



Public Housing Energy Savings Impact Evaluation Report

Energy Efficiency Plan: Plan Year 2021
(1/1/2021-12/31/2021)

Prepared for:

Peoples Gas and North Shore Gas

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Prepared by:

Zac Hathaway
Opinion Dynamics

Mahsa Safari
Opinion Dynamics

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
eбалbis@guidehouse.com

Stu Slote
Director
802.526.5113
stu.slote@guidehouse.com

Kevin Grabner
Associate Director
608.616.5805
kevin.grabner@guidehouse.com

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1. Introduction

This report presents impact evaluation results from the Peoples Gas (PGL) 2021 Public Housing Energy Savings (PHES) Program. It presents a summary of the gas impacts for the total program by measure. The appendix presents the impact analysis methodology. Program year 2021 covers January 1, 2021 through December 31, 2021. There were zero completed North Shore Gas (NSG) projects in 2021. 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 natural 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. Gas savings opportunities included steam trap repair and replacement, room air conditioner (AC) covers and gap sealing, and boiler tune-ups.

Peoples Gas achieved gas savings for 12 properties in 2021 as shown in Table 2-1.

Table 2-1. 2021 Volumetric Summary for PGL

Participation	Total
Participants *	12
Installed Projects †	38
Measure Type	3

* 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. 2021 Installed Measure Quantities for PGL

Program Category	Program Path	Measure	Quantity Unit	Installed Quantity
Public	Prescriptive	Steam Trap Repair/ Replace	Each	2,288
Public	Prescriptive	Room AC Cover/Gap Sealer	Each	1,206
Public	Prescriptive	Boiler Tune-Up	MBH input	54,360

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 2021.

Table 3-1. 2021 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)
HVAC	64,928	104%	67,425	1.00	67,425
Total	64,928	104%	67,425	1.00	67,425

* 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-2021>.

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

4. Program Savings by Measure

The PHES Program provided three types of measures to PGL customers in 2021, as shown in Table 4-1.

Table 4-1. 2021 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	Steam Trap Repair/ Replace	54,674	100%	54,665	1.00	54,665
Public	Room AC Cover/Gap Sealer	5,585	145%	8,091	1.00	8,091
Public	Boiler Tune-Up	4,669	100%	4,669	1.00	4,669
Total		64,928	104%	67,425	1.00	67,425

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

5. Impact Analysis Findings and Recommendations

5.1 Impact Parameter Estimates

The evaluation team leveraged PGL program tracking data and referenced the ComEd joint PHES Program database to determine the input variables for savings calculations. For savings calculation inputs not in the tracking data, the team relied on default assumptions and the savings algorithm from the Illinois Statewide Technical Reference Manual v9.0 (TRM v9.0)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	Unit	Ex Ante Gross Savings (Therms/unit)	Verified Gross (therms/unit)	Realization Rate	Data Source(s)
Steam Trap Repair/ Replace	Each	23.90	23.89	100%	Illinois TRM, v9.0 † and Errata, Section 4.4.16 and Program Tracking Database*
Room AC Cover/Gap Sealer	Each	4.63	6.71	145%	Illinois TRM, v9.0 and Errata, Section 4.4.38 and Program Tracking Database
Boiler Tune-Up	MBH input	0.09	0.09	100%	Illinois TRM, v9.0 and Errata, Section 4.4.2 and Program Tracking Database

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

† State of Illinois Technical Reference Manual version 9.0 from <http://www.ilsag.info/technical-reference-manual.html>.

Finding 1. Per the TRM (Section 4.4.38), floor height for room AC cover/gap sealer measures should be the number of floors times eight feet. The TRM does not advise to use actual floor height data, if available. In the program tracking data, floor height values are inconsistent with respect to how they relate to the actual number of floors in the building: In some cases, the total tracked floor height is eight feet, even though the building has multiple floors; in other cases, the tracked floor height is not eight feet but is greater than or less than the number of floors times eight feet. Ex ante savings uses the tracked value for floor height to estimate the therms savings while verified savings uses the TRM approach of multiplying the number of floors by eight feet. This adjustment resulted in larger per unit savings for most records and an overall realization rate of 145% for this measure.

Recommendation 1. Per the TRM (Section 4.4.38), calculate and report therms savings for room AC cover/ gap sealer measures using the tracked number of floors multiplied by eight feet.

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 (2016 -2017)	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
2021	104%	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 v9.0². 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 v9.0 and TRM v9.0 Errata.
- Validating savings algorithms were applied correctly.
- Prioritizing project-specific information to inform savings calculations where the TRM v9.0 advises to use actual values. For variables where project information did not include project-specific actual values, the team relied on defaults from the TRM v9.0.
- Cross-checking per-unit savings values in the tracking data with the verified values in the measure workbook or in the team's calculations if the workbook did not agree with the TRM v9.0.
- Multiplying the verified per-unit savings value by the quantity reported in the tracking data.

The team calculated verified net gas savings by multiplying the verified gross savings estimates by a net-to-gross (NTG) ratio of 1.0. For 2021, 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 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	Steam Trap Repair/ Replace	Each	2,288	6.0	54,674	54,665	54,665
Prescriptive	Room AC Cover/Gap Sealer	Each	1,206	5.0	5,585	8,091	8,091
Prescriptive	Boiler Tune-Up	MBH input	54,360	3.0	4,669	4,669	4,669
Total or Weighted Average				3.2	64,928	67,425	67,425

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

NSG did not complete any projects in 2021; the evaluation team therefore does not have any cost effectiveness inputs to report.