AEG

Natural Gas Energy Efficiency Market Potential Study

Prepared for: Peoples Gas, North Shore Gas
By: Applied Energy Group, Inc.
Date: February 28, 2025
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EXECUTIVE SUMMARY

Peoples Gas (PGL) and North Shore Gas (NSG) selected Applied Energy Group (AEG) to conduct this Demand Side Management (DSM) Market Potential Study (MPS) to assess natural gas energy efficiency potential in the residential, commercial, and industrial sectors of the PGL and NSG service territories.

The study assesses various tiers of energy efficiency potential, including technical, economic, and achievable potential. The study developed updated baseline estimates with the latest information on federal, state, and local codes and standards for improving energy efficiency.

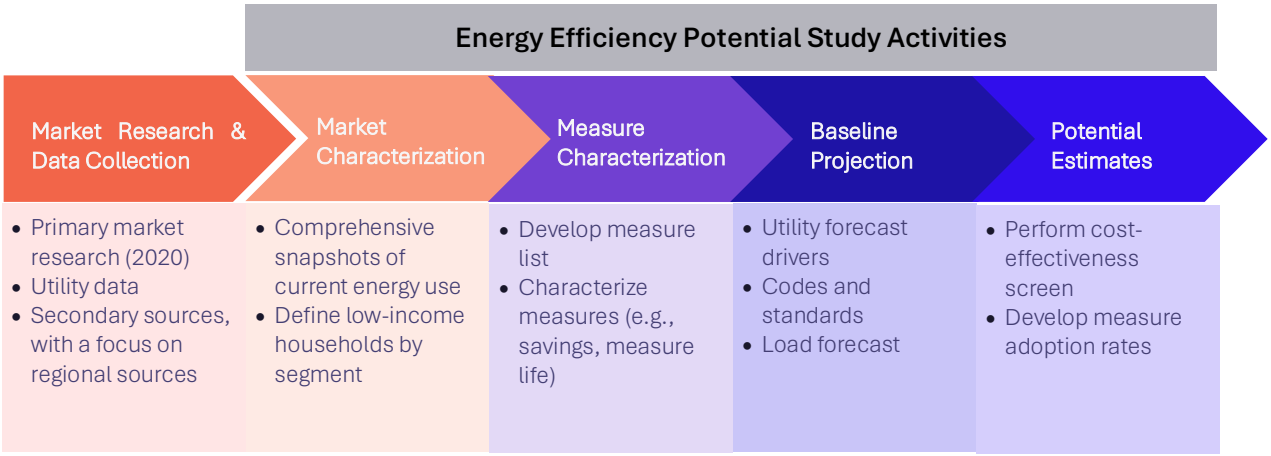
PGL and NSG will use the results of this study as guidance for its DSM planning process to optimally implement energy efficiency-related savings programs.

To perform the potential analysis, AEG used a bottom-up approach following the major steps listed below and illustrated in Figure ES-1. The analysis steps are described in more detail in the remainder of this section.

1. Reviewed primary market research in the form of customer surveys from previous studies and the utilities' program activity to identify equipment saturations, building characteristics, measure applicability and saturations, occupant behavior, and customer demographics and firmographics.
2. Performed market characterization to describe sector-level natural gas use for the residential, commercial, and industrial sectors for the base year, 2023. The residential customer surveys from Step 1 are the primary data source for the residential characterization. They were supplemented as needed by a variety of secondary data sources.
3. Developed a baseline end-use projection of energy consumption by sector, segment, end use, and technology for 2023 through 2044.
4. Defined and characterized energy efficiency measures to be applied to all sectors, segments, and end uses. AEG developed the measure list using PGL and NSG's current programs, measure lists from other studies, new/emerging technologies, and feedback from the Illinois Energy Efficiency Stakeholder Advisory Group (SAG).
5. Estimated technical, economic, and achievable potential at the measure level for 2025 through 2044.
6. Conducted scenario analysis varying key assumptions from the potential study to provide additional insight useful to PGL and NSG's planning efforts.

Throughout the analysis, PGL, NSG, and AEG engaged with the SAG to solicit feedback.

Figure ES-1 Analysis Approach



Definitions of Potential

The savings estimates are developed for three types of potential: technical potential, economic potential, and achievable potential. These estimates were developed at the measure level, and results are provided as annual savings impacts over the 20-year projection horizon. The various levels are described below.

- **Technical Potential** is the theoretical upper limit of efficiency potential, assuming that customers adopt all feasible measures regardless of their cost or customer preference. At the time of existing equipment failure, customers replace their equipment with the most efficient option available. In new construction, customers and developers also choose the most efficient equipment option.

  Technical potential also assumes the adoption of every other available measure, where applicable. For example, it includes installation of high-efficiency windows in all new construction opportunities and furnace maintenance in all existing buildings with gas furnaces. These retrofit measures are phased in over a number of years to align with the stock turnover of related equipment units, rather than modeled as immediately available all at once.

- **Economic Potential** represents the adoption of all cost-effective energy efficiency measures. In this analysis, the cost-effectiveness is measured by the total resource cost (TRC) test, which compares lifetime energy and capacity benefits to the incremental cost of the measure. If the benefits outweigh the costs (that is, if the TRC ratio is greater than 1.0), a given measure is considered in the economic potential. Customers are then assumed to purchase the cost-effective option at any decision juncture.

- **Achievable Potential** refines economic potential by applying customer participation rates that account for market barriers, customer awareness and attitudes, and program maturity. AEG estimates two levels of achievable potential:

  - **Realistic Achievable Potential** is based on current customer willingness to adopt measures as expressed in surveys, and grows from its starting point over time to simulate increasing customer awareness and program refinement.

  - **Maximum Achievable Potential** is derived from the RAP adoption rates, with a lift factor applied that simulates ideal program delivery and 100% incentives. This maximum adoption is held constant throughout the study period.

- When comparing Achievable potential to program history, it should be noted that the achievability modeling does not include budgetary constraints – all customers willing to adopt a measure are assumed able to do so.

Key Insights for Peoples Gas

The potential study shows significant cost-effective savings achievable across all sectors, due in large part to high values of avoided greenhouse gas emissions contributing to the economic calculations.

Table ES-1 Summary of Energy Efficiency Potential, All Sectors - PGL

	2025	2026	2027	2030	2035	2044
Baseline Projection (MMtherms)	1702	1702	1699	1681	1648	1614
Incremental Savings (MMtherms)						
Realistic Achievable Potential	21.4	22.9	23.9	24.5	26.3	21.0
Maximum Achievable Potential	29.1	30.5	31.3	30.6	29.6	22.2
Economic Potential	44.3	46.3	47.6	45.8	43.6	30.9
Technical Potential	51.8	53.9	54.3	52.2	48.7	33.5
Cumulative Savings (MMtherms)						
Realistic Achievable Potential	21.4	44.0	67.3	136.5	252.7	428.1
Maximum Achievable Potential	29.0	59.1	89.6	176.8	309.8	488.1
Economic Potential	44.3	89.8	135.7	265.0	456.0	692.2
Technical Potential	51.8	104.6	156.8	302.4	513.4	764.7
Energy Savings (% of Baseline)						
Realistic Achievable Potential	1.3%	2.6%	4.0%	8.1%	15.3%	26.5%
Maximum Achievable Potential	1.7%	3.5%	5.3%	10.5%	18.8%	30.2%
Economic Potential	2.6%	5.3%	8.0%	15.8%	27.7%	42.9%
Technical Potential	3.0%	6.1%	9.2%	18.0%	31.1%	47.4%

Figure ES-2 Baseline Projection and Cumulative Potential Forecast Summary – PGL

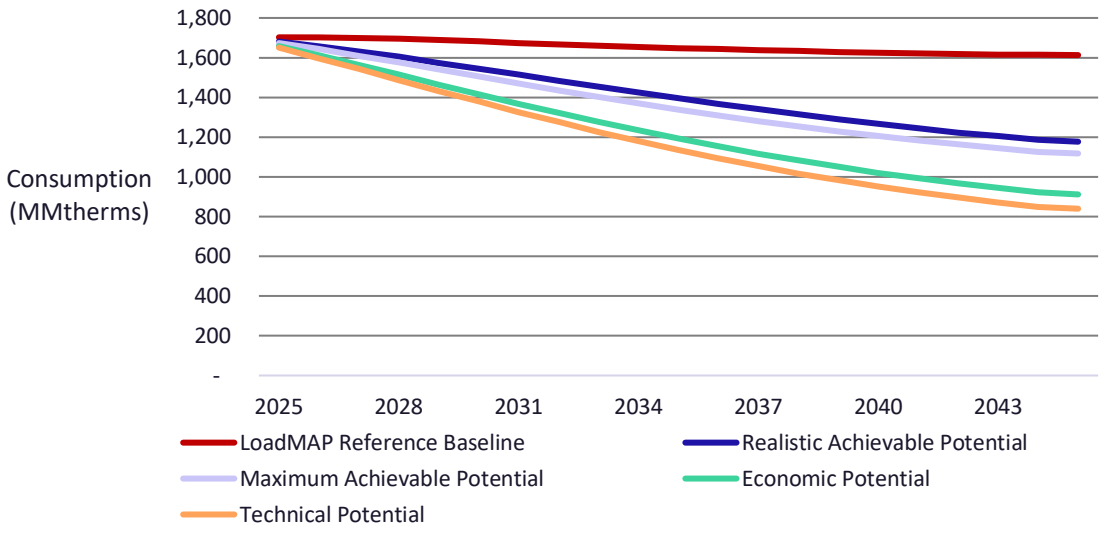
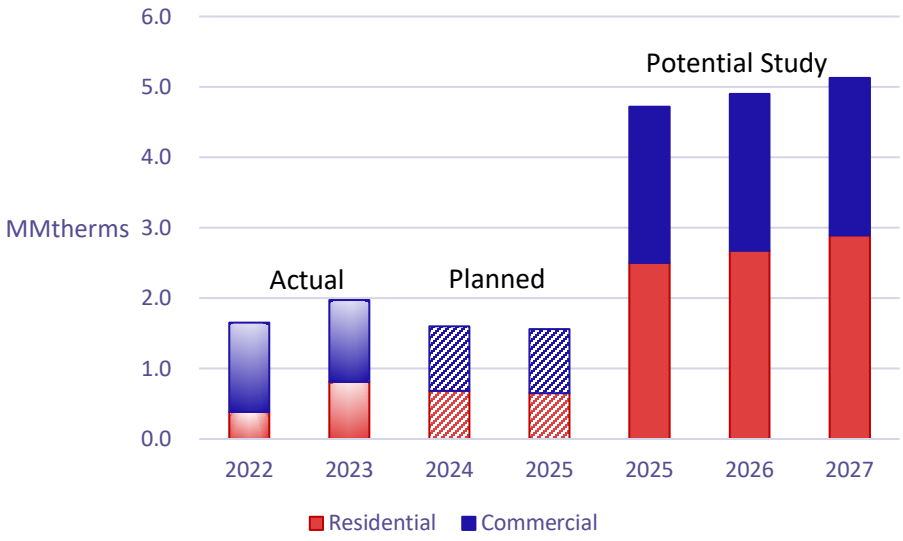


Figure ES-3 below compares recent prior-year program accomplishments to planned performance and to the realistic achievable potential savings from 2025 through 2027. Note that the potential study estimates are notably higher than recent and planned accomplishments due primarily to the lack of budgetary constraints in the modeled scenario.

Figure ES-3 PGL Prior-Year Accomplishments and Achievable Potential (Net MMtherms)



Key Insights for North Shore Gas

The potential study shows significant cost-effective savings achievable across all sectors, due in large part to high values of avoided greenhouse gas emissions contributing to the economic calculations.

Table ES-2 Summary of Energy Efficiency Potential, All Sectors - NSG

	2025	2026	2027	2030	2035	2044
Baseline Projection (MMtherms)	375	374	373	367	357	343
Incremental Savings (MMtherms)						
Realistic Achievable Potential	4.7	4.9	5.1	5.5	6.0	4.8
Maximum Achievable Potential	6.6	6.7	6.9	7.0	6.8	5.1
Economic Potential	9.4	9.6	9.8	9.8	9.3	6.7
Technical Potential	10.1	10.2	10.3	10.2	9.6	6.8
Cumulative Savings (MMtherms)						
Realistic Achievable Potential	4.7	9.6	14.6	29.9	56.3	95.8
Maximum Achievable Potential	6.6	13.2	19.9	39.5	70.1	110.4
Economic Potential	9.4	18.9	28.3	55.6	96.5	147.2
Technical Potential	10.1	20.1	30.0	58.2	99.9	150.9
Energy Savings (% of Baseline)						
Realistic Achievable Potential	1.3%	2.6%	3.9%	8.1%	15.8%	28.0%
Maximum Achievable Potential	1.7%	3.5%	5.3%	10.8%	19.7%	32.2%
Economic Potential	2.5%	5.0%	7.6%	15.1%	27.1%	42.9%
Technical Potential	2.7%	5.4%	8.0%	15.8%	28.0%	44.0%

Figure ES-4 Baseline Projection and Cumulative Potential Forecast Summary – NSG

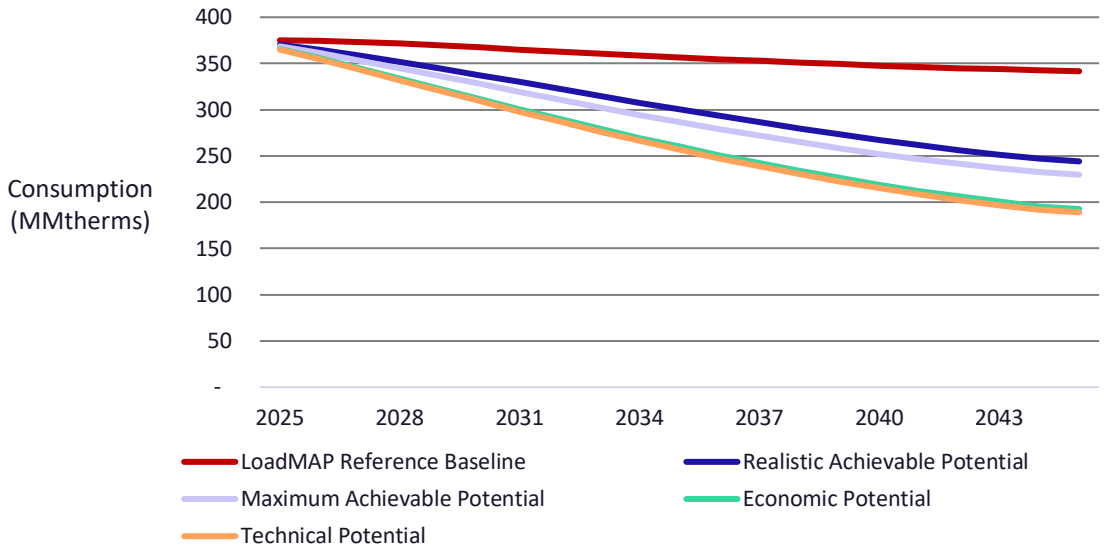
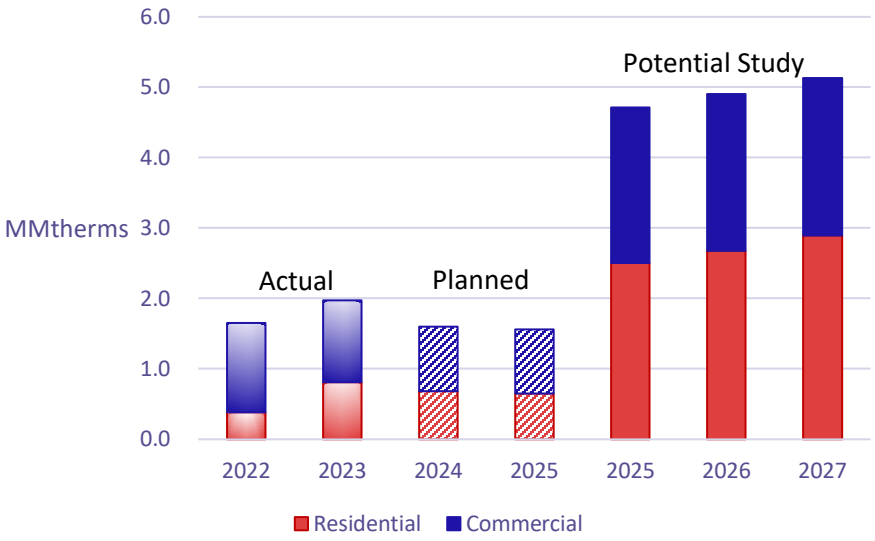


Figure ES-5 below compares recent prior-year program accomplishments to planned performance and to achievable potential savings from 2025 through 2027. As in PGL, note that the potential study estimates are notably higher than recent and planned accomplishments due primarily to the lack of budgetary constraints in the modeled scenario.

Figure ES-5 NSG Prior-Year Accomplishments and Achievable Potential (Net MMtherms)



Scenario Results

As part of the potential study, Peoples Gas and North Shore Gas requested AEG to develop not the **reference case** for savings potential**,** but to provide alternative scenarios of savings potential by modifying specific inputs to the base measure assumptions to reflect highly relevant topics under discussion regionally and nationally.

After discussing the possible modeling inputs that could be varied and what would be most useful and relevant to evaluate, AEG and the utilities agree on the following for scenario analysis:

- **Scenario 1** reflects aggressive electrification goals in the region, lowering the available population of gas-using equipment to target with savings programs.
- **Scenario 2** isolates the natural gas savings and dissociates them from the added greenhouse gas emissions values assigned in the Illinois regulatory framework. This represents direct reductions in gas load only, and approximates the participant cost test, evaluating energy efficiency in the cost of only the cost savings realized by customers.
- **Scenario 3** reflects possible climate changes into the future, instead of the industry-standard 20-year normal weather throughout the forecast period.

Table ES-3 Comparison of total savings, scenarios vs reference case (2044)

Summary of Energy Savings (MMtherms), 2044	Reference Case	Scenario 1	Scenario 2	Scenario 3
Baseline Forecast (MMtherms)	1,957	1,649	1,957	1,831
Cumulative Savings (MMtherms)				
Realistic Achievable Potential	511	466	194	467
Maximum Achievable Potential	580	532	233	532
Economic Potential	804	736	330	739
Technical Potential	877	801	882	817
Energy Savings (% of Baseline)				
Realistic Achievable Potential	26.1%	28.2%	9.9%	25.5%
Maximum Achievable Potential	29.6%	32.3%	11.9%	29.1%
Economic Potential	41.1%	44.7%	16.8%	40.4%
Technical Potential	44.8%	48.6%	45.1%	44.6%

Conclusion

The measure level savings potential estimated in this study support diverse future savings for both territories in all sectors. The study identifies continued opportunities for high efficiency furnaces, water heaters, thermostats, and building weatherization in the residential sector. For the commercial and industrial sectors, substantial opportunities exist for furnaces and boilers as well as more advanced control systems and industrial process optimization. Many of the measures contributing to savings potential are already offered in current programs.

This study:

- Describes and characterizes the customer base by energy source, sector, customer segment and end use. At a glance, it is possible to see where the opportunities for program savings are likely to come from.
- Defines a baseline projection of energy use by end use against which savings can be measured. This baseline takes into account existing and planned appliance standards and building codes, as well as naturally occurring efficiency.
- Estimates of the total amount of savings possible from cost-effective measures; these are savings above and beyond those already included in the baseline projection.
- Describes a likely savings outcome, achievable potential, both in the short run for program planning and in the longer term through 2044.

This study provides valuable guidance for program design. While the study provides estimates of annual savings for hundreds of measures within dozens of customer segments, the results should be taken with a measure of discretion. The results come from a model and we expect variation in the outcomes in the real world. This fact gives PGL and NSG staff the opportunity to deviate from specific annual values developed in the study as they design programs and commit to annual program targets.

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1 | Introduction

Peoples Gas Company (PGL) and North Shore Gas (NSG) selected Applied Energy Group (AEG) to conduct this Demand Side Management (DSM) Market Potential Study (MPS) to assess natural gas energy efficiency potential in the residential, commercial, and industrial sectors of the PGL and NSG service territories. The key objectives of the study were to:

- Estimate demand-side savings associated with traditional and emerging energy efficiency measures, as well as behavioral program options.
- Update market research to provide insights and enhance the planning representations of customers in the PGL and NSG service territories.
- Engage with PGL and NSG stakeholders – the Illinois Stakeholder Advisory Group (SAG) – during the study to solicit feedback on the study plan, measure list, and preliminary analysis results.

The study assesses various tiers of energy efficiency potential, including technical, economic, and achievable potential. The study developed updated baseline estimates with the latest information on federal, state, and local codes and standards for improving energy efficiency.

PGL and NSG will use the results of this study as guidance for its DSM planning process to optimally implement energy efficiency-related savings programs.

Potential Study Tasks

To produce a reliable and transparent estimate of efficiency potential, AEG performed the following tasks to meet PGL and NSG's key objectives:

- Characterize the PGL and NSG market in the base year (2023) using customer surveys conducted in 2020, information and data from PGL and NSG, and secondary data sources to describe how customers currently use energy by sector, segment, end use, and technology.
- Develop a baseline projection of how customers are likely to use natural gas in the absence of future programs. This defines the metric against which future program savings are measured. This projection used up-to-date technology data, modeling assumptions, and energy baselines that reflect both current and anticipated federal, state, and local energy efficiency legislation and standards that will impact potential.
- Estimate the technical, economic, and achievable potential at the measure level for energy efficiency over the 2025 to 2044 planning horizon to inform PGL and NSG's program design.

This report documents the results of the study as well as the steps followed in its completion. Throughout this study, AEG worked with PGL and NSG to understand the baseline characteristics of their service territory, including a detailed understanding of energy consumption in the territory, the assumptions and methodologies used in PGL and NSG's official load forecast, and recent DSM program accomplishments.

The remainder of this report is divided into four sections. We describe each section below:

- **Analysis Approach and Data Sources** details AEG's approach to conducting the study and the data sources.

- **Peoples Gas Analysis** describes market characterization, baseline projection, and a detailed breakdown of energy efficiency potential by measure type, sector, and end use for the PGL service territory.
- **North Shore Gas Analysis** describes market characterization, baseline projection, and a detailed breakdown of energy efficiency potential by measure type, sector, and end use for the NSG service territory.
- **Scenario Analysis (Appendix A)** describes modifications to the reference case potential study analysis and insights gained from this process.
- **Data Appendices (Appendix B and C)** contain some of the detailed input data used in the study.

Abbreviations and Acronyms

Throughout the report, we use several abbreviations and acronyms. Table 1-1 shows the abbreviation or acronym, along with an explanation.

Table 1-1 Explanation of Abbreviations and Acronyms

Acronym	Explanation
AEO	Annual Energy Outlook forecast developed by EIA
AFUE	Annual Fuel Utilization Efficiency
API	Application Programming Interface
BEST	AEG's Building Energy Simulation Tool
CA DEER	California Database of Energy Efficiency Resources
CBECS	Commercial Building Energy Consumption Survey
CEE	Consortium for Energy Efficiency
C&I	Commercial and Industrial
CDD	Cooling Degree Days
DEEM	AEG's Database of Energy Efficiency Measures
DOE	Department of Energy
DSM	Demand Side Management
EE	Energy Efficiency
EIA	Energy Information Administration
EPA	Environmental Protection Agency
EUI	Energy Utilization Index
HEMS	Home Energy Management System
HDD	Heating Degree Days
HVAC	Heating Ventilation and Air Conditioning
HVLS	High Volume Low Speed (fans)
IL TRM	Illinois Technical Reference Manual
MECS	Manufacturing Energy Consumption Survey
mTherms	Thousand therms
MMtherms	Million therms
MPS	Market Potential Study
O&M	Operations and Maintenance
RECS	Residential Energy Consumption Survey
RTU	Rooftop Unit (HVAC)
SAG	Illinois Energy Efficiency Stakeholder Advisory Group
Sq. Ft.	Square feet of floor space
TE	Thermal Efficiency
TRC	Total Resource Cost Test
UEF	Uniform Energy Factor
UEC	Unit Energy Consumption
Vision LoadMAP	AEG's Load Management Analysis and Planning tool, part of the Vision analytics suite

2 | Analysis Approach and Data Sources

This section describes the analysis approach taken for the study and summarizes the data sources used to develop the potential estimates.

Overview Analysis Approach

To perform the potential analysis, AEG used a bottom-up approach following the major steps listed below and illustrated in Figure 2-1. The analysis steps are described in more detail in the remainder of this section.

1. Reviewed primary market research in the form of customer surveys from previous studies and the utilities' program activity to identify equipment saturations, building characteristics, measure applicability and saturations, occupant behavior, and customer demographics and firmographics.
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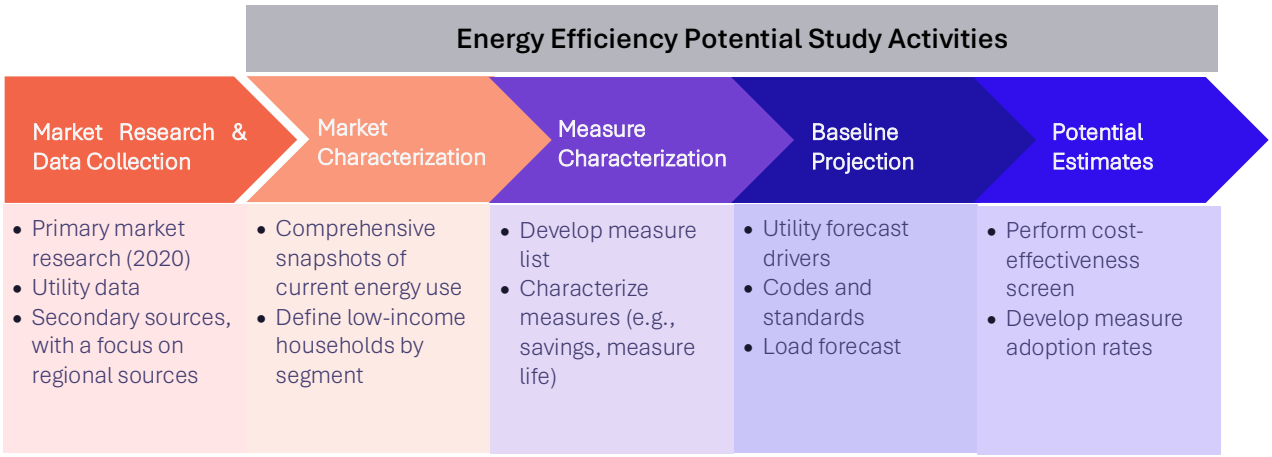
Throughout the analysis, PGL, NSG, and AEG engaged with the SAG to solicit feedback.

Figure 2-1 Analysis Approach



Definitions of Potential

The savings estimates are developed for three types of potential: technical potential, economic potential, and achievable potential. These estimates were developed at the measure level, and results are provided as annual savings impacts over the 20-year projection horizon. The various levels are described below.

- **Technical Potential** is the theoretical upper limit of efficiency potential, assuming that customers adopt all feasible measures regardless of their cost or customer preference. At the time of existing equipment failure, customers replace their equipment with the most efficient option available. In new construction, customers and developers also choose the most efficient equipment option.

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  - **Realistic Achievable Potential** is based on current customer willingness to adopt measures as expressed in surveys, and grows from its starting point over time to simulate increasing customer awareness and program refinement.

  - **Maximum Achievable Potential** is derived from the RAP adoption rates, with a lift factor applied that simulates ideal program delivery and 100% incentives. This maximum adoption is held constant throughout the study period.

  - When comparing Achievable potential to program history, it should be noted that the achievability modeling does not include budgetary constraints – all customers willing to adopt a measure are assumed able to do so.

LoadMAP Model

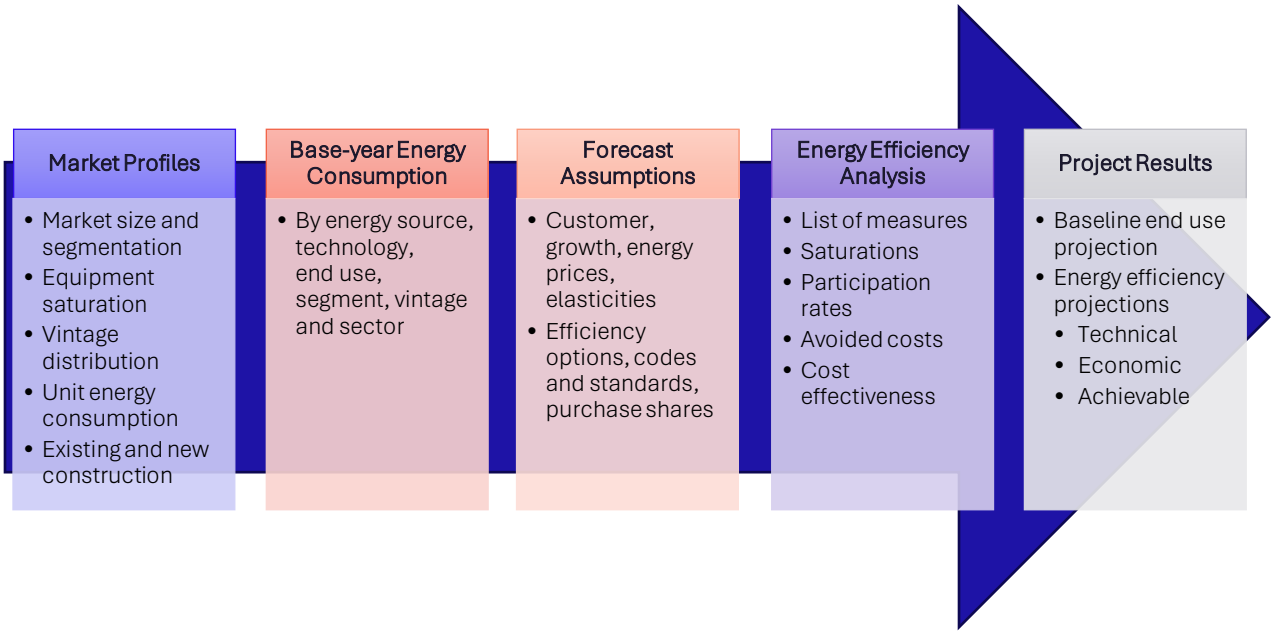
For this analysis, AEG used its Load Management Analysis and Planning tool (LoadMAP™) to develop the baseline end use projection and potential estimates. AEG developed LoadMAP in 2007 and has enhanced it over time. Previously built in Excel, the LoadMAP framework has been adapted to a cloud-based modeling platform now known as VisionLoadMAP (see Figure 2-2) that is both accessible and transparent and has the following key features:

- Embodies the basic principles of rigorous end use models
- Includes stock-accounting algorithms that treat older, less efficient appliance/equipment stock separately from newer, more efficient equipment. Equipment is replaced according to the measure life and appliance vintage distributions defined by the user.

- Balances the competing needs of simplicity and robustness by incorporating important modeling details related to equipment saturations, efficiencies, vintage, and the like, where market data are available, and treats end uses separately to account for varying importance and availability of data resources.
- Isolates new construction from existing equipment and buildings and treats purchase decisions for new construction and existing buildings separately.
- Uses a simple logic for appliance and equipment decisions. The LoadMAP approach allows the user to drive the appliance and equipment choices year by year directly in the model. This flexible approach allows users to import the results from diffusion models or to input individual assumptions.
- Can accommodate various levels of segmentation. Analysis can be performed at the sector level (e.g., total residential) or for customized segments within sectors (e.g., housing type or income level).
- Natively outputs model results in a detailed Power B.I. interactive dashboard, allowing for review of high-level summaries and granular interactivity of potential results or cost-effectiveness estimates.

Consistent with the segmentation scheme and the market profiles described below, the LoadMAP model provides projections of baseline energy use by sector, segment, end use, and technology for existing and new buildings. It also provides forecasts of total energy use and energy efficiency savings associated with the various types of potential.[1]

Figure 2-2 LoadMAP Analysis Framework



[1] The model computes energy projection for each type of potential for each end use as an intermediate calculation. Annual-energy savings are calculated as the difference between the value in the baseline projection and the value in the potential projection (e.g., the technical potential projections).

Market Characterization

To accurately estimate the savings potential from energy-efficient measures, it is necessary to understand how much energy is used today and what equipment is currently in service. This characterization began with a segmentation of PGL and NSG's energy footprint to quantify energy use by sector, segment, end use application, and the current set of technologies used. Segmentation relied primarily on information from PGL and NSG and the 2020 survey with samples of its residential customers, augmented with secondary sources as necessary.

Segmentation for Modeling Purposes

The segmentation scheme for this study is presented in Table 2-1.

Table 2-1 Overview of PGL and NSG Analysis Segmentation Scheme

Dimension	Segmentation Variable	Description
1	Company	Peoples Gas, North Shore Gas
2	Sector	Residential, Commercial, Industrial
3	Segment	**Residential**: by housing type (single family and multifamily) and income level (low income/ not low income)[2] **Commercial**: office, retail, restaurant, grocery, college, school, health, lodging, warehouse, miscellaneous **Industrial** not separated by industry type due to the size of the sector
4	Vintage	Existing and new construction
5	End uses	Space heating, water heating, etc. (as appropriate by sector)
6	Appliances/end uses and technologies	Technologies such as furnaces, boilers, etc. for space heating, etc.
7	Equipment efficiency levels for new purchases	Baseline and higher-efficiency options as appropriate for each technology

With the segmentation scheme defined, AEG performed a high-level market characterization of energy sales in the base year, 2023. We used detailed PGL and NSG billing data and the 2020 customer surveys with augmentation from secondary sources to allocate energy use and customers to the various sectors and segments such that the total customer count and energy consumption matched the PGL and NSG system totals from 2023. This information provided control totals at a sector level for calibrating the LoadMAP model to known data for the base-year.

Market Profiles

The next step was to develop market profiles for each sector, customer segment, end use, and technology. A market profile includes the following elements:

- **Market size** is a representation of the number of customers in the segment. For the residential sector, the unit is the number of households. The commercial sector uses floor space measured in square feet, and the industrial sector uses employment based on data from the Bureau of Labor Statistics.

[2] Please note that the NSG residential sector is dominated by single family housing, and, therefore, not segmented further.

- **Saturations** define the fraction of homes and square feet with the various technologies (e.g., percent of homes with gas water heating).
- **UEC (unit energy consumption) or EUI (energy-utilization index)** describes the amount of energy consumed in the base year by a specific technology in homes or buildings that have the technology. UECs are expressed in therms/household for the residential sector, and EUIs are expressed in therms/square foot for the commercial sector and therms/employee for the industrial sector.
- **Annual energy intensity** for the residential sector represents the average energy use for the technology across all homes in 2023. It is computed as the product of the saturation and the UEC and is defined in therms/household terms. For the commercial and industrial sectors, intensity, computed as the product of the saturation and the EUI, represents the average use for the technology across all floor space or employees, respectively, in the base year.
- **Annual usage** is the annual energy used by each end use technology in the segment. It is the product of the market size and intensity and is quantified in therms (in multiples of thousands or millions if appropriate).

Baseline End Use Projection

The next step was to develop a baseline projection of annual natural gas use for 2023 through 2044 by sector, customer segment, and end use to quantify the likely future consumption in the absence of any energy efficiency programs. The end-use projection includes the relatively certain impacts of codes and standards that will unfold over the study timeframe. The baseline projection also includes projected naturally occurring energy efficiency during the potential forecast period. The baseline projection is the foundation for the analysis of savings from future efficiency cases and scenarios as well as the metric against which potential savings are measured.

Inputs to the baseline projection include:

- Current economic growth forecasts (i.e., customer growth, income growth) provided by PGL and NSG.
- Natural gas price forecasts provided by PGL and NSG.
- Trends in fuel shares and equipment saturations.
- Existing and approved changes to building codes and equipment standards.
- Naturally occurring efficiency improvements, which include purchases of high-efficiency equipment options outside of energy efficiency programs.

Energy Efficiency Measure Development

This section describes the framework used to assess the savings, costs, and other attributes of energy efficiency measures. These characteristics form the basis for measure-level savings and cost-effectiveness analyses. For all measures, AEG assembled information to reflect equipment performance, incremental costs, non-energy impacts, and equipment lifetimes. We used this information, along with PGL and NSG's avoided cost data in the economic screen, to determine economically feasible measures.

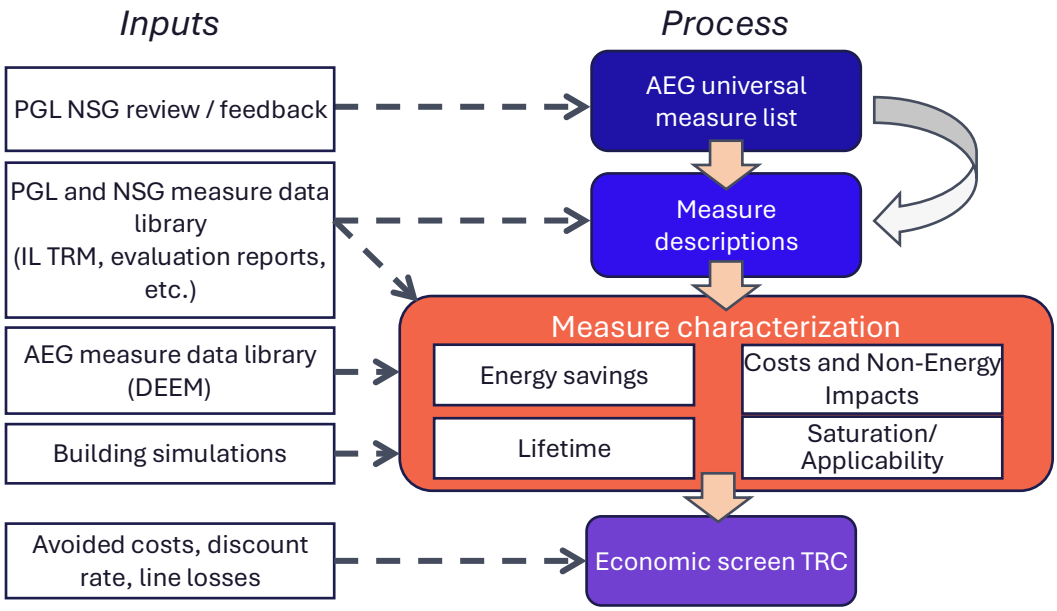
Figure 2-3 outlines the approach for measure analysis. The framework for assessing savings, costs, and other attributes of measures involves identifying the list of measures to include in the analysis, determining their applicability to each market sector and segment, fully characterizing

each measure, and performing cost-effectiveness screening. PGL, NSG, and stakeholders provided feedback during this process to ensure measure assumptions and results aligned with programmatic experience.

AEG compiled a robust list of measures for each customer sector, drawing upon PGL and NSG's program experience, the Illinois Technical Reference Manual (IL TRM), AEG's measure databases and building simulation models, and secondary sources. New and emerging technologies were identified for inclusion in the list through a detailed screening process that assessed the feasibility of measures. AEG engineers, through the AEG DEEM database, constantly monitor for new and emerging measures by following trends in energy-efficient technologies that are available on the market, as well as those expected to be on market in the coming years.

The measure list was reviewed by PGL and NSG. This universal list of measures covers all major types of end use equipment, as well as devices and actions to reduce energy consumption. If considered today, some of these measures would not pass the economic screens initially but may pass in future years as a result of lower projected equipment costs or higher avoided cost benefits.

Figure 2-3 Approach for Measure Assessment



The selected measures are categorized into two types according to the LoadMAP modeling taxonomy: equipment measures and non-equipment measures.

- **Equipment measures** are efficient energy consuming pieces of equipment that save energy by providing the same service with a lower energy requirement than a standard unit. An example is an ENERGY STAR® residential water heater that replaces a standard-efficiency water heater. For equipment measures, many efficiency levels may be available for a given technology, ranging from the baseline unit (often determined by code or standard) to the most efficient commercially available product. These measures are applied on a stock-turnover basis and are generally referred to as lost opportunity measures since once a purchase decision is made, there will not be another opportunity to improve the efficiency of that equipment item until the lifetime expires again.

- **Non-equipment measures** save energy by reducing the need for delivered energy, but typically do not involve replacement or purchase of major end use equipment (such as a furnace or water heater). Since measure installation is not tied to equipment reaching the end of its useful life, these are generally categorized as "retrofit" measures. Non-equipment measures can apply to more than one end use. For example, the addition of wall insulation affects the energy use of space heating consumption. Non-equipment measures typically fall into one of the following categories:
  - Building shell (windows, insulation, roofing material)
  - Equipment controls (smart thermostats, water heater setback)
  - Whole-building design (advanced new construction)
  - Displacement measures (destratification fans to reduce use of space heating equipment)
  - Retro-commissioning
  - Home and business behavioral programs
  - Energy management programs

Once we assembled the list of measures, AEG assessed their energy-saving parameters and characterized incremental cost, effective useful life, and other performance factors. Following the measure characterization, we performed an economic screening of each measure, which serves as the basis for developing the economic and achievable potential.

Calculation of Energy Efficiency Potential

The approach used to calculate the energy efficiency potential adheres to the approaches and conventions outlined in the National Action Plan for Energy Efficiency Guide for Conducting Potential Studies. This document represents credible and comprehensive industry best practices for specifying energy efficiency potential. Three types of potential were developed as part of this effort: technical potential, economic potential, and achievable potential.

Technical Potential

The calculation of technical potential is a straightforward algorithm that assumes that customers adopt all feasible measures regardless of cost.

Economic Potential - Screening Measures for Cost-Effectiveness

The next step is to apply an economic screen to technical potential and arrive at the subset of cost-effective measures. LoadMAP performs an economic screen for each individual measure in each year of the planning horizon. This study uses the TRC test as the cost-effectiveness metric, which compares each applicable measure's lifetime energy benefits and monetized non-energy impacts with its cost. The lifetime benefits are calculated by multiplying the annual energy savings for each measure by PGL and NSG's avoided cost and discounting the dollar savings to the present value equivalent. Lifetime costs represent incremental measure cost, annual O&M costs, and estimated program costs, discounted to present value.

The LoadMAP model performs the economic screening dynamically, taking into account changing savings and cost data over time. Thus, some measures pass the TRC test for some — but not all — of the years in the forecast.

Achievable Potential - Estimating Customer Adoption

Once the economic potential is established, estimates for customer adoption rates for each measure are applied that specify the percentage of customers that will select the highest–efficiency cost-effective option. This phases-in potential over a more realistic time frame that considers barriers such as imperfect information, supplier constraints, technology availability, and individual customer preferences. Development of these adoption rates is described later in this chapter.

Data Development

This section details the data sources used in this study, followed by a discussion of how these sources were applied. In general, data were adapted to local conditions, for example, by using local sources for measure data and local weather for building simulations.

Data Sources

The data sources are organized into the following categories:

- PGL and NSG-specific data
- AEG's databases and analysis tools
- Other secondary data and reports

PGL and NSG Data

Our highest priority data sources for this study were those specific to PGL and NSG.

- **PGL and NSG customer account database.** The data request included billing data for 2023, the most recent year for which complete billing data was available. PGL and NSG provided 2023 natural gas sales and customers by sector.
- **Load forecast data.** PGL and NSG provided the following forecast data: customer growth forecasts, natural gas price forecasts, and sales forecast.
- **Local Weather Data.** PGL and NSG's forecasting group provided both actual and normal weather information, as well as the alternate climate future scenario data
- **Economic information.** PGL and NSG provided a discount rate as well as avoided cost forecasts and line loss factors on an annual basis.
- **Energy efficiency program data.** PGL and NSG provided historical energy efficiency program accomplishments for 2022-2023.

AEG Data

AEG maintains several databases and modeling tools that we use for forecasting and potential studies. Relevant data from these tools has been incorporated into the analysis and deliverables for this study.

- **Building Energy Simulation Tool (BEST).** AEG's BEST is a derivative of the DOE 2.2 building simulation model, used to estimate base-year UECs and EUIs, as well as measure savings for the HVAC-related measures.
- **Measure Adoption Survey Data.** AEG has conducted numerous surveys of customer willingness to adopt efficiency measures for various utility clients and maintains anonymized summaries of this data to inform measure adoption.

Other Secondary Data and Reports

Finally, a variety of secondary data sources and reports were used for this study. The main sources are identified below.

- **Illinois Statewide TRM:** AEG used the most recent data from the IL TRM (generally v13) to characterize the majority of energy efficiency measures.
- **Annual Energy Outlook (AEO).** The EIA develops the AEO, which presents yearly projections and analysis of energy topics. For this study, we used data from the 2022 AEO.
- **US Energy Information Administration Surveys.** The Residential Energy Consumption Survey (RECS), Commercial Building Energy Consumption Survey (CBECS), and Manufacturing Energy Consumption Survey (MECS) provided supplemental information on equipment present and end use distributions to fill in gaps in more directly local sources.
- **American Community Survey.** The U.S. Census American Community Survey is an ongoing survey that provides yearly data on household characteristics. Data was assessed through the available API for census information, at the geoblock level.
- **Northwest Power and Conservation Council workbooks.** To develop its Power Plan, the Council and Regional Technical Forum maintain workbooks with detailed information about measures and customer adoption rates. AEG uses this vetted and publicly available data source to supplement measure information
- **Other relevant resources:** These include reports from the Consortium for Energy Efficiency, the EPA, and the American Council for an Energy-Efficient Economy.

Application of Data to the Analysis

We now discuss how the data sources described above were used for each step of the study.

Data Application for Market Characterization

To construct the high-level market characterization of energy consumption and market size units (households for residential, floor space for commercial), we used PGL and NSG-provided billing data, PGL and NSG customer surveys, and secondary data from AEG's Energy Market Profiles databases.

Data Application for Market Profiles

The specific data elements for the market profiles, together with the key data sources, are shown in Table 2-2. To develop the market profiles for each segment, we used the following approach:

1. Developed control totals for each segment. These include market size, segment-level annual natural gas use, and annual intensity.
    a. PGL and NSG residential customer data was mapped to demographic data from the American Community Survey at the geoblock level, providing a granular distribution of homes by housing type and income
    b. PGL and NSG billing data and customer surveys to estimate sales and square footage by building type for the Commercial sector. The estimates were also compared with the previous PGL and NSG MPS and EIA benchmark data.
    c. PGL and NSG billing data and EIA industrial data for the Industrial sector.

2. Ensured calibration to control totals for annual natural gas sales in each sector and segment.
3. Compared and cross-checked with other recent AEG studies.
4. Worked with PGL and NSG staff to vet the data against their knowledge and experience.

Table 2-2 Data Applied to the Market Profiles

Model Inputs	Description	Key Sources
Annual energy consumption	Base-year energy consumption by sector as well as detailed market segment	PGL and NSG account database PGL and NSG customer surveys PGL and NSG Load Forecasts
Market size	Base-year residential dwellings, commercial floor space	PGL and NSG customer forecasts PGL and NSG account database PGL and NSG customer surveys Previous PGL and NSG MPS
Annual intensity	Residential: Annual use per household Commercial and Industrial: Annual use per square foot	PGL and NSG customer surveys AEG's Energy Market Profiles Other recent studies
Appliance/equipment saturations	Fraction of dwellings with an appliance/technology Percentage of C&I floor space with equipment/technology	PGL and NSG customer surveys American Community Survey Previous PGL and NSG MPS AEG's Energy Market Profiles
UEC/EUI for each end use technology	UEC: Annual natural gas use in homes and buildings that have the technology EUI: Annual natural gas use per square foot for a technology in floor space that has the technology	IL TRM HVAC uses: BEST simulations using prototypes developed for PGL and NSG AEG's DEEM Recent AEG studies
Appliance/equipment age distribution	Age distribution for each technology	PGL and NSG customer surveys Previous PGL and NSG MPS Recent AEG Studies

Data Application for Baseline Projection

Table 2-3 summarizes the LoadMAP model inputs required for the market profiles. These inputs are required for each segment in each sector, as well as for new construction and existing dwellings/buildings.

Table 2-3 Data Applied for the Baseline Projection in LoadMAP

Model Inputs	Description	Key Sources
Customer growth forecasts	Forecasts of new construction in residential and C&I sectors	PGL and NSG customer forecasts
Equipment purchase shares for baseline projection	For each equipment/technology, purchase shares for each efficiency level; specified separately for existing equipment replacement and new construction	Shipment data from AEO and ENERGY STAR AEO regional forecast assumptions[3] Appliance/efficiency standards analysis
Natural gas prices	Forecast of natural gas prices	PGL and NSG forecasts

In addition, assumptions were incorporated for known future equipment standards as of September 2024, as shown in Table 2-4 and Table 2-5. The assumptions tables here extend through 2029, after which all standards are assumed to hold steady.

Table 2-4 Residential Natural Gas Equipment Standards

End Use	Technology	2023	2024	2025	2026	2027	2028	2029
Space Heating	Furnace – Direct Fuel	AFUE 80%						AFUE 95%
	Boiler – Direct Fuel	AFUE 84%						
Secondary Heating	Fireplace	N/A						
Water Heating	Water Heater <= 55 gal.	UEF 0.58						UEF 0.64
	Water Heater > 55 gal.	UEF 0.76						
Appliances	Clothes Dryer	CEF 3.30					CEF 3.48	
	Stove/Oven	N/A					2028 Standard	
Miscellaneous	Pool Heater	TE 0.82					TE .84	
	Miscellaneous	N/A						

Table 2-5 Commercial and Industrial Natural Gas Equipment Standards

End Use	Technology	2023	2024	2025	2026	2027	2028
Space Heating	Furnace	AFUE 81% / TE 0.81					
	Boiler	Average around AFUE 80% / TE 0.80 (varies by size)					
	Unit Heater	Standard (intermittent ignition and power venting or automatic flue damper)					
Water Heater	Water Heating	TE 0.80					

[3] We developed baseline purchase decisions using the EIA's AEO report (2022), which utilizes the National Energy Modeling System to produce a self-consistent supply and demand economic model. We calibrated equipment purchase options to match distributions/allocations of efficiency levels to manufacturer shipment data for recent years and then held values constant for the study period.

Efficiency Measure Data Application

Table 2-6 details the energy efficiency data inputs to the LoadMAP model. It describes each input and identifies the key sources used in the PGL and NSG analysis.

Table 2-6 Data Needs for the Measure Characteristics in LoadMAP

Model Inputs	Description	Key Sources
Energy Impacts	The annual reduction in consumption attributable to each specific measure. Savings were developed as a percentage of the energy end use that the measure affects.	IL TRM AEG BEST AEO DOE TSD Other secondary sources
Costs	Equipment Measures: Includes the full cost of purchasing and installing the equipment on a per-household, per-square-foot, or per employee basis for the residential and commercial sectors, respectively. Non-Equipment Measures: Existing buildings – full installed cost. New Construction - the costs may be either the full cost of the measure, or as appropriate, it may be the incremental cost of upgrading from a standard level to a higher efficiency level.	IL TRM AEO CA DEER Other secondary sources
Measure Lifetimes	Estimates derived from the technical data and secondary data sources that support the measure demand and energy savings analysis.	IL TRM AEO Other secondary sources
Applicability	Estimate of the percentage of dwellings in the residential sector, or square feet in the commercial sector, where the measure is applicable and where it is technically feasible to implement.	IL TRM EIA RECS and CBECS data PGL and NSG Customer Surveys Other secondary sources
On Market and Off Market Availability	Expressed as years for equipment measures to reflect when the equipment technology is available or no longer available in the market.	AEG appliance standards and building codes analysis

Data Application for Cost-effectiveness Screening

To perform the cost-effectiveness screening, a number of economic assumptions were needed. All cost and benefit values were analyzed as real 2023 dollars. We applied a PGL and NSG-provided discount rate in real dollars.

Estimates of Customer Adoption Rates

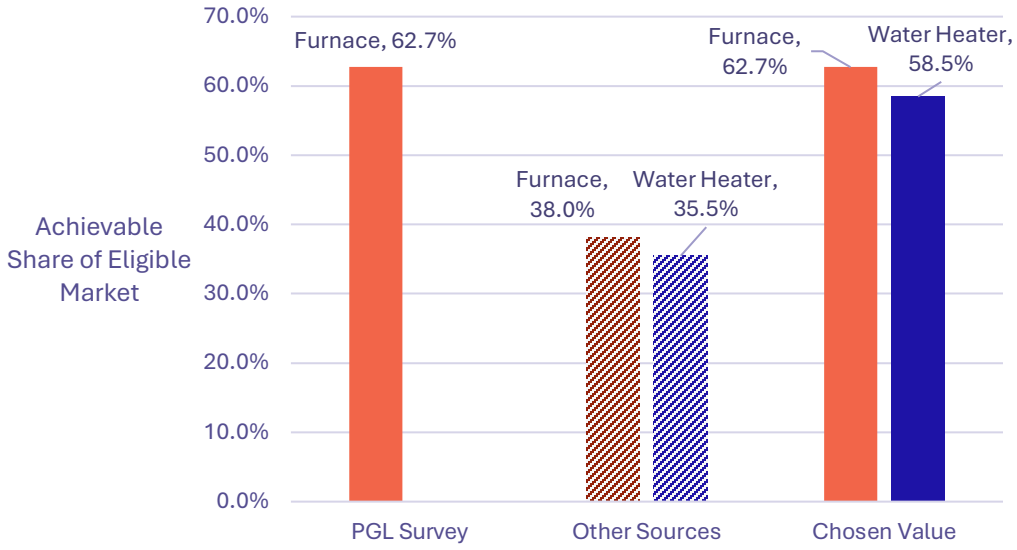
Adoption rates for equipment and non-equipment measures are described separately below.

Customer adoption rates, also referred to as take rates or ramp rates, are applied to measures on a year-by-year basis. These rates represent customer adoption of measures when delivered through a portfolio of well-operated efficiency programs under a reasonable policy or regulatory framework. The approach for estimating PGL and NSG adoption rates had two parts:

- First-year (2025) adoption rates. AEG reviewed customer willingness to participate data from both the most recent PGL and NSG surveys as well as several surveys of comparable customer groups from AEG's work around the nation. This provided a point estimate of short-term customer participation in measures that were relevant and cost-effective for them.

- For measures not described in the PGL and NSG survey data, adoption rates were estimated using other surveys, but scaled so that values would be in reasonable context with the specific data from PGL and NSG (see Figure 2-4). Speaking generally, PGL and NSG customers who showed greater enthusiasm for energy efficiency measures compared to stated willingness to participate from other areas AEG has surveyed.

Figure 2-4 Example measure adoption rates



- Measure adoption is assumed to grow over time as awareness and interest increases and program evolve to reach more customers. To reflect this, AEG used data on how different factors such as personal finances, program delivery styles, and other aspects of the measure can drive increased participation, and applied the total of these benefits as a lift factor to the starting values. Growth rates proceed in a linear fashion from the starting value to the estimated optimal adoption potential.
- Technical diffusion curves for non-equipment measures. Equipment measures are installed when existing units fail. Non-equipment measures do not have this natural periodicity, so rather than installing all available non-equipment measures in the first year of the projection (instantaneous potential), they are phased in over 20 years.

All measure adoption rates used in the potential study are available in Appendix A.

3 | Peoples Gas Analysis

This section details the study results and potential estimates for PGL as a whole and by sector.

Overall

Total 2023 natural gas sales for all sectors in PGL territory was 1,529 million therms. As shown in Figure 3-1, the residential sector accounts for the largest share of annual energy use at 57%, followed by the commercial sector at 38% and the industrial sector at 5%.

Figure 3-1 PGL Sector-Level Share of Natural Gas Use in 2023

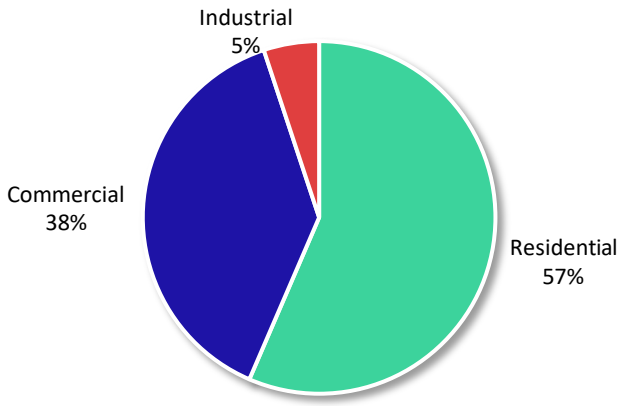


Table 3-1 and Figure 3-2 summarize the baseline projection for annual natural gas usage by sector for PGL's territory. After an adjustment from actual HDD in 2023 to 20-year normal weather in 2024, the projection declines by a modest amount through the remaining forecast period, reflecting little to no market growth as well as improvements in building shell and equipment efficiency over time.

The increase from 2023 to 2024 is due to the transition from actual HDD to 20-year normalized weather.

Figure 3-2 Potential Study Baseline Projection – PGL All Sectors (MMtherms)

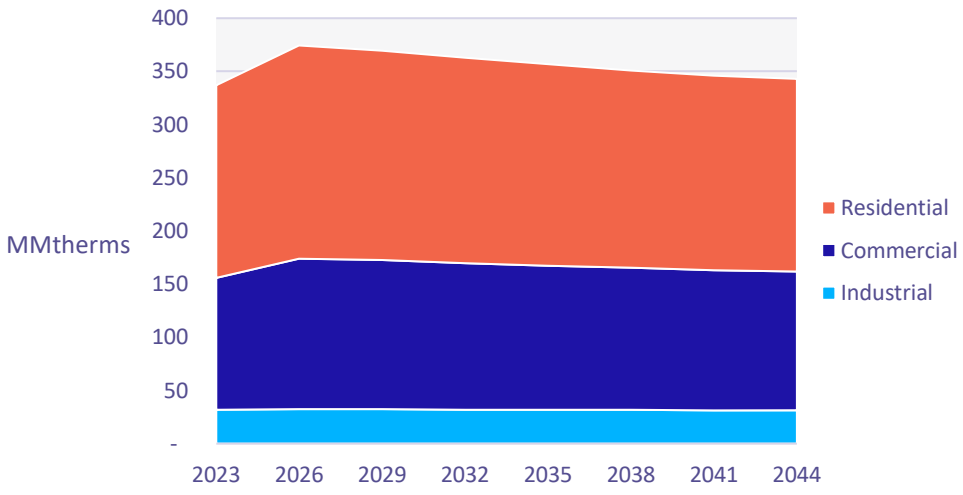


Table 3-1 PGL Baseline Projection by Sector, Selected Years (MMtherms)[4]

Sector	2023	2025	2026	2027	2030	2035	2044	% Change
Residential	864	956	956	955	950	940	941	8.9%
Commercial	588	668	667	665	653	631	597	1.6%
Industrial	78	79	79	79	79	78	76	-1.7%
Total	**1,529**	**1,702**	**1,702**	**1,699**	**1,681**	**1,648**	**1,614**	**5.6%**

Table 3-2 summarizes the PGL energy efficiency potential in terms of cumulative and incremental savings for all measures to the baseline projection for select years. Figure 3-3 displays the energy efficiency potential forecast represented in cumulative terms, reflecting the effects of persistent savings in prior years in addition to new savings. This allows for reporting annual savings impacts as they impact each year of the forecast.

The potential study shows significant cost-effective savings achievable across all sectors, due in large part to high values of avoided greenhouse gas emissions contributing to the economic calculations.

Table 3-2 Summary of Energy Efficiency Potential, All Sectors - PGL

	2025	2026	2027	2030	2035	2044
Baseline Projection (MMtherms)	1702	1702	1699	1681	1648	1614
Incremental Savings (MMtherms)						
Realistic Achievable Potential	21.4	22.9	23.9	24.5	26.3	21.0
Maximum Achievable Potential	29.1	30.5	31.3	30.6	29.6	22.2
Economic Potential	44.3	46.3	47.6	45.8	43.6	30.9
Technical Potential	51.8	53.9	54.3	52.2	48.7	33.5
Cumulative Savings (MMtherms)						
Realistic Achievable Potential	21.4	44.0	67.3	136.5	252.7	428.1
Maximum Achievable Potential	29.0	59.1	89.6	176.8	309.8	488.1
Economic Potential	44.3	89.8	135.7	265.0	456.0	692.2
Technical Potential	51.8	104.6	156.8	302.4	513.4	764.7
Energy Savings (% of Baseline)						
Realistic Achievable Potential	1.3%	2.6%	4.0%	8.1%	15.3%	26.5%
Maximum Achievable Potential	1.7%	3.5%	5.3%	10.5%	18.8%	30.2%
Economic Potential	2.6%	5.3%	8.0%	15.8%	27.7%	42.9%
Technical Potential	3.0%	6.1%	9.2%	18.0%	31.1%	47.4%

[4] Note that total values may vary slightly due to rounding.

Figure 3-3 Baseline Projection and Cumulative EE Impacts Summary – PGL

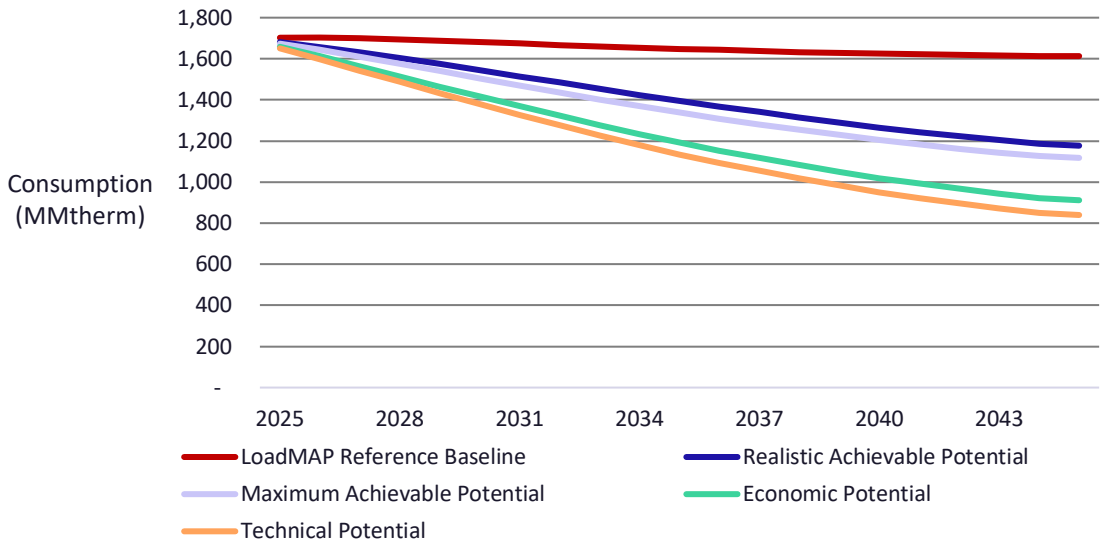


Figure 3-4 below compares recent prior-year program accomplishments to planned performance and to achievable potential savings from 2025 through 2027.

Figure 3-4 PGL Prior-Year Accomplishments and Achievable Potential (Net MMtherms)

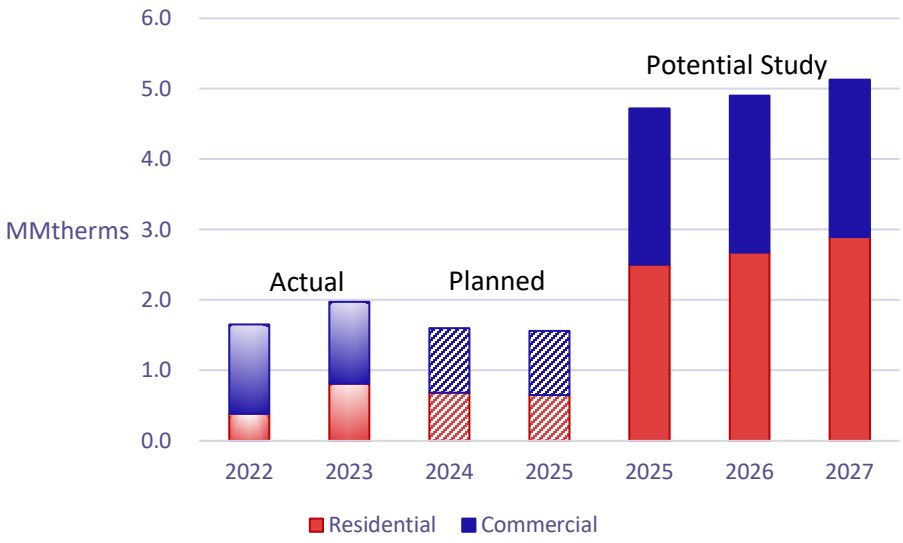


Table 3-3 presents the realistic achievable potential for the top 20 measures for all sectors, which together make up 70% of total savings potential in the PGL territory.

Table 3-3 Realistic Achievable Potential Top 20 Measures, All Sectors (MMtherms) – PGL

Rank	Measure / Technology	2025	2030	2035	2044	% of Total
1	Residential - Furnace - AFUE 97% (CEE Tier 3)	3.8	28.3	56.3	107.7	25.2%
2	Residential - Water Heater (<= 55 Gal) - UEF 0.95 (Instantaneous, ENERGY STAR 5.0)	0.9	6.9	14.0	23.7	5.5%
3	Commercial - Furnace - TE 90%	1.0	6.6	12.8	21.3	5.0%
4	Commercial - Boiler - TE 98%	1.0	5.8	10.7	19.0	4.4%
5	Residential - Water Heater (> 55 Gal)	0.6	5.2	10.9	18.8	4.4%
6	Commercial - RTU - Advanced Controls	0.9	5.0	8.6	13.6	3.2%
7	Residential - Connected Thermostat - ENERGY STAR (1.0)	0.7	4.3	7.6	12.2	2.8%
8	Residential - Ducting - Repair and Sealing	0.7	4.0	7.0	11.5	2.7%
9	Residential - Gas-Fired Combination Heat Pump Conversion - Pre-2030	0.3	2.4	4.6	7.6	1.8%
10	Commercial - HVAC - Energy Recovery Ventilator	0.5	2.5	4.4	7.1	1.6%
11	Commercial - Windows - High Efficiency Glazing	0.5	2.8	4.6	6.8	1.6%
12	Residential - Home Energy Management System (HEMS)	0.4	2.3	4.0	6.5	1.5%
13	Residential - Insulation - Wall Sheathing	0.4	2.5	4.2	6.3	1.5%
14	Commercial - Connected Thermostat - ENERGY STAR (1.0)	0.3	2.0	3.5	5.9	1.4%
15	Commercial - Insulation - Wall Cavity	0.4	2.1	3.5	5.4	1.3%
16	Residential - Windows - High Efficiency (Triple Pane)	0.4	2.1	3.6	5.4	1.3%
17	Residential - Windows - High Efficiency (ENERGY STAR 7.0)	0.4	2.1	3.5	5.3	1.2%
18	Residential - Gas-Fired Combination Heat Pump Conversion - Post-2030	0.3	1.7	3.1	5.3	1.2%
19	Commercial - Water Heater - TE 96% (Instantaneous)	0.3	1.7	3.2	5.2	1.2%
20	Commercial - Gas Boiler - Smart Radiator Controls	0.3	1.7	3.0	5.2	1.2%
	Total of Top 20 Measures	**13.9**	**91.8**	**173.3**	**299.7**	**70.0%**
	Total Cumulative Savings	**21.4**	**136.5**	**252.7**	**428.1**	**100%**

The rest of this chapter explores more detail underlying these results.

Residential Sector

In 2023, there were 1,669,115 households in PGL's residential sector that used 864 MMtherms, resulting in an average use per household of 518 therms. Table 3-4 shows the total residential consumption and households broken out by regular and low-income segments. The resulting annual usage per household is an average for the PGL service territory. Individual household consumption may vary due to multiple parameters, such as house size and age.

Table 3-4 PGL Residential Control Totals, 2023

Segment	Households	Annual Use (MMtherm)	Therms / Household
PGL Single Family	359,832	419	1,165
PGL Multifamily	697,031	235	337
PGL Single Family – Low Income	82,975	72	864
PGL Multifamily – Low Income	379,829	138	363
All Residential	**1,669,115**	**864**	**518**

Figure 3-5 shows the distribution of PGL annual natural gas consumption by segment and end use. Low income customers make up 24% of total consumption. Space heating and water heating account for 64% and 29% of total usage, respectively. Appliances, secondary heating, and the miscellaneous[5] category account for the remaining 8% of total residential gas usage.

Figure 3-5 PGL Residential Natural Gas Consumption by Segment and End Use, 2023

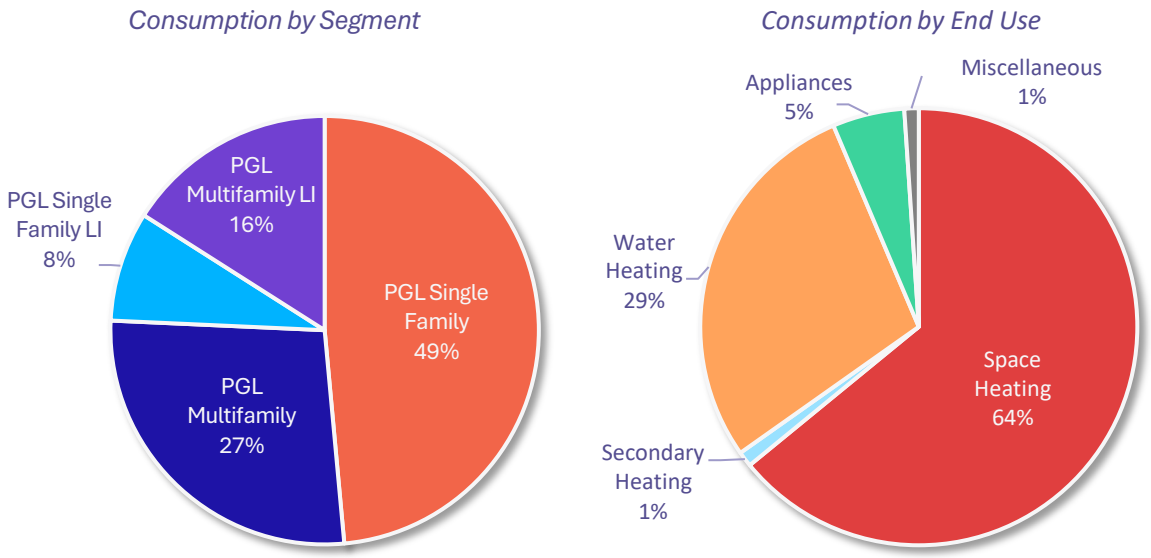
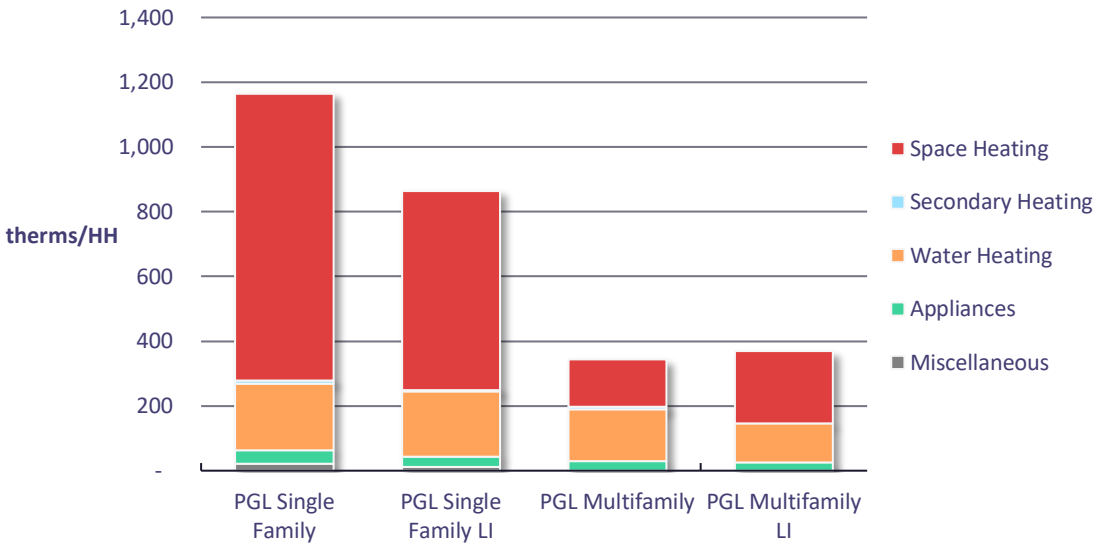


Figure 3-6 presents PGL energy intensity by end use and housing type. Across all housing types, space and water heating consume larger portions of total household energy use than other end uses.

[5] The miscellaneous category accounts for gas loads not included in the other technologies, most commonly built-in outdoor grills or fire tables.

Figure 3-6 PGL Residential Natural Gas Intensity by Segment and End Use, 2023



Residential Baseline Projection

Table 3-5 presents the PGL natural gas baseline projection by end use for the residential sector. The base year consumption of 864 million therms reflects a warmer-than-average year. The reference projection increases to 956 million therms in 2025 following adjustment to normal weather (20-year average HDD), then slowly declines to 941 million therms in 2044.

Table 3-5 PGL Residential Baseline Projection by End Use (MMtherms)

End Use	2023	2025	2030	2035	2044	% Change ('23-'45)
Space Heating	550	644	638	628	621	12.9%
Secondary Heating	10	10	10	10	11	12.5%
Water Heating	248	246	246	247	256	3.0%
Appliances	46	47	46	45	43	-8.5%
Miscellaneous	9	9	9	10	10	11.4%
Total	**864**	**956**	**950**	**940**	**941**	8.9%

Residential Potential

Table 3-6 presents the PGL residential sector energy savings potential estimates. In 2025, realistic achievable potential energy savings are 11.7 million therms, or 1.2% of the baseline projection. By 2044, cumulative realistic achievable energy savings are 264.5 million therms, or 28.1% of the baseline projection. Figure 3-7 presents the PGL residential sector cumulative potential as a percentage of the baseline projection, and Table 3-7 shows the top 20 residential measures in the PGL territory.

Table 3-6 PGL Summary of Residential Natural Gas Potential (MMtherms)

	2025	2026	2027	2030	2035	2044
Baseline Projection (MMtherms)	956	956	955	950	940	941
Cumulative Savings (MMtherms)						
Realistic Achievable Potential	11.7	24.6	38.3	79.7	151.4	264.5
Maximum Achievable Potential	14.0	29.2	45.1	91.1	166.9	281.2
Economic Potential	21.8	45.2	69.7	139.3	250.4	405.6
Technical Potential	27.9	57.5	87.2	171.4	301.0	471.4
Potential Savings as % of Baseline						
Realistic Achievable Potential	1.2%	2.6%	4.0%	8.4%	16.1%	28.1%
Maximum Achievable Potential	1.5%	3.1%	4.7%	9.6%	17.8%	29.9%
Economic Potential	2.3%	4.7%	7.3%	14.7%	26.6%	43.1%
Technical Potential	2.9%	6.0%	9.1%	18.0%	32.0%	50.1%

Figure 3-7 PGL Residential Cumulative Potential as a Percentage of the Baseline

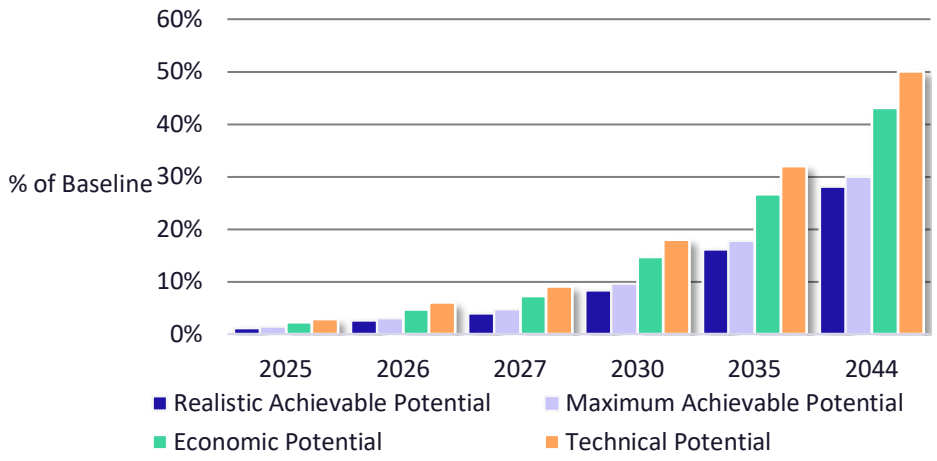


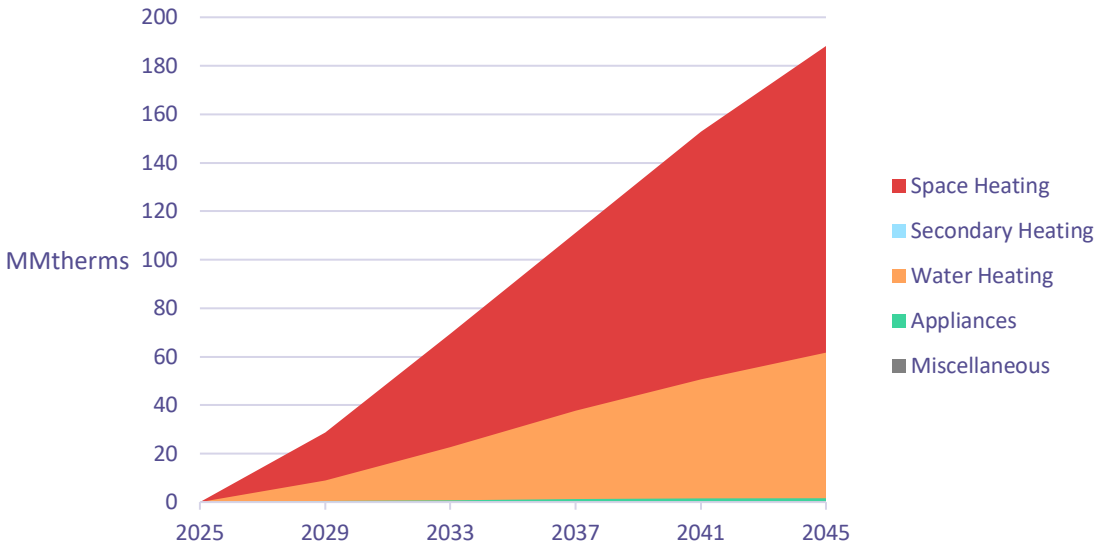
Table 3-7 Realistic Achievable Potential Top 20 Measures, Residential (MMtherms) – PGL

Rank	Measure / Technology	2025	2030	2035	2044	% of Total
1	Residential - Furnace - AFUE 97% (CEE Tier 3)	3.8	28.3	56.3	107.7	40.7%
2	Residential - Water Heater (<= 55 Gal) - UEF 0.95	0.9	6.9	14.0	23.7	9.0%
3	Residential - Water Heater (> 55 Gal) - UEF 0.76	0.6	5.2	10.9	18.8	7.1%
4	Residential - Connected Thermostat - ENERGY STAR (1.0)	0.7	4.3	7.6	12.2	4.6%
5	Residential - Ducting - Repair and Sealing	0.7	4.0	7.0	11.5	4.4%
6	Residential - Gas-Fired Combination Heat Pump Conversion - Pre-2030[6]	0.3	2.4	4.6	7.6	2.9%
7	Residential - Insulation - Wall Sheathing	0.4	2.3	4.0	6.5	2.5%
8	Residential - Home Energy Management System (HEMS)	0.4	2.5	4.2	6.3	2.4%
9	Residential - Windows - High Efficiency (Triple Pane)	0.4	2.1	3.6	5.4	2.1%
10	Residential - Windows - High Efficiency (ENERGY STAR 7.0)	0.4	2.1	3.5	5.3	2.0%
11	Residential - Gas-Fired Combination Heat Pump Conversion - Post-2030	0.3	1.7	3.1	5.3	2.0%
12	Residential - Insulation - Wall Cavity Upgrade	-	1.0	2.3	4.8	1.8%
13	Residential - Ducting - Repair and Sealing - Aerosol	0.3	1.5	2.7	4.3	1.6%
14	Residential - Combination Boiler - High Efficiency	0.2	1.3	2.5	4.1	1.6%
15	Residential - Building Shell - Air Sealing (Infiltration Control)	0.2	1.4	2.3	3.7	1.4%
16	Residential - Insulation - Floor Upgrade	0.2	1.3	2.3	3.5	1.3%
17	Residential - Thermostat - Programmable	0.2	1.1	2.0	3.3	1.2%
18	Residential - Water Heater - Drainwater Heat Recovery	0.1	0.9	1.6	2.8	1.1%
19	Residential - Insulation - Ceiling Installation	0.2	1.0	1.6	2.5	0.9%
20	Residential - Boiler - AFUE 95% (CEE Tier 2)	0.1	0.6	1.3	2.5	0.9%
	Total of Top 20 Measures	**10.3**	**71.8**	**137.4**	**241.8**	**91.4%**
	Total Cumulative Savings	**11.7**	**79.7**	**151.4**	**264.5**	**100%**

Figure 3-8 shows PGL residential cumulative natural gas savings by end use from 2025 through 2045. Savings by end use are generally consistent through the forecast, with space heating savings from building envelope measures and high efficiency HVAC equipment dominating. High efficiency gas water heaters also show savings throughout the projection.

[6] Gas-fired combination heat pump conversion is split into pre-2023 and post-2030 to account for changes in baseline efficiency standards. Post-2030 savings are measured against updated efficiency baselines for gas furnaces (2028 standard change) and water heaters (2029 standard change).

Figure 3-8 PGL Residential Cumulative Savings by End Use (MMtherms)



Commercial Sector

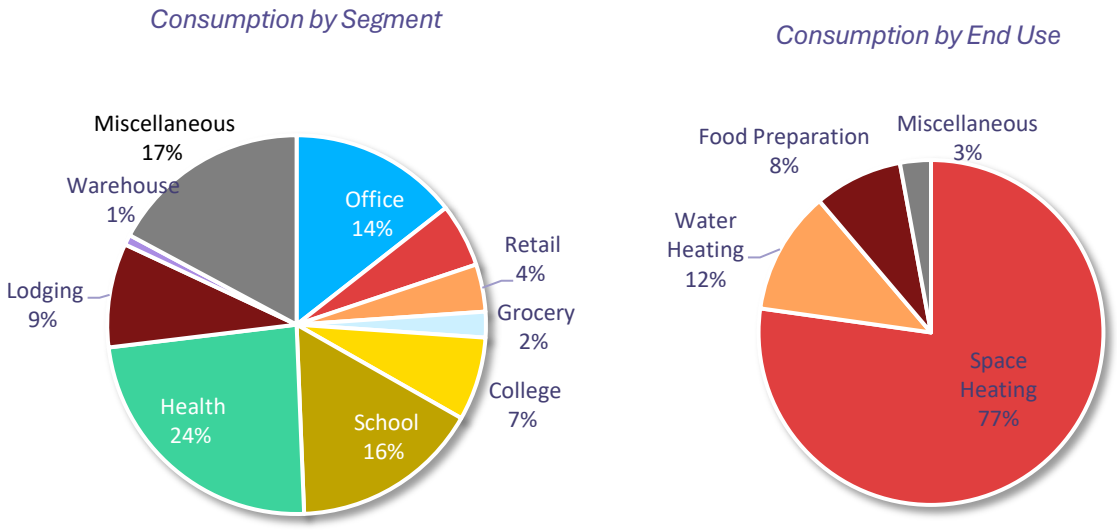
In 2023, PGL commercial customers used a total of 588 million therms, which was allocated to 10 commercial segments, shown in Table 3-8. Floor space is imputed from total consumption in a segment and typical intensity (therms per square foot) data by business type from CBECS.

Table 3-8 PGL Commercial Control Totals, 2023

Segment	Sales (MMtherm)	Floor Space (Million Sq. Ft.)	Intensity (therm/sqft)
Office	85	259	0.33
Restaurant	32	15	2.07
Retail	24	43	0.56
Grocery	13	15	0.87
College	42	184	0.23
School	95	195	0.49
Health	139	213	0.66
Lodging	52	68	0.77
Warehouse	5	61	0.08
Miscellaneous	101	196	0.52
Total	**588**	**1,249**	**0.47**

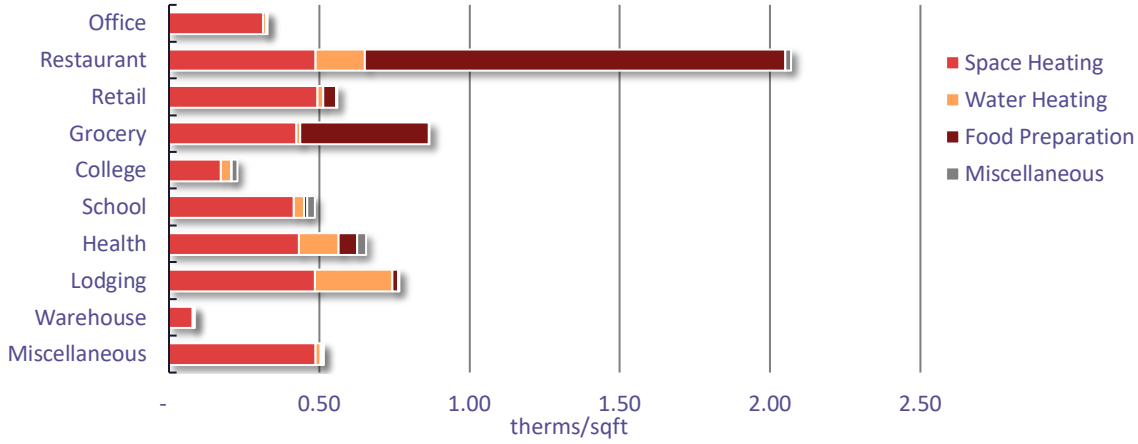
Figure 3-9 shows the distribution of PGL annual natural gas consumption by segment and end use. The health (24%), school (16%), and office (14%) segments make up the majority of the commercial consumption along with the miscellaneous segment (17%), which includes business accounts not included in the other identified segments such as beauty salons, entertainment venues, places of worship or public assembly, etc. Space heating accounts for the majority of commercial gas consumption, at 77% of use. Water heating (12%) and commercial food service equipment (8%) are also notable loads with potential for savings.

Figure 3-9 PGL Commercial Natural Gas Consumption by Segment and End Use, 2023



As shown in Figure 3-10, natural gas intensity by end use varies significantly across segments. For example, due to cooking equipment consumption and generally smaller building spaces, the restaurant segment is the most energy intense, with significantly higher usage per square foot than any other segment.

Figure 3-10 PGL Commercial Intensity by End Use and Segment, 2023



Commercial Baseline Projection

Table 3-9 presents AEG's independent natural gas baseline projection at the end use level for PGL's commercial sector. After adjustment for normal weather in 2024, the baseline projection declines from 688 million therms to 597 million.

Table 3-9 PGL Commercial Baseline Projection by End Use (MMtherms)

End Use	2023	2025	2030	2035	2044	% Change ('23-'45)
Space Heating	454	534	520	501	472	3.9%
Water Heating	68	68	67	66	63	-6.9%
Food Preparation	49	49	48	48	46	-5.2%
Miscellaneous	17	17	17	17	16	-5.4%
Total	**588**	**668**	**653**	**631**	**597**	**1.6%**

Commercial Potential

Table 3-10 presents the PGL commercial sector energy savings potential estimates. In 2025, Realistic achievable potential energy savings are 9.3 million therms, or 1.4% of the baseline projection. By 2044, cumulative energy savings are 157.4 million therms, or 26.5% of the baseline projection.

Table 3-10 PGL Summary of Commercial Natural Gas Potential (MMtherms)

	2025	2026	2027	2030	2035	2044
Baseline Projection (MMtherms)	668	667	665	653	631	594
Cumulative Savings (MMtherms)						
Realistic Achievable Potential	9.3	18.5	27.7	54.5	96.9	157.4
Maximum Achievable Potential	14.4	28.6	42.6	82.0	136.7	198.0
Economic Potential	21.6	42.7	63.4	120.6	197.0	274.3
Technical Potential	22.7	44.8	66.2	124.7	201.9	278.2
Potential Savings as % of Baseline						
Realistic Achievable Potential	1.4%	2.8%	4.2%	8.3%	15.4%	26.5%
Maximum Achievable Potential	2.2%	4.3%	6.4%	12.6%	21.7%	33.3%
Economic Potential	3.2%	6.4%	9.5%	18.5%	31.2%	46.1%
Technical Potential	3.4%	6.7%	10.0%	19.1%	32.0%	46.8%

Figure 3-11 PGL Commercial Cumulative Potential as a Percentage of the Baseline

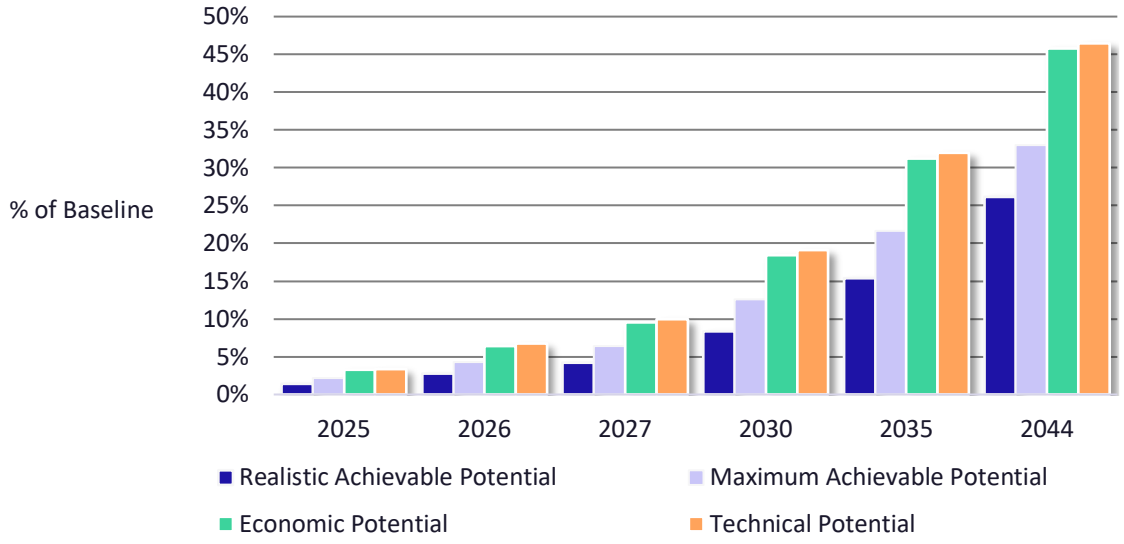
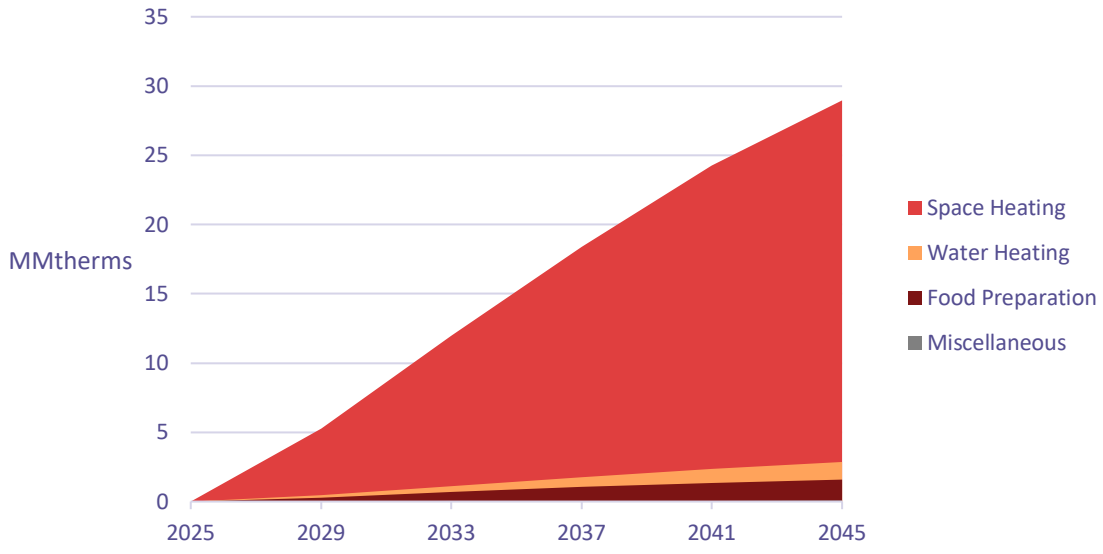


Table 3-9 presents the top 20 measures in the PGL's commercial sector.

Table 3-9 Realistic Achievable Potential Top 20 Measures, Commercial (MMtherms) – PGL

Rank	Measure / Technology	2025	2030	2035	2045	% of Total
1	Commercial - Furnace - TE 81% (2023 Standard)	1.0	6.6	12.8	21.3	13.6%
2	Commercial - Boiler - TE 80%	1.0	5.8	10.7	19.0	12.1%
3	Commercial - RTU - Advanced Controls	0.9	5.0	8.6	13.6	8.7%
4	Commercial - HVAC - Energy Recovery Ventilator	0.5	2.5	4.4	7.1	4.5%
5	Commercial - Windows - High Efficiency Glazing	0.5	2.8	4.6	6.8	4.3%
6	Commercial - Connected Thermostat - ENERGY STAR (1.0)	0.3	2.0	3.5	5.9	3.7%
7	Commercial - Insulation - Wall Cavity	0.4	2.1	3.5	5.4	3.5%
8	Commercial - Water Heater - TE 96% (Instantaneous)	0.3	1.7	3.2	5.2	3.4%
9	Commercial - Gas Boiler - Smart Radiator Controls	0.3	1.7	3.0	5.2	3.3%
10	Commercial - Commercial Laundry - Ozone Treatment	0.2	1.5	2.7	4.8	3.1%
11	Commercial - Insulation - Ceiling	0.4	1.9	3.1	4.5	2.9%
12	Commercial - Unit Heater - Infrared Radiant	0.2	1.5	2.8	4.0	2.6%
13	Commercial - Gas Boiler - Insulate Steam Lines/Condensate Tank	0.3	1.5	2.5	3.8	2.5%
14	Commercial - Ventilation - Demand Controlled	0.3	1.6	2.6	3.8	2.4%
15	Commercial - Destratification Fans (HVLS)	0.2	1.2	2.1	3.4	2.2%
16	Commercial - Kitchen Ventilation - Advanced Controls	0.2	1.2	2.1	3.4	2.2%
17	Commercial - Retrocommissioning	0.3	1.4	2.3	3.3	2.1%
18	Commercial - Gas Boiler - Condensate Recovery System	0.2	1.1	1.9	3.2	2.1%
19	Commercial - Advanced New Construction Designs	0.2	0.9	1.6	2.7	1.7%
20	Commercial - Gas Boiler - Thermostatic Radiator Valves	0.2	0.9	1.5	2.6	1.7%
	Total of Top 20 Measures	**7.6**	**44.7**	**79.6**	**129.0**	**82.6%**
	Total Cumulative Savings	**9.3**	**54.5**	**96.9**	**156.2**	**100.0%**

Figure 3-12 PGL Commercial Cumulative Savings by End Use (MMtherms)

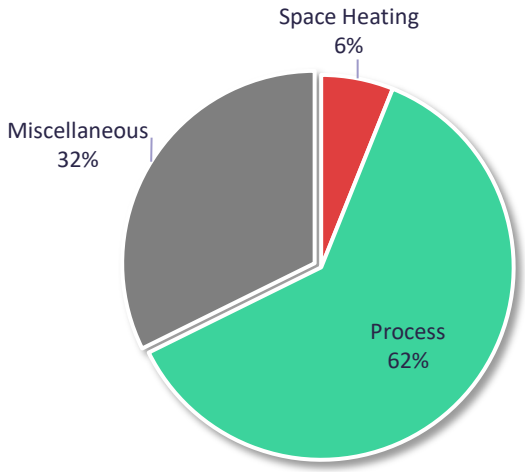


Industrial Sector

In an update from the previous potential study, AEG separated manufacturing businesses from other nonresidential customers in order to accurately capture the process loads as their own category. The number of customers in question is too small to break out specific manufacturing sectors within Industrial, but isolating these loads with a general manufacturing use profile better estimates available nonresidential savings than would be possible if they were included in the Commercial Miscellaneous building category.

In 2023, PGL's industrial sector consumed 77.8 million therms. Figure 3-13 shows the distribution of PGL annual natural gas consumption by end use. Industrial use is grouped into only three general end use categories, of which Process is the largest overall, accounting for 62% of annual energy use. This category aggregates uses of natural gas in heating and treating materials throughout the manufacturing process. Miscellaneous consumption (which includes onsite cogeneration plants driven by natural gas) and space heating account for the remaining energy usage, accounting for 32% and 6%, respectively.

Figure 3-13 PGL Industrial Natural Gas Consumption by End Use, 2023



Industrial Baseline Projection

PGL industrial sector usage remains relatively flat throughout the planning horizon. Table 3-11 presents the PGL natural gas baseline projection by end use for the industrial sector. Overall, industrial energy use is expected to decrease by 3.1% across the study timeline.

Table 3-11 PGL Industrial Baseline Projection by End Use (MMtherms)

End Use	2023	2025	2030	2035	2045	% Change ('23-'45)
Space Heating	5	6	5	5	5	-10.5%
Process	25	48	48	48	47	-2.5%
Miscellaneous	48	25	25	25	25	-2.5%
Total	**78**	**79**	**79**	**78**	**76**	**-3.1%**

Industrial Potential

Table 3-12 presents the PGL industrial sector energy savings potential estimates. In 2025, realistic achievable potential energy savings are 0.4 million therms, or 0.5% of the baseline projection. By 2044, cumulative realistic achievable energy savings are 7.5 million therms, or 9.7% of the baseline projection. Figure 3-14 presents the industrial sector cumulative potential as a percentage of the baseline projection.

Table 3-12 PGL Summary of Industrial Natural Gas Potential (MMtherms)

	2025	2026	2027	2030	2035	2044
Baseline Projection (MMtherms)	79	79	79	79	78	76
Cumulative Savings (MMtherms)						
Realistic Achievable Potential	0.4	0.8	1.2	2.4	4.3	7.5
Maximum Achievable Potential	0.6	1.3	1.9	3.6	6.1	9.6
Economic Potential	0.9	1.8	2.7	5.1	8.6	13.2
Technical Potential	1.2	2.3	3.3	6.3	10.5	15.6
Potential Savings as % of Baseline						
Realistic Achievable Potential	0.5%	1.0%	1.5%	3.0%	5.5%	9.7%
Maximum Achievable Potential	0.8%	1.6%	2.4%	4.6%	7.9%	12.6%
Economic Potential	1.2%	2.3%	3.4%	6.6%	11.1%	17.2%
Technical Potential	1.5%	2.9%	4.2%	8.1%	13.5%	20.5%

Figure 3-14 PGL Industrial Cumulative Potential as a Percentage of the Baseline

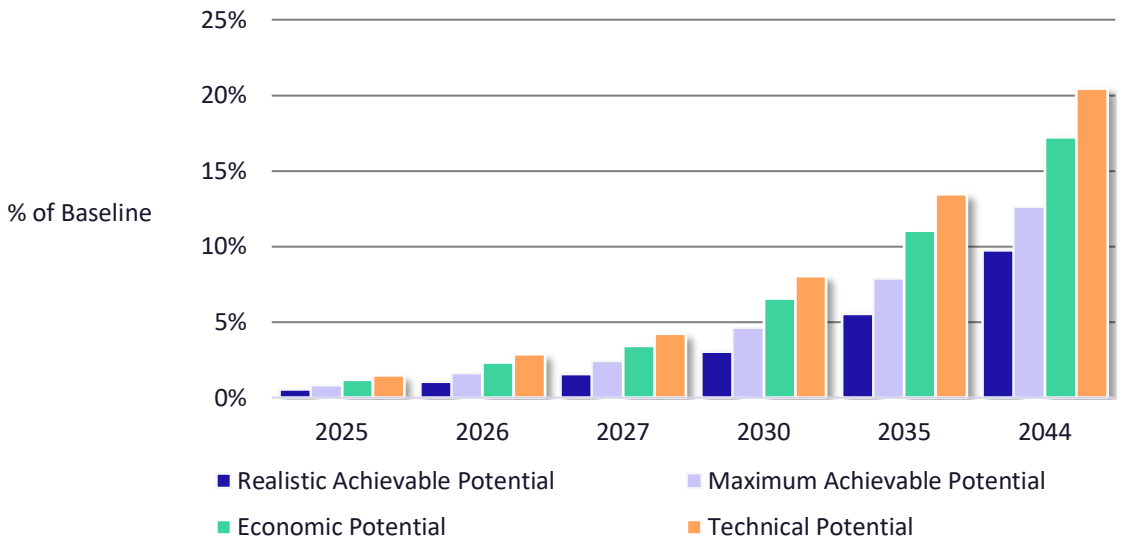


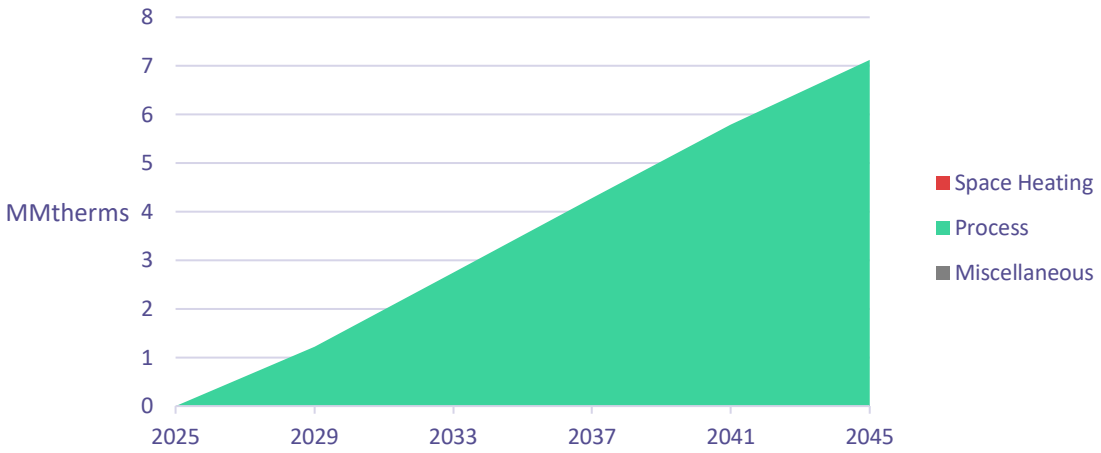
Table 3-13 shows the top 20 measures in the PGL industrial sector.

Table 3-13 Realistic Achievable Potential Top 20 Measures, Industrial (MMtherms) – PGL

Rank	Measure / Technology	2025	2030	2035	2044	% of Total
1	Industrial - Process - Insulate Heated Process Fluids	79.7	158.6	236.6	465.4	20.9%
2	Industrial - Process - Heat Recovery	78.8	156.2	232.0	450.9	18.6%
3	Industrial - Process Boiler - Insulate Steam Lines/Condensate Tank	54.0	107.0	159.1	309.4	12.9%
4	Industrial - Process Furnace - Tube Inserts	57.5	114.4	170.6	333.0	12.8%
5	Industrial - Process - Tank Insulation	43.0	85.4	127.1	248.5	10.8%
6	Industrial - Process Boiler - Steam Trap Replacement	36.9	72.9	108.2	209.1	8.5%
7	Industrial - Process Boiler - Insulate Hot Water Lines	23.0	45.5	67.5	130.7	5.3%
8	Industrial - Process Boiler - Condensate Recovery System	13.5	26.8	39.8	77.1	3.2%
9	Industrial - Retrocommissioning	9.6	18.9	27.9	53.1	1.9%
10	Industrial - Process Boiler - Blowdown Heat Recovery	6.2	12.4	18.4	36.0	1.6%
11	Industrial - Process - Efficient Thermal Oxidizer	3.0	6.1	9.2	18.4	0.9%
12	Industrial - Compressed Air - Exhaust Heat Recovery	3.1	6.2	9.2	18.2	0.8%
13	Industrial - Process Boiler - Maintenance	3.0	5.9	8.6	16.4	0.6%
14	Industrial - Process Boiler - Burner Control Optimization	-	-	-	-	0.5%
15	Industrial - Process Boiler - Stack Economizer	1.1	2.2	3.3	6.5	0.3%
16	Industrial - Process Boiler - High Turndown Burner	1.2	2.4	3.6	6.9	0.3%
17	Industrial - Building Operator Certification	0.4	0.8	1.2	2.3	0.1%
18	Industrial - Commissioning	0.1	0.4	0.6	1.3	0.1%
	Total of Top 18 Measures	**414.1**	**822.1**	**1,222.8**	**2,383.1**	**100.0%**
	Total Cumulative Savings	**414.1**	**822.1**	**1,222.8**	**2,383.1**	**100.0%**

Figure 3-15 shows PGL industrial sector savings by end use throughout the study period. Process savings dominate in the Industrial sector (space heating savings are present from a few measures; however they are not visible at the scale of this chart).

Figure 3-15 PGL Industrial Cumulative Savings by End Use (MMtherms)



4 | North Shore Gas Analysis

This section details the study results and potential estimates for NSG as a whole and by sector.

Overall

Total natural gas consumption for all sectors in NSG territory for 2023 was 337 million therms. Similar to PGL territory, the residential sector accounts for the largest share of annual energy use at 54%, followed by the commercial sector at 37% and the industrial sector at 9% of usage (see Figure 4-1).

Figure 4-1 NSG Sector-Level Share of Natural Gas Use in 2023

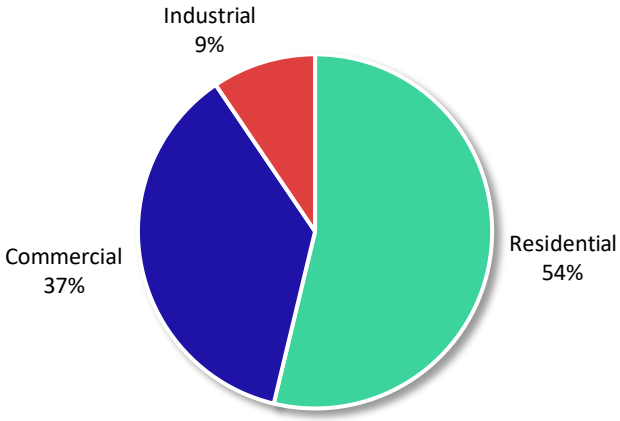


Table 4-1 and Figure 4-2 summarize the baseline projection for annual natural gas usage by sector for NSG's territory. After an adjustment from actual HDD in 2023 to 20-year normal weather in 2024, the projection declines by a modest amount through the remaining forecast period, reflecting little to no market growth as well as improvements in building shell and equipment efficiency over time.

The increase from 2023 to 2024 is due to the transition from actual HDD to 20-year normalized weather.

Figure 4-2 Potential Study Baseline Projection – NSG All Sectors (MMtherms)

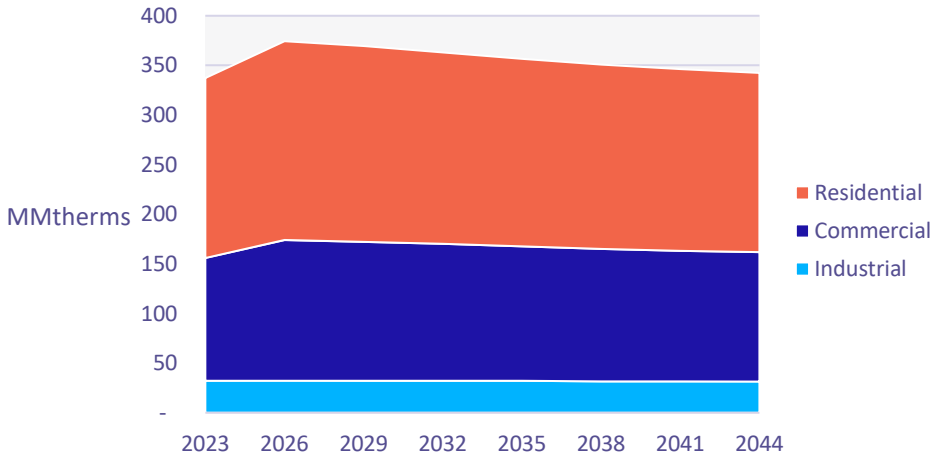


Table 4-1 NSG Baseline Projection by Sector, Selected Years (MMtherms)

Sector	2023	2025	2026	2027	2030	2035	2044	% Change
Residential	181	201	200	199	196	189	181	-0.1%
Commercial	124	141	142	141	139	136	130	5.2%
Industrial	32	32	32	32	32	32	31	-1.7%
Total	**337**	**375**	**374**	**373**	**367**	**357**	**343**	**1.7%**

Table 4-2 summarizes the NSG energy efficiency potential in terms of cumulative and incremental savings for all measures to the baseline projection for select years. Figure 4-3 displays the energy efficiency potential forecast represented in cumulative terms, reflecting the effects of persistent savings in prior years in addition to new savings. This allows for reporting annual savings impacts as they impact each year of the forecast.

The potential study shows significant cost-effective savings achievable across all sectors, due in large part to high values of avoided greenhouse gas emissions contributing to the economic calculations.

Table 4-2 Summary of Energy Efficiency Potential, All Sectors - NSG

	2025	2026	2027	2030	2035	2044
Baseline Projection (MMtherms)	375	374	373	367	357	343
Incremental Savings (MMtherms)						
Realistic Achievable Potential	4.7	4.9	5.1	5.5	6.0	4.8
Maximum Achievable Potential	6.6	6.7	6.9	7.0	6.8	5.1
Economic Potential	9.4	9.6	9.8	9.8	9.3	6.7
Technical Potential	10.1	10.2	10.3	10.2	9.6	6.8
Cumulative Savings (MMtherms)						
Realistic Achievable Potential	4.7	9.6	14.6	29.9	56.3	95.8
Maximum Achievable Potential	6.6	13.2	19.9	39.5	70.1	110.4
Economic Potential	9.4	18.9	28.3	55.6	96.5	147.2
Technical Potential	10.1	20.1	30.0	58.2	99.9	150.9
Energy Savings (% of Baseline)						
Realistic Achievable Potential	1.3%	2.6%	3.9%	8.1%	15.8%	28.0%
Maximum Achievable Potential	1.7%	3.5%	5.3%	10.8%	19.7%	32.2%
Economic Potential	2.5%	5.0%	7.6%	15.1%	27.1%	42.9%
Technical Potential	2.7%	5.4%	8.0%	15.8%	28.0%	44.0%

Figure 4-3 Baseline Projection and Cumulative EE Impacts Summary – NSG

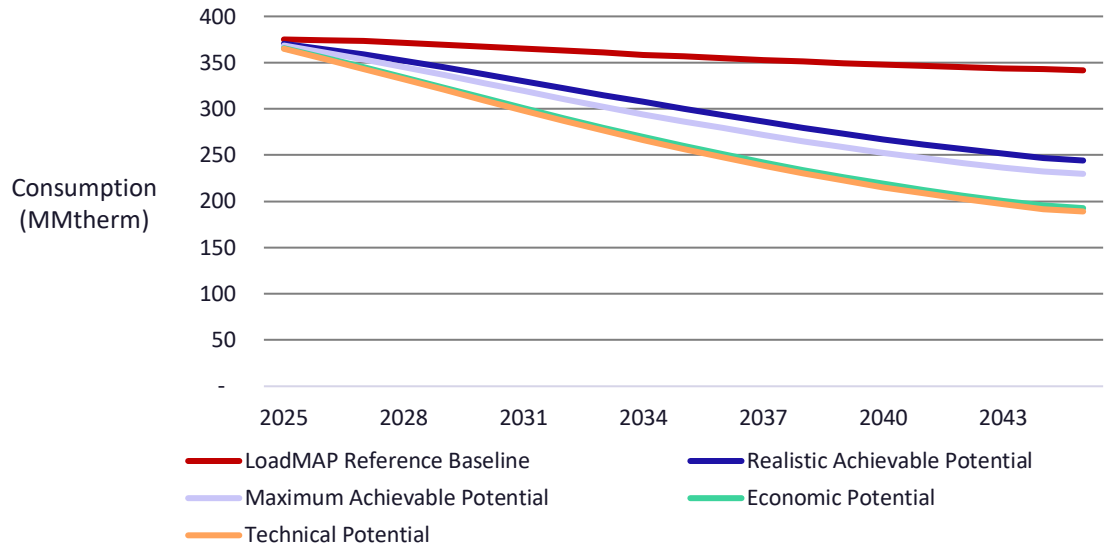
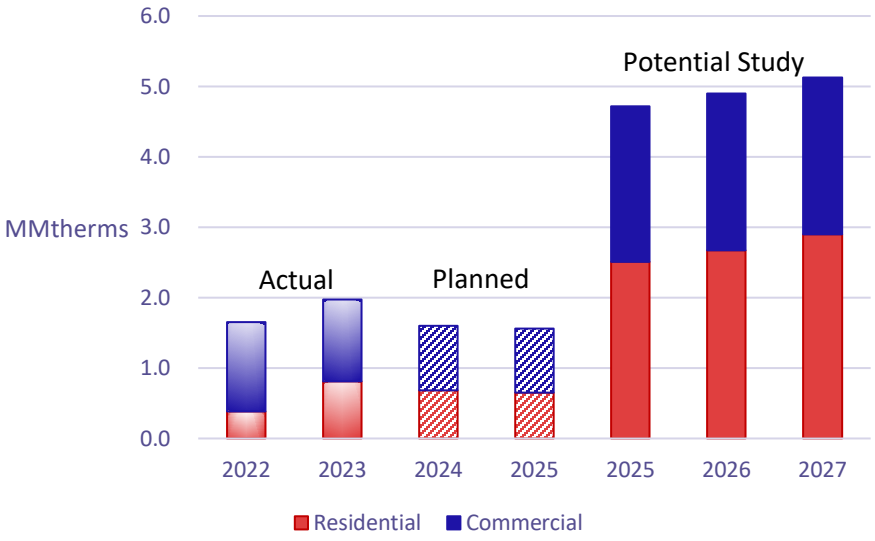


Figure 4-4 below compares recent prior-year program accomplishments to planned performance and to achievable potential savings from 2025 through 2027.

Figure 4-4 NSG Prior-Year Accomplishments and Achievable Potential (Net MMtherms)



A relatively small number of measures account for the majority of savings. Table 4-3 presents the realistic achievable potential for the top 20 measures for all sectors in the NSG territory.

Table 4-3 Realistic Achievable Potential Top 20 Measures, All Sectors (MMtherms) – NSG

Rank	Measure / Technology	2025	2030	2035	2045	% of Total
1	Residential - Furnace - AFUE 97% (CEE Tier 3)	1.2	8.3	17.2	32.7	34.1%
2	Commercial - Furnace - TE 81% (2023 Standard)	0.2	1.6	3.1	5.2	5.5%
3	Commercial - Boiler - TE 80%	0.2	1.1	2.1	3.8	3.9%
4	Residential - Water Heater (<= 55 Gal) - UEF 0.95 (Instantaneous, ENERGY STAR 5.0)	0.1	0.9	1.9	3.1	3.2%
5	Residential - Connected Thermostat - ENERGY STAR (1.0)	0.2	1.1	1.9	3.0	3.1%
6	Residential - Gas-Fired Combination Heat Pump Conversion - Pre-2030	0.1	0.9	1.7	2.8	2.9%
7	Commercial - RTU - Advanced Controls	0.2	0.9	1.6	2.5	2.6%
8	Residential - Water Heater (> 55 Gal) - UEF 0.76 (Standard)	0.1	0.7	1.5	2.5	2.6%
9	Residential - Insulation - Wall Sheathing	0.2	0.9	1.5	2.2	2.3%
10	Residential - Gas-Fired Combination Heat Pump Conversion - Post-2030	0.1	0.7	1.3	2.1	2.2%
11	Commercial - HVAC - Energy Recovery Ventilator	0.1	0.5	0.9	1.5	1.6%
12	Commercial - Windows - High Efficiency Glazing	0.1	0.6	1.0	1.5	1.6%
13	Residential - Windows - High Efficiency (ENERGY STAR 7.0)	0.1	0.6	1.0	1.5	1.6%
14	Commercial - Insulation - Wall Cavity	0.1	0.5	0.9	1.5	1.5%
15	Residential - Home Energy Management System (HEMS)	0.1	0.5	0.9	1.4	1.5%
16	Commercial - Destratification Fans (HVLS)	0.1	0.5	0.9	1.4	1.5%
17	Commercial - Connected Thermostat - ENERGY STAR (1.0)	0.1	0.5	0.8	1.4	1.5%
18	Commercial - Insulation - Ceiling	0.1	0.5	0.9	1.3	1.3%
19	Commercial - Gas Boiler - Smart Radiator Controls	0.1	0.3	0.6	1.0	1.1%
20	Commercial - Unit Heater - Infrared Radiant	0.1	0.4	0.7	1.0	1.1%
	Total of Top 20 Measures	**3.4**	**22.1**	**42.4**	**73.4**	**76.6%**
	Total Cumulative Savings	**4.7**	**29.9**	**56.3**	**95.8**	**100.0%**

Residential Sector

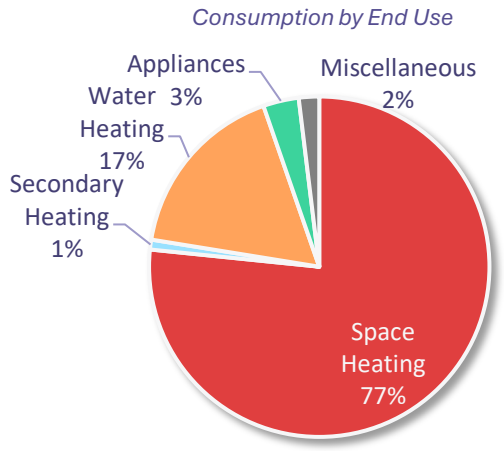
In 2023, there were 149,449 households in NSG's residential sector that used 181 million therms, an average use per household of 1,212 therms. The NSG residential territory is a fairly homogenous group both in terms of income and geography, and is overwhelmingly single family (less than 0.1% of residences in the territory are identifiable as multifamily and <1% of survey respondents could be qualified as low income). For this reason, a single housing segment modeled as single family homes is used to represent all residential load in NSG's territory.

Table 4-4 NSG Residential Control Totals, 2023

Segment	Households	Annual Use (MMtherm)	Therms / Household
NSG Single Family	**149,449**	**181**	**1,212**

Figure 4-5 shows the distribution of NSG annual natural gas consumption by segment and end use. Space heating and water heating account for 77% and 17% of total usage, respectively. Appliances, secondary heating, and the miscellaneous category account for the remaining 6% of total residential gas usage.

Figure 4-5 NSG Residential Natural Gas Consumption by End Use, 2023



Residential Baseline Projection

Table 4-5 presents the NSG natural gas baseline projection by end use for the residential sector. The base year consumption of 181 million therms reflects a warmer-than-average year. The reference projection increases to 202 million therms in 2025 following adjustment to normal weather (20-year average HDD), then slowly declines to 181 million therms in 2044.

Table 4-5 NSG Residential Baseline Projection by End Use (MMtherms)

End Use	2023	2025	2030	2035	2044	% Change ('23-'45)
Space Heating	139	160	155	150	142	2.5%
Secondary Heating	2	2	2	2	2	-1.2%
Water Heating	31	30	29	28	28	-10.7%
Appliances	6	6	6	6	6	-3.7%
Miscellaneous	4	3	3	3	3	-2.2%
Total	**181**	**201**	**196**	**189**	**181**	**-0.1%**

Residential Potential

Table 4-6 presents the NSG residential sector energy savings potential estimates. In 2025, realistic achievable potential energy savings are 2.5 million therms, or 1.2% of the baseline projection. By 2044, cumulative realistic achievable energy savings are 57.7 million therms, or 31.9% of the baseline projection. Figure 4-6 presents the NSG residential sector cumulative potential as a percentage of the baseline projection, and Table 4-7 shows the top 20 residential measures in the NSG territory.

Table 4-6 NSG Summary of Residential Natural Gas Potential (MMtherms)

Summary of Energy Savings	2025	2026	2027	2030	2035	2044
Baseline Projection (MMtherms)	201	200	199	196	189	181
Cumulative Savings (MMtherms)						
Realistic Achievable Potential	2.5	5.1	8.0	16.9	33.0	57.7
Maximum Achievable Potential	3.1	6.3	9.7	19.9	37.2	62.2
Economic Potential	4.3	8.6	13.2	26.8	49.1	80.3
Technical Potential	4.6	9.2	14.0	28.0	50.9	82.7
Potential Savings as % of Baseline						
Realistic Achievable Potential	1.2%	2.6%	4.0%	8.6%	17.5%	31.9%
Maximum Achievable Potential	1.6%	3.2%	4.9%	10.2%	19.7%	34.4%
Economic Potential	2.1%	4.3%	6.6%	13.7%	25.9%	44.4%
Technical Potential	2.3%	4.6%	7.0%	14.3%	26.9%	45.7%

Figure 4-6 NSG Residential Cumulative Potential as a Percentage of the Baseline

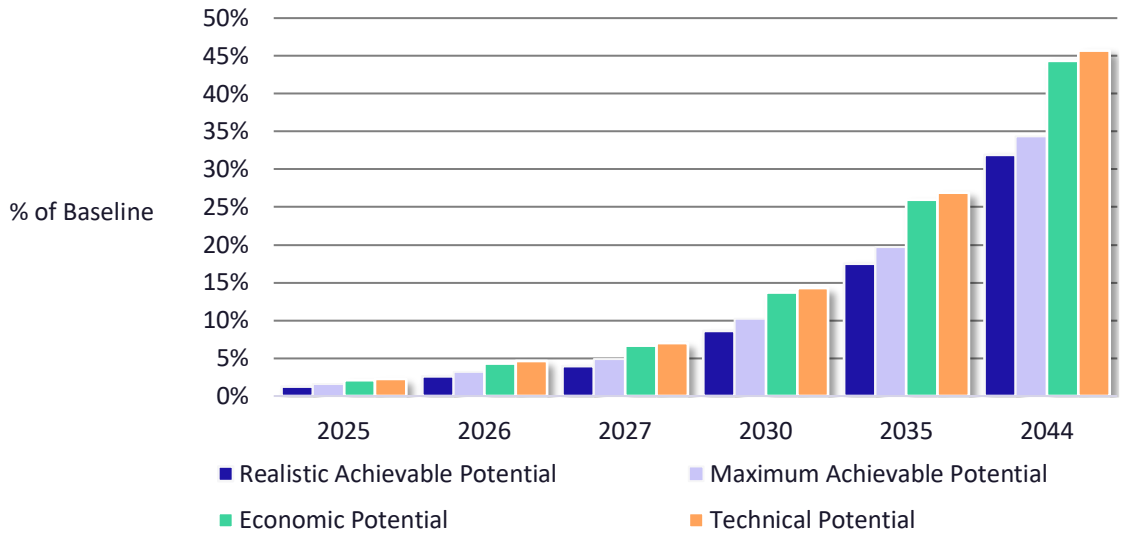


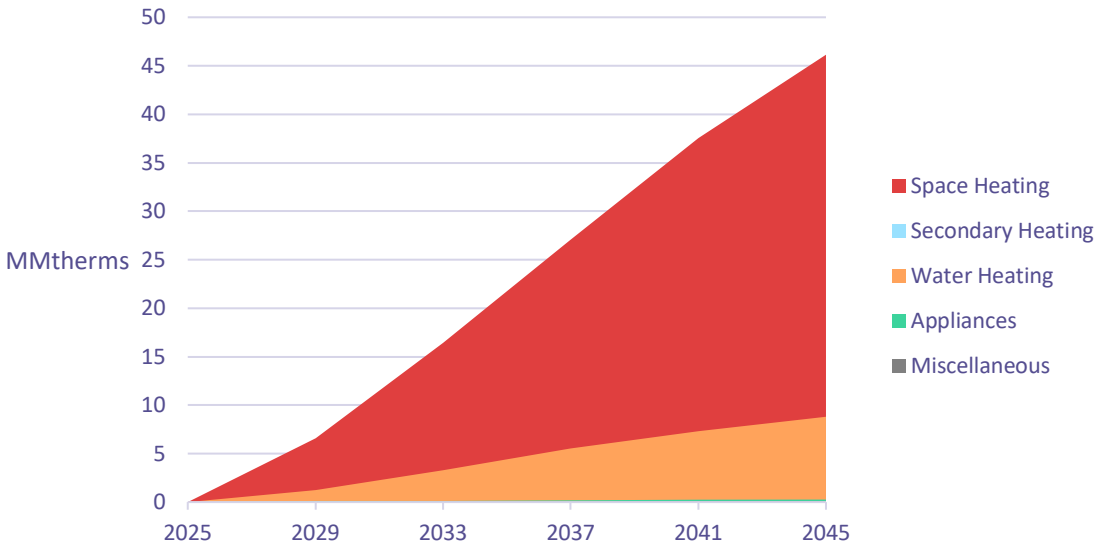
Table 4-7 Realistic Achievable Potential Top 20 Measures, Residential (MMtherms) – NSG

Rank	Measure / Technology	2025	2030	2035	2045	% of Total
1	Residential - Furnace - AFUE 97% (CEE Tier 3)	1.2	8.3	17.2	32.7	56.6%
2	Residential - Water Heater (<= 55 Gal) - UEF 0.95 (Instantaneous, ENERGY STAR 5.0)	0.1	0.9	1.9	3.1	5.4%
3	Residential - Connected Thermostat - ENERGY STAR (1.0)	0.2	1.1	1.9	3.0	5.2%
4	Residential - Gas-Fired Combination Heat Pump Conversion - Pre-2030[7]	0.1	0.9	1.7	2.8	4.9%
5	Residential - Water Heater (> 55 Gal) - UEF 0.76 (Standard)	0.1	0.7	1.5	2.5	4.3%
6	Residential - Insulation - Wall Sheathing	0.2	0.9	1.5	2.2	3.8%
7	Residential - Gas-Fired Combination Heat Pump Conversion - Post-2030	0.1	0.7	1.3	2.1	3.6%
8	Residential - Windows - High Efficiency (ENERGY STAR 7.0)	0.1	0.6	1.0	1.5	2.6%
9	Residential - Home Energy Management System (HEMS)	0.1	0.5	0.9	1.4	2.4%
10	Residential - Combination Boiler - High Efficiency	0.0	0.2	0.4	0.6	1.0%
11	Residential - Insulation - Wall Cavity Upgrade	0.0	0.2	0.4	0.6	1.0%
12	Residential - Ducting - Repair and Sealing	0.0	0.2	0.4	0.6	1.0%
13	Residential - Gas Furnace - Maintenance	0.0	0.2	0.3	0.4	0.8%
14	Residential - Ducting - Repair and Sealing - Aerosol	0.0	0.1	0.2	0.4	0.6%
15	Residential - Fireplace - Tier 2 (>75% FE)	0.0	0.1	0.2	0.3	0.6%
16	Residential - Boiler - AFUE 95% (CEE Tier 2)	0.0	0.1	0.2	0.3	0.6%
17	Residential - Building Shell - Air Sealing (Infiltration Control)	0.0	0.1	0.2	0.3	0.6%
18	Residential - Thermostat - Programmable	0.0	0.1	0.2	0.3	0.5%
19	Residential - Building Shell - Whole-Home Aerosol Sealing	0.0	0.1	0.1	0.2	0.3%
20	Residential - Clothes Washer - CEE Tier 2	0.0	0.1	0.1	0.2	0.3%
	Total of Top 20 Measures	**2.3**	**16.0**	**31.5**	**55.4**	**96.0%**
	Total Cumulative Savings	**2.5**	**16.9**	**33.0**	**57.7**	**100.0%**

Figure 4-7 shows NSG residential cumulative natural gas savings by end use from 2025 through 2045. Savings by end use are consistent through the forecast, with space heating savings from building envelope measures and high efficiency HVAC equipment. Additionally, stock turnover results in higher appliance and HVAC savings over time.

[7] Gas-fired combination heat pump conversion is split into pre-2023 and post-2030 to account for changes in baseline efficiency standards. Post-2030 savings are measured against updated efficiency baselines for gas furnaces (2028 standard change) and water heaters (2029 standard change).

Figure 4-7 NSG Residential Cumulative Savings by End Use (MMtherms)



Commercial Sector

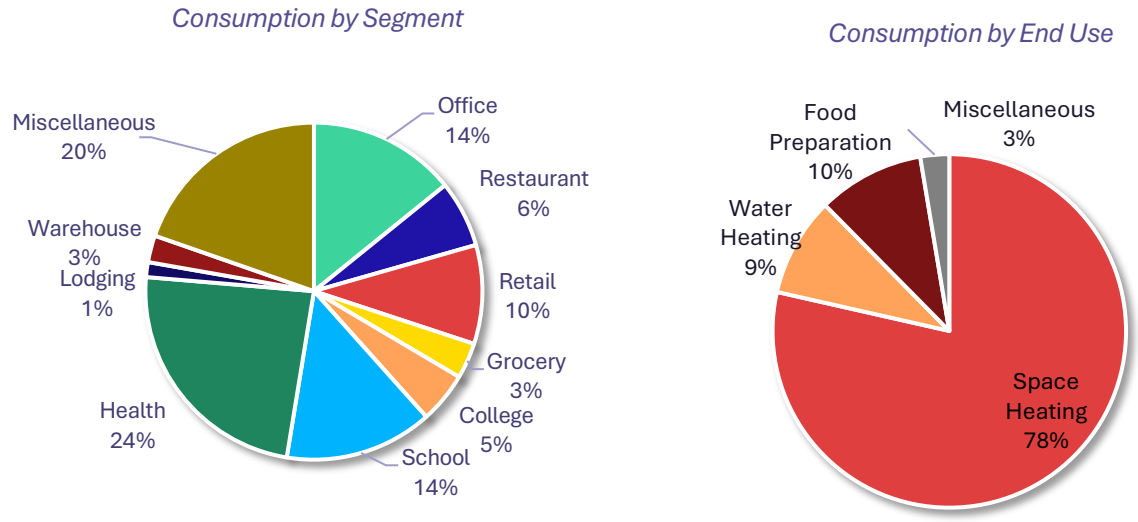
In 2023, NSG commercial customers used a total of 124 million therms, which was allocated to 10 commercial segments, shown in Table 4-8. Floor space is imputed from total consumption in a segment and typical intensity (therms per square foot) data by business type from CBECS.

Table 4-8 NSG Commercial Control Totals, 2023

Segment	Sales (MMtherm)	Floor Space (Million Sq. Ft.)	Intensity (therm/sqft)
Office	18	54	0.33
Restaurant	8	4	2.07
Retail	12	21	0.56
Grocery	4	5	0.87
College	6	27	0.23
School	18	36	0.49
Health	29	45	0.66
Lodging	2	2	0.77
Warehouse	3	38	0.08
Miscellaneous	24	47	0.52
Total	**124**	**279**	**0.44**

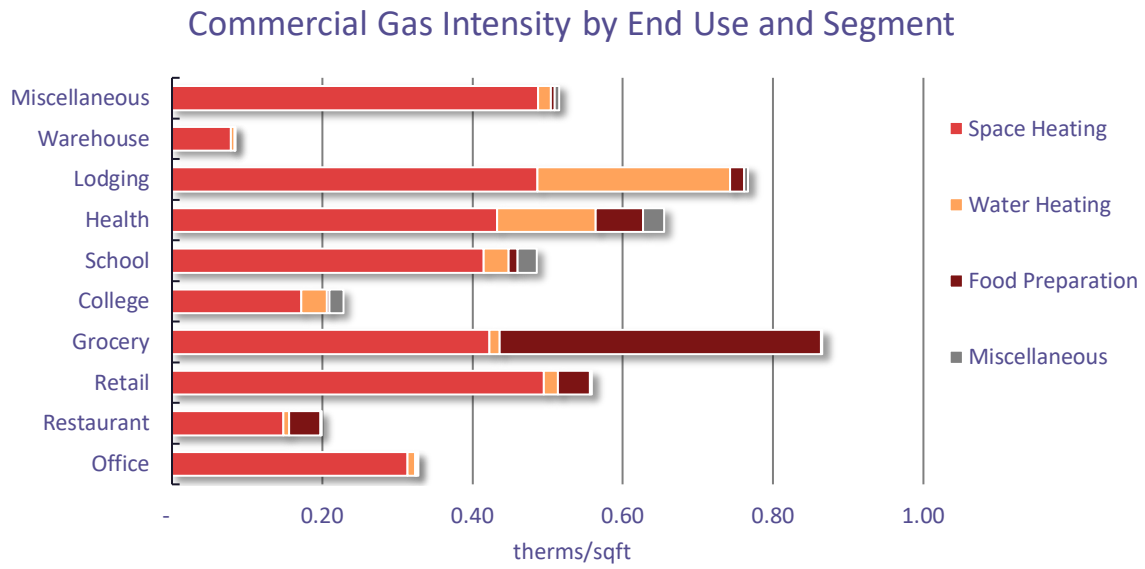
Figure 4-8 shows the distribution of NSG annual natural gas consumption by segment and end use. The health (24%), school (14%), and office (14%) segments make up the majority of the commercial consumption along with the miscellaneous segment (20%), which includes business accounts not included in the other identified segments such as beauty salons, entertainment venues, places of worship or public assembly, etc. Similar to PGL territory, space heating accounts for the majority of commercial gas consumption, at 78% of use. Water heating (9%) and commercial food service equipment (10%) are also notable loads with potential for savings.

Figure 4-8 NSG Commercial Natural Gas Consumption by Segment and End Use, 2023



As shown in Figure 4-9, natural gas intensity by end use varies significantly across segments. For example, due to cooking equipment consumption, the restaurant segment is the most energy intensive, with significantly higher usage per square foot than any other segment.

Figure 4-9 NSG Commercial Intensity by End Use and Segment, 2023



Commercial Baseline Projection

Table 4-9 presents AEG's independent natural gas baseline projection at the end use level for NSG's commercial sector. After adjustment for normal weather in 2024, the baseline projection declines from 141 million therms to 130 million.

Table 4-9 NSG Commercial Baseline Projection by End Use (MMTherms)

End Use	2023	2025	2030	2035	2044	% Change ('23-'45)
Space Heating	97	115	113	109	105	7.4%
Water Heating	11	11	11	11	11	-4.0%
Food Preparation	12	12	12	12	12	-2.1%
Miscellaneous	3	3	3	3	3	-2.4%
Total	**124**	**141**	**139**	**136**	**130**	**5.2%**

Commercial Potential

Table 4-10 presents the NSG commercial sector energy savings potential estimates. In 2025, realistic achievable potential energy savings are 2 million therms, or 1.4% of the baseline projection. By 2044, cumulative energy savings are 34.6 million therms, or 26.6% of the baseline projection.

Table 4-10 NSG Summary of Commercial Natural Gas Potential (MMtherms)

	2025	2026	2027	2030	2035	2044
Baseline Projection (MMtherms)	141	142	141	139	136	130
Cumulative Savings (MMtherms)						
Realistic Achievable Potential	2.0	4.0	6.0	11.9	21.3	34.6
Maximum Achievable Potential	3.1	6.2	9.3	17.9	30.0	43.7
Economic Potential	4.7	9.4	13.9	26.5	43.5	60.8
Technical Potential	5.0	9.9	14.6	27.6	44.7	61.8
Potential Savings as % of Baseline						
Realistic Achievable Potential	1.4%	2.9%	4.3%	8.5%	15.7%	26.6%
Maximum Achievable Potential	2.2%	4.4%	6.6%	12.8%	22.2%	33.5%
Economic Potential	3.3%	6.6%	9.8%	19.0%	32.1%	46.7%
Technical Potential	3.5%	7.0%	10.4%	19.8%	33.0%	47.4%

Figure 4-10 NSG Commercial Cumulative Potential as a Percentage of the Baseline

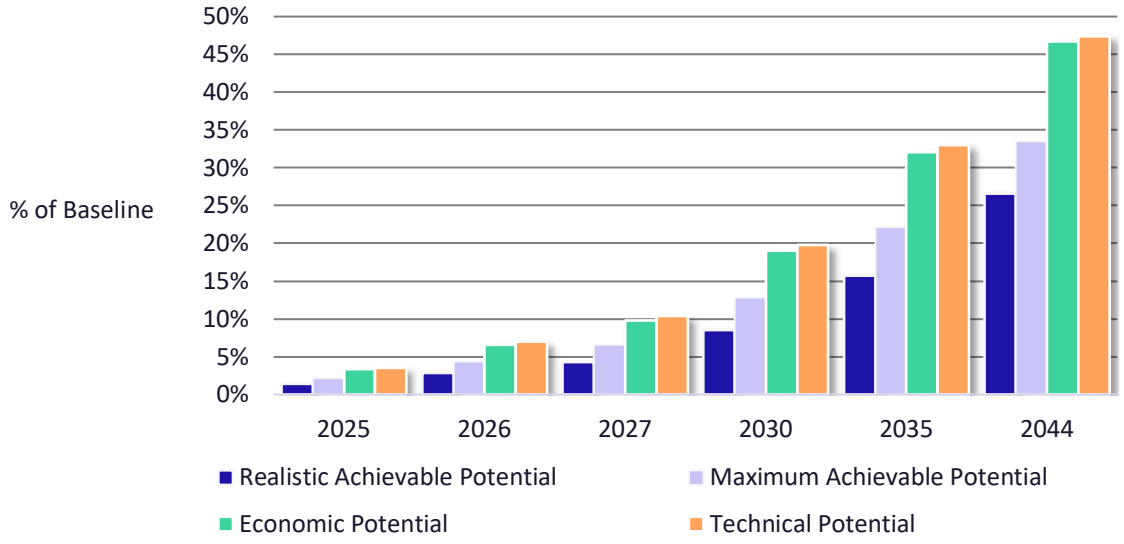
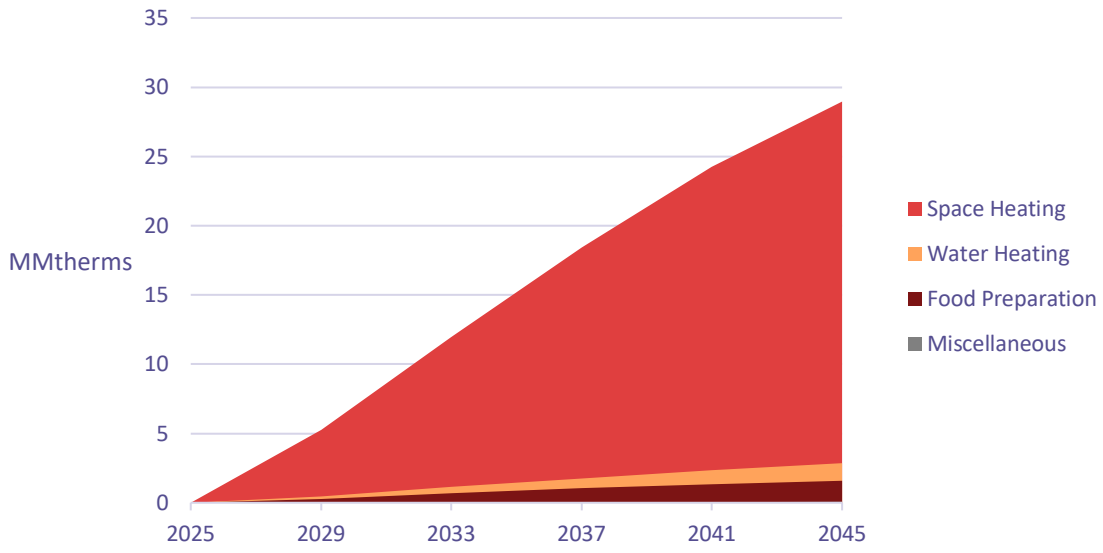


Table 4-11 presents the top 20 measures in NSG's commercial sector.

Table 4-11 Realistic Achievable Potential Top 20 Measures, Commercial (MMtherms) – NSG

Rank	Measure / Technology	2025	2030	2035	2044	% of Total
1	Commercial - Furnace - TE 81% (2023 Standard)	239	1,584	3,088	5,230	15.1%
2	Commercial - Boiler - TE 80%	185	1,123	2,094	3,781	10.9%
3	Commercial - RTU - Advanced Controls	165	922	1,592	2,511	7.2%
4	Commercial - HVAC - Energy Recovery Ventilator	98	546	948	1,541	4.4%
5	Commercial - Windows - High Efficiency Glazing	98	576	988	1,496	4.3%
6	Commercial - Insulation - Wall Cavity	97	536	918	1,472	4.2%
7	Commercial - Destratification Fans (HVLS)	94	523	896	1,401	4.0%
8	Commercial - Connected Thermostat - ENERGY STAR (1.0)	84	478	845	1,398	4.0%
9	Commercial - Insulation - Ceiling	97	520	859	1,270	3.7%
10	Commercial - Gas Boiler - Smart Radiator Controls	57	328	590	1,027	3.0%
11	Commercial - Unit Heater - Infrared Radiant	55	369	697	1,024	3.0%
12	Commercial - Water Heater - TE 96%	46	296	567	945	2.7%
13	Commercial - Commercial Laundry - Ozone Treatment	41	283	515	892	2.6%
14	Commercial - Kitchen Ventilation - Advanced Controls	51	285	499	835	2.4%
15	Commercial - Gas Boiler - Insulate Steam Lines/Condensate Tank	55	301	506	775	2.2%
16	Commercial - Ventilation - Demand Controlled	60	322	527	762	2.2%
17	Commercial - Retrocommissioning	44	229	415	632	1.8%
18	Commercial - Gas Boiler - Condensate Recovery System	36	206	365	614	1.8%
19	Commercial - Advanced New Construction Designs	34	185	323	544	1.6%
20	Commercial - Gas Boiler - Thermostatic Radiator Valves	30	170	302	514	1.5%
	Total of Top 20 Measures	**1,666**	**9,783**	**17,534**	**28,662**	**82.7%**
	Total Cumulative Savings	**2,018**	**11,890**	**21,296**	**34,643**	**100.0%**

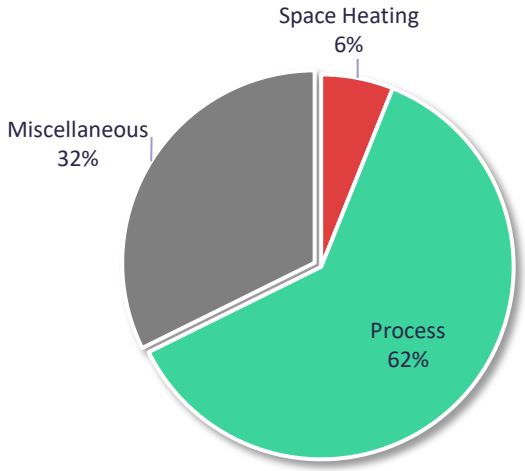
Figure 4-11 NSG Commercial Cumulative Savings by End Use (MMtherms)



Industrial Sector

In 2023, NSG's industrial sector consumed 32 million therms. Figure 4-12 shows the distribution of NSG annual natural gas consumption by end use. Process is the largest overall end use for the industrial sector, accounting for 62% of annual energy use. Miscellaneous, which includes onsite cogeneration plants, and space heating account for the remaining natural gas usage, accounting for 32% and 6%, respectively.

Figure 4-12 NSG Industrial Natural Gas Consumption by End Use, 2023



Industrial Baseline Projection

NSG industrial sector usage remains relatively flat throughout the planning horizon. Table 4-12 presents the NSG natural gas baseline projection by end use for the industrial sector.

Table 4-12 NSG Industrial Baseline Projection by End Use (MMtherms)

End Use	2023	2025	2030	2035	2045	% Change ('23-'45)
Space Heating	2	2	2	2	2	5.7%
Process	20	20	20	20	19	-2.1%
Miscellaneous	10	10	10	10	10	-2.1%
Total	**32**	**32**	**32**	**32**	**31**	**-1.7%**

Industrial Potential

Table 4-13 presents the NSG residential sector energy savings potential estimates. In 2025, realistic achievable potential energy savings are 0.2 MMtherms, or 0.6% of the baseline projection. By 2045, cumulative realistic achievable energy savings are 3.4 MMtherms, or 11.0% of the baseline projection. Figure 4-13 presents the industrial sector cumulative potential as a percentage of the baseline projection.

Table 4-13 NSG Summary of Industrial Natural Gas Potential (MMtherms)

	2025	2026	2027	2030	2035	2045
Baseline Projection (MMtherms)	32	32	32	32	32	31
Cumulative Savings (MMtherms)						
Realistic Achievable Potential	0.2	0.4	0.6	1.1	2.0	3.4
Maximum Achievable Potential	0.3	0.6	0.9	1.7	2.9	4.5
Economic Potential	0.4	0.9	1.3	2.4	4.0	6.1
Technical Potential	0.5	0.9	1.4	2.6	4.4	6.5
Potential Savings as % of Baseline						
Realistic Achievable Potential	0.6%	1.2%	1.8%	3.4%	6.3%	11.0%
Maximum Achievable Potential	0.9%	1.8%	2.7%	5.2%	8.9%	14.2%
Economic Potential	1.3%	2.6%	3.9%	7.4%	12.5%	19.4%
Technical Potential	1.5%	2.9%	4.3%	8.2%	13.7%	20.7%

Figure 4-13 NSG Industrial Cumulative Potential as a Percentage of the Baseline

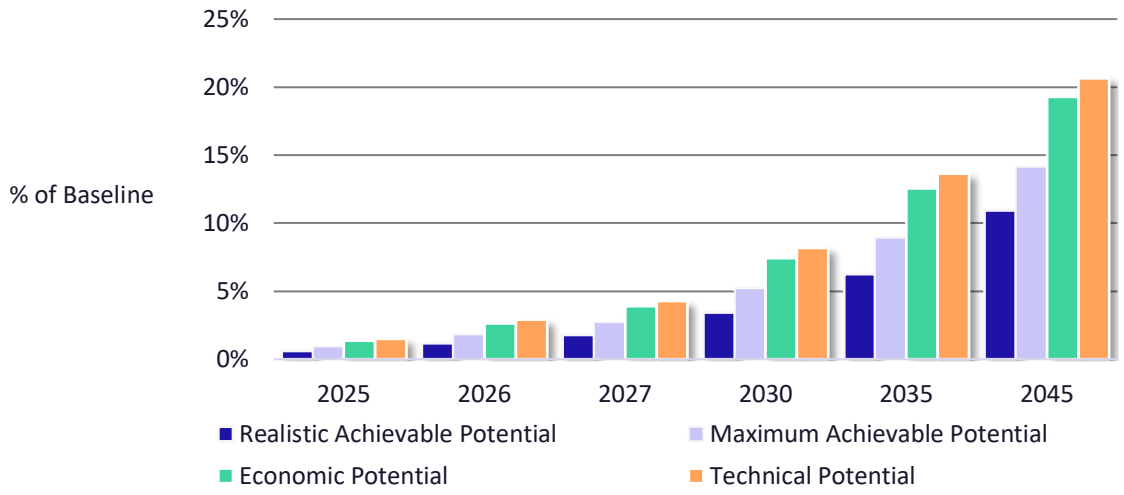


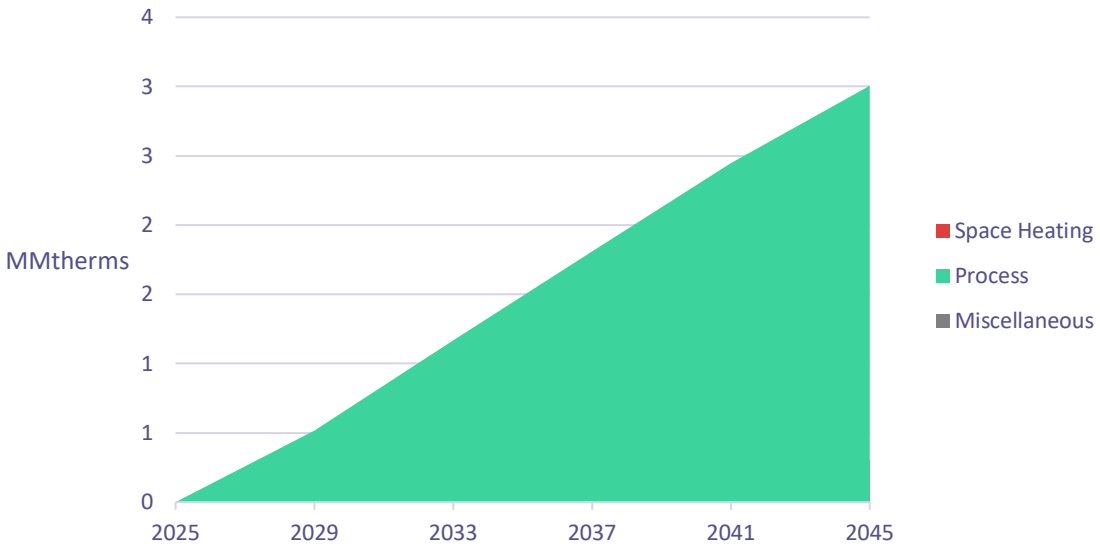
Table 4-14 shows the top 20 measures in the NSG industrial sector.

Table 4-14 Realistic Achievable Potential Top 20 Measures, Industrial (MMtherms) – NSG

Rank	Measure / Technology	2025	2030	2035	2045	% of Total
1	Industrial - Process - Insulate Heated Process Fluids	33	191	352	638	18.5%
2	Industrial - Process - Heat Recovery	32	185	332	569	16.5%
3	Industrial - Process Boiler - Insulate Steam Lines/Condensate Tank	22	127	228	394	11.4%
4	Industrial - Process Furnace - Tube Inserts	24	137	240	389	11.3%
5	Industrial - Process - Tank Insulation	18	102	185	328	9.5%
6	Industrial - Process Boiler - Steam Trap Replacement	15	86	153	259	7.5%
7	Industrial - Process Boiler - Insulate Hot Water Lines	9	54	96	162	4.7%
8	Industrial - Destratification Fans (HVLS)	10	54	94	152	4.4%
9	Industrial - Insulation - Ceiling	9	49	88	151	4.4%
10	Industrial - Process Boiler - Condensate Recovery System	6	32	57	96	2.8%
11	Industrial - Process - Efficient Thermal Oxidizer	4	25	48	93	2.7%
12	Industrial - Retrocommissioning	4	22	37	58	1.7%
13	Industrial - Process Boiler - Blowdown Heat Recovery	3	15	27	48	1.4%
14	Industrial - Process Boiler - Burner Control Optimization	3	14	25	42	1.2%
15	Industrial - Compressed Air - Exhaust Heat Recovery	1	8	14	27	0.8%
16	Industrial - Process Boiler - Maintenance	1	7	11	18	0.5%
17	Industrial - Process Boiler - Stack Economizer	0	3	5	9	0.3%
18	Industrial - Process Boiler - High Turndown Burner	1	3	5	8	0.2%
19	Industrial - Building Operator Certification	0	1	2	3	0.1%
20	Industrial - Insulation - Wall Cavity	-	-	-	3	0.1%
	Total of Top 20 Measures	**194**	**1,113**	**1,998**	**3,447**	**99.9%**
	Total Cumulative Savings	**194**	**1,114**	**1,999**	**3,449**	**100.0%**

Figure 4-14 shows NSG industrial sector cumulative natural gas savings by end use from 2025 through 2044. The majority of savings are from the process end use.

Figure 4-14 NSG Industrial Cumulative Savings by End Use (MMtherms)



A | Scenario Analysis

As part of the potential study, PGL and NSG requested AEG to develop not only the savings above, hereafter referred to as the **reference case,** but to provide alternative scenarios of savings potential by modifying specific inputs to the base measure assumptions to reflect highly relevant topics under discussion regionally and nationally.

After discussing the possible modeling inputs that could be varied and what would be most useful and relevant to evaluate, AEG and the utilities agree on the following for scenario analysis:

Scenario Definitions:

- **Scenario 1** reflects aggressive electrification goals in the region, lowering the available population of gas-using equipment to target with savings programs.
    - Converts a number of existing residential customers to all-electric such that over the study period they equal 144,000 MWh of added electric load. AEG used RECS data and building simulations to estimate annual electric energy consumption of heat pumps that would replace gas units in PGL and NSG's territories.
    - New Construction assumed all-electric in both residential and commercial buildings.
    - Industrial matches reference case.
- **Scenario 2** isolates the natural gas savings and dissociates them from the added greenhouse gas emissions values assigned in the Illinois regulatory framework. This represents direct reductions in gas load only, and approximates the participant cost test, evaluating energy efficiency in the cost of only the cost savings realized by customers.
    - Sets GHG adder to $0.
    - Sets incentives to $0.
- **Scenario 3** reflects possible climate changes into the future, instead of the industry-standard 20-year normal weather throughout the forecast period.
    - AEG received a forecast of future cooling and heating degree days (CDD and HDD) from PGL and NSG's sales forecasting division to replace the 20-year normal assumptions from the reference case.

Comparison of Scenario Results

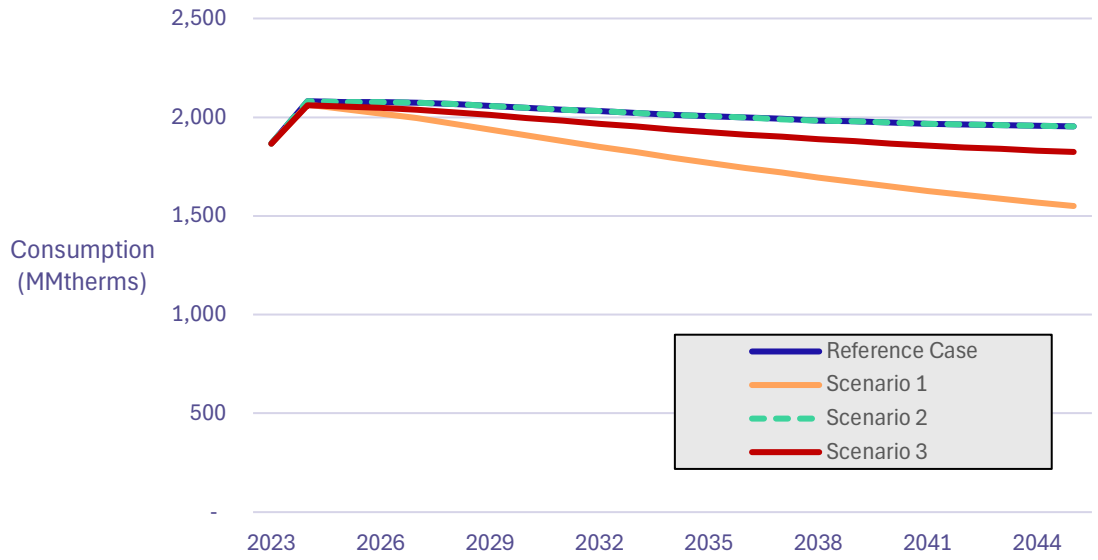
Baseline Comparison

Table A-1 and Figure A-1 present the differing baselines for each scenario compared to the reference case. The baseline for Scenario 2 exactly matches the reference case, as that scenario is only concerned with changes to cost-effectiveness evaluation. The baseline for the climate future scenario declines compared to the reference case, as warmer years reduce the need for heating. The lowest projection is the electrification scenario, which is over 300 million therms lower than the reference case by 2044.

Table A-1 Comparison of Scenario and Reference Baselines (MMtherms)

Baseline Comparison, Selected Years (MMtherms)	2025	2026	2027	2030	2035	2044
Reference Case	2,077	2,076	2,073	2,049	2,005	1,957
Scenario 1	2,042	2,020	1,995	1,908	1,769	1,568
Scenario 2	2,077	2,076	2,073	2,048	2,004	1,957
Scenario 3	2,053	2,047	2,039	1,996	1,925	1,831

Figure A-1 Comparison of Scenario and Reference Baselines



Total Savings Comparison

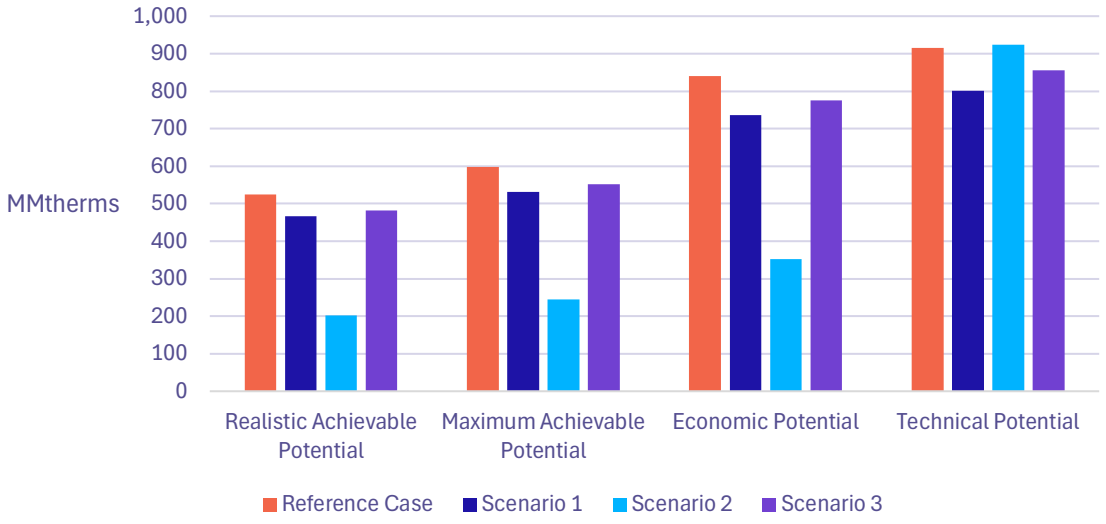
Savings for the climate future and electrification scenarios decline compared to the reference case, proportionally to how their baselines deviate from the reference. They still have large achievable and economic potential, as the reduction of baseline loads is small relative to the overall gas use.

Scenario 2, however, sees a dramatic reduction in savings. Without the greenhouse gas values supporting the economic analysis, economic and achievable savings fall by 60% compared to the reference case.

Table A-2 Comparison of total savings, scenarios vs reference case (2044)

Summary of Energy Savings (MMtherms), 2044	Reference Case	Scenario 1	Scenario 2	Scenario 3
Baseline Forecast (MMtherms)	1,957	1,568	1,957	1,831
Cumulative Savings (MMtherms)				
Realistic Achievable Potential	524	466	202	482
Maximum Achievable Potential	598	532	245	551
Economic Potential	839	736	352	776
Technical Potential	916	801	923	855
Energy Savings (% of Baseline)				
Realistic Achievable Potential	26.8%	29.7%	10.3%	26.3%
Maximum Achievable Potential	30.6%	33.9%	12.5%	30.1%
Economic Potential	42.9%	46.9%	18.0%	42.4%
Technical Potential	46.8%	51.1%	47.2%	46.7%

Figure A-2 Comparison of savings, scenarios vs reference case (2044)



Savings Changes by Sector

Tables A-3 through A-6 present the difference in Realistic Achievable Potential savings by sector, for both PGL and NSG territories respectively. Again, the participant value scenario is of note, particularly the resilience of Commercial savings compared to Residential and Industrial. On the basis of energy savings alone, the Commercial measures are cost-effective in the analysis compared to the other sectors.

Table A-3 PGL Comparison of sector-level savings (MMtherms)

Sector	Reference Case	Scenario 1	Scenario 2	Scenario 3
Residential	265	232	69	238
Commercial	156	139	98	146
Industrial	7	7	0	7
Total	**428**	**378**	**167**	**391**
% of Reference Case				
Residential		87.7%	26.1%	89.8%
Commercial		88.8%	62.7%	93.7%
Industrial		100.0%	5.8%	100.0%

Table A-4 NSG Comparison of sector-level savings (MMtherms)

Sector	Reference Case	Scenario 1	Scenario 2	Scenario 3
Residential	58	53	12	54
Commercial	35	31	22	32
Industrial	3	3	0	3
Total	**96**	**88**	**35**	**90**
% of Reference Case				
Residential		92.2%	21.3%	94.0%
Commercial		89.4%	64.0%	93.8%
Industrial		100.0%	7.3%	98.5%

Table A-5 PGL Residential detail, comparison of savings by housing type and income

Residential Segment	Reference Case	Scenario 1	Scenario 2	Scenario 3
PGL Single Family	149	130	33	129
PGL Single Family LI	25	22	6	23
PGL Multifamily	47	41	14	45
PGL Multifamily LI	44	40	17	41
Total	**265**	**232**	**69**	**238**
% of Reference Case				
PGL Single Family		87%	22%	86%
PGL Single Family LI		87%	23%	92%
PGL Multifamily		87%	30%	96%
PGL Multifamily LI		91%	38%	94%

Table A-6 NSG Residential detail, comparison of savings by housing type

Residential Segment	Reference Case	Scenario 1	Scenario 2	Scenario 3
NSG Single Family	58	53	12	54
Total	**58**	**53**	**12**	**54**
% of Reference Case				
NSG Single Family		92%	21%	94%

Figure A-3 PGL Comparison of Sector-Level Savings, 2044 Cumulative Total (MMtherms)

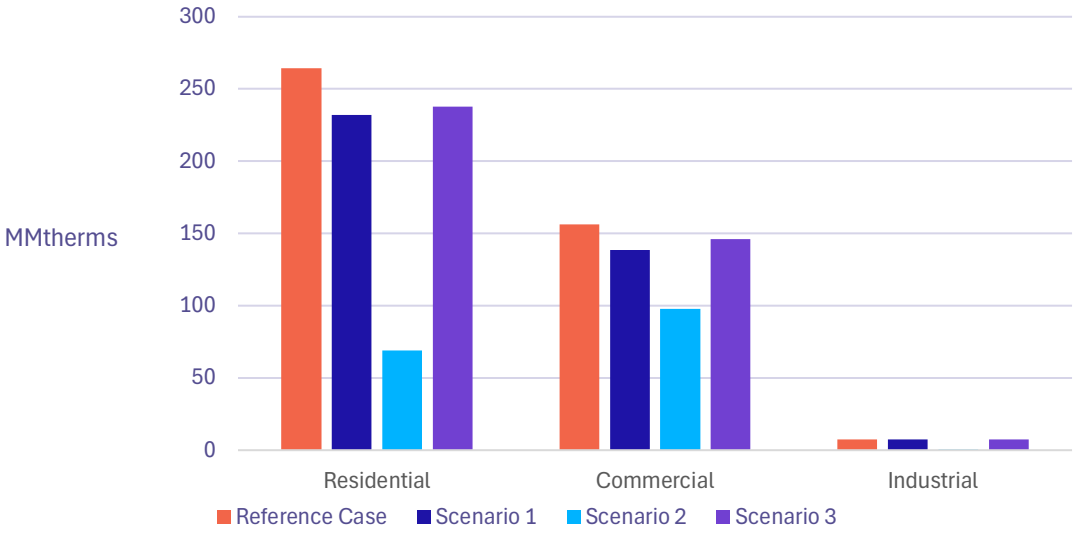
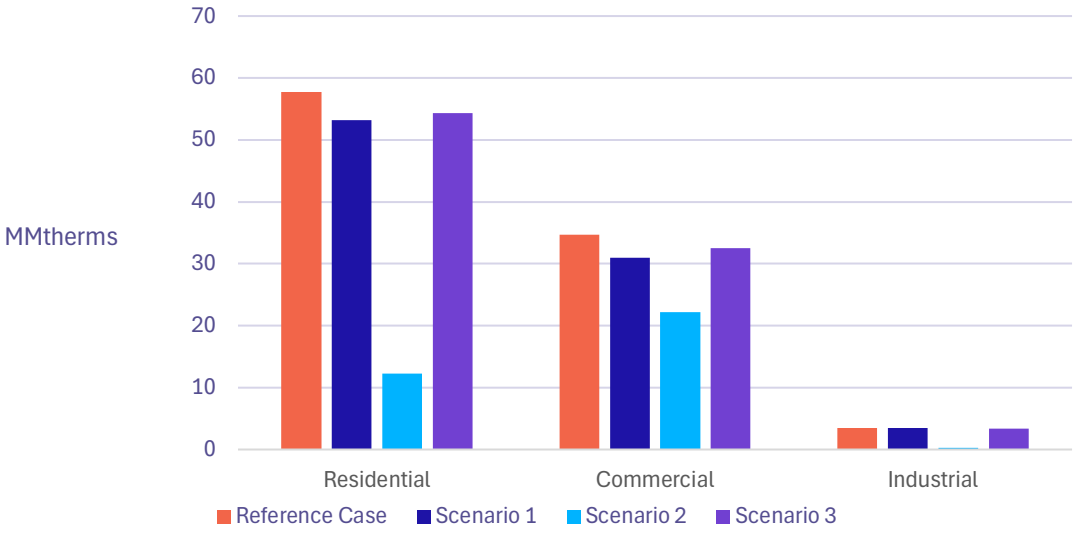
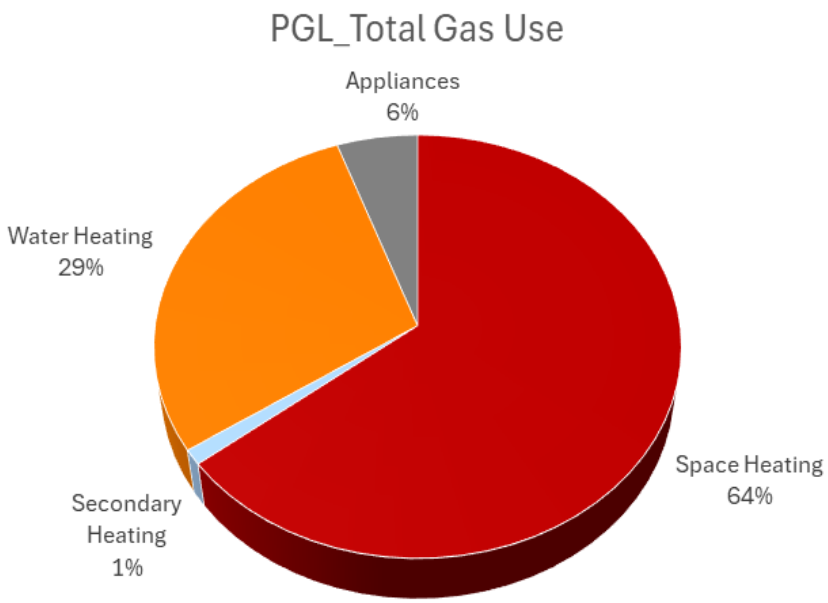


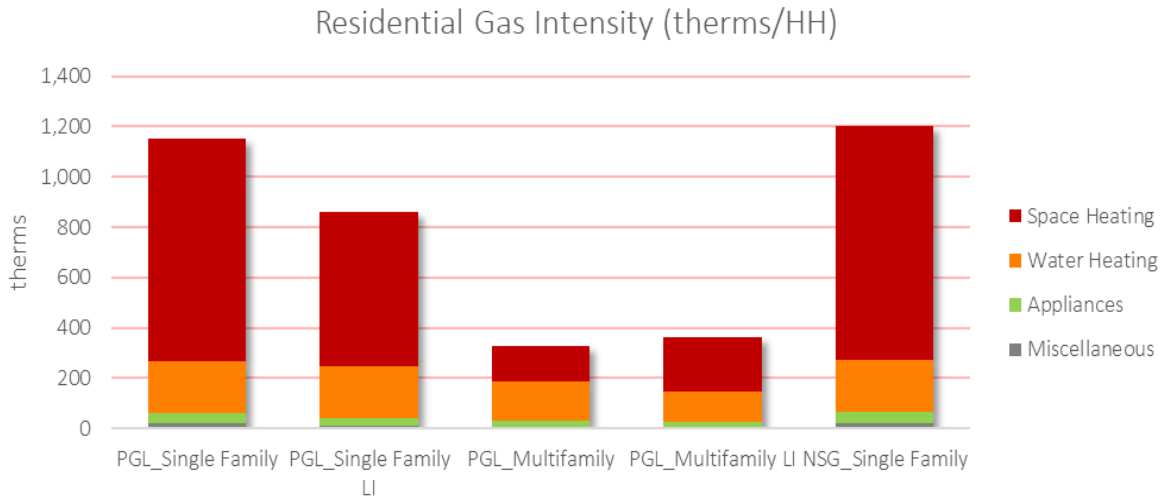
Figure A-4 NSG Comparison of Sector-Level Savings, 2044 Cumulative Total (MMtherms)



B | Market Profiles

This appendix contains the market profiles for each modeled sector. An explanation of data development for these profiles appears in Chapter 2.


PGL_Total Gas Use
Appliances
6%
Water Heating
29%
Secondary
Heating
1%
Space Heating
64%


Residential Gas Intensity (therms/HH)
therms
1,400
1,200
1,000
800
600
400
200
0
PGL_Single Family
PGL_Single Family LI
PGL_Multifamily
PGL_Multifamily LI
NSG_Single Family
Space Heating
Water Heating
Appliances
Miscellaneous

Segment:	PGL_Single Family
Households:	359,832
Total 2019 therms (000):	419,247
Intensity (therms/HH):	1,165

End Use	Fuel	Technology	Saturation	UEC (therms)	Intensity (therms/HH)	Usage (000 therms)
Space Heating	Natural Gas	Furnace	82.1%	1,005	825	296,710
Space Heating	Natural Gas	Boiler	6.3%	971	61	22,059
Secondary Heating	Natural Gas	Fireplace	10.5%	109	11	4,122
Water Heating	Natural Gas	Water Heater (<= 55 Gal)	54.4%	210	114	41,034
Water Heating	Natural Gas	Water Heater (> 55 Gal)	43.5%	210	91	32,847
Appliances	Natural Gas	Clothes Dryer	62.6%	35	22	7,944
Appliances	Natural Gas	Stove/Oven	78.2%	24	19	6,813
Miscellaneous	Natural Gas	Pool Heater	2.5%	388	10	3,512
Miscellaneous	Natural Gas	Miscellaneous	100.0%	12	12	4,206
		Total			**1,165**	**419,247**

Segment:	PGL_Multifamily
Households:	697,031
Total 2019 therms (000):	234,792
Intensity (therms/HH):	337

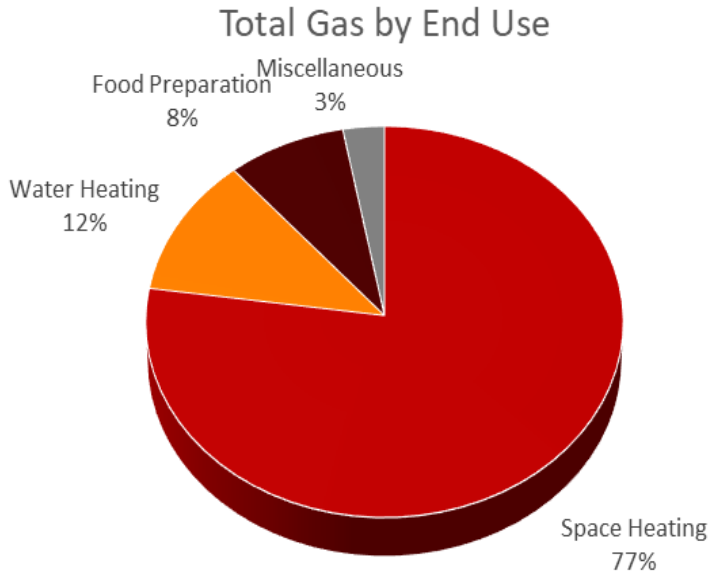
End Use	Fuel	Technology	Saturation	UEC (therms)	Intensity (therms/HH)	Usage (000 therms)
Space Heating	Natural Gas	Furnace	61.7%	159	98	68,269
Space Heating	Natural Gas	Boiler	27.3%	153	42	29,241
Secondary Heating	Natural Gas	Fireplace	7.0%	109	8	5,308
Water Heating	Natural Gas	Water Heater (<= 55 Gal)	55.6%	163	91	63,337
Water Heating	Natural Gas	Water Heater (> 55 Gal)	42.7%	163	70	48,663
Appliances	Natural Gas	Clothes Dryer	26.7%	35	9	6,575
Appliances	Natural Gas	Stove/Oven	77.0%	24	19	13,000
Miscellaneous	Natural Gas	Pool Heater	0.0%	388	-	-
Miscellaneous	Natural Gas	Miscellaneous	100.0%	1	1	399
		Total			**337**	**234,792**

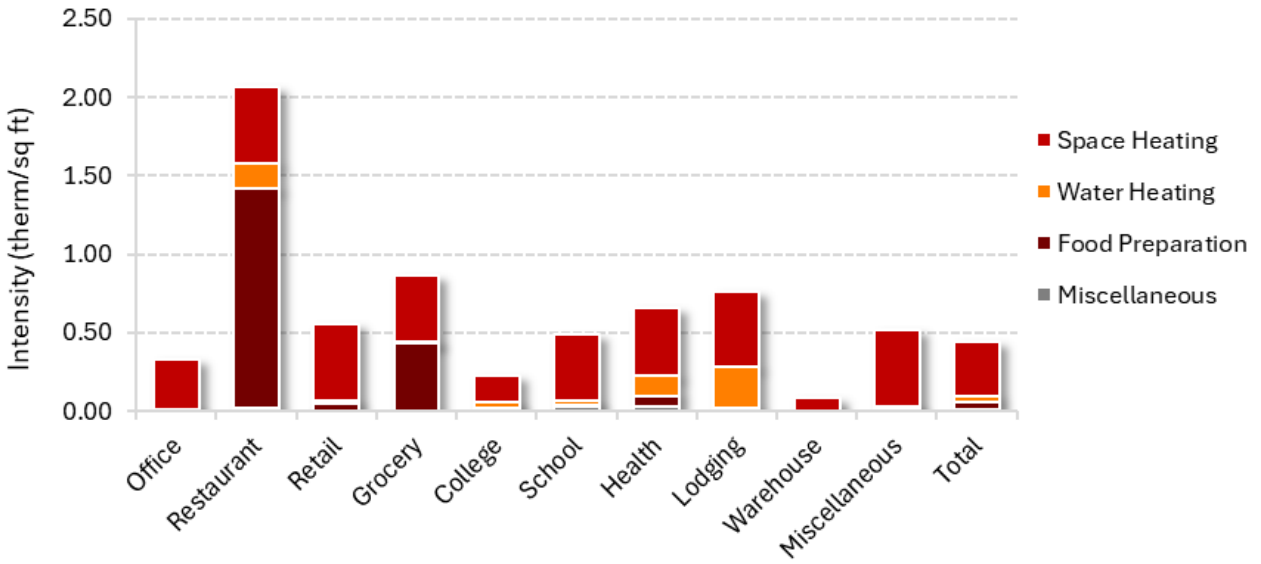
Segment:	PGL_Single Family LI
Households:	82,975
Total 2019 therms (000):	71,677
Intensity (therms/HH):	864

End Use	Fuel	Technology	Saturation	UEC (therms)	Intensity (therms/HH)	Usage (000 therms)
Space Heating	Natural Gas	Furnace	87.9%	648	570	47,264
Space Heating	Natural Gas	Boiler	6.1%	726	45	3,699
Secondary Heating	Natural Gas	Fireplace	4.4%	109	5	400
Water Heating	Natural Gas	Water Heater (<= 55 Gal)	70.8%	206	146	12,103
Water Heating	Natural Gas	Water Heater (> 55 Gal)	27.2%	206	56	4,645
Appliances	Natural Gas	Clothes Dryer	45.0%	35	16	1,316
Appliances	Natural Gas	Stove/Oven	66.0%	24	16	1,339
Miscellaneous	Natural Gas	Pool Heater	0.0%	388	-	-
Miscellaneous	Natural Gas	Miscellaneous	100.0%	11	11	910
		Total			**864**	**71,677**

Segment:	PGL_Multifamily LI
Households:	379,829
Total 2019 therms (000):	138,054
Intensity (therms/HH):	363

End Use	Fuel	Technology	Saturation	UEC (therms)	Intensity (therms/HH)	Usage (000 therms)
Space Heating	Natural Gas	Furnace	70.0%	227	159	60,362
Space Heating	Natural Gas	Boiler	26.9%	219	59	22,436
Secondary Heating	Natural Gas	Fireplace	0.0%	109	-	-
Water Heating	Natural Gas	Water Heater (<= 55 Gal)	63.2%	123	78	29,530
Water Heating	Natural Gas	Water Heater (> 55 Gal)	34.4%	123	42	16,040
Appliances	Natural Gas	Clothes Dryer	22.8%	35	8	3,062
Appliances	Natural Gas	Stove/Oven	69.5%	24	17	6,450
Miscellaneous	Natural Gas	Pool Heater	0.0%	388	-	-
Miscellaneous	Natural Gas	Miscellaneous	100.0%	0	0	173
		Total			**363**	**138,054**


Total Gas by End Use
Miscellaneous
3%
Food Preparation
8%
Water Heating
12%
Space Heating
77%


Intensity (therm/sq ft)
2.50
2.00
1.50
1.00
0.50
0.00
Office
Restaurant
Retail
Grocery
College
School
Health
Lodging
Warehouse
Miscellaneous
Total
Space Heating
Water Heating
Food Preparation
Miscellaneous

PGL - Office	
Floor Space (MSqFt)	258.94
Intensity (therm/SqFt)	0.33
Control Total (000 therms):	84,829

End Use	Technology	Saturation	EUI (therm/sqft)	Intensity (therm/Sqft)	Usage (000 therms)
Space Heating	Furnace	30.7%	0.297	0.091	23,666
Space Heating	Boiler	37.3%	0.506	0.189	48,895
Space Heating	Unit Heater	22.4%	0.149	0.033	8,638
Water Heating	Water Heater	62.6%	0.015	0.010	2,501
Food Preparation	Oven	2.6%	0.009	0.000	61
Food Preparation	Conveyor Oven	2.6%	0.009	0.000	61
Food Preparation	Rack Oven	2.6%	0.009	0.000	61
Food Preparation	Fryer	2.3%	0.014	0.000	85
Food Preparation	Broiler	2.3%	0.015	0.000	91
Food Preparation	Griddle	2.3%	0.010	0.000	63
Food Preparation	Range	7.8%	0.010	0.001	209
Food Preparation	Steamer	0.0%	0.012	0.000	0
Food Preparation	Commercial Food Prep Other	0.0%	0.004	0.000	0
Miscellaneous	Pool Heater	0.0%	1.166	0.000	0
Miscellaneous	Other Miscellaneous	100.0%	0.002	0.002	499
	Total			**0.328**	**84,829**

PGL - Restaurant

Floor Space (MSqFt)	15.42
Intensity (therm/SqFt)	2.07
Control Total (000 therms):	31,921

End Use	Technology	Saturation	EUI (therm/sqft)	Intensity (therm/Sqft)	Usage (000 therms)
Space Heating	Furnace	28.9%	0.947	0.274	4,227
Space Heating	Boiler	2.5%	2.290	0.057	884
Space Heating	Unit Heater	33.1%	0.474	0.157	2,416
Water Heating	Water Heater	54.3%	0.302	0.164	2,533
Food Preparation	Oven	21.6%	0.305	0.066	1,017
Food Preparation	Conveyor Oven	21.6%	0.305	0.066	1,017
Food Preparation	Rack Oven	21.6%	0.305	0.066	1,017
Food Preparation	Fryer	74.8%	0.472	0.353	5,445
Food Preparation	Broiler	74.8%	0.505	0.377	5,818
Food Preparation	Griddle	54.4%	0.352	0.191	2,952
Food Preparation	Range	47.4%	0.348	0.165	2,537
Food Preparation	Steamer	28.1%	0.402	0.113	1,742
Food Preparation	Commercial Food Prep Other	0.3%	0.145	0.000	6
Miscellaneous	Pool Heater	0.0%	5.151	0.000	0
Miscellaneous	Other Miscellaneous	100.0%	0.020	0.020	308
Total				**2.070**	**31,921**

PGL - Retail	
Floor Space (MSqFt)	42.52
Intensity (therm/SqFt)	0.56
Control Total (000 therms):	23,775

End Use	Technology	Saturation	EUI (therm/sqft)	Intensity (therm/Sqft)	Usage (000 therms)
Space Heating	Furnace	25.4%	0.759	0.193	8,210
Space Heating	Boiler	7.9%	1.293	0.102	4,330
Space Heating	Unit Heater	52.6%	0.380	0.200	8,496
Water Heating	Water Heater	55.3%	0.034	0.019	794
Food Preparation	Oven	8.2%	0.119	0.010	412
Food Preparation	Conveyor Oven	8.2%	0.119	0.010	412
Food Preparation	Rack Oven	8.2%	0.119	0.010	412
Food Preparation	Fryer	2.5%	0.184	0.005	195
Food Preparation	Broiler	2.5%	0.196	0.005	209
Food Preparation	Griddle	1.3%	0.137	0.002	76
Food Preparation	Range	1.7%	0.135	0.002	96
Food Preparation	Steamer	0.0%	0.156	0.000	0
Food Preparation	Commercial Food Prep Other	0.0%	0.056	0.000	0
Miscellaneous	Pool Heater	0.0%	1.435	0.000	0
Miscellaneous	Other Miscellaneous	100.0%	0.003	0.003	134
	Total			**0.559**	**23,775**

	PGL - Grocery
Floor Space (MSqFt)	14.90
Intensity (therm/SqFt)	0.87
Control Total (000 therms):	12,888

Gas Market Profiles

End Use	Technology	Saturation	EUI (therm/sqft)	Intensity (therm/Sqft)	Usage (000 therms)
Space Heating	Furnace	4.3%	0.930	0.040	597
Space Heating	Boiler	0.0%	2.249	0.000	0
Space Heating	Unit Heater	82.2%	0.465	0.383	5,699
Water Heating	Water Heater	83.5%	0.016	0.013	197
Food Preparation	Oven	26.4%	0.119	0.031	466
Food Preparation	Conveyor Oven	26.4%	0.119	0.031	466
Food Preparation	Rack Oven	26.4%	0.119	0.031	466
Food Preparation	Fryer	76.6%	0.184	0.141	2,097
Food Preparation	Broiler	76.6%	0.196	0.150	2,241
Food Preparation	Griddle	11.3%	0.137	0.015	230
Food Preparation	Range	12.1%	0.135	0.016	243
Food Preparation	Steamer	7.3%	0.156	0.011	169
Food Preparation	Commercial Food Prep Other	0.0%	0.056	0.000	0
Miscellaneous	Pool Heater	0.0%	1.044	0.000	0
Miscellaneous	Other Miscellaneous	100.0%	0.001	0.001	17
Total				**0.865**	**12,888**

PGL - College	
Floor Space (MSqFt)	183.76
Intensity (therm/SqFt)	0.23
Control Total (000 therms):	41,892

End Use	Technology	Saturation	EUI (therm/sqft)	Intensity (therm/Sqft)	Usage (000 therms)
Space Heating	Furnace	0.0%	0.207	0.000	0
Space Heating	Boiler	35.9%	0.408	0.146	26,871
Space Heating	Unit Heater	24.6%	0.104	0.026	4,687
Water Heating	Water Heater	66.4%	0.052	0.034	6,325
Food Preparation	Oven	3.8%	0.003	0.000	24
Food Preparation	Conveyor Oven	3.8%	0.003	0.000	24
Food Preparation	Rack Oven	3.8%	0.003	0.000	24
Food Preparation	Fryer	7.3%	0.005	0.000	71
Food Preparation	Broiler	11.3%	0.006	0.001	117
Food Preparation	Griddle	15.9%	0.004	0.001	115
Food Preparation	Range	19.7%	0.004	0.001	140
Food Preparation	Steamer	7.1%	0.004	0.000	58
Food Preparation	Commercial Food Prep Other	0.9%	0.002	0.000	3
Miscellaneous	Pool Heater	1.2%	0.333	0.004	744
Miscellaneous	Other Miscellaneous	100.0%	0.015	0.015	2,691
Total				**0.228**	**41,892**

PGL - School	
Floor Space (MSqFt)	195.39
Intensity (therm/SqFt)	0.49
Control Total (000 therms):	94,896

End Use	Technology	Saturation	EUI (therm/sqft)	Intensity (therm/Sqft)	Usage (000 therms)
Space Heating	Furnace	5.0%	0.248	0.012	2,420
Space Heating	Boiler	77.2%	0.489	0.377	73,740
Space Heating	Unit Heater	20.2%	0.124	0.025	4,906
Water Heating	Water Heater	86.9%	0.038	0.033	6,512
Food Preparation	Oven	19.1%	0.005	0.001	176
Food Preparation	Conveyor Oven	19.1%	0.005	0.001	176
Food Preparation	Rack Oven	19.1%	0.005	0.001	176
Food Preparation	Fryer	16.2%	0.007	0.001	232
Food Preparation	Broiler	16.2%	0.008	0.001	248
Food Preparation	Griddle	24.7%	0.005	0.001	263
Food Preparation	Range	50.4%	0.005	0.003	530
Food Preparation	Steamer	42.1%	0.006	0.003	512
Food Preparation	Commercial Food Prep Other	0.0%	0.002	0.000	0
Miscellaneous	Pool Heater	0.3%	0.342	0.001	203
Miscellaneous	Other Miscellaneous	100.0%	0.025	0.025	4,802
	Total			**0.486**	**94,896**

PGL - Health	
Floor Space (MSqFt)	212.70
Intensity (therm/SqFt)	0.66
Control Total (000 therms):	139,365

End Use	Technology	Saturation	EUI (therm/sqft)	Intensity (therm/Sqft)	Usage (000 therms)
Space Heating	Furnace	9.8%	0.514	0.050	10,691
Space Heating	Boiler	35.6%	0.891	0.317	67,427
Space Heating	Unit Heater	25.4%	0.257	0.065	13,893
Water Heating	Water Heater	85.0%	0.155	0.131	27,949
Food Preparation	Oven	16.3%	0.024	0.004	832
Food Preparation	Conveyor Oven	16.3%	0.024	0.004	832
Food Preparation	Rack Oven	16.3%	0.024	0.004	832
Food Preparation	Fryer	30.8%	0.037	0.011	2,436
Food Preparation	Broiler	30.8%	0.040	0.012	2,604
Food Preparation	Griddle	36.9%	0.028	0.010	2,174
Food Preparation	Range	41.0%	0.027	0.011	2,383
Food Preparation	Steamer	19.1%	0.032	0.006	1,281
Food Preparation	Commercial Food Prep Other	0.0%	0.011	0.000	0
Miscellaneous	Pool Heater	0.0%	0.680	0.000	0
Miscellaneous	Other Miscellaneous	100.0%	0.028	0.028	6,030
Total				**0.655**	**139,365**

PGL - Lodging	
Floor Space (MSqFt)	68.17
Intensity (therm/SqFt)	0.77
Control Total (000 therms):	52,231

End Use	Technology	Saturation	EUI (therm/sqft)	Intensity (therm/Sqft)	Usage (000 therms)
Space Heating	Furnace	12.5%	0.870	0.109	7,415
Space Heating	Boiler	22.8%	1.304	0.297	20,246
Space Heating	Unit Heater	18.5%	0.435	0.081	5,501
Water Heating	Water Heater	80.6%	0.319	0.257	17,498
Food Preparation	Oven	17.2%	0.006	0.001	65
Food Preparation	Conveyor Oven	17.2%	0.006	0.001	65
Food Preparation	Rack Oven	17.2%	0.006	0.001	65
Food Preparation	Fryer	46.2%	0.009	0.004	271
Food Preparation	Broiler	46.2%	0.009	0.004	289
Food Preparation	Griddle	46.6%	0.006	0.003	204
Food Preparation	Range	44.8%	0.006	0.003	193
Food Preparation	Steamer	17.8%	0.007	0.001	89
Food Preparation	Commercial Food Prep Other	0.0%	0.003	0.000	0
Miscellaneous	Pool Heater	9.9%	0.046	0.005	309
Miscellaneous	Other Miscellaneous	100.0%	0.000	0.000	21
Total				**0.766**	**52,231**

PGL - Warehouse	
Floor Space (MSqFt)	61.15
Intensity (therm/SqFt)	0.08
Control Total (000 therms):	5,125

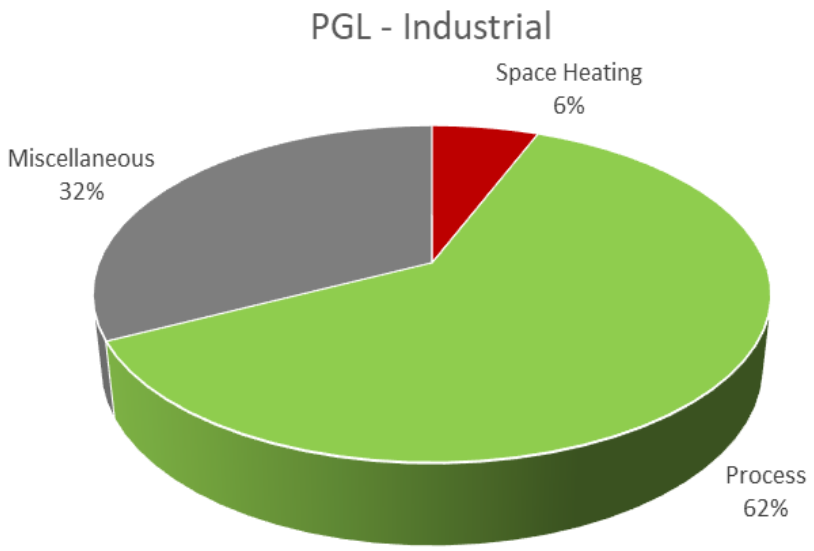
End Use	Technology	Saturation	EUI (therm/sqft)	Intensity (therm/Sqft)	Usage (000 therms)
Space Heating	Furnace	20.4%	0.141	0.029	1,764
Space Heating	Boiler	3.5%	0.241	0.008	508
Space Heating	Unit Heater	58.4%	0.071	0.041	2,525
Water Heating	Water Heater	57.3%	0.009	0.005	310
Food Preparation	Oven	0.4%	0.001	0.000	0
Food Preparation	Conveyor Oven	0.4%	0.001	0.000	0
Food Preparation	Rack Oven	0.4%	0.001	0.000	0
Food Preparation	Fryer	1.3%	0.002	0.000	1
Food Preparation	Broiler	1.3%	0.002	0.000	1
Food Preparation	Griddle	1.3%	0.001	0.000	1
Food Preparation	Range	1.3%	0.001	0.000	1
Food Preparation	Steamer	1.3%	0.001	0.000	1
Food Preparation	Commercial Food Prep Other	1.3%	0.001	0.000	0
Miscellaneous	Pool Heater	0.0%	0.703	0.000	0
Miscellaneous	Other Miscellaneous	100.0%	0.000	0.000	12
	Total			**0.084**	**5,125**

PGL - Miscellaneous

Floor Space (MSqFt)	195.82
Intensity (therm/SqFt)	0.52
Control Total (000 therms):	100,937

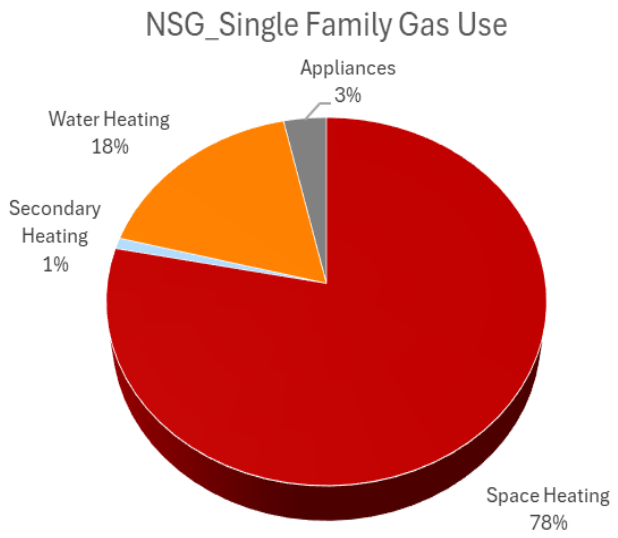
End Use	Technology	Saturation	EUI (therm/sqft)	Intensity (therm/Sqft)	Usage (000 therms)
Space Heating	Furnace	25.8%	0.756	0.195	38,163
Space Heating	Boiler	13.1%	1.288	0.169	33,023
Space Heating	Unit Heater	32.7%	0.378	0.123	24,179
Water Heating	Water Heater	62.6%	0.027	0.017	3,367
Food Preparation	Oven	4.8%	0.011	0.001	105
Food Preparation	Conveyor Oven	4.8%	0.011	0.001	105
Food Preparation	Rack Oven	4.8%	0.011	0.001	105
Food Preparation	Fryer	2.5%	0.017	0.000	86
Food Preparation	Broiler	2.5%	0.019	0.000	92
Food Preparation	Griddle	3.8%	0.013	0.000	95
Food Preparation	Range	13.2%	0.013	0.002	331
Food Preparation	Steamer	1.4%	0.015	0.000	41
Food Preparation	Commercial Food Prep Other	0.0%	0.005	0.000	0
Miscellaneous	Pool Heater	1.2%	0.367	0.004	872
Miscellaneous	Other Miscellaneous	100.0%	0.002	0.002	373
Total				**0.515**	**100,937**

PGL - Industrial Sector



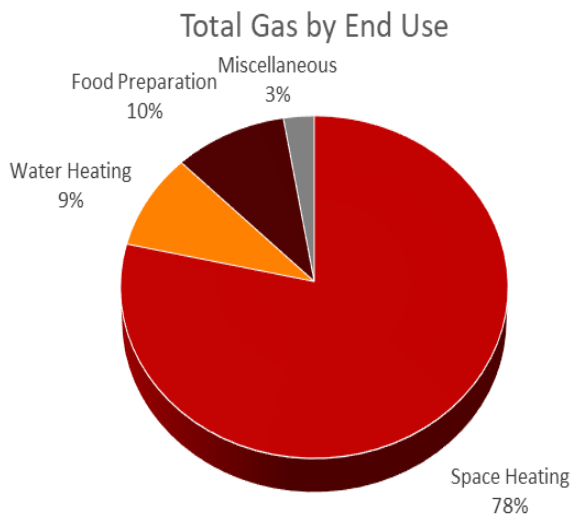
PGL - Industrial	
Employees	335,103.45
Intensity (therms/empl)	232.03
Control Total (000 therms)	77,752

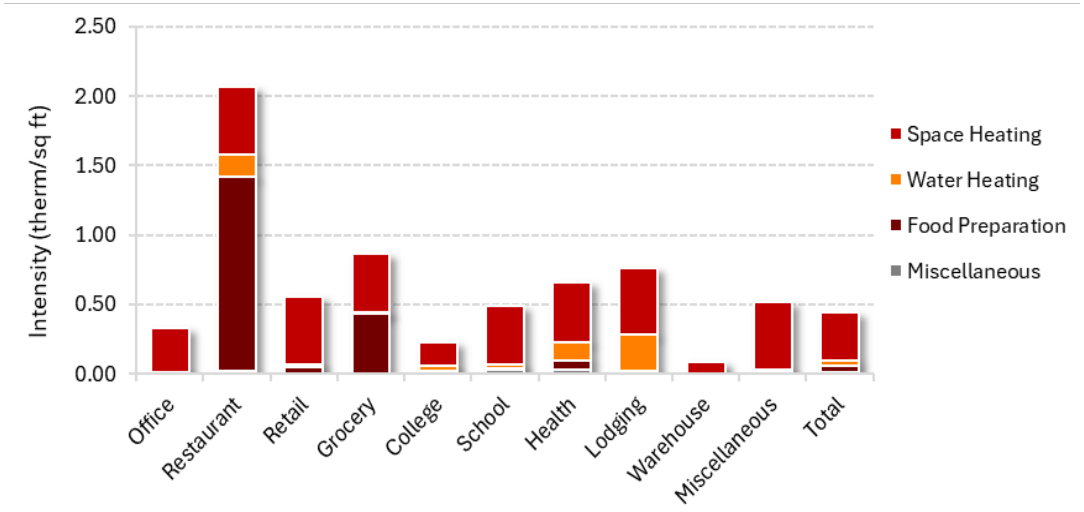
End Use	Technology	Saturation	EUI (therm/empl)	Intensity (therm/empl)	Usage (000 therms)
Space Heating	Furnace	20.4%	25.4	5.2	1,735
Space Heating	Boiler	3.5%	43.2	1.5	500
Space Heating	Unit Heater	58.4%	12.7	7.4	2,484
Process	Process Heating	100.0%	102.5	102.5	34,341
Process	Process Boiler	100.0%	30.0	30.0	10,060
Process	Process Cooling	100.0%	0.9	0.9	304
Process	Other Process	100.0%	9.6	9.6	3,210
Miscellaneous	Miscellaneous	100.0%	75.0	75.0	25,118
				232.0	**77,752**


NSG_Single Family Gas Use
Appliances
3%
Water Heating
18%
Secondary
Heating
1%
Space Heating
78%

Segment:	NSG_Single Family
Households:	149,449
Total 2019 therms (000):	181,157
Intensity (therms/HH):	1,212

End Use	Fuel	Technology	Saturation	UEC (therms)	Intensity (therms/HH)	Usage (000 therms)
Space Heating	Natural Gas	Furnace	81.1%	1,066	864	129,190
Space Heating	Natural Gas	Boiler	6.2%	1,030	64	9,605
Secondary Heating	Natural Gas	Fireplace	10.4%	109	11	1,691
Water Heating	Natural Gas	Water Heater (<= 55 Gal)	54.7%	211	115	17,240
Water Heating	Natural Gas	Water Heater (> 55 Gal)	43.8%	211	92	13,800
Appliances	Natural Gas	Clothes Dryer	62.6%	35	22	3,299
Appliances	Natural Gas	Stove/Oven	78.2%	24	19	2,830
Miscellaneous	Natural Gas	Pool Heater	2.5%	388	10	1,459
Miscellaneous	Natural Gas	Miscellaneous	100.0%	14	14	2,043
		Total			**1,212**	**181,157**


Total Gas by End Use
Miscellaneous
3%
Food Preparation
10%
Water Heating
9%
Space Heating
78%


Intensity (therm/sq ft)
2.50
2.00
1.50
1.00
0.50
0.00
Office
Restaurant
Retail
Grocery
College
School
Health
Lodging
Warehouse
Miscellaneous
Total
Space Heating
Water Heating
Food Preparation
Miscellaneous

NSG - Office	
Floor Space (MSqFt)	53.67
Intensity (therm/SqFt)	0.33
Control Total (000 therms):	17,582

End Use	Technology	Saturation	EUI (therm/sqft)	Intensity (therm/Sqft)	Usage (000 therms)
Space Heating	Furnace	30.7%	0.297	0.091	4,905
Space Heating	Boiler	37.3%	0.506	0.189	10,134
Space Heating	Unit Heater	22.4%	0.149	0.033	1,790
Water Heating	Water Heater	62.6%	0.015	0.010	518
Food Preparation	Oven	2.6%	0.009	0.000	13
Food Preparation	Conveyor Oven	2.6%	0.009	0.000	13
Food Preparation	Rack Oven	2.6%	0.009	0.000	13
Food Preparation	Fryer	2.3%	0.014	0.000	18
Food Preparation	Broiler	2.3%	0.015	0.000	19
Food Preparation	Griddle	2.3%	0.010	0.000	13
Food Preparation	Range	7.8%	0.010	0.001	43
Food Preparation	Steamer	0.0%	0.012	0.000	0
Food Preparation	Commercial Food Prep Other	0.0%	0.004	0.000	0
Miscellaneous	Pool Heater	0.0%	1.166	0.000	0
Miscellaneous	Other Miscellaneous	100.0%	0.002	0.002	103
	Total			**0.328**	**17,582**

	NSG - Restaurant
Floor Space (MSqFt)	3.83
Intensity (therm/SqFt)	2.07
Control Total (000 therms):	7,922

End Use	Technology	Saturation	EUI (therm/sqft)	Intensity (therm/Sqft)	Usage (000 therms)
Space Heating	Furnace	28.9%	0.947	0.274	1,049
Space Heating	Boiler	2.5%	2.290	0.057	219
Space Heating	Unit Heater	33.1%	0.474	0.157	600
Water Heating	Water Heater	54.3%	0.302	0.164	629
Food Preparation	Oven	21.6%	0.305	0.066	253
Food Preparation	Conveyor Oven	21.6%	0.305	0.066	253
Food Preparation	Rack Oven	21.6%	0.305	0.066	253
Food Preparation	Fryer	74.8%	0.472	0.353	1,351
Food Preparation	Broiler	74.8%	0.505	0.377	1,444
Food Preparation	Griddle	54.4%	0.352	0.191	733
Food Preparation	Range	47.4%	0.348	0.165	630
Food Preparation	Steamer	28.1%	0.402	0.113	432
Food Preparation	Commercial Food Prep Other	0.3%	0.145	0.000	1
Miscellaneous	Pool Heater	0.0%	5.151	0.000	0
Miscellaneous	Other Miscellaneous	100.0%	0.020	0.020	76
	Total			**2.070**	**7,922**

	NSG - Retail
Floor Space (MSqFt)	21.03
Intensity (therm/SqFt)	0.56
Control Total (000 therms):	11,757

End Use	Technology	Saturation	EUI (therm/sqft)	Intensity (therm/Sqft)	Usage (000 therms)
Space Heating	Furnace	25.4%	0.759	0.193	4,060
Space Heating	Boiler	7.9%	1.293	0.102	2,141
Space Heating	Unit Heater	52.6%	0.380	0.200	4,201
Water Heating	Water Heater	55.3%	0.034	0.019	392
Food Preparation	Oven	8.2%	0.119	0.010	204
Food Preparation	Conveyor Oven	8.2%	0.119	0.010	204
Food Preparation	Rack Oven	8.2%	0.119	0.010	204
Food Preparation	Fryer	2.5%	0.184	0.005	97
Food Preparation	Broiler	2.5%	0.196	0.005	103
Food Preparation	Griddle	1.3%	0.137	0.002	37
Food Preparation	Range	1.7%	0.135	0.002	47
Food Preparation	Steamer	0.0%	0.156	0.000	0
Food Preparation	Commercial Food Prep Other	0.0%	0.056	0.000	0
Miscellaneous	Pool Heater	0.0%	1.435	0.000	0
Miscellaneous	Other Miscellaneous	100.0%	0.003	0.003	66
	Total			**0.559**	**11,757**

	NSG - Grocery
Floor Space (MSqFt)	4.92
Intensity (therm/SqFt)	0.87
Control Total (000 therms):	4,256

End Use	Technology	Saturation	EUI (therm/sqft)	Intensity (therm/Sqft)	Usage (000 therms)
Space Heating	Furnace	4.3%	0.930	0.040	197
Space Heating	Boiler	0.0%	2.249	0.000	0
Space Heating	Unit Heater	82.2%	0.465	0.383	1,882
Water Heating	Water Heater	83.5%	0.016	0.013	65
Food Preparation	Oven	26.4%	0.119	0.031	154
Food Preparation	Conveyor Oven	26.4%	0.119	0.031	154
Food Preparation	Rack Oven	26.4%	0.119	0.031	154
Food Preparation	Fryer	76.6%	0.184	0.141	693
Food Preparation	Broiler	76.6%	0.196	0.150	740
Food Preparation	Griddle	11.3%	0.137	0.015	76
Food Preparation	Range	12.1%	0.135	0.016	80
Food Preparation	Steamer	7.3%	0.156	0.011	56
Food Preparation	Commercial Food Prep Other	0.0%	0.056	0.000	0
Miscellaneous	Pool Heater	0.0%	1.044	0.000	0
Miscellaneous	Other Miscellaneous	100.0%	0.001	0.001	6
	Total			**0.865**	**4,256**

NSG - College	
Floor Space (MSqFt)	26.57
Intensity (therm/SqFt)	0.23
Control Total (000 therms):	6,057

End Use	Technology	Saturation	EUI (therm/sqft)	Intensity (therm/Sqft)	Usage (000 therms)
Space Heating	Furnace	0.0%	0.207	0.000	0
Space Heating	Boiler	35.9%	0.408	0.146	3,885
Space Heating	Unit Heater	24.6%	0.104	0.026	678
Water Heating	Water Heater	66.4%	0.052	0.034	915
Food Preparation	Oven	3.8%	0.003	0.000	3
Food Preparation	Conveyor Oven	3.8%	0.003	0.000	3
Food Preparation	Rack Oven	3.8%	0.003	0.000	3
Food Preparation	Fryer	7.3%	0.005	0.000	10
Food Preparation	Broiler	11.3%	0.006	0.001	17
Food Preparation	Griddle	15.9%	0.004	0.001	17
Food Preparation	Range	19.7%	0.004	0.001	20
Food Preparation	Steamer	7.1%	0.004	0.000	8
Food Preparation	Commercial Food Prep Other	0.9%	0.002	0.000	0
Miscellaneous	Pool Heater	1.2%	0.333	0.004	108
Miscellaneous	Other Miscellaneous	100.0%	0.015	0.015	389
	Total			**0.228**	**6,057**

	NSG - School
Floor Space (MSqFt)	36.23
Intensity (therm/SqFt)	0.49
Control Total (000 therms):	17,594

End Use	Technology	Saturation	EUI (therm/sqft)	Intensity (therm/Sqft)	Usage (000 therms)
Space Heating	Furnace	5.0%	0.248	0.012	449
Space Heating	Boiler	77.2%	0.489	0.377	13,672
Space Heating	Unit Heater	20.2%	0.124	0.025	910
Water Heating	Water Heater	86.9%	0.038	0.033	1,207
Food Preparation	Oven	19.1%	0.005	0.001	33
Food Preparation	Conveyor Oven	19.1%	0.005	0.001	33
Food Preparation	Rack Oven	19.1%	0.005	0.001	33
Food Preparation	Fryer	16.2%	0.007	0.001	43
Food Preparation	Broiler	16.2%	0.008	0.001	46
Food Preparation	Griddle	24.7%	0.005	0.001	49
Food Preparation	Range	50.4%	0.005	0.003	98
Food Preparation	Steamer	42.1%	0.006	0.003	95
Food Preparation	Commercial Food Prep Other	0.0%	0.002	0.000	0
Miscellaneous	Pool Heater	0.3%	0.342	0.001	38
Miscellaneous	Other Miscellaneous	100.0%	0.025	0.025	890
	Total			**0.486**	**17,594**

NSG - Health	
Floor Space (MSqFt)	44.93
Intensity (therm/SqFt)	0.66
Control Total (000 therms):	29,436

End Use	Technology	Saturation	EUI (therm/sqft)	Intensity (therm/Sqft)	Usage (000 therms)
Space Heating	Furnace	9.8%	0.514	0.050	2,258
Space Heating	Boiler	35.6%	0.891	0.317	14,242
Space Heating	Unit Heater	25.4%	0.257	0.065	2,935
Water Heating	Water Heater	85.0%	0.155	0.131	5,903
Food Preparation	Oven	16.3%	0.024	0.004	176
Food Preparation	Conveyor Oven	16.3%	0.024	0.004	176
Food Preparation	Rack Oven	16.3%	0.024	0.004	176
Food Preparation	Fryer	30.8%	0.037	0.011	515
Food Preparation	Broiler	30.8%	0.040	0.012	550
Food Preparation	Griddle	36.9%	0.028	0.010	459
Food Preparation	Range	41.0%	0.027	0.011	503
Food Preparation	Steamer	19.1%	0.032	0.006	271
Food Preparation	Commercial Food Prep Other	0.0%	0.011	0.000	0
Miscellaneous	Pool Heater	0.0%	0.680	0.000	0
Miscellaneous	Other Miscellaneous	100.0%	0.028	0.028	1,274
	Total			**0.655**	**29,436**

NSG - Lodging	
Floor Space (MSqFt)	2.31
Intensity (therm/SqFt)	0.77
Control Total (000 therms):	1,772

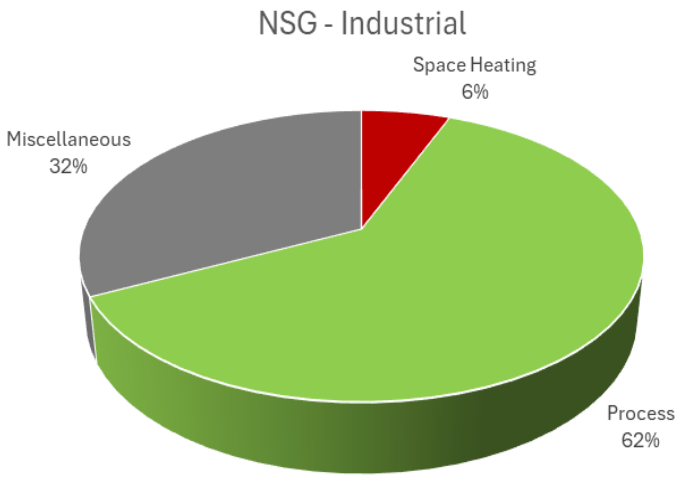
End Use	Technology	Saturation	EUI (therm/sqft)	Intensity (therm/Sqft)	Usage (000 therms)
Space Heating	Furnace	12.5%	0.870	0.109	252
Space Heating	Boiler	22.8%	1.304	0.297	687
Space Heating	Unit Heater	18.5%	0.435	0.081	187
Water Heating	Water Heater	80.6%	0.319	0.257	594
Food Preparation	Oven	17.2%	0.006	0.001	2
Food Preparation	Conveyor Oven	17.2%	0.006	0.001	2
Food Preparation	Rack Oven	17.2%	0.006	0.001	2
Food Preparation	Fryer	46.2%	0.009	0.004	9
Food Preparation	Broiler	46.2%	0.009	0.004	10
Food Preparation	Griddle	46.6%	0.006	0.003	7
Food Preparation	Range	44.8%	0.006	0.003	7
Food Preparation	Steamer	17.8%	0.007	0.001	3
Food Preparation	Commercial Food Prep Other	0.0%	0.003	0.000	0
Miscellaneous	Pool Heater	9.9%	0.046	0.005	10
Miscellaneous	Other Miscellaneous	100.0%	0.000	0.000	1
	Total			**0.766**	**1,772**

NSG - Warehouse	
Floor Space (MSqFt)	38.09
Intensity (therm/SqFt)	0.08
Control Total (000 therms):	3,192

End Use	Technology	Saturation	EUI (therm/sqft)	Intensity (therm/Sqft)	Usage (000 therms)
Space Heating	Furnace	20.4%	0.141	0.029	1,099
Space Heating	Boiler	3.5%	0.241	0.008	317
Space Heating	Unit Heater	58.4%	0.071	0.041	1,573
Water Heating	Water Heater	57.3%	0.009	0.005	193
Food Preparation	Oven	0.4%	0.001	0.000	0
Food Preparation	Conveyor Oven	0.4%	0.001	0.000	0
Food Preparation	Rack Oven	0.4%	0.001	0.000	0
Food Preparation	Fryer	1.3%	0.002	0.000	1
Food Preparation	Broiler	1.3%	0.002	0.000	1
Food Preparation	Griddle	1.3%	0.001	0.000	1
Food Preparation	Range	1.3%	0.001	0.000	1
Food Preparation	Steamer	1.3%	0.001	0.000	1
Food Preparation	Commercial Food Prep Other	1.3%	0.001	0.000	0
Miscellaneous	Pool Heater	0.0%	0.703	0.000	0
Miscellaneous	Other Miscellaneous	100.0%	0.000	0.000	8
	Total			**0.084**	**3,192**

NSG - Miscellaneous	
Floor Space (MSqFt)	47.26
Intensity (therm/SqFt)	0.52
Control Total (000 therms):	24,362

End Use	Technology	Saturation	EUI (therm/sqft)	Intensity (therm/Sqft)	Usage (000 therms)
Space Heating	Furnace	25.8%	0.756	0.195	9,211
Space Heating	Boiler	13.1%	1.288	0.169	7,970
Space Heating	Unit Heater	32.7%	0.378	0.123	5,836
Water Heating	Water Heater	62.6%	0.027	0.017	813
Food Preparation	Oven	4.8%	0.011	0.001	25
Food Preparation	Conveyor Oven	4.8%	0.011	0.001	25
Food Preparation	Rack Oven	4.8%	0.011	0.001	25
Food Preparation	Fryer	2.5%	0.017	0.000	21
Food Preparation	Broiler	2.5%	0.019	0.000	22
Food Preparation	Griddle	3.8%	0.013	0.000	23
Food Preparation	Range	13.2%	0.013	0.002	80
Food Preparation	Steamer	1.4%	0.015	0.000	10
Food Preparation	Commercial Food Prep Other	0.0%	0.005	0.000	0
Miscellaneous	Pool Heater	1.2%	0.367	0.004	210
Miscellaneous	Other Miscellaneous	100.0%	0.002	0.002	90
	Total			**0.515**	**24,362**


NSG - Industrial
Space Heating
6%
Miscellaneous
32%
Process
62%

NSG - Industrial	
Employees	27,169.06
Intensity (therms/empl)	1,176.29
Control Total (000 therms)	31,959

End Use	Technology	Saturation	EUI (therms/empl)	Intensity (therms/empl)	Usage (000 therms)
Space Heating	Furnace	20.4%	128.6	26.3	713
Space Heating	Boiler	3.5%	219.1	7.6	205
Space Heating	Unit Heater	58.4%	64.3	37.6	1,021
Process	Process Heating	100.0%	519.5	519.5	14,115
Process	Process Boiler	100.0%	152.2	152.2	4,135
Process	Process Cooling	100.0%	4.6	4.6	125
Process	Other Process	100.0%	48.6	48.6	1,319
Miscellaneous	Miscellaneous	100.0%	380.0	380.0	10,324
				1,176.3	**31,959**

C | Measure Adoption Rates

This appendix contains the adoption rates used in the potential study. An explanation of their development appears in Chapter 2.

Segment	Base Rate	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	MAP
PG-SF	Cooling	59.9%	60.6%	61.4%	62.3%	63.1%	63.9%	64.6%	65.3%	65.8%	66.2%	66.5%	66.8%	67.0%	67.1%	67.2%	67.3%	67.3%	67.4%	67.4%	67.4%	67.4%	69.5%
PG-SF	Heating	65.8%	66.6%	67.5%	68.4%	69.4%	70.3%	71.1%	71.8%	72.3%	72.8%	73.1%	73.4%	73.6%	73.8%	73.9%	74.0%	74.0%	74.1%	74.1%	74.1%	74.1%	76.4%
PG-SF	DHW	61.4%	62.1%	63.0%	63.8%	64.7%	65.5%	66.3%	66.9%	67.4%	67.9%	68.2%	68.5%	68.7%	68.8%	68.9%	69.0%	69.0%	69.1%	69.1%	69.1%	69.1%	71.2%
PG-SF	Lighting	76.1%	77.0%	78.1%	79.1%	80.2%	81.2%	82.2%	83.0%	83.6%	84.1%	84.6%	84.9%	85.1%	85.3%	85.4%	85.5%	85.6%	85.6%	85.7%	85.7%	85.7%	88.3%
PG-SF	ExemptLighting	73.9%	74.8%	75.8%	76.8%	77.9%	78.9%	79.8%	80.6%	81.2%	81.7%	82.1%	82.4%	82.7%	82.8%	82.9%	83.0%	83.1%	83.2%	83.2%	83.2%	83.2%	85.7%
PG-SF	Cooking	35.0%	35.4%	35.9%	36.4%	36.9%	37.3%	37.8%	38.1%	38.4%	38.7%	38.9%	39.0%	39.1%	39.2%	39.3%	39.3%	39.3%	39.4%	39.4%	39.4%	39.4%	40.6%
PG-SF	Fridge	46.5%	47.1%	47.7%	48.4%	49.0%	49.6%	50.2%	50.7%	51.1%	51.4%	51.7%	51.9%	52.0%	52.1%	52.2%	52.3%	52.3%	52.3%	52.4%	52.4%	52.4%	54.0%
PG-SF	OtherAppliance	37.8%	38.3%	38.8%	39.3%	39.9%	40.4%	40.8%	41.2%	41.5%	41.8%	42.0%	42.2%	42.3%	42.4%	42.4%	42.5%	42.5%	42.6%	42.6%	42.6%	42.6%	43.9%
PG-SF	Electronics	34.3%	34.7%	35.1%	35.6%	36.1%	36.6%	37.0%	37.3%	37.6%	37.9%	38.1%	38.2%	38.3%	38.4%	38.4%	38.5%	38.5%	38.5%	38.6%	38.6%	38.6%	39.7%
PG-SF	Pump	29.9%	30.2%	30.6%	31.1%	31.5%	31.9%	32.3%	32.6%	32.8%	33.0%	33.2%	33.3%	33.4%	33.5%	33.5%	33.6%	33.6%	33.6%	33.6%	33.6%	33.6%	34.7%
PG-SF	ResWx	60.0%	60.8%	61.6%	62.4%	63.3%	64.1%	64.8%	65.5%	66.0%	66.4%	66.7%	67.0%	67.2%	67.3%	67.4%	67.5%	67.5%	67.6%	67.6%	67.6%	67.6%	69.7%
PG-SF	Duct_Seal/Ins	59.0%	59.7%	60.5%	61.3%	62.2%	63.0%	63.7%	64.3%	64.8%	65.2%	65.5%	65.8%	66.0%	66.1%	66.2%	66.3%	66.3%	66.4%	66.4%	66.4%	66.4%	68.4%
PG-SF	Windows	53.6%	54.2%	55.0%	55.7%	56.5%	57.2%	57.8%	58.4%	58.9%	59.2%	59.5%	59.8%	59.9%	60.1%	60.1%	60.2%	60.3%	60.3%	60.3%	60.3%	60.4%	62.2%
PG-SF	HVAC_Maint	36.1%	36.5%	37.0%	37.5%	38.0%	38.5%	38.9%	39.3%	39.6%	39.9%	40.1%	40.2%	40.3%	40.4%	40.5%	40.5%	40.5%	40.6%	40.6%	40.6%	40.6%	41.8%
PG-SF	Smart_Tstat	65.4%	66.2%	67.1%	68.0%	68.9%	69.8%	70.6%	71.3%	71.9%	72.3%	72.7%	72.9%	73.1%	73.3%	73.4%	73.5%	73.6%	73.6%	73.6%	73.6%	73.7%	75.9%
PG-SF	DHW_Conservation	61.9%	62.7%	63.5%	64.4%	65.2%	66.1%	66.8%	67.5%	68.0%	68.4%	68.8%	69.0%	69.2%	69.4%	69.5%	69.6%	69.6%	69.7%	69.7%	69.7%	69.7%	71.8%
PG-SF	Light_Controls	31.4%	31.7%	32.2%	32.6%	33.1%	33.5%	33.9%	34.2%	34.5%	34.7%	34.8%	35.0%	35.1%	35.2%	35.2%	35.2%	35.3%	35.3%	35.3%	35.3%	35.3%	36.4%
PG-SF	Smart_Powerstrip	32.3%	32.7%	33.2%	33.6%	34.1%	34.5%	34.9%	35.2%	35.5%	35.8%	35.9%	36.1%	36.2%	36.2%	36.3%	36.3%	36.4%	36.4%	36.4%	36.4%	36.4%	37.5%
PG-SF	Housefan	23.9%	24.2%	24.5%	24.9%	25.2%	25.5%	25.8%	26.1%	26.3%	26.5%	26.6%	26.7%	26.8%	26.8%	26.9%	26.9%	26.9%	26.9%	26.9%	27.0%	27.0%	27.8%
PG-MF	Cooling	43.6%	44.3%	45.1%	45.9%	46.7%	47.4%	48.1%	48.7%	49.2%	49.6%	49.9%	50.1%	50.3%	50.4%	50.5%	50.6%	50.7%	50.7%	50.7%	50.7%	50.8%	52.7%
PG-MF	Heating	48.0%	48.7%	49.6%	50.4%	51.3%	52.2%	52.9%	53.6%	54.1%	54.5%	54.9%	55.1%	55.3%	55.5%	55.6%	55.6%	55.7%	55.7%	55.8%	55.8%	55.8%	57.9%
PG-MF	DHW	44.7%	45.4%	46.2%	47.0%	47.9%	48.6%	49.3%	49.9%	50.4%	50.8%	51.2%	51.4%	51.6%	51.7%	51.8%	51.9%	51.9%	52.0%	52.0%	52.0%	52.0%	54.0%
PG-MF	Lighting	55.5%	56.3%	57.3%	58.3%	59.3%	60.3%	61.2%	61.9%	62.5%	63.0%	63.4%	63.7%	63.9%	64.1%	64.2%	64.3%	64.4%	64.4%	64.5%	64.5%	64.5%	66.9%
PG-MF	ExemptLighting	53.9%	54.7%	55.6%	56.6%	57.6%	58.5%	59.4%	60.1%	60.7%	61.2%	61.6%	61.9%	62.1%	62.3%	62.4%	62.5%	62.5%	62.6%	62.6%	62.6%	62.7%	65.0%
PG-MF	Cooking	33.5%	34.0%	34.6%	35.2%	35.8%	36.4%	36.9%	37.4%	37.7%	38.0%	38.3%	38.5%	38.6%	38.7%	38.8%	38.8%	38.9%	38.9%	38.9%	38.9%	38.9%	40.4%
PG-MF	Fridge	43.7%	44.4%	45.2%	46.0%	46.8%	47.5%	48.2%	48.8%	49.3%	49.7%	50.0%	50.2%	50.4%	50.6%	50.6%	50.7%	50.8%	50.8%	50.8%	50.9%	50.9%	52.8%
PG-MF	OtherAppliance	37.3%	37.8%	38.5%	39.2%	39.9%	40.5%	41.1%	41.6%	42.0%	42.4%	42.6%	42.8%	43.0%	43.1%	43.2%	43.2%	43.3%	43.3%	43.3%	43.3%	43.4%	45.0%
PG-MF	Electronics	34.2%	34.8%	35.4%	36.0%	36.6%	37.2%	37.8%	38.2%	38.6%	38.9%	39.2%	39.3%	39.5%	39.6%	39.7%	39.7%	39.8%	39.8%	39.8%	39.8%	39.8%	41.3%
PG-MF	Pump	26.4%	26.8%	27.3%	27.8%	28.3%	28.7%	29.2%	29.5%	29.8%	30.0%	30.2%	30.4%	30.5%	30.6%	30.6%	30.7%	30.7%	30.7%	30.7%	30.7%	30.8%	31.9%
PG-MF	ResWx	37.6%	38.2%	38.9%	39.6%	40.2%	40.9%	41.5%	42.0%	42.4%	42.8%	43.0%	43.2%	43.4%	43.5%	43.6%	43.6%	43.7%	43.7%	43.7%	43.8%	43.8%	45.4%
PG-MF	Duct_Seal/Ins	46.6%	47.3%	48.1%	49.0%	49.8%	50.6%	51.4%	52.0%	52.5%	52.9%	53.3%	53.5%	53.7%	53.8%	53.9%	54.0%	54.1%	54.1%	54.1%	54.2%	54.2%	56.2%
PG-MF	Windows	40.5%	41.1%	41.8%	42.6%	43.3%	44.0%	44.7%	45.2%	45.7%	46.0%	46.3%	46.5%	46.7%	46.8%	46.9%	47.0%	47.0%	47.1%	47.1%	47.1%	47.1%	48.9%
PG-MF	HVAC_Maint	38.2%	38.8%	39.4%	40.1%	40.8%	41.5%	42.1%	42.6%	43.0%	43.4%	43.6%	43.8%	44.0%	44.1%	44.2%	44.3%	44.3%	44.3%	44.4%	44.4%	44.4%	46.1%
PG-MF	Smart_Tstat	52.0%	52.8%	53.7%	54.6%	55.6%	56.5%	57.3%	58.0%	58.6%	59.1%	59.4%	59.7%	59.9%	60.1%	60.2%	60.3%	60.3%	60.4%	60.4%	60.4%	60.5%	62.7%
PG-MF	DHW_Conservation	40.6%	41.2%	41.9%	42.7%	43.4%	44.1%	44.7%	45.3%	45.7%	46.1%	46.4%	46.6%	46.8%	46.9%	47.0%	47.1%	47.1%	47.1%	47.2%	47.2%	47.2%	49.0%
PG-MF	Light_Controls	47.8%	48.6%	49.4%	50.3%	51.1%	52.0%	52.7%	53.4%	53.9%	54.3%	54.7%	54.9%	55.1%	55.3%	55.4%	55.4%	55.5%	55.5%	55.6%	55.6%	55.6%	57.7%
PG-MF	Smart_Powerstrip	37.6%	38.2%	38.8%	39.5%	40.2%	40.9%	41.5%	42.0%	42.4%	42.7%	43.0%	43.2%	43.3%	43.5%	43.5%	43.6%	43.6%	43.7%	43.7%	43.7%	43.7%	45.4%
PG-MF	Housefan	23.2%	23.5%	23.9%	24.3%	24.8%	25.2%	25.5%	25.9%	26.1%	26.3%	26.5%	26.6%	26.7%	26.8%	26.8%	26.9%	26.9%	26.9%	26.9%	26.9%	26.9%	28.0%
PG-SFLI	Cooling	27.8%	28.5%	29.3%	30.2%	31.0%	31.8%	32.6%	33.2%	33.7%	34.1%	34.5%	34.7%	34.9%	35.0%	35.1%	35.2%	35.3%	35.3%	35.3%	35.4%	35.4%	37.4%
PG-SFLI	Heating	56.9%	58.4%	60.0%	61.8%	63.5%	65.2%	66.7%	68.0%	69.0%	69.9%	70.6%	71.1%	71.5%	71.7%	72.0%	72.1%	72.2%	72.3%	72.4%	72.4%	72.4%	76.6%
PG-SFLI	DHW	41.8%	42.9%	44.1%	45.4%	46.7%	47.9%	49.0%	49.9%	50.7%	51.3%	51.8%	52.2%	52.5%	52.7%	52.9%	53.0%	53.0%	53.1%	53.2%	53.2%	53.2%	56.3%
PG-SFLI	Lighting	80.7%	82.8%	85.2%	87.7%	90.1%	92.5%	94.6%	96.4%	97.9%	99.1%	100.1%	100.8%	101.4%	101.8%	102.1%	102.3%	102.4%	102.6%	102.6%	102.7%	102.8%	91.5%
PG-SFLI	ExemptLighting	78.4%	80.4%	82.7%	85.1%	87.5%	89.8%	91.8%	93.6%	95.1%	96.3%	97.2%	97.9%	98.4%	98.8%	99.1%	99.3%	99.5%	99.6%	99.7%	99.7%	99.8%	91.5%
PG-SFLI	Cooking	30.6%	31.4%	32.3%	33.3%	34.2%	35.1%	35.9%	36.6%	37.2%	37.6%	38.0%	38.3%	38.5%	38.6%	38.7%	38.8%	38.9%	38.9%	39.0%	39.0%	39.0%	41.2%
PG-SFLI	Fridge	40.4%	41.5%	42.6%	43.9%	45.1%	46.3%	47.3%	48.3%	49.0%	49.6%	50.1%	50.5%	50.7%	50.9%	51.1%	51.2%	51.3%	51.3%	51.4%	51.4%	51.4%	54.4%
PG-SFLI	OtherAppliance	33.1%	34.0%	34.9%	36.0%	37.0%	37.9%	38.8%	39.6%	40.2%	40.7%	41.1%	41.4%	41.6%	41.7%	41.9%	42.0%	42.0%	42.1%	42.1%	42.1%	42.2%	44.6%
PG-SFLI	Electronics	36.4%	37.3%	38.4%	39.5%	40.6%	41.7%	42.6%	43.4%	44.1%	44.7%	45.1%	45.4%	45.7%	45.8%	46.0%	46.1%	46.1%	46.2%	46.2%	46.3%	46.3%	48.9%
PG-SFLI	Pump	31.7%	32.5%	33.5%	34.4%	35.4%	36.3%	37.2%	37.9%	38.5%	38.9%	39.3%	39.6%	39.8%	40.0%	40.1%	40.2%	40.2%	40.3%	40.3%	40.3%	40.4%	42.7%
PG-SFLI	ResWx	54.4%	55.8%	57.4%	59.1%	60.8%	62.4%	63.8%	65.0%	66.0%	66.8%	67.5%	68.0%	68.3%	68.6%	68.8%	69.0%	69.1%	69.2%	69.2%	69.3%	69.3%	73.3%
PG-SFLI	Duct_Seal/Ins	53.5%	54.9%	56.4%	58.1%	59.7%	61.3%	62.7%	63.9%	64.9%	65.7%	66.3%	66.8%	67.1%	67.4%	67.6%	67.7%	67.9%	67.9%	68.0%	68.0%	68.1%	72.0%
PG-SFLI	Windows	48.6%	49.8%	51.2%	52.7%	54.2%	55.6%	56.9%	58.0%	58.9%	59.6%	60.2%	60.7%	61.0%	61.2%	61.4%	61.5%	61.6%	61.7%	61.8%	61.8%	61.8%	65.4%
PG-SFLI	HVAC_Maint	31.1%	31.9%	32.8%	33.8%	34.8%	35.7%	36.5%	37.2%	37.8%	38.2%	38.6%	38.9%	39.1%	39.2%	39.4%	39.4%	39.5%	39.5%	39.6%	39.6%	39.6%	41.9%
PG-SFLI	Smart_Tstat	59.3%	60.8%	62.5%	64.4%	66.2%	67.9%	69.5%	70.8%	71.9%	72.8%	73.5%	74.0%	74.4%	74.7%	74.9%	75.1%	75.2%	75.3%	75.4%	75.4%	75.5%	79.8%
PG-SFLI	DHW_Conservation	56.1%	57.6%	59.2%	60.9%	62.6%	64.3%	65.8%	67.0%	68.1%	68.9%	69.6%	70.1%	70.5%	70.7%	70.9%	71.1%	71.2%	71.3%	71.4%	71.4%	71.4%	75.5%
PG-SFLI	Light_Controls	27.1%	27.8%	28.6%	29.4%	30.2%	31.0%	31.7%	32.3%	32.9%	33.3%	33.6%	33.8%	34.0%	34.1%	34.2%	34.3%	34.4%	34.4%	34.4%	34.5%	34.5%	36.5%
PG-SFLI	Smart_Powerstrip	34.3%	35.2%	36.2%	37.2%	38.3%	39.3%	40.2%	41.0%	41.6%	42.1%	42.5%	42.8%	43.1%	43.2%	43.4%	43.5%	43.5%	43.6%	43.6%	43.6%	43.7%	46.2%
PG-SFLI	Housefan	25.4%	26.1%	26.8%	27.6%	28.4%	29.1%	29.8%	30.3%	30.8%	31.2%	31.5%	31.7%	31.9%	32.0%	32.1%	32.2%	32.2%	32.3%	32.3%	32.3%	32.3%	34.2%
PG-MFLI	Cooling	19.2%	19.6%	20.0%	20.4%	20.8%	21.1%	21.5%	21.8%	22.0%	22.2%	22.4%	22.5%	22.6%	22.6%	22.7%	22.7%	22.7%	22.8%	22.8%	22.8%	22.8%	23.7%
PG-MFLI	Heating	36.8%	37.5%	38.2%	39.0%	39.7%	40.5%	41.1%	41.7%	42.2%	42.5%	42.8%	43.0%	43.2%	43.3%	43.4%	43.5%	43.5%	43.6%	43.6%	43.6%	43.6%	45.5%
PG-MFLI	DHW	28.9%	29.5%	30.0%	30.6%	31.2%	31.8%	32.3%	32.7%	33.1%	33.4%	33.6%	33.8%	33.9%	34.0%	34.1%	34.2%	34.2%	34.2%	34.3%	34.3%	34.3%	35.7%
PG-MFLI	Lighting	55.9%	56.9%	58.0%	59.1%	60.3%	61.4%	62.4%	63.2%	63.9%	64.5%	65.0%	65.3%	65.6%	65.7%	65.9%	66.0%	66.1%	66.1%	66.2%	66.2%	66.2%	69.0%
PG-MFLI	ExemptLighting	54.3%	55.2%	56.3%	57.4%	58.5%	59.6%	60.6%	61.4%	62.1%	62.6%	63.1%	63.4%	63.7%	63.8%	64.0%	64.1%	64.1%	64.2%	64.2%	64.3%	64.3%	67.0%
PG-MFLI	Cooking	27.8%	28.3%	28.9%	29.5%	30.0%	30.6%	31.1%	31.5%	31.9%	32.1%	32.4%	32.5%	32.7%	32.8%	32.8%	32.9%	32.9%	32.9%	33.0%	33.0%	33.0%	34.4%
PG-MFLI	Fridge	36.1%	36.7%	37.4%	38.2%	38.9%	39.6%	40.3%	40.8%	41.3%	41.7%	41.9%	42.2%	42.3%	42.4%	42.5%	42.6%	42.6%	42.7%	42.7%	42.7%	42.7%	44.5%
PG-MFLI	OtherAppliance	31.0%	31.6%	32.2%	32.8%	33.4%	34.1%	34.6%	35.1%	35.5%	35.8%	36.0%	36.2%	36.4%	36.5%	36.5%	36.6%	36.6%	36.7%	36.7%	36.7%	36.7%	38.3%
PG-MFLI	Electronics	34.5%	35.1%	35.8%	36.5%	37.3%	37.9%	38.5%	39.1%	39.5%	39.9%	40.1%	40.3%	40.5%	40.6%	40.7%	40.8%	40.8%	40.8%	40.9%	40.9%	40.9%	42.6%
PG-MFLI	Pump	26.7%	27.1%	27.7%	28.2%	28.8%	29.3%	29.8%	30.2%	30.5%	30.8%	31.0%	31.1%	31.3%	31.4%	31.4%	31.5%	31.5%	31.5%	31.6%	31.6%	31.6%	32.9%
PG-MFLI	ResWx	46.4%	47.2%	48.1%	49.1%	50.0%	50.9%	51.8%	52.5%	53.1%	53.5%	53.9%	54.2%	54.4%	54.5%	54.7%	54.7%	54.8%	54.9%	54.9%	54.9%	54.9%	57.2%

Segment	Base Rate	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	MAP
PG-MFLI	Duct_Seal/Ins	57.4%	58.4%	59.5%	60.7%	61.9%	63.1%	64.1%	64.9%	65.7%	66.3%	66.7%	67.1%	67.3%	67.5%	67.7%	67.8%	67.8%	67.9%	67.9%	68.0%	68.0%	70.8%
PG-MFLI	Windows	49.9%	50.8%	51.8%	52.8%	53.9%	54.8%	55.7%	56.5%	57.1%	57.6%	58.0%	58.3%	58.6%	58.7%	58.8%	58.9%	59.0%	59.1%	59.1%	59.1%	59.1%	61.6%
PG-MFLI	HVAC_Maint	31.3%	31.9%	32.5%	33.1%	33.8%	34.4%	34.9%	35.4%	35.8%	36.1%	36.4%	36.6%	36.7%	36.8%	36.9%	36.9%	37.0%	37.0%	37.0%	37.1%	37.1%	38.6%
PG-MFLI	Smart_Tstat	64.0%	65.2%	66.4%	67.8%	69.1%	70.3%	71.5%	72.5%	73.3%	73.9%	74.4%	74.8%	75.1%	75.3%	75.5%	75.6%	75.7%	75.8%	75.8%	75.8%	75.9%	79.0%
PG-MFLI	DHW_Conservation	50.0%	50.9%	51.9%	52.9%	53.9%	54.9%	55.8%	56.6%	57.2%	57.7%	58.1%	58.4%	58.6%	58.8%	58.9%	59.0%	59.1%	59.1%	59.2%	59.2%	59.2%	61.7%
PG-MFLI	Light_Controls	39.2%	39.9%	40.7%	41.5%	42.3%	43.1%	43.8%	44.4%	44.9%	45.3%	45.6%	45.8%	46.0%	46.1%	46.2%	46.3%	46.3%	46.4%	46.4%	46.4%	46.5%	48.4%
PG-MFLI	Smart_Powerstrip	37.9%	38.6%	39.3%	40.1%	40.9%	41.6%	42.3%	42.9%	43.3%	43.7%	44.0%	44.3%	44.4%	44.6%	44.7%	44.7%	44.8%	44.8%	44.8%	44.9%	44.9%	46.7%
PG-MFLI	Housefan	23.4%	23.8%	24.2%	24.7%	25.2%	25.7%	26.1%	26.4%	26.7%	27.0%	27.1%	27.3%	27.4%	27.5%	27.5%	27.6%	27.6%	27.6%	27.6%	27.7%	27.7%	28.8%
NSG (SF)	Cooling	57.1%	58.2%	59.4%	60.7%	62.0%	63.2%	64.2%	65.2%	65.9%	66.6%	67.0%	67.4%	67.7%	67.9%	68.1%	68.2%	68.2%	68.3%	68.3%	68.4%	68.4%	71.4%
NSG (SF)	Heating	62.8%	64.0%	65.3%	66.7%	68.1%	69.4%	70.6%	71.6%	72.5%	73.2%	73.7%	74.1%	74.4%	74.6%	74.8%	74.9%	75.0%	75.1%	75.1%	75.2%	75.2%	78.5%
NSG (SF)	DHW	58.6%	59.7%	60.9%	62.2%	63.5%	64.7%	65.9%	66.8%	67.6%	68.2%	68.7%	69.1%	69.4%	69.6%	69.8%	69.9%	70.0%	70.0%	70.1%	70.1%	70.1%	73.2%
NSG (SF)	Lighting	72.6%	74.0%	75.5%	77.1%	78.7%	80.3%	81.6%	82.8%	83.8%	84.6%	85.2%	85.7%	86.0%	86.3%	86.5%	86.6%	86.7%	86.8%	86.9%	86.9%	86.9%	90.8%
NSG (SF)	ExemptLighting	70.5%	71.9%	73.3%	74.9%	76.5%	77.9%	79.3%	80.4%	81.4%	82.1%	82.7%	83.2%	83.5%	83.8%	84.0%	84.1%	84.2%	84.3%	84.4%	84.4%	84.4%	88.1%
NSG (SF)	Cooking	36.0%	36.7%	37.4%	38.2%	39.0%	39.8%	40.4%	41.0%	41.5%	41.9%	42.2%	42.4%	42.6%	42.7%	42.8%	42.9%	43.0%	43.0%	43.0%	43.1%	43.1%	45.0%
NSG (SF)	Fridge	51.3%	52.3%	53.3%	54.5%	55.6%	56.7%	57.6%	58.5%	59.2%	59.7%	60.2%	60.5%	60.8%	60.9%	61.1%	61.2%	61.2%	61.3%	61.3%	61.4%	61.4%	64.1%
NSG (SF)	OtherAppliance	38.9%	39.6%	40.4%	41.3%	42.2%	43.0%	43.7%	44.4%	44.9%	45.3%	45.6%	45.9%	46.1%	46.2%	46.3%	46.4%	46.5%	46.5%	46.5%	46.5%	46.6%	48.6%
NSG (SF)	Electronics	32.7%	33.3%	34.0%	34.7%	35.5%	36.1%	36.8%	37.3%	37.7%	38.1%	38.4%	38.6%	38.7%	38.9%	38.9%	39.0%	39.1%	39.1%	39.1%	39.1%	39.1%	40.9%
NSG (SF)	Pump	30.7%	31.3%	32.0%	32.6%	33.3%	34.0%	34.5%	35.0%	35.5%	35.8%	36.0%	36.2%	36.4%	36.5%	36.6%	36.7%	36.7%	36.7%	36.8%	36.8%	36.8%	38.4%
NSG (SF)	ResWx	55.6%	56.6%	57.8%	59.0%	60.2%	61.4%	62.4%	63.4%	64.1%	64.7%	65.2%	65.5%	65.8%	66.0%	66.2%	66.3%	66.3%	66.4%	66.4%	66.5%	66.5%	69.4%
NSG (SF)	Duct_Seal/Ins	54.6%	55.6%	56.8%	58.0%	59.2%	60.3%	61.3%	62.2%	63.0%	63.6%	64.0%	64.4%	64.6%	64.8%	65.0%	65.1%	65.2%	65.2%	65.3%	65.3%	65.3%	68.2%
NSG (SF)	Windows	49.6%	50.5%	51.6%	52.6%	53.7%	54.8%	55.7%	56.5%	57.2%	57.7%	58.2%	58.5%	58.7%	58.9%	59.0%	59.1%	59.2%	59.3%	59.3%	59.3%	59.3%	62.0%
NSG (SF)	HVAC_Maint	28.5%	29.0%	29.6%	30.3%	30.9%	31.5%	32.0%	32.5%	32.9%	33.2%	33.4%	33.6%	33.7%	33.9%	33.9%	34.0%	34.0%	34.1%	34.1%	34.1%	34.1%	35.6%
NSG (SF)	Smart_Tstat	60.5%	61.6%	62.9%	64.3%	65.6%	66.9%	68.0%	69.0%	69.8%	70.5%	71.0%	71.4%	71.7%	71.9%	72.0%	72.2%	72.3%	72.3%	72.4%	72.4%	72.4%	75.6%
NSG (SF)	DHW_Conservation	57.3%	58.4%	59.6%	60.8%	62.1%	63.3%	64.4%	65.3%	66.1%	66.7%	67.2%	67.6%	67.8%	68.0%	68.2%	68.3%	68.4%	68.5%	68.5%	68.5%	68.6%	71.6%
NSG (SF)	Light_Controls	32.3%	32.9%	33.5%	34.3%	35.0%	35.7%	36.3%	36.8%	37.2%	37.6%	37.8%	38.1%	38.2%	38.3%	38.4%	38.5%	38.5%	38.6%	38.6%	38.6%	38.6%	40.3%
NSG (SF)	Smart_Powerstrip	33.3%	33.9%	34.6%	35.3%	36.1%	36.8%	37.4%	37.9%	38.4%	38.7%	39.0%	39.2%	39.4%	39.5%	39.6%	39.7%	39.7%	39.8%	39.8%	39.8%	39.8%	41.6%
NSG (SF)	Housefan	24.6%	25.1%	25.6%	26.1%	26.7%	27.2%	27.7%	28.1%	28.4%	28.7%	28.9%	29.0%	29.2%	29.3%	29.3%	29.4%	29.4%	29.4%	29.4%	29.5%	29.5%	30.8%

Size Category	Base Rate	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	MAP
Small C&I	Cooking Equipment	42.4%	42.5%	42.5%	42.5%	42.6%	42.7%	42.9%	43.3%	43.9%	44.9%	46.4%	48.3%	50.3%	52.1%	53.5%	54.4%	55.0%	55.3%	55.5%	55.6%	55.7%	66.3%
Small C&I	DHW	32.2%	32.3%	32.4%	32.6%	33.0%	33.5%	34.2%	35.3%	36.5%	37.9%	39.2%	40.2%	40.9%	41.4%	41.7%	41.9%	42.1%	42.1%	42.2%	42.2%	42.2%	50.2%
Small C&I	Electronics	34.8%	34.9%	35.0%	35.2%	35.6%	36.2%	37.0%	38.1%	39.5%	40.9%	42.3%	43.4%	44.2%	44.7%	45.1%	45.3%	45.4%	45.5%	45.6%	45.6%	45.6%	54.2%
Small C&I	Furnace/Boiler	31.3%	31.4%	31.5%	31.7%	32.0%	32.6%	33.3%	34.3%	35.5%	36.9%	38.1%	39.1%	39.8%	40.3%	40.6%	40.8%	40.9%	41.0%	41.0%	41.0%	41.0%	48.8%
Small C&I	HVAC Cooling	35.2%	35.3%	35.4%	35.6%	36.0%	36.6%	37.4%	38.5%	39.9%	41.4%	42.8%	43.9%	44.7%	45.3%	45.6%	45.8%	46.0%	46.0%	46.1%	46.1%	46.1%	54.8%
Small C&I	Lighting-Gen	37.0%	37.8%	38.6%	39.5%	40.3%	41.2%	41.9%	42.5%	43.1%	43.5%	43.8%	44.1%	44.3%	44.4%	44.5%	44.6%	44.7%	44.7%	44.7%	44.8%	44.8%	53.2%
Small C&I	Lighting-HID	47.9%	48.9%	49.9%	51.0%	52.2%	53.2%	54.2%	55.0%	55.7%	56.3%	56.7%	57.1%	57.3%	57.5%	57.6%	57.7%	57.8%	57.9%	57.9%	57.9%	57.9%	68.9%
Small C&I	Pumps/Motors/Drives EQ	38.8%	38.9%	39.1%	39.3%	39.7%	40.3%	41.3%	42.5%	44.0%	45.7%	47.2%	48.4%	49.3%	49.9%	50.3%	50.5%	50.7%	50.8%	50.8%	50.9%	50.9%	60.5%
Small C&I	Refrigeration	26.6%	26.6%	26.7%	26.9%	27.2%	27.6%	28.2%	29.1%	30.1%	31.2%	32.3%	33.1%	33.7%	34.1%	34.4%	34.6%	34.7%	34.7%	34.8%	34.8%	34.8%	41.3%
Small C&I	RTU/Chiller	31.3%	31.4%	31.5%	31.7%	32.0%	32.6%	33.3%	34.3%	35.5%	36.9%	38.1%	39.1%	39.8%	40.3%	40.6%	40.8%	40.9%	41.0%	41.0%	41.0%	41.0%	48.8%
Small C&I	Add / Upgrade Insulation	42.0%	42.1%	42.3%	42.5%	43.0%	43.6%	44.6%	46.0%	47.6%	49.4%	51.0%	52.4%	53.3%	54.0%	54.4%	54.7%	54.8%	54.9%	55.0%	55.0%	55.0%	65.4%
Small C&I	Chiller Fans	31.7%	31.8%	31.9%	32.1%	32.4%	32.9%	33.7%	34.7%	35.9%	37.3%	38.5%	39.5%	40.2%	40.7%	41.0%	41.2%	41.3%	41.4%	41.5%	41.5%	41.5%	49.3%
Small C&I	DHW conservation	30.7%	30.7%	30.9%	31.0%	31.4%	31.9%	32.6%	33.6%	34.8%	36.1%	37.3%	38.2%	38.9%	39.4%	39.7%	39.9%	40.0%	40.1%	40.1%	40.2%	40.2%	47.7%
Small C&I	Duct Sealing/Insulation	42.0%	42.1%	42.3%	42.5%	43.0%	43.6%	44.6%	46.0%	47.6%	49.4%	51.0%	52.4%	53.3%	54.0%	54.4%	54.7%	54.8%	54.9%	55.0%	55.0%	55.0%	65.4%
Small C&I	EE Windows	42.0%	42.1%	42.3%	42.5%	43.0%	43.6%	44.6%	46.0%	47.6%	49.4%	51.0%	52.4%	53.3%	54.0%	54.4%	54.7%	54.8%	54.9%	55.0%	55.0%	55.0%	65.4%
Small C&I	HVAC controls	30.5%	30.5%	30.7%	30.8%	31.2%	31.6%	32.4%	33.3%	34.5%	35.8%	37.0%	38.0%	38.7%	39.2%	39.5%	39.6%	39.8%	39.8%	39.9%	39.9%	39.9%	47.4%
Small C&I	HVAC Maintenance	28.0%	28.0%	28.1%	28.3%	28.6%	29.1%	29.7%	30.6%	31.7%	32.9%	34.0%	34.9%	35.5%	36.0%	36.2%	36.4%	36.5%	36.6%	36.6%	36.6%	36.6%	43.5%
Small C&I	HVAC motors/pumps	30.9%	30.9%	31.0%	31.2%	31.6%	32.1%	32.8%	33.8%	35.0%	36.3%	37.5%	38.5%	39.2%	39.7%	40.0%	40.2%	40.3%	40.3%	40.4%	40.4%	40.4%	48.0%
Small C&I	Energy Management	31.9%	31.9%	32.1%	32.3%	32.6%	33.1%	33.9%	34.9%	36.1%	37.5%	38.7%	39.7%	40.5%	41.0%	41.3%	41.5%	41.6%	41.7%	41.7%	41.7%	41.7%	49.6%
Small C&I	Lighting Controls	35.0%	35.0%	35.2%	35.4%	35.7%	36.3%	37.1%	38.3%	39.6%	41.1%	42.5%	43.6%	44.4%	44.9%	45.3%	45.5%	45.6%	45.7%	45.7%	45.8%	45.8%	54.4%
Small C&I	Motors/Drives	38.8%	38.9%	39.1%	39.3%	39.7%	40.3%	41.3%	42.5%	44.0%	45.7%	47.2%	48.4%	49.3%	49.9%	50.3%	50.5%	50.7%	50.8%	50.8%	50.9%	50.9%	60.5%
Small C&I	Pool Pump Timer	39.9%	39.9%	40.1%	40.4%	40.8%	41.4%	42.3%	43.6%	45.2%	46.9%	48.4%	49.7%	50.6%	51.2%	51.6%	51.9%	52.0%	52.1%	52.2%	52.2%	52.2%	62.0%
Small C&I	Pre-rinse Spray Valves	31.1%	31.1%	31.2%	31.4%	31.8%	32.3%	33.0%	34.0%	35.2%	36.5%	37.7%	38.7%	39.4%	39.9%	40.2%	40.4%	40.5%	40.6%	40.6%	40.7%	40.7%	48.3%
Small C&I	Thermostat	44.6%	44.7%	44.8%	45.1%	45.6%	46.3%	47.3%	48.8%	50.5%	52.4%	54.1%	55.6%	56.6%	57.3%	57.7%	58.0%	58.2%	58.3%	58.3%	58.3%	58.4%	69.4%
Small C&I	Pumps/Motors/Drives NEM	44.8%	44.9%	45.1%	45.4%	45.9%	46.6%	47.6%	49.1%	50.8%	52.7%	54.5%	55.9%	56.9%	57.6%	58.1%	58.3%	58.5%	58.6%	58.7%	58.7%	58.7%	69.8%
Large C&I	Cooking Equipment	42.4%	42.5%	42.5%	42.5%	42.6%	42.7%	42.9%	43.3%	43.9%	44.9%	46.4%	48.3%	50.3%	52.1%	53.5%	54.4%	55.0%	55.3%	55.5%	55.6%	55.7%	66.3%
Large C&I	DHW	52.2%	52.4%	52.6%	52.9%	53.4%	54.3%	55.5%	57.2%	59.2%	61.4%	63.5%	65.1%	66.3%	67.1%	67.7%	68.0%	68.2%	68.3%	68.4%	68.4%	68.4%	81.3%
Large C&I	Electronics	34.8%	34.9%	35.0%	35.2%	35.6%	36.2%	37.0%	38.1%	39.5%	40.9%	42.3%	43.4%	44.2%	44.7%	45.1%	45.3%	45.4%	45.5%	45.6%	45.6%	45.6%	54.2%
Large C&I	Furnace/Boiler	47.5%	47.7%	47.8%	48.1%	48.6%	49.4%	50.5%	52.0%	53.9%	55.9%	57.8%	59.3%	60.4%	61.1%	61.6%	61.9%	62.1%	62.2%	62.2%	62.3%	62.3%	74.0%
Large C&I	HVAC Cooling	53.4%	53.5%	53.7%	54.1%	54.6%	55.5%	56.8%	58.5%	60.6%	62.8%	64.9%	66.6%	67.8%	68.7%	69.2%	69.5%	69.7%	69.8%	69.9%	70.0%	70.0%	83.2%
Large C&I	Lighting-Gen	71.1%	72.5%	74.1%	75.8%	77.4%	79.0%	80.5%	81.7%	82.7%	83.5%	84.2%	84.7%	85.0%	85.3%	85.5%	85.7%	85.8%	85.9%	85.9%	86.0%	86.0%	90.0%
Large C&I	Lighting-HID	47.9%	48.9%	49.9%	51.0%	52.2%	53.2%	54.2%	55.0%	55.7%	56.3%	56.7%	57.1%	57.3%	57.5%	57.6%	57.7%	57.8%	57.9%	57.9%	57.9%	57.9%	68.9%
Large C&I	Pumps/Motors/Drives EQ	38.8%	38.9%	39.1%	39.3%	39.7%	40.3%	41.3%	42.5%	44.0%	45.7%	47.2%	48.4%	49.3%	49.9%	50.3%	50.5%	50.7%	50.8%	50.8%	50.9%	50.9%	60.5%
Large C&I	Refrigeration	47.0%	47.1%	47.3%	47.6%	48.1%	48.8%	49.9%	51.4%	53.3%	55.3%	57.1%	58.6%	59.7%	60.4%	60.9%	61.1%	61.3%	61.4%	61.5%	61.5%	61.5%	73.1%
Large C&I	RTU/Chiller	47.5%	47.7%	47.8%	48.1%	48.6%	49.4%	50.5%	52.0%	53.9%	55.9%	57.8%	59.3%	60.4%	61.1%	61.6%	61.9%	62.1%	62.2%	62.2%	62.3%	62.3%	74.0%
Large C&I	Add / Upgrade Insulation	42.0%	42.1%	42.3%	42.5%	43.0%	43.6%	44.6%	46.0%	47.6%	49.4%	51.0%	52.4%	53.3%	54.0%	54.4%	54.7%	54.8%	54.9%	55.0%	55.0%	55.0%	65.4%
Large C&I	Chiller Fans	55.8%	55.9%	56.1%	56.4%	57.0%	57.9%	59.2%	61.0%	63.2%	65.6%	67.7%	69.5%	70.8%	71.7%	72.2%	72.6%	72.8%	72.9%	73.0%	73.0%	73.0%	86.8%
Large C&I	DHW conservation	58.9%	59.0%	59.2%	59.6%	60.2%	61.2%	62.6%	64.5%	66.8%	69.2%	71.5%	73.4%	74.8%	75.7%	76.3%	76.6%	76.8%	77.0%	77.0%	77.1%	77.1%	90.0%
Large C&I	Duct Sealing/Insulation	42.0%	42.1%	42.3%	42.5%	43.0%	43.6%	44.6%	46.0%	47.6%	49.4%	51.0%	52.4%	53.3%	54.0%	54.4%	54.7%	54.8%	54.9%	55.0%	55.0%	55.0%	65.4%
Large C&I	EE Windows	42.0%	42.1%	42.3%	42.5%	43.0%	43.6%	44.6%	46.0%	47.6%	49.4%	51.0%	52.4%	53.3%	54.0%	54.4%	54.7%	54.8%	54.9%	55.0%	55.0%	55.0%	65.4%
Large C&I	HVAC controls	53.6%	53.7%	53.9%	54.3%	54.8%	55.7%	57.0%	58.7%	60.8%	63.1%	65.1%	66.8%	68.1%	68.9%	69.5%	69.8%	70.0%	70.1%	70.2%	70.2%	70.2%	83.5%
Large C&I	HVAC Maintenance	49.2%	49.3%	49.5%	49.8%	50.3%	51.1%	52.3%	53.9%	55.8%	57.9%	59.8%	61.4%	62.5%	63.3%	63.8%	64.1%	64.2%	64.4%	64.4%	64.5%	64.5%	76.6%
Large C&I	HVAC motors/pumps	46.8%	46.9%	47.1%	47.4%	47.9%	48.6%	49.7%	51.3%	53.1%	55.1%	56.9%	58.4%	59.5%	60.2%	60.6%	60.9%	61.1%	61.2%	61.3%	61.3%	61.3%	72.9%
Large C&I	Energy Management	31.9%	31.9%	32.1%	32.3%	32.6%	33.1%	33.9%	34.9%	36.1%	37.5%	38.7%	39.7%	40.5%	41.0%	41.3%	41.5%	41.6%	41.7%	41.7%	41.7%	41.7%	49.6%
Large C&I	Lighting Controls	56.7%	56.8%	57.0%	57.4%	57.9%	58.8%	60.2%	62.0%	64.2%	66.6%	68.8%	70.6%	71.9%	72.8%	73.4%	73.7%	73.9%	74.1%	74.1%	74.2%	74.2%	88.2%
Large C&I	Motors/Drives	38.8%	38.9%	39.1%	39.3%	39.7%	40.3%	41.3%	42.5%	44.0%	45.7%	47.2%	48.4%	49.3%	49.9%	50.3%	50.5%	50.7%	50.8%	50.8%	50.9%	50.9%	60.5%
Large C&I	Pool Pump Timer	39.9%	39.9%	40.1%	40.4%	40.8%	41.4%	42.3%	43.6%	45.2%	46.9%	48.4%	49.7%	50.6%	51.2%	51.6%	51.9%	52.0%	52.1%	52.2%	52.2%	52.2%	62.0%
Large C&I	Pre-rinse Spray Valves	59.6%	59.8%	60.0%	60.4%	61.0%	61.9%	63.4%	65.3%	67.6%	70.1%	72.4%	74.3%	75.7%	76.6%	77.2%	77.6%	77.8%	78.0%	78.0%	78.1%	78.1%	90.0%
Large C&I	Thermostat	44.6%	44.7%	44.8%	45.1%	45.6%	46.3%	47.3%	48.8%	50.5%	52.4%	54.1%	55.6%	56.6%	57.3%	57.7%	58.0%	58.2%	58.3%	58.3%	58.3%	58.4%	69.4%
Large C&I	Pumps/Motors/Drives NEM	44.8%	44.9%	45.1%	45.4%	45.9%	46.6%	47.6%	49.1%	50.8%	52.7%	54.5%	55.9%	56.9%	57.6%	58.1%	58.3%	58.5%	58.6%	58.7%	58.7%	58.7%	69.8%

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