Guidehouse

Gas Optimization Impact Evaluation Report

Energy Efficiency Plan: Program Year 2024 (1/1/2024-12/31/2024)

Prepared for:

Peoples Gas and North Shore Gas

FINAL

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Table of Contents

List of Tables, Figures, and Equations

Introduction

This report presents the results of the impact evaluation of the Peoples Gas (PGL) and North Shore Gas (NSG) 2024 Gas Optimization Programs. It presents a summary of the energy impacts for the total program and broken out by relevant measure and program structure details. The appendix presents the impact analysis methodology. Program year 2024 covers January 1, 2024 through December 31, 2024.

Program Description

The Gas Optimization Program provides a technical assessment service where energy advisors and contracted engineering firms review commercial, industrial, and public sector facilities for operation and maintenance issues that, if corrected, often provide short payback projects. In addition to identifying low-cost and no-cost measures that can be implemented by the customer, Gas Optimization studies also identify capital improvement projects. Incentives to complete recommended improvements include reimbursement for the cost of the technical assessment, rebates, and program implementation support. Projects identified through the Gas Optimization Program include Boiler Combustion Control, HVAC Space Conditioning Control, and other energy saving measures.

The PGL Gas Optimization Program had one participant in 2024, as shown in Table 1.

Table 1. 2024 Volumetric Summary for PGL

Participation	Private	Public	Total
Participants *	1	0	1

* Participants are defined as unique work order IDs.
Source: Peoples Gas tracking data and evaluation team analysis.

The NSG Gas Optimization Program had two participants in 2024, as shown in Table 2.

Table 2. 2024 Volumetric Summary for NSG

Participation	Private	Public	Total
Participants *	1	1	2

* Participants are defined as unique work order IDs.
Source: North Shore Gas tracking data and evaluation team analysis.

Program Savings Detail

Table 3 summarizes the energy savings the PGL Gas Optimization Program achieved by program category in 2024. One private project for disadvantaged communities was completed, contributing to all the savings for PGL Gas Optimization Program.

Table 3. 2024 Annual Energy Savings Summary for PGL

Program Category	Savings Category	Ex Ante Gross Savings (Therms)	Verified Gross RR*	Verified Gross Savings (Therms)	NTG†	Verified Net Savings (Therms)
Private, DAC	Space Conditioning Controls	5,418	93%	5,045	1.00	5,045
Total		**5,418**	**93%**	**5,045**	**1.00**	**5,045**

* 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.
Source: Evaluation team analysis.

Table 4 summarizes the energy savings the NSG Gas Optimization Program achieved by program category in 2024. One private project for disadvantaged communities was completed, contributing 28% of the savings for NSG Gas Optimization Program. One public project for non-disadvantaged communities was completed, contributing 72% of the savings for NSG Gas Optimization Program.

Table 4. 2024 Annual Energy Savings Summary for NSG

Program Category	Savings Category	Ex Ante Gross Savings (Therms)	Verified Gross RR*	Verified Gross Savings (Therms)	NTG†	Verified Net Savings (Therms)
Private, DAC	Boiler Combustion Controls	22,308	100%	22,308	1.00	22,308
Public, Non-DAC	Waste Heat Recovery	58,017	107%	62,167	0.94	58,437
Total		**80,325**	**105%**	**84,475**		**80,745**

* 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.
Source: Evaluation team analysis.

Impact Analysis Findings and Recommendations

Findings and Recommendations

The evaluation team found two of the three projects verified results deviated from ex ante savings – One Waste Heat Recovery project was verified at a realization rate of 107%, and one Space Conditioning Controls project was verified at a realization rate of 81%. The detailed realization rates, evaluation findings, and recommendations are provided below.

Finding 1. For NSG Gas project WO-4296757, the evaluation team requested clarification for inlet and outlet temperatures and flows used in the calculation. The implementation team provided a calculation that utilizes the working fluid parameters from the actual process. This updated methodology was reviewed and accepted by the evaluator. The updated verified gross realization rate is 107%.

Recommendation 1. For economizer measures, defining the boundary for the system and collecting trend data of inlet and outlet temperatures and flows are recommended approaches to conduct more accurate energy savings calculations.

Finding 2. For NSG Gas project WO-5260491, the evaluation team conducted a calculator review and utility history data review. Due to the project not being weather dependent and the laundry data provided not being monthly, the regression analysis result ranges above and below 100% realization rate, with a low confidence level. As a result, the utility data analysis result was omitted, and the calculator review result was applied for this project.

Recommendation 2. For projects with savings above 10% of the building usage, consider using utility billing data analysis to true up the savings. This requires collection of the utility data and relevant production data (e.g., laundry data for this project) during the same period with the same interval.

Finding 3. For PGL project WO-4298114, the evaluation of project trending data resulted in adjustments to baseline fan speed value. For the baseline, the fan speed input was updated to 79%. This adjustment resulted in a realization rate of 93%.

Recommendation 3. Conduct a review and quality check to ensure key parameters used in the reported savings calculations are consistent with the provided reference document, for both baseline and post installation operations, such as the trending data analysis results.

Appendix A. Impact Analysis Methodology

In Program year 2024, all three reported Gas Optimization projects were selected for custom desk file review. Table A-1 shows a profile of the sample selection which covers 100% of the population.

Table A-1. Profile of Gross Impact Sample for Projects

		Population Summary		Sample Summary		
Program	Sampling Strata	Number of Projects (N)	Ex Ante Gross Savings (Therms)	N	Ex Ante Gross Savings (Therms)	Sampled % of Population (% Therms)
PGL Gas Optimization	N/A	1	5,418	1	5,418	100%
NSG Gas Optimization	N/A	2	80,325	2	80,325	100%
TOTAL		**3**	**85,743**	**3**	**85,743**	**100%**

Source: Evaluation team analysis.

Engineering Review of Project Files

For each project, an in-depth application review is performed to assess the engineering methods, parameters, and assumptions used to generate all ex ante impact estimates. For each measure, engineers estimated ex post gross savings based on their review of documentation and engineering analysis.

To support this review, the implementation contractor provided project documentation in electronic format for each Gas Optimization project. Documentation included some or all scanned files of hardcopy application forms and supporting documentation from the applicant (invoices, measure specification sheets, and vendor proposals), pre-inspection reports and photos, post-inspection reports and photos, calculation spreadsheets, and trend data for key inputs and parameters.

On-Site Data Collection

There was no site visits conducted in the 2024 evaluation for the Gas Optimization Programs. Utility billing data was provided by NSG and analyzed in the evaluation review for one of the three projects.

Appendix B. 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 Category	Savings Category	DAC Project	Units	Quantity	Effective Useful Life	Ex Ante Gross Savings (Therms)	Verified Gross Savings (Therms)	Verified Net Savings (Therms)
Private	Space Conditioning Controls	TRUE	Project	1	15.0	5,418	5,045	5,045
Total or Weighted Average					**15.0**	**5,418**	**5,045**	**5,045**

Source: Evaluation team analysis.

Table B-2. Verified Cost Effectiveness Inputs – NSG

Program Category	Savings Category	DAC Project	Units	Quantity	Effective Useful Life	Ex Ante Gross Savings (Therms)	Verified Gross Savings (Therms)	Verified Net Savings (Therms)
Private	Boiler Combustion Controls	TRUE	Project	1	25.0	22,308	22,308	22,308
Public	Waste Heat Recovery	FALSE	Project	1	15.0	58,017	62,167	58,437
Total or Weighted Average					**17.6**	**80,325**	**84,475**	**80,745**

Source: Evaluation team analysis.