



Public Housing Energy Savings Impact Evaluation Report

Energy Efficiency Plan Year 2020
(1/1/2020-12/31/2020)

Prepared for:

**Peoples Gas and North Shore Gas
Final**

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1. Introduction

This report presents impact evaluation results from the Peoples Gas (PGL) 2020 Public Housing Energy Savings (PHES) Program. It presents a summary of the gas impacts for the total program by measure and program structure details. The appendix presents the impact analysis methodology. Program year 2020 covers January 1, 2020 through December 31, 2020. There were zero completed North Shore Gas (NSG) projects in 2020. As such, there are no NSG savings, and this report provides PGL results only.

2. Program Description

The PHES Program works with Public Housing Authorities (PHAs) in ComEd, Nicor Gas, PGL, and NSG territories to achieve electric and gas savings. The PHA itself is the program participant, though the residents of the properties are directly affected by the program through in-unit and common area upgrades. Given the COVID-19 pandemic, the program focused on upgrades to common areas to avoid in-unit projects, where the only gas savings opportunities were envelope measures; specifically, attic insulation and air sealing.

Peoples Gas achieved gas savings for one PHA property in 2020 as shown in Table 2-1.

Table 2-1. 2020 Volumetric Summary for PGL

Participation	Total
Participants *	1
Installed Projects †	1
Measure Type	2
Attic Insulation	7
Air Sealing	7

* Participants are defined by the unique "Gas Account Number".

† Installed Projects are defined by the unique "Project ID#" variable.

Source: PGL tracking data and Guidehouse evaluation team analysis

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

Table 2-2. 2020 Installed Measure Quantities for PGL

Program Category	Program Path	Measure	Quantity Unit	Installed Quantity
Public	Prescriptive	Insulation	Square Feet	20,188
Public	Prescriptive	Air Sealing	Linear Feet	7,827

Source: PGL tracking data and Guidehouse evaluation team analysis of joint ComEd PHES program database.

3. Program Savings Detail

Table 3-1 summarizes the gas savings the PGL PHES Program achieved in 2020.

Table 3-1. 2020 Annual Gas Savings Summary for PGL

End Use Type	Ex Ante Gross Savings (Therms)	Verified Gross RR*	Verified Gross Savings (Therms)	NTG [†]	Verified Net Savings (Therms)
Envelope (Common Area)	3,843	1.02	3,921	1.00	3,921
Total	3,843	1.02	3,921	1.00	3,921

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

[†] A deemed value. Available on the SAG web site: https://www.ilsag.info/ntg_2020.

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

4. Program Savings by Measure

The PHES Program completed two measures for PGL in 2020, as shown in Table 4-1. The tracking data did not separate the two measures, hence the evaluation team is unable to provide separate ex ante values for attic insulation and air sealing. Instead, Table 4-1 shows the combined realization rate findings for attic insulation and air sealing measures.

Table 4-1. 2020 Annual Energy Savings by Measure for PGL

Program Category	Research Category	Ex Ante Gross Savings (Therms)	Verified Gross RR*	Verified Gross Savings (Therms)	NTG [†]	Verified Net Savings (Therms)
Public	Attic Insulation	3,843	1.02	665	1.00	665
Public	Air Sealing			3,256	1.00	3,256
Total		3,843	1.02	3,921	1.00	3,921

* 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 Illinois SAG web site: https://www.ilsag.info/ntg_2020.

Source: PGL and ComEd tracking data and Guidehouse evaluation team analysis.

5. Impact Analysis Findings and Recommendations

5.1 Impact Parameter Estimates

The tracking database combines ex ante savings from attic insulation and air sealing measures. The team leveraged program tracking data and referenced the ComEd joint PHES Program database to determine the total linear footage of the air sealing, and other factors such as insulation R-values. For savings calculation inputs not in the tracking data, the evaluation team relied on default assumptions and the savings algorithm from the Illinois Statewide Technical Reference Manual v8.0 (TRM v8.0)¹. Table B-1 in Appendix B shows the Total Resource Cost (TRC) cost-effectiveness analysis inputs available at the time of producing this impact evaluation report.

Table 5-1. Verified Gross Savings Parameters

Research Category	Units	Ex Ante Gross (therms)‡	Verified Gross (therms/unit)	Realization Rate	Data Source(s)
Attic Insulation	Square Feet	3,843	0.033	102%	Illinois TRM, v8.0 †, Section 5.6.5 and Program Tracking Database (PTD)*
Air Sealing	Linear Feet		0.416		

‡ The tracking data did not produce ex ante unit savings for these measures.

* Program Tracking Data (PTD) provided by PGL, extract generated February 9, 2021, and ComEd data provided January 30, 2021.

† State of Illinois Technical Reference Manual version 8.0 from <http://www.ilsag.info/technical-reference-manual.html>.

Finding 1. For all measures, the ex ante savings estimates combined insulation and air sealing savings, making the key drivers of differences between the ex ante and verified savings for each measure type unidentifiable. Verified savings estimates relied on assumptions provided within the TRM v8.0 and quantity values confirmed from the joint ComEd PHES tracking data, resulting in higher verified therm savings compared with the ex ante estimates.

Recommendation 1. Calculate and report quantity units and savings for insulation and air sealing as separate measures to help identify key areas that drive differences between ex ante and verified savings.

5.2 Historical Realization Rates and NTG Values

Table 5-2 shows the historical gross realization rates and NTG values for the PHES Program since the first program year of utility administration (GPY6).

¹ Available on the SAG web site: <http://www.ilsag.info/technical-reference-manual.html>

Table 5-2. Historical Realization Rates and NTG Values

Program Year	PGL Verified Gross RR	NSG Verified Gross RR	PGL NTG	NSG NTG
GPY6	102%	79%	1.00	1.00
2018	97%	82%	1.00	1.00
2019	101%	100%	1.00	1.00
2020	102%	N/A	1.00	N/A

Source: Guidehouse evaluation research.

Appendix A. Impact Analysis Methodology

The evaluation team calculated gross verified savings for the Public Housing Energy Savings Program by applying savings algorithms from the TRM v8.0². The team determined verified gross savings for each program measure by:

- Reviewing the savings algorithm inputs in the measure workbook for agreement with the TRM v8.0 and TRM v8.0 Errata.
- Validating savings algorithms were applied correctly.
- Prioritizing project-specific information to inform savings calculations where the TRM v8.0 advises to use actual values. For variables where project information did not include project-specific actual values, the evaluation team relied on defaults from the TRM v8.0.
- Cross-checking per-unit savings values in the tracking data with the verified values in the measure workbook or in the evaluation team's calculations if the workbook did not agree with the TRM v8.0.
- Multiplying the verified per-unit savings value by the quantity reported in the tracking data.

The evaluation team calculated verified net gas savings by multiplying the verified gross savings estimates by a net-to-gross (NTG) ratio of 1.0. For 2020, the PHES Program's NTG estimate was defined by a consensus process through the Illinois SAG.

² Available on the SAG web site: <http://www.ilsag.info/technical-reference-manual.html>

Appendix B. Program Specific Inputs for the Illinois TRC

Table B-1 shows 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 this table and will be provided to the evaluation team later.

Table B-1. Verified Cost Effectiveness Inputs - PGL

Program Path	Research Category	Units	Quantity	Effective Useful Life	Ex Ante Gross Savings (Therms)	Verified Gross Savings (Therms)	Verified Net Savings (Therms)
Prescriptive	Attic Insulation	Square Feet	20,188	20.0	3,843	665	665
	Air Sealing	Linear Feet	7,827	20.0		3,256	3,256
Total or Weighted Average			28,015	20.0	3,843	3,921	3,921

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

NSG did not complete any projects in 2020, and therefore do not have any cost effectiveness inputs to report.