

Business New Construction 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®

Final

April 16, 2026

Prepared by:

Ryan Kroll
Driftless Energy

Sagar Phalke
Guidehouse



Submitted to:

Peoples Gas
North Shore Gas
200 East Randolph Street
Chicago, IL 60601

Submitted by:

Guidehouse Inc.
167 N. Green Street
12th Floor
Chicago, IL 60607

Contact:

Charles Maglione, Partner
202.481.7352
cmaglione@guidehouse.com

Jeff Erickson, Director
608.616.4962
jeff.erickson@guidehouse.com

Laura Agapay-Read, Associate Director
312.583.4178
laura.agapay.read@guidehouse.com

Charles Ampong, Associate Director
608.616.4922
charles.ampong@guidehouse.com

This report was prepared by Guidehouse for Peoples Gas Light and Coke Company (PGL) and North Shore Gas(NSG) companies. The work presented in this report represents Guidehouse’s professional judgment based on the information available at the time this report was prepared. 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

1	Introduction	1
2	Program Description.....	1
3	Program Savings Detail.....	2
4	Program Savings by Measure.....	3
5	Impact Analysis Findings and Recommendations	3
5.1	Impact Parameter Estimates.....	3
5.2	Findings and Recommendations	4
	Appendix A. Impact Analysis Methodology.....	6
	Appendix B. Impact Analysis Supplemental Information	9
	Appendix C. Program Specific Inputs for the Illinois TRC	10

Table of Tables, Figures, and Equations

Table 1. 2025 Volumetric Summary for PGL.....	2
Table 2. 2025 Annual Energy Savings Summary for PGL	2
Table 3. Verified Gross Savings Parameters	3
Table 4. CY2025 BNC Full-Year Project Population	7
Table 5. CY2025 BNC Total Sample.....	8
Table 6. CY2025 Sample Characterization – Natural Gas Projects	8
Table 7. Researched Gross Savings for Sampled Projects	9
Table 8. Verified Cost Effectiveness Inputs - PGL	10

1 Introduction

This report presents the results of the impact evaluation of the Peoples Gas (PGL) and North Shore Gas (NSG) 2025 Business New Construction (BNC) program. 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 for benefit cost analysis. Program year 2025 covers January 1 to December 31, 2025.

2 Program Description

In 2025, the BNC program is offered jointly to commercial and industrial (C&I) and public sector (PS) customers served by ComEd, Nicor Gas, PGL, and NSG.

The program aims to capture immediate and long-term energy efficiency opportunities available during the design and construction of non-residential and multifamily buildings. The program covers new buildings, additions, and major renovations.

The program is implemented through outreach to design professionals, commercial real estate developers, and customers at the beginning of the design process. The implementation team provides building design technical assistance to aid participants in reducing energy use beyond what is required by existing building codes and standards. The PGL BNC program coordinates with ComEd where their service areas overlap. PGL acquires therm savings from the program using a dollar per therm payment model on a project-by-project basis.

Overall, the joint program had 50 participants in 2025. Of these projects, 38 projects included gas savings, four of which were served jointly by ComEd and Peoples Gas. The NSG program did not have any participants in 2025.

A summary of projects completed is shown in Table 1.

Table 1. 2025 Volumetric Summary for PGL

Participation	Overall Program (All Utilities) ‡	Projects with Gas Savings (All Utilities)	People Gas Projects
Private Sector			
Participants *	31	26	3
Installed Projects †	31	26	3
Public Sector			
Participants *	19	12	1
Installed Projects †	19	12	1
Program 2025 Total			
Participants *	50	38	4
Installed Projects †	50	38	4

* Participants are defined as distinct count of addresses

† Installed Projects are defined as distinct count of project IDs

‡ A total of 47 projects were completed in 2025 for the BNC program across all utilities. Three additional projects were completed in 2024 and had electric savings claimed in 2024. However, the gas savings were deferred until 2025. These projects were added to the population based on the gas savings, resulting in a total population of 50 projects (38 with gas savings claimed in 2025 as shown in Table 1). Source: Peoples Gas tracking data and evaluation team analysis.

3 Program Savings Detail

Table 2 summarizes the energy savings the PGL Business New Construction Program achieved by sector in 2025.

Table 2. 2025 Annual Energy Savings Summary for PGL

Program Category§	Ex Ante Gross Savings (Therms)	Verified Gross RR*	Verified Gross Savings (Therms)	NTG†	Verified Net Savings (Therms)
Private, Non-Disadvantaged Communities§	100,203	95%	95,408	0.43	41,025
Private, Non-DAC Subtotal	100,203	95%	95,408	0.43	41,025
Public, Non-Disadvantaged Communities	2,037	95%	1,940	0.43	834
Public, Non-DAC Subtotal	2,037	95%	1,940	0.43	834
Total or Weighted Average	102,240	95%	97,348	0.43	41,859

Note: Savings and realization rates presented in this table are rounded and may not sum precisely to the totals.

* 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/>.

§ One Project WO-8057782 was listed as a private sector, DAC project in the PGL tracking data. This project is located within a DAC eligible zip code. However, this project exceeds the DAC building area threshold for new construction projects specified in the NTG Disadvantaged Areas Policy Operation and Approach memo of February 14, 2025. This size threshold is set based on projected gas

building gas usages to conform with the annual gas consumption threshold specified in the Illinois Energy Efficiency Policy Manual v3.0. Based on this, project WO-8057782 was considered a Private, Non-DAC project and assigned the program deemed NTG value. Source: Evaluation team analysis

4 Program Savings by Measure

The BNC program claims savings at the whole building level. Therefore, this report does not present measure-level savings.

5 Impact Analysis Findings and Recommendations

5.1 Impact Parameter Estimates

The evaluation team calculated verified gross and net energy savings using participant specific whole-building energy models developed by the implementation team for baseline and projected design scenarios. For each participant, the design energy model estimates the proposed building's annual whole-building energy consumption based on architecture; building envelope; heating, ventilation, and air conditioning (HVAC); lighting; and other parameters from the building design plans. The baseline energy model for a project estimates the counterfactual annual energy consumption the building would be expected to consume if it were built to meet the baseline energy performance standards set by the Illinois Energy Code and equipment standards in effect at the time of construction. The estimated first-year savings are the difference in annual electric and gas consumption between the two models. Slipstream developed the models in the Sketchbox program, which utilizes the DOE2.2 engine. The evaluation reviewed the models using Sketchbox or eQuest, which also utilized the DOE2.2 engine.

Table 3 summarizes the key input parameters used to develop verified gross savings and the primary data sources supporting each parameter.

Table 3. Verified Gross Savings Parameters

Gross Savings Input Parameters	Deemed or Evaluated	Data Source(s) *
Program Model Inputs	Evaluated	Program-supplied building models and calculations
Evaluation Model Inputs	Mixture	Desk review of project documentation, IL-TRM v13.0
Evaluation Model Results	Evaluated	Energy model and/or project calculations
Realization Rates – All Projects	Evaluated	Program savings and evaluated savings
NTG – Electric and Gas	Deemed	Illinois SAG Consensus
EUL	Mixture	IL-TRM v13.0 – Volume 4 Attachment B

* IL-TRM is the Illinois Technical Reference Manual version 13.0. <https://www.ilsag.info/technical-reference-manual/illinois-statewide-technical-reference-manual-version-13-0/>. The net to gross (NTG) values can be found on the Illinois Stakeholder Advisory Group (SAG) website: <https://www.ilsag.info/wp-content/uploads/PGL-NSG-NTG-CY2025-Final-Values-2024-09-18.xlsx>. Source: Evaluation team analysis

5.2 Findings and Recommendations

The BNC program calculates savings using a building simulation completed for each project. Overall, the simulations and ex ante savings analyses were of a high level of rigor and accuracy. All four of the PGL projects reviewed had natural gas realization rates between 84% and 115%.

The factors that had the largest effect on adjusting ex ante gross savings were inconsistencies between installed equipment specifications and performance characteristics, incorrect application of code requirements or baselines, and missing documentation to confirm the specifications of installed equipment or the completion of the measures as claimed.

The evaluation team developed several recommendations based on findings from the CY2025 evaluation. These findings and recommendations offer insights into why the ex ante values may not align with the verified values.

The evaluation team recognizes that the implementation contractor will make their best efforts to incorporate these recommendations. However, in some instances, the implementation contractor may adopt different approaches or use historical assumption averages to calculate ex ante savings to minimize administrative overhead. Consequently, the ex ante values might not always match the verified values. The evaluation approach will rely on the Technical Reference Manual (TRM), tracking data information, onsite information, data collection, and other relevant sources to report verified savings.

Finding 1. The verified savings for several projects were different from the ex ante savings due to installed equipment quantities or specifications being inconsistent with the performance characteristics included in the building models or calculations. Although these adjustments are numerous, most adjustments were minor. Adjustments include:

- The evaluation team adjusted the window specifications (U-values and solar heat gain coefficients) for project WO-8057782 based on the drawings and specifications provided.
- For project WO-7516342, the original analysis applied a penalty for having window areas greater than are allowed by code. Based on the documentation provided, Guidehouse updated the window to wall ratio so that the opaque transom window areas were not counted as window area, reducing the penalty.
- The team updated the verified smart thermostat savings for project WO-7825089 to match the Sketchbox model output. It appears that the reported savings for this measure were not updated to reflect the final model.

Recommendation 1. The evaluation team recommends that building simulations are kept up to date to accurately represent the final as-built building construction and installed equipment.

Finding 2. The evaluation team changed the savings for two projects due to incorrect space types, building types, or occupancy groups being selected for code baselines.

- The reported savings for project WO-8057782) used the baseline LPD corresponding to the hospital building area type (0.96 W/sf) listed in the Illinois Energy Conservation Code. The evaluation team verified the actual building type to be a clinic and updated the baseline LPD to 0.81 W/sf to correspond to the verified building area type. The change to the lighting energy resulted in increased heating gas usage.
- For WO-7825089, the ex ante model used the roof insulation U-value baseline requirements for an “All Other” building type. The evaluation updated the verified savings for this project to use the roof insulation U-value baseline requirements for a Group-R, multifamily building from IECC.

Recommendation 2. Update QA/QC processes to ensure claimed savings are consistent with the appropriate baseline as specified in the codes and/or standards for the project.

Finding 3. The evaluation team updated the water savings (gallons) for four projects (Projects WO-7516342, WO-7825089, WO-4297907, WO-8057782) due to errors in the ex ante water savings calculations. For the commercial fixtures, the most significant update was made to the baseline flow requirement for faucets in public lavatory spaces (typically updated from 2.2 gpm to 0.5 gpm). Additionally, the ex ante water savings for residential fixtures did not consistently account for the number of people per household when calculating water usage per fixture.

Recommendation 3. Update the water savings calculator to be consistent with the baselines flow requirements set forth in code and use the calculation methodology as specified in the Illinois TRM.

Appendix A. Impact Analysis Methodology

Engineering Review of Project Files

The building energy models and calculations for each sampled project were reviewed. The analysis included the following:

- Adjusting the model inputs in the executable files to match the as-built conditions identified in the evaluation team's review of the Business New Construction program's project files and then rerunning the model.
- Quantifying impacts by comparing two simulations representing the projected design and baseline scenarios.

The baseline model is the Illinois Energy Conservation Code for Commercial Buildings, which references and incorporates the applicable IECC. The Illinois Energy Conservation Code for Commercial Buildings explicitly allows for the use of American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Standard 90.1 as an alternate compliance method.

The program assumes the appropriate baseline for the program application date. Projects through CY2019 used IECC 2015 (based on ASHRAE 90.1-2013) with later projects using IECC 2018 (based on ASHRAE 90.1-2016). The evaluation team relied on the same software, methods, and approach to assigning baseline assumptions the program implementers used to estimate the ex ante models.

The building energy models include interactive effects for measure and fuel type, where applicable. Interactive effects are the resulting changes to savings that occur when the installation of one measure has a positive or negative effect on the savings for another fuel type. Interactive effects are calculated in the model. For utilities' goal tracking, the evaluation team provides the savings without the penalties from interactive effects. The implementation team calculated savings for joint projects including interactive effects; however, the evaluation team calculated savings with and without interactive effects for reporting purposes. Unless noted, the results in this report exclude penalties from cross-fuel interactive effects.

The evaluation team calculated verified net energy and demand savings by multiplying the verified gross savings estimates by a net to gross (NTG) ratio. In CY2025, the NTG values used to calculate the net verified savings were based on past evaluation research and approved by the Illinois SAG. The evaluation team applied an NTG ratio of 1.0 to verified gross savings estimates corresponding to eligible projects under the Net to Gross Policy for Disadvantaged Areas. For the BNC program, eligible projects consisted of public and private projects in disadvantaged communities (DAC ZIP codes) with square footage values under the area threshold for eligibility based on building type. The last of these criteria acts as a proxy in the absence of reliable electric rate and annual gas consumption data.

The evaluation team selected a stratified random sample for the Business New Construction program to support the engineering desk reviews. The team designed the sample to provide 90/10 confidence and precision for evaluated kilowatt-hour, therm, and million British thermal unit (MMBtu) savings estimates.

Sampling Approach

Consistent with prior evaluations, the evaluation team developed a stratified random sample of completed BNC projects to support the engineering desk reviews. Projects were selected from the population of completed projects, inclusive of all participating utilities. The population of projects were stratified into four strata based on ex ante MMBtu savings. All of the projects within the certainty and large strata were selected with projects being randomly sampled within the medium and small strata. This sample is designed to provide 90/10 precision for evaluated kW, kWh, and therm savings, considering savings with and without interactive effects.

Based on this approach, a total of 25 projects were selected for evaluation for the CY2025 program year. The Wave 1 sample included 12 of the 18 projects that were completed as of June 30, 2025. The Wave 2 sample included 13 of the 19 projects completed from July 1, 2025 through December 31, 2025. Twenty-two of the selected projects included gas savings. For each wave, the evaluation team divided the sample frame into strata based on the overall MMBTU saving of each project and randomly selecting projects within those strata. Table 4 and Table 5 below describe the population and sample frame for electric and natural gas projects, respectively, for the CY2025 program year.

Table 4. CY2025 BNC Full-Year Project Population

Strata	MMBTU Range	Count	Total MMBTU	Total kWh	Total Therms
Certainty	>7,000	2	20,221	1,940,676	135,991
Large	2,300 to 7,000	5	20,351	2,139,424	130,508
Medium	1,200 to 2,400	9	13,578	1,644,236	94,089
Small	<1,200	34	13,244	2,658,850	80,022
Total		50*	67,393	8,383,186	440,610

**A total of 47 projects were completed in 2025 for the BNC program across all utilities. Three additional projects were completed in 2024 and had electric savings claimed in 2024. However, the gas savings were deferred until 2025. These projects were added to the population based on the gas savings, resulting in a total population of 50 projects (38 with gas savings claimed in 2025 as shown in Table 1).*

Table 5. CY2025 BNC Total Sample

Strata	MMBTU Range	Count	Total MMBTU	Total kWh	Total Therms
Certainty	>7,000	2	20,221	1,940,676	135,991
Large	2,300 to 7,000	5	20,351	2,139,424	130,508
Medium	1,200 to 2,400	7	12,571	1,221,779	83,485
Small	<1,200	13	9,273	1,536,307	40,314
Total		27	62,362	6,838,186	390,298

Source: Evaluation team analysis

After completing the desk reviews and calculating project-specific realization rates, the team developed case weights to extrapolate the results to similar projects to develop strata and program realization rates for electric and gas. The sample and population characterization, along with the natural gas realization rate in Table 6.

Table 6. CY2025 Sample Characterization – Natural Gas Projects

Population Summary*			Sample Summary*			Statistical Verification Results	
Strata	Number of Projects (N)	Ex Ante Gross Savings* (therms)	Sampled Projects (n)	Ex ante Gross Savings (therms)	Percent Savings Sampled (%)	Realization Rate	Precision (%)
Certainty	2	135,991	2	135,991	100%		
Large	5	130,508	5	130,508	100%		
Medium	7	94,089	6	83,485	89%		
Small	24	80,022	9	40,314	50%		
Total	38	440,610	22†	390,298	89%	0.95	2.3%

† A total of 27 projects were sampled from the 2025 participation across all utilities. However, not all selected projects included gas savings. The sampled projects included in this table only include projects with gas savings.

*The ex ante gross impact population and sample include savings not only claimed by ComEd but also Nicor Gas and Peoples Gas.

Source: ComEd tracking data, Nicor Gas tracking data, Peoples Gas tracking data, evaluation team analysis.

Appendix B. Impact Analysis Supplemental Information

Engineering Desk Review Results

Table 7 shows the results of the engineering desk reviews for PGL projects, including the ex ante savings, and the resulting gross realization rate (RR) for each project in the desk review sample. The table also includes a narrative describing the reasons for any discrepancies between the ex ante and verified savings. A RR less than 1.00 indicates that a project received a downward adjustment to energy savings while a RR more than 1.00 indicates that a project received an upward adjustment to energy savings. All energy savings exclude interactive effects.

Table 7. Researched Gross Savings for Sampled Projects

Project ID	PGL ID	Ex Ante		Verified		Realization Rate	
		Electric Savings (kWh)	Gas Savings (therms)	Electric Savings (kWh)	Gas Savings (therms)	Electric Savings (kWh)	Gas Savings (therms)
CINC-1290	WO-7516342	1,442,616	55,651	1,687,472	64,095	1.17	1.15
The most significant change to this project is a decrease in the penalty associated with greater-than-code window areas. The original analysis included opaque transom window areas.							
CINC-1006	WO-7825089	49,490	7,933	44,948	6,761	0.91	0.85
The claimed savings were inconsistent with the documentation provided. Multiple changes were made including updating the insulation and window properties. It appears that this project may not have been updated to reflect as-built construction.							
CINC-1345	WO-4297907	101,917	2,037	101,687	1,712	1.00	0.84
The project water savings were updated to reflect baseline flow rates consistent with code.							
CINC-1454	WO-8057782	231,214	36,619	149,878	37,605	0.65	1.03
The primary change for this project was the adjustment of the baseline LPD. The original analysis claimed a hospital space type but building is a clinic. The reduction in electric energy increased the heating gas usage. The water savings were updated to reflect correct baseline flow rates.							

Source: Evaluation team analysis.

Appendix C. Program Specific Inputs for the Illinois TRC

Table 8 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. Guidehouse will include annual and lifetime water savings and greenhouse gas reductions in the end of year summary report.

Table 8. Verified Cost Effectiveness Inputs - PGL

Program Category	Program Path	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)
Private	Whole Building	FALSE	Projects	3	20.6	NO	5,190,068	100,203	95,408	41,025
Public	Whole Building	FALSE	Projects	1	20.6	NO	64,469	2,037	1,940	834
Total or Weighted Average					20.6		5,254,537	102,240	97,348	41,859

*Water savings are due to appliances or water fixtures resulting in natural gas reductions for projects served by Peoples Gas

Source: Evaluation team analysis.