAC	TRUE	Unit	14	10.0	NO	16,059	83	83	91
		Low Flow Showerheads (IU) – DAC	TRUE	Unit	4	10.0	NO	7,850	49	49	54
		Programmable Thermostats – DAC	TRUE	Unit	6	16.0	NO	-	243	243	253
		Shower Timer – DAC	TRUE	Unit	39	2.0	NO	433	147	147	153
	PTA	Boiler Tune Up – DAC	TRUE	MBH Input	16,524	3.0	NO	-	7,746	7,746	7,746
		DHW Boiler Tune-up – DAC	TRUE	Living Units	512	3.0	NO	-	1,434	1,439	1,439
		On Demand DHW Controls – DAC	TRUE	Living Units	30	15.0	NO	-	1,881	1,881	1,881
		Pipe Insulation – DAC	TRUE	LN FT	548	15.0	NO	-	3,986	3,986	3,986
		Pipe Insulation – Fittings and Valves – DAC	TRUE	Unit	7	15.0	NO	-	141	141	141
		Steam Pipe Averaging Controls – DAC	TRUE	Living Units	30	20.0	NO	-	1,985	1,833	1,833
		Steam Trap – DAC	TRUE	Unit	346	6.0	NO	3,965,471	62,601	67,520	67,520
	Prescriptive	Advanced Thermostat (IU) – DAC	TRUE	Unit	3	11.0	NO	-	139	167	167
		Direct Fired Heater – DAC	TRUE	MBH Input	5,157	15.0	NO	-	12,849	12,849	12,849
		High Efficiency Boiler – DAC	TRUE	Unit	6	25.0	NO	-	36,478	36,478	36,478
		Programmable Thermostat – DAC	TRUE	Unit	1	16.0	NO	-	37	41	41
		Water Heater (COM) – DAC	TRUE	Unit	2	15.0	NO	-	74	74	74
Total or Weighted Average						9.0	41,330,404	1,054,333	1,081,478	1,036,112	

Source: Evaluation team analysis.

Table 15. Verified Cost Effectiveness Inputs – NSG

Program Category	Program Path	Savings Category	DAC Project	Units	Quantity	Effective Useful Life	Early Replacement Flag†	Verified Gross Annual Water Savings (Gallons)	Ex Ante Gross Savings (Therms)	Verified Gross Savings (Therms)	Verified Net Savings (Therms)
Non-DAC	Joint	Faucet Aerator (IU)	FALSE	Unit	57	10.0	NO	74,928	391	391	428
		Low Flow Showerheads (IU)	FALSE	Unit	29	10.0	NO	56,911	358	359	392
		Programmable Thermostats	FALSE	Unit	2	16.0	NO	-	81	81	84
	PTA	Pipe Insulation	FALSE	LN FT	1,240	15.0	NO	-	3,966	3,966	3,780
	Prescriptive	Boiler Reset Controls	FALSE	MBH Input	5,507	16.0	NO	-	7,318	7,318	6,895
		Boiler Tune Up	FALSE	MBH Input	5,507	3.0	NO	-	2,581	2,581	2,432
DAC	PTA	Boiler Tune Up – DAC	TRUE	MBH Input	1,028	3.0	NO	-	482	482	482
		DHW Boiler Tune-up – DAC	TRUE	Living Units	10	3.0	NO	-	28	28	28
		Pipe Insulation – DAC	TRUE	LN FT	197	15.0	NO	-	584	584	584
Total or Weighted Average						12.9	131,839	15,789	15,789	15,105	

Source: Evaluation team analysis.