



Natural Gas Efficiency Programs Report

2021 & 2022 Program Year

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October 2024

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Executive Summary

In 2024, the American Gas Association (AGA) and the Consortium for Energy Efficiency (CEE) conducted a survey of their U.S. and Canadian members to assess the status and metrics of ratepayer-funded natural gas efficiency and low-income weatherization programs for the 2021 and 2022 program years. The survey included utility and third-party program administrators, and while it maintained consistency with previous years' questions, it expanded to incorporate data on 2021 expenditures and 2022 budgets to enhance response rates. The report defines "natural gas efficiency program" as encompassing a range of activities aimed at optimizing energy usage, including low-income weatherization and direct and indirect impact measures. With 87 organizations participating, the survey gathered insights on program expenditures, energy savings and future budgets, though variability in responses means direct comparisons with prior years are limited. Detailed methodology is provided in the report's Methodology and Survey Sample section, as well as footnotes throughout.

The 2021 and 2022 data on natural gas utility efficiency programs in North America reveal significant growth and diversification. In 2022 there were 83 such programs, with the U.S. accounting for 79 programs and Canada maintaining four. The expansion reflects both increased participation and a broader range of program offerings, although these numbers might not fully capture all available programs.

- 93% of natural gas energy efficiency programs have been operational for more than 10 years, 27% of programs have been operational for more than two decades.
- 60% of the budget for 2023 was for financial incentives for customers to adopt and implement energy efficiency measures.
- In 2022, natural gas efficiency programs saved 336 million therms of energy, roughly 1.7 million metric tons of avoided CO₂ emissions and 424,000 cars removed from the road for one year.
- In 2022, utilities in North America spent \$1.51 billion on energy efficiency programs, a 37% increase from 2021.

Program Longevity and Participation

Most programs are well-established, with 93% operational for more than a decade and 27% for at least 20 years. Newer programs are relatively few, with only five initiated in the past decade. Participation data shows considerable growth from 2021 to 2022, particularly in the residential sector, which saw an addition of more than 1.1 million customers. Enrollment figures vary widely across program types, with median participant numbers ranging from 45 to 3.1 million for residential programs, and from 1 to 41,000 for commercial and industrial programs.

Program Components and Spending

Efficiency programs encompass various activities including direct impact measures (e.g., equipment upgrades, retrofits) and indirect impact activities (e.g., education outreach). Weatherization remains a common component, especially in low-income and single-family residential programs. Despite the prevalence of efficiency measures, training and certification for contractors lag. Financial incentives dominate 2023 expenditures, comprising 60% of the budget, while administrative and marketing costs account for 33%.

Program Energy Savings

In 2022, U.S. utilities achieved substantial energy savings through natural gas efficiency programs, totaling 336 million therms, equivalent to 1.7 million metric tons of avoided CO₂ emissions. This reduction in emissions is comparable to removing approximately 424,000 cars from the road for a year. The Western U.S. led in gross savings with 12 million therms, while Canada contributed 23% of total savings despite lower relative spending. The Northeast region had the highest efficiency expenditure, yielding significant savings and emissions reductions. Commercial programs were responsible for 24% of North American savings, with residential and industrial programs contributing 41% and 18%, respectively. Data variability and differing reporting methodologies mean these figures are estimates, but they highlight the significant impact of regional efficiency efforts. For detailed breakdowns by state and region, refer to Appendices E and F.

Funding and Expenditures

In 2022, utilities in North America spent \$1.51 billion on these programs, a 37% increase from 2021. Spending was highest in the Northeast U.S., followed by the West and Midwest regions. Utilities budgeted nearly \$1.8 billion for 2023, indicating a continued commitment to efficiency programs.

Regulatory and Financial Mechanisms

A significant proportion of utilities (37%) have explicit greenhouse gas or carbon reduction goals. Cost recovery mechanisms primarily include special tariffs or efficiency riders. There are varying methods for recovering costs across different rate classes, with residential programs being the most commonly supported.

Fuel Switching Incentives

Approximately 29% of respondents offer incentives for fuel switching, promoting the transition to natural gas from other energy sources. These incentives vary by rate class and are often subject to conditions such as efficiency requirements and cost-effectiveness.

Overall, the data highlights a robust and expanding landscape of natural gas efficiency programs with increased participant engagement and funding, though challenges remain in consistency and program implementation.

Introduction

Public awareness of the energy economy has steadily grown beyond the purview of business and policy. Economic, environmental and energy security concerns have become increasingly important drivers of consumer decisions about energy. With this has come heightened attention to the potential for energy efficiency to moderate consumer cost increases, reduce greenhouse gas emissions and enhance energy system reliability and resilience. For natural gas utilities, investing in energy efficiency programs presents an opportunity to achieve these objectives and benefit the communities they serve. Many natural gas utilities across North America have long-performing natural gas efficiency programs. Although natural gas utilities undertake efforts to collaborate with regulators to create new or expanded natural gas efficiency programs, these efforts do not always materialize as the conversation surrounding funding natural gas energy efficiency programs evolves. The analysis and results presented within this report showcase the impact natural gas energy efficiency programs offer to customers, while the accompanying appendices offer detailed metrics regarding energy efficiency expenditures, budgets and greenhouse gas emissions saved. The results outlined within this report show utilities continue to seek to invest in energy efficiency programs that will help customers use less energy, and save on their energy bills, a shared goal of utilities and regulators alike.

The American Gas Association Natural Gas Efficiency Programs Report – 2021 & 2022 Program Years presents a review of ratepayer-funded natural gas efficiency and conservation programs in North America. The report looks retrospectively at the status of the North American natural gas efficiency market in both 2021 and 2022, including data on aggregated expenditures, savings impacts, carbon dioxide emissions reductions and the expected budgets for 2022 and 2023. The duplicative nature of the 2022 data is due to the data collection process. When asked about the 2021 program year, respondents were asked about their 2022 budgets. Additionally, when asked about the 2022 program year, respondents were asked about the 2022 expenditures and 2023 budgets. Survey questions also explore regulatory approaches to advancing the natural gas efficiency market.

This report portrays the extent of this rapidly growing energy market in the United States and Canada and identifies practices and trends in program planning, funding, administration, and evaluation. The findings illustrate how natural gas utilities have worked with their customers to reduce their greenhouse gas emissions footprint, increase cost savings and improve delivered energy services.

The data and findings presented in this report are based on a survey of natural gas utility members of the American Gas Association (AGA) and the Consortium for Energy Efficiency (CEE).¹ The data collection effort has expanded significantly since AGA and CEE began coordinating efficiency data gathering in 2009. By joining efforts, AGA and CEE have reduced the reporting burden for respondents, eliminated duplicative efforts and significantly enlarged the sample pool by extending

¹ An essential contributor to this data-gathering project is the Consortium for Energy Efficiency (CEE). CEE is an award-winning consortium of efficiency program administrators from the United States and Canada. Members work to unify program approaches across jurisdictions to increase the success of efficiency in markets. By joining forces at CEE, individual electric and gas efficiency programs are able to partner not only with each other, but also with other industries, trade associations, and government agencies. Working together, administrators leverage the effect of their ratepayer funding, exchange information on successful practices and by doing so achieve greater energy efficiency for the public good.

the survey to more utilities in the U.S. and Canada and third- party administrators of ratepayer-funded efficiency programs.

The report is based on survey responses that are not audited nor normalized and may elicit different responses based on the unique accounting and regulatory circumstances of each company. However, multiple efforts are taken to confirm the accuracy of responses throughout the data collection and analysis timeframes to confirm ambiguous or incomplete responses. Furthermore, this is a snapshot of a given point in time based on the information available at the time the survey was completed and may not reflect annual results.

AGA would like to thank the members of AGA and CEE in the U.S. and Canada for participating in this critical data-collection effort. It appreciates tremendously the time and effort given by all survey respondents throughout the information gathering process, including extensive clarification and data validation follow up.

Methodology and Survey Sample

In 2024, AGA and CEE surveyed their respective U.S. and Canadian members on the status, characteristics and metrics of their 2021 and 2022 ratepayer-funded natural gas efficiency and low-income weatherization programs.² Respondents include utility and non-utility, or third-party, efficiency program administrators. Although the 2022 program year survey was consistent in questions with prior surveys distributed in years' past, it was expanded to include questions about the 2021 program year. The 2021 program year survey questions were integrated into the 2022 program year survey but condensed to focus on 2021 expenditures and 2022 program year budgets. The decision was made to include the 2021 program year questions within the 2022 program year survey to rise response rate for the 2021 program year data.

In this report, the term “*natural gas efficiency program*” refers to a set of activities designed to promote a cost-effective and prudent approach to energy usage, including low-income single and multi-family home weatherization, indirect impact activities (such as conservation education, energy audits, and contractor certification) and direct impact activities in new and existing buildings and homes (e.g., equipment replacement and Energy Star Homes).

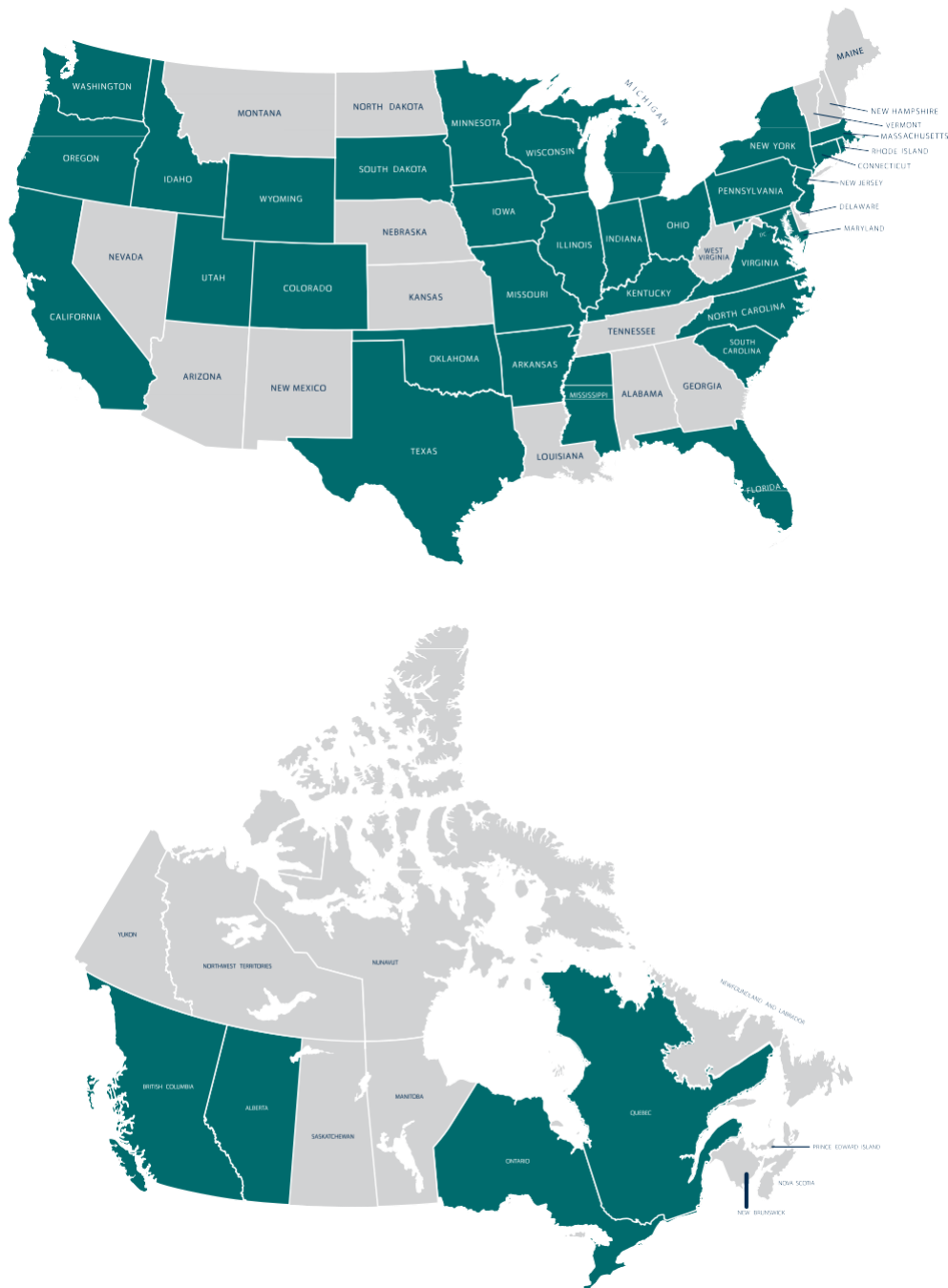
The sample frame consists of 87 member and nonmember organizations identified as large program administrators of AGA and CEE. The survey asked respondents to describe their natural gas efficiency programs, including program expenditures and energy savings, during the 2021 and 2022 calendar years or coinciding program year for which data were available. Also, the surveys collected data on 2022 and 2023 program budgets.

Not all responding parties answered every survey question. Therefore, the response sample varies by item. Because the sample pool is not normalized and varies year to year, this report does not directly compare collected data with prior years data, except for illustrative purposes. Tables and charts generally represent a simple tally of the responses to the survey questionnaire. Report footnotes and section introductions provide additional information regarding methodology.

² Because a number of low-income weatherization programs that are run by state agencies do not participate in this survey, report data tend to understate low-income program expenditures and budgets.

Natural Gas Efficiency Program Characteristics

According to the 2020 program year data, there are at least 74 natural gas utility rate-payer funded efficiency programs in North America – 70 programs in the U.S. and four programs in Canada.³ The number of reported natural gas utility rate-payer funded efficiency programs increased to 83 in 2022 - 79 programs in the U.S. and four in Canada. The year over year change in programs reported illustrates the change in participation and response rate, and therefore may not encompass all natural gas efficiency programs available.



³ In this report, North America refers to the United States and Canada.

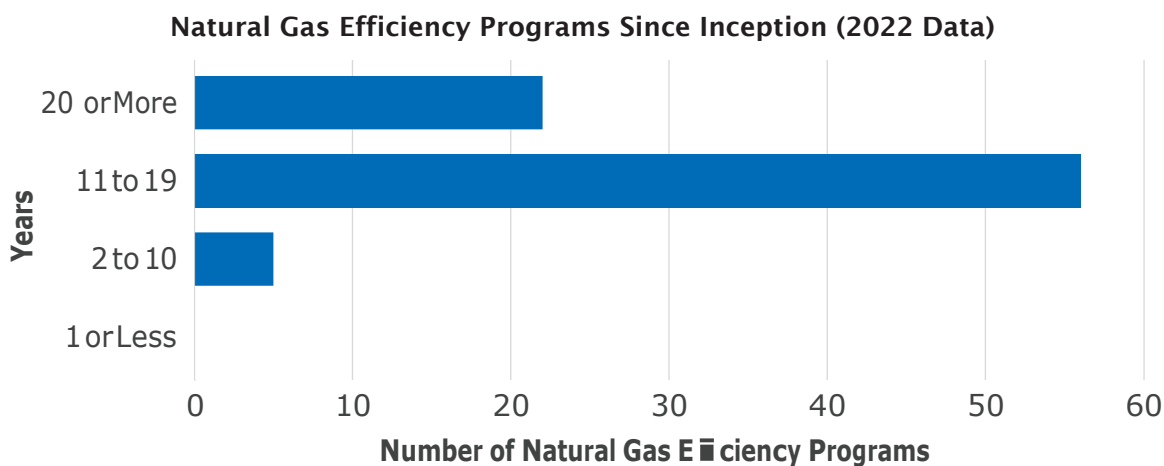
Program Structure and Administration

From this point forward, this report describes the responses of a subset of ratepayer-funded natural gas efficiency programs for which the survey data was obtained. The number of respondents for a particular question is included in the text and tables provided.

While many natural gas efficiency programs have been in place for years, the breadth and depth of programs continue to grow. Programs range from the newly launched to mature programs that span 20 years or more.

For the 2022 program year, 93% of programs have been in place ten years or longer, and 27% have operated for at least 20 years. Only five natural gas efficiency programs were reported to have launched within the last ten years.

Natural Gas Efficiency Programs Since Inception 2022 Data	
83 Programs	
Years in Service	Number of Programs
1 or Less	0
2 to 10	5
11 to 19	56
20 or More	22



Customer Segments and Participants

Participant counts were obtained for both the 2021 and 2022 program years. Some programs track or report participation rates or the number of enrollments. In cases where respondents do not actively monitor participants, some respondents provided estimates. Other programs track the number of paid rebates or grants instead of participating customers. Still, others differ on whether to count online audits, behavioral conservation program reports, home savings evaluations or students participating in school-based education programs. The numbers in the table below reflect these discrepancies, and thus participant figures should be considered as very rough estimates.

Respondents were asked to identify all customer segments in their efficiency programs. For the 2022 program year, 56% (39 of 69 respondents) have multi-family programs, 96% have residential efficiency programs, 90% have combined commercial and industrial and 91% have low income.

During 2021, enrollments in natural gas efficiency programs reached more than 8.2 million residential customers, more than 300 thousand low-income customers, about 24 thousand multi-family customers and more than 137 thousand commercial and industrial customers.

For 2022, natural gas efficiency programs saw increased enrollments with more than 9.4 million residential customers, more than 400 thousand low-income customers, more than 26 thousand multi-family customers and more than 124 thousand commercial and industrial customers.

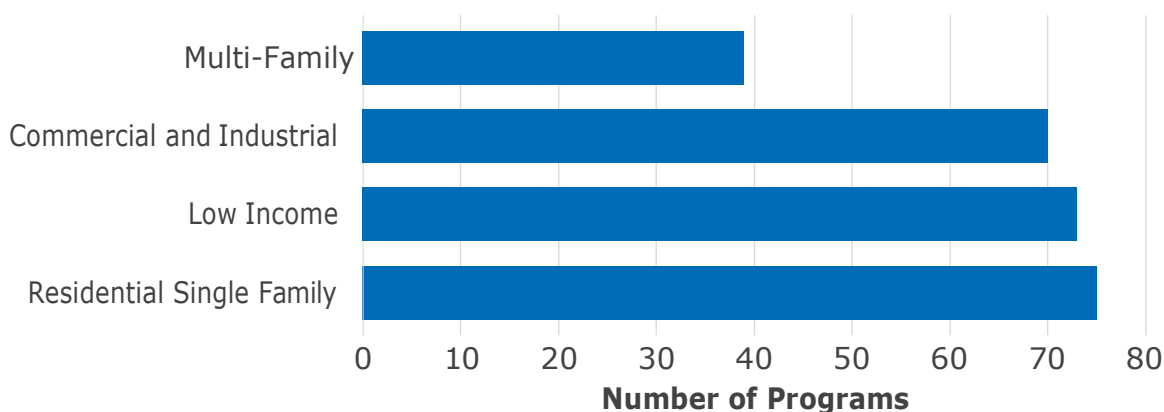
In a few cases, programs had low to no participation in 2021 and 2022 due to late program implementation and the ensuing ramp-up period. The table below shows participant counts for 2021 and 2022 program years.⁴

Program Participants by Customer Segment				
	Residential	Low Income	Multi-Family	Commercial and Industrial
2022 Programs	75	73	39	70
2022 Participants	9,409,751	431,004	26,793	124,974
2021 Programs	N/A	N/A	N/A	N/A
2021 Participants	8,230,712	356,905	24,009	137,076

According to reported counts, the number of participants in each customer segment increased from 2021 to 2022; the largest increase in customer enrollment seen in the residential segment with the addition of more than 1.1 million customers from 2021 to 2022.

Participants per program vary widely during the 2022 program year. The median number of participants for residential programs was 15,621, ranging from as few as 45 to as many as 3.1 million customers. In low-income programs, the median was 542 participants, with a range of one to just over 107,000. Additionally, multi-family program customers ranged from one to 10,000 accounts, with a median of 94 participants. Commercial and industrial programs ranged from one to more than 41,000 accounts, with a median of 206 participants.

2022 Efficiency Programs by Customer Segment



⁴ 'N/A' in table as respondents were not asked about number of programs for the 2021 program year, therefore not reported.

Energy Efficiency Program Activities and Components

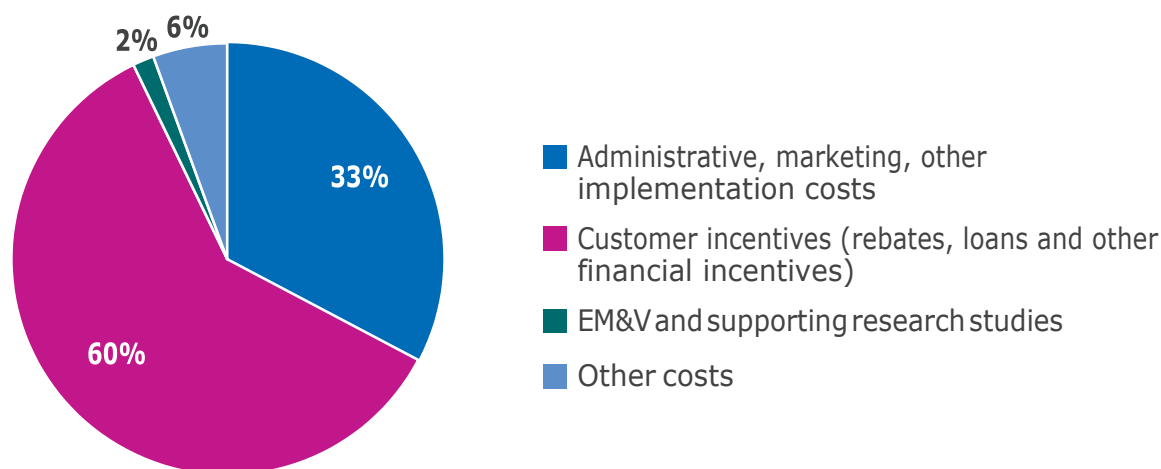
Survey participants were asked to provide a breakout of their 2022 expenditures into four activities, including:

1. Administrative, marketing, other implementation costs
2. Customer incentives (rebates, loans and other financial incentives)
3. Evaluation, measurement and verification (EM&V) and supporting research studies⁵
4. Other costs

Where data were not available by specific activity (such as EM&V), a slight percentage of respondents reported overall spending amounts in the “Other” category. Other costs include but are not limited to equipment, utility oversight, database utilization, education and awareness, performance incentive for sales, technical and training costs, industry dues and ally incentives.

Participants indicated that a majority, 60%, of energy efficiency expenditures were allocated to customer incentives such as rebates, loans and other financial incentives. Incentives being the largest expenditure in 2022 showcases how utilities are striving to ensure customers benefit directly from the programs invested in and implemented throughout their territories. These incentives offer the opportunity for both direct customer savings, as well as avoided greenhouse gas emissions as customers use less energy and more efficient appliances. Moreover, the survey results indicate utilities spent about 33% of their budgets on administration, marketing and other implementation costs in 2022.⁶

2022 Natural Gas Efficiency Program Expenditures by Activity in North America



Survey respondents were also asked to identify the efficiency components they offered in each of the four customer segments for the 2022 program year. Of the reported programs, one or more efficiency activity, as seen in the table below, are offered to each of the four customer segments. At least one of the efficiency activities is offered in 75 programs to the residential single-family segment, 70 programs to the commercial and industrial (C&I) segment, in 73 programs to the residential low-income segment and in 39 programs to the residential multi-family segment.

⁵ Evaluation, Measurement and Verification (EM&V) is the collection of methods and processes used to assess the performance of energy efficiency activities so that planned results can be achieved with greater certainty and future activities can be more effective. According to the U.S. Department of Energy. https://www.energy.gov/sites/prod/files/2014/05/f16/what_is_emv.pdf

⁶ Additional data available in the 2022 Appendix D - Natural Gas Efficiency Program Expenditures by Activity and Region.

A look at specific efficiency activities shows that of indirect impact programs, education outreach is most adopted across segments, particularly in the residential single-family and low-income residential segments, 69 and 65 programs, respectively. Examples of such “indirect impact” education activities include school education programs, brochures and bill inserts.

Also, widely prevalent is direct impact activities in existing homes or buildings. These direct impact activities include equipment replacement and upgrades (e.g., appliances, doors, windows and thermostats), building retrofits, commercial foodservice, process equipment, energy management systems and custom process improvements.

Weatherization is the third most common component of natural gas efficiency programs — offered in 72 of the 73 offered low-income programs and 70% of residential single-family programs. These weatherization activities incorporate building shell insulation and air sealing of ducts and wall cracks.

2022 Utility-Implemented Gas Efficiency Program Activities by Customer Segment				
Energy Efficiency Activities	Residential Single-Family 75 Programs	Residential Multi-Family 39 Programs	Residential Low Income 73 Programs	Commercial & Industrial 70 Programs
Weatherization	53	39	72	N/A
Indirect Impact Programs				
Certification	26	22	24	25
Education	69	49	65	60
Online Tools	48	34	43	42
Technical Assessment	44	35	50	49
Training	35	24	32	42
Direct Impact Programs — Existing Buildings	69	53	70	62
Direct Impact Programs — New Construction/Expansions	45	33	25	44
Other	13	6	7	4

While not as prevalent as existing building retrofit programs, the direct impact new home/building program was implemented in 60% of residential single-family and 62% of C&I programs. Such direct impact activities encompass energy-efficient homes, efficiency design assistance and industrial efficiency.

Many programs also include other types of indirect impact activities, including online tools for energy usage/savings calculators and technical assessments such as on-site energy audits. These indirect impact activities account for 60% and 70% of C&I programs, respectively. Additionally, technical assessments accounted for 68% of residential low-income programs.

Efficiency training and certification (of contractors, installers and building operators) tend to lag compared to other programs. Technical training is provided in 73% of single-family, 60% of commercial/industrial and 44% of low-income programs. Moreover, professional certification is offered in 35% of residential single-family, 33% of low income, 36% of commercial and industrial programs and 56% of multi-family programs.

A relatively small number of respondents, as seen in the table, selected “other” energy efficiency activities, which include school efficiency education (some of which include direct install efficiency kits), natural gas safety inspections and behavioral change programs.

Greenhouse Gas or Carbon Emissions Targets and Credits

For the 2022 program year, respondents were asked whether their state targets greenhouse gas (GHG) or carbon reduction as an explicitly and measurable goal, and 37% (or 29 of 78 respondents) said “yes.” When asked if there are regulator-approved mechanisms for earning credit on GHG-emissions reduction projects such as renewable energy certificates, carbon offset projects, supporting wind farms, or biogas generating plants, 12 responded yes. Moreover, six earning credit in the form of program cost recovery and six respondents earning credit in the form of return on investment.

Similar regulator-approved earnings mechanisms are pending according to five other utilities. When asked whether they had sought regulatory approval for cost recovery or earnings on project investments where GHG emissions reduction is the primary goal, eight of 71 respondents indicated that they had secured regulatory approval, and thirteen companies are exploring such options.

Natural Gas Efficiency Program Funding and Impacts

This section describes utility funding for natural gas efficiency programs in the U.S. and Canada and the resulting annual energy saving impacts. The program year 2022 expenditures correspond to funding by 87 utilities for programs administered either by the utility or by a third party, such as a non-profit public benefit organization or a state agency that runs a statewide program.

The natural gas efficiency program dollars discussed in this report are primarily sourced from ratepayers. Some efficiency program funds originate from other sources, such as non-ratepayer funds, including utility shareholders, for efficiency programming. Non-ratepayer efficiency funds have been excluded to the extent it was able to be separated from the aggregated figures provided from this report or included in the other section of expenditures and budgets. Survey responses indicate the scale of these non-ratepayer funds are very small compared to the ratepayer program dollars dictated in this report. Given that the reporting methodology varies among respondents, expenditure and budget data should be regarded as estimates.⁷

Respondents were asked to categorize their 2022 expenditures and 2023 budgets by customer class and segment. Where data were not available by a specific segment, respondents reported overall spending amounts in the “Other” category. “Other” costs include but are not limited to cross-cutting funds for portfolio-wide activities, education and awareness costs, trade ally incentives, emerging technology management, school outreach and technical assistance. If respondents were unable to categorize spending for specific activities by the customer segment, they placed these dollar amounts under “Other,” as previously mentioned.

Likewise, some respondents were not able to separate low-income program dollars from residential program funds (either overall or for specific activities, such as education and online resources) due to tracking restrictions thus, a small number of low-income program dollars were combined with residential program funds.

Expenditure and budget figures in this section utilize carryover methodology described in the methodology section to account for respondents who were unable to answer the survey in the designated time.

Natural Gas Efficiency Program Expenditures and Funding

In North America (U.S. and Canada), participating utilities spent \$1.51 billion in 2022 on natural gas efficiency programs. Surveyed utilities spent \$1.34 billion and \$167 million in the U.S. and Canada, respectively.⁸ Participating utilities also budgeted nearly \$1.8 billion for the 2023 programs in North America with \$1.5 billion and \$221 million from U.S. and Canada, respectively, as seen in the table below.⁹ Appendix A and B present a breakdown of 2022 expenditures and 2023 budgets by state and region as well.

⁷ Budget data were collected during winter of 2023 and spring of 2024; therefore, any budgetary changes made after this period, such as those due to newly approved programs or funding cuts, are not reflected in this report. Some dollars reported for 2021 represent carry-over of unspent funds from 2020.

⁸ Additional data available in the 2022 Appendix B - Natural Gas Efficiency Program Expenditures and Budgets by Region.

⁹ Subcategories might not add up exactly to reported totals due to rounding.

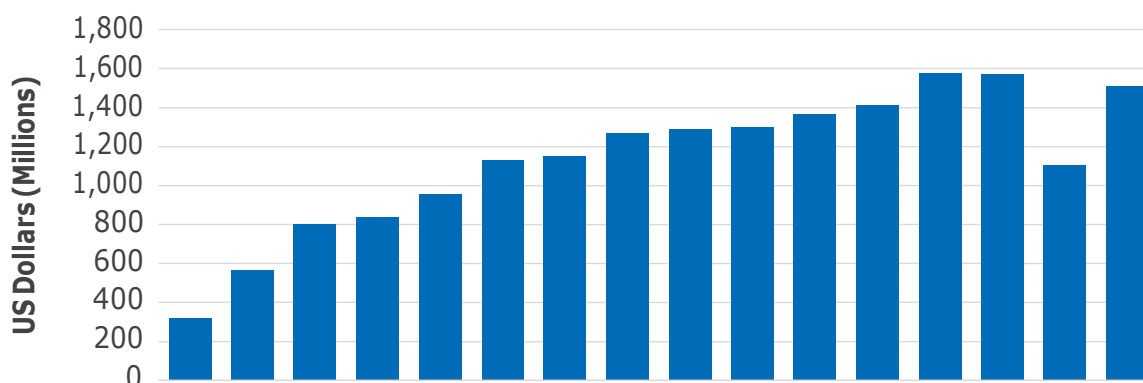
Natural Gas Efficiency Program Expenditures and Budgets by Customer Class						
Customer Segment	2022 Expenditures (\$ Million)			2023 Budgets (\$ Million)		
	The U.S.	Canada	North America	The U.S.	Canada	North America
Residential	\$559.00	\$57.31	\$616.31	\$621.49	\$71.77	\$693.26
Low-Income	\$422.31	\$22.96	\$445.27	\$448.73	\$23.85	\$472.58
Multi-Family	\$32.40	\$-	\$32.40	\$41.54	\$-	\$41.54
Commercial	\$217.67	\$66.76	\$284.43	\$313.01	\$88.85	\$401.86
Industrial	\$14.22	\$14.15	\$28.38	\$36.13	\$17.88	\$54.01
Other	\$94.71	\$6.75	\$101.47	\$86.28	\$19.57	\$105.85
Total	\$1,340.32	\$167.93	\$1,508.25	\$1,547.18	\$221.92	\$1,769.10

Program expenditures in North America increased roughly 37% from 2021 to 2022, rising from \$1.1 billion to \$1.5 billion as outlined in the table below. In North America the low-income segment experienced a 63% increase in spending from 2021 to 2022. In the United States, program expenditures rose a total of 42% with a 40% rise in spending in the single-family residential segment, 54% in the industrial segment and almost 71% in the low-income residential segment.

Customer Segment	2021 Expenditures (\$ Million)			2022 Expenditures (\$ Million)		
	The U.S.	Canada	North America	The U.S.	Canada	North America
Residential	\$397.86	\$49.79	\$447.65	\$559.00	\$57.31	\$616.31
Low-Income	\$247.63	\$25.93	\$273.56	\$422.31	\$22.96	\$445.27
Multi-Family	\$27.41	\$-	\$27.41	\$32.40	\$-	\$32.40
Commercial	\$184.09	\$64.83	\$248.92	\$217.67	\$66.76	\$284.43
Industrial	\$9.27	\$11.78	\$21.05	\$14.22	\$14.15	\$28.38
Other	\$81.34	\$1.98	\$83.32	\$94.71	\$6.75	\$101.47
Total	\$942.68	\$159.22	\$1,101.90	\$1,340.32	\$167.93	\$1,508.25

The figure below presents natural gas efficiency program funds from 2007 through 2022 for the United States. This comparison is intended for illustrative purposes since spending growth cannot be entirely attributed to new and expanded programs but also differences in survey samples from one year to the next.¹⁰

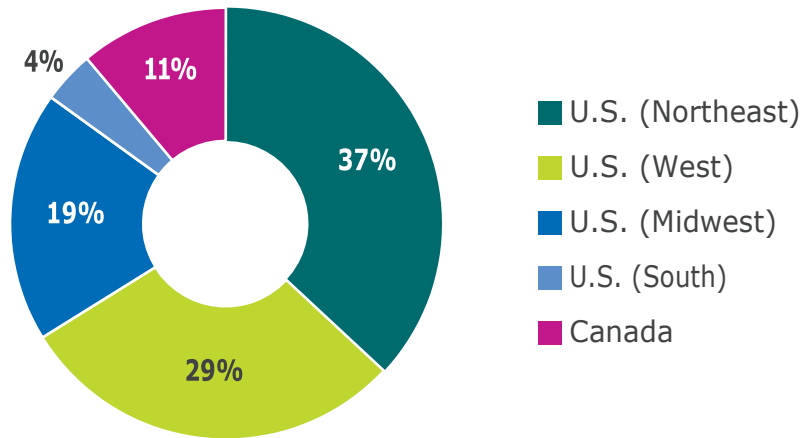
Yearly Natural Gas Efficiency Program Investments United States (Million Dollars)



¹⁰ Additional data available in the 2022 Appendix B - Natural Gas Efficiency Program Expenditures and Budgets by Region.

The regional breakout shows that the Northeast-U.S. region comprised the majority, 37%, of all the of 2022 participant expenditures totaling \$557 million. Additionally, the West-U.S. region accounted for roughly 29% of expenditures at \$440 million, the Midwest- U.S. region comprised of another 19% of all 2022 gas efficiency expenditures totaling more than \$283 million, as seen in the next figure.

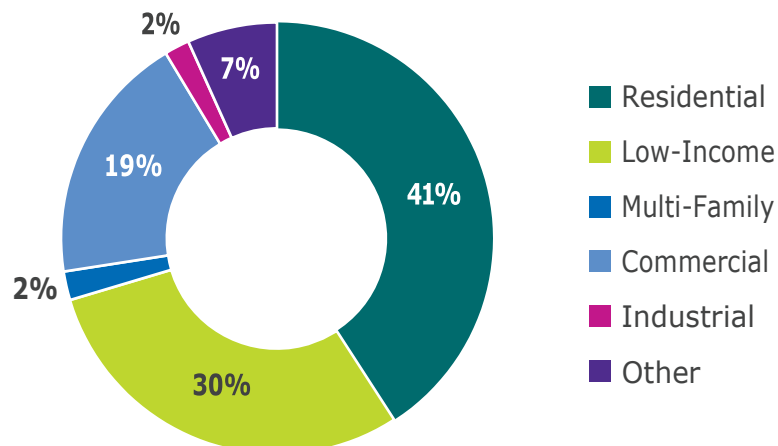
2022 Natural Gas Efficiency Program Expenditures in North America by Region



A look at 2022 natural gas efficiency program expenditures across sectors shows that North American utilities apportioned 41% of funding for residential programs, 30% for low-income residential programs, 19% for commercial, about 2% for separate industrial programs and 7% for other program activities as seen in the figure below.

The “other” category includes expenditures that were not provided by the customer segment. Likewise, in this category are programs that cross-cut residential and non-residential customer segments. These include baseline studies and market research including technology and market trials and pilot programs, planning and project development, consultation and cost-effectiveness analyses, EM&V, market transformation programs, marketing including statewide marketing and special projects such as non- profit kits, non-program specific administration costs (e.g., salaries, transportation, rebate processing), information systems upgrades (including tracking systems), conservation and efficiency education (e.g., school-based, online calculators, community education pilot), efficiency and technology training and regulatory and state oversight expenses (e.g., third- party alternative filings).

2022 Natural Gas Efficiency Program Expenditures in North America by Sector



Natural Gas Efficiency Program Savings

Respondents were asked to report energy savings realized by gas efficiency measures across customer classes during the 2022 program year. Savings includes calendar-year savings from natural gas efficiency measures already in place on the first day of the year (i.e., installed before 2022) as well as incremental savings realized from new measures implemented during the year. Some respondents were limited by how they track and report energy savings and thus did not provide annualized savings as defined above (with pre-existing measures and participation considered) but instead reported only incremental, or first-year therms savings. Where data were not available by segment, some respondents reported overall savings in the “Other” category.

As shown in the table below, participating utilities in the U.S. saved more than 336 million therms or 33.6 trillion Btu through natural gas efficiency programs, the equivalence of 1.7 million metric tons of avoided CO₂ emissions in 2022. For a breakdown of the 2022 estimated savings impacts by state and region, see Appendix E and F.

2022 Natural Gas Efficiency Program Estimated Program Estimated Savings by Impact Customer Segments (Million Therms)			
Sector	United States	Canada	North America
Residential	139.41	6.64	146.05
Low-Income	11.78	1.08	12.86
Multi-Family	4.58	1.34	5.92
Commercial	66.10	20.3	86.40
Industrial	12.13	52.64	64.77
Other	43.24	0.00	43.24
Total	277.24	82.00	359.24

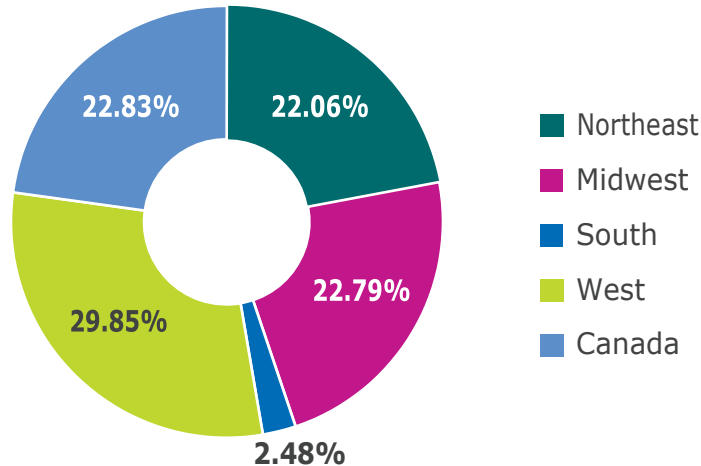
Respondents were also asked for gross impacts as well as net impacts — that is, to exclude free riders, spillover, savings due to government-mandated codes and standards, reduced usage owed to weather or business cycle fluctuations and reduced usage because of natural operations of the marketplace (e.g., higher prices). Many respondents report estimated savings — a set calculation of savings per measure, developed pre-installation, with built-in assumptions regarding free ridership and other specifications.

Some respondents were unable to separate low-income program savings from overall residential program savings, while others combined commercial program savings with residential impacts. Still, others included savings for multi-family programs with C&I program savings. These combined categories represent a tiny percentage of the data. Given that the reporting methodology varied among respondents, natural gas savings data should be regarded as estimates.

As utility program participation varies by region within North America, savings vary as well as seen in the figure below. The Western region of the U.S. accounted for roughly 29% of North American efficiency spending, as seen in the Program Expenditures and Funding section above. However, the Western region had the majority of gross savings totaling 12 million therms (35% of all savings) seen in the next figure. The total savings across all regions of the U.S. accounted for decreasing emissions by 1.7 million metric tons of CO₂, equivalent to keeping about 424 thousand cars off the road for one year.

Canada accounted for 11% of regional energy spending, as seen in the Program Expenditures and Funding section. Nonetheless, it was able to contribute about 23% of the total gross efficiency savings, equating to 82 million therms in 2022, decreasing emissions by 408 million metric tons of CO₂ in 2022. The difference in expenditures and savings depends on the type of programs and activities that are being implemented as different measures yield various savings depending on technology, region, weather, etc.

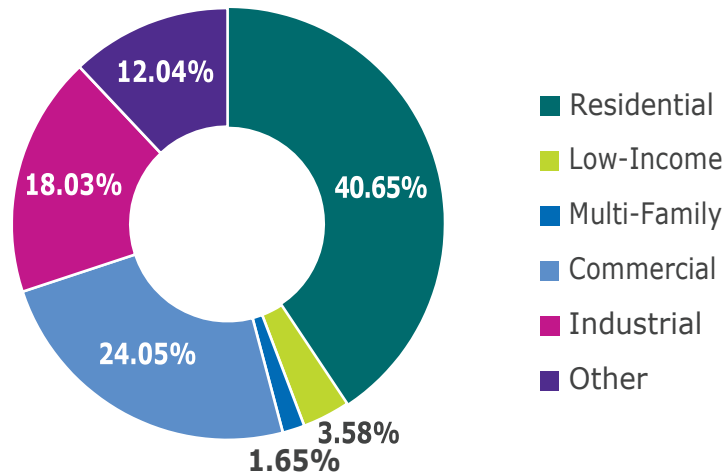
2022 Natural Gas Efficiency Program Gross Energy Savings by Regions



The Northeast spent the most on efficiency programs in 2022 and saved 79 thousand therms, curbing 418 thousand metric tons of CO₂, equivalent to keeping about 100 thousand cars off the road for a year or covering the energy usage for more than 55 thousand homes for a year.

Commercial programs contributed to 24% of energy savings in North America during 2022. Residential programs accounted for 41%, industrial 18% and low-income activities 4%. Twelve percent is classified as “other,” representing data not allocable by customer class and including estimated savings for education, general outreach, codes and standards and pilot programs, as previously mentioned.

2022 Natural Gas Efficiency Program Gross Energy Savings in North America



Natural Gas Efficiency Program Planning and Evaluation

EM&V Expenditures and Budgets

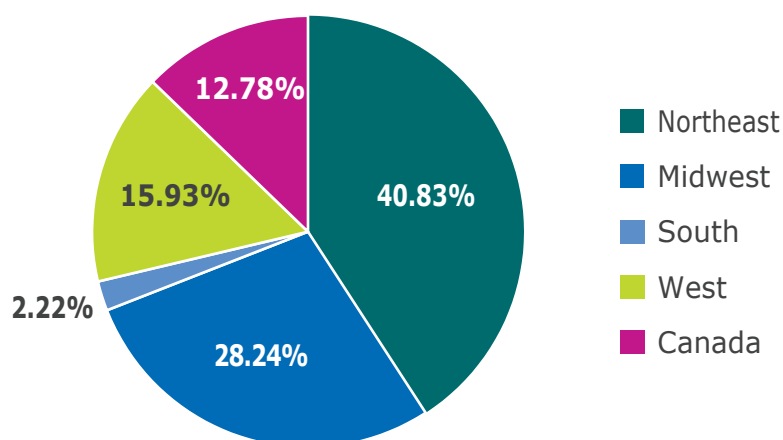
Survey respondents were asked to describe their approach to natural gas efficiency program planning, measurement and evaluation for the 2022 program year.

More than half of the respondents (66%) indicated that they have some form of Evaluation, measurement and verification (EM&V) program. However, not all participants were able to report EM&V expenditures for one of the following reasons:

- EM&V funds form part of the administrative budget
- In-house evaluations are covered under other program expenses
- Incremental costs are not itemized
- No evaluation report is due this program year
- Contract negotiations with third-party EM&V vendors are ongoing

EM&V expenditures exceeded \$24 million in North America in 2022, of which \$20.1 million came from the U.S, and \$3 million came from Canada.¹¹

2022 Natural Gas Efficiency Program EM&V and Supporting Research Studies Expenditures in the United States



Tracking Greenhouse Gas Emissions and Source Energy as a Measure

Thirty-five percent of respondents (26 of 75) indicated that a reduction of greenhouse gas (GHG) or carbon emissions is a performance target for their 2022 natural gas efficiency programs. Additionally, when asked about their program goals and targets, 32 utilities indicated that reducing greenhouse gas emissions / direct impact on avoided emissions as part of a state requirement by the program provider versus 25 utilities indicating that it was due to a regulator goal. Eighteen utilities indicated that the goal was a policy target in enabling legislation.

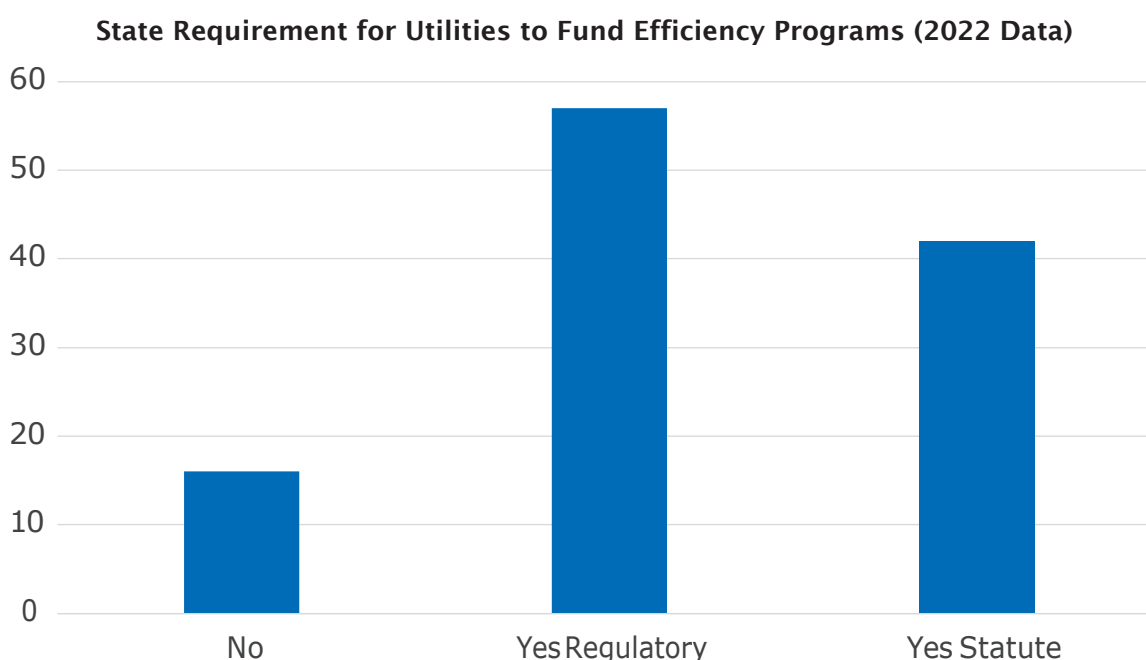
¹¹ Additional data available in the 2022 Appendix D - Natural Gas Efficiency Program Expenditures by Activity and Region.

Natural Gas Efficiency Regulatory Requirements and Cost Recovery Treatment

This section describes some of the regulatory and legislative requirements that govern natural gas efficiency programs in the United States. Types of requirements include state potential studies, efficiency program spending requirements, recovery of direct program costs, lost margin recovery, financial incentives for well-performing programs, carbon offset programs and fuel switching to natural gas. Data was provided for 83 U.S. programs for the 2022 program year, although not all respondents answered all questions.

Natural Gas Efficiency Program Requirements and Policy Goals

Many states mandate utility investment in natural gas efficiency programs through a regulatory order or legislation and utilities may be counted twice if they indicated both. Of the total 81 utilities who responded to this question for the 2022 program year, 68 indicated that the state in which it operates requires the funding of an efficiency program. Fifty-seven respondents indicated a requirement via regulatory order, 42 utilities through a legislative bill and 34 respondents indicated both regulation and legislation.¹²



Various goals drive efficiency program funding requirements within the U.S. and Canada. Utilities that answered “Yes” above filled out specific policy and regulatory goal which have been aggregated in the table below. Utilities were also asked to indicate which goals were program-specific goals. These goals may overlap for utilities but should be considered independent goals for each category in the table.

¹² Many states mandate utility investment in natural gas efficiency programs through a regulatory order or legislation and utilities may be counted twice if they indicated both.

The top five goals of the 2022 program year include energy conservation and savings, behavioral change and direct outreach programs, reduced usage for low-income customers, value-added customer service and options programs and reducing customer bills. Additional policy goals and program breakdown data are provided in the table below.¹³

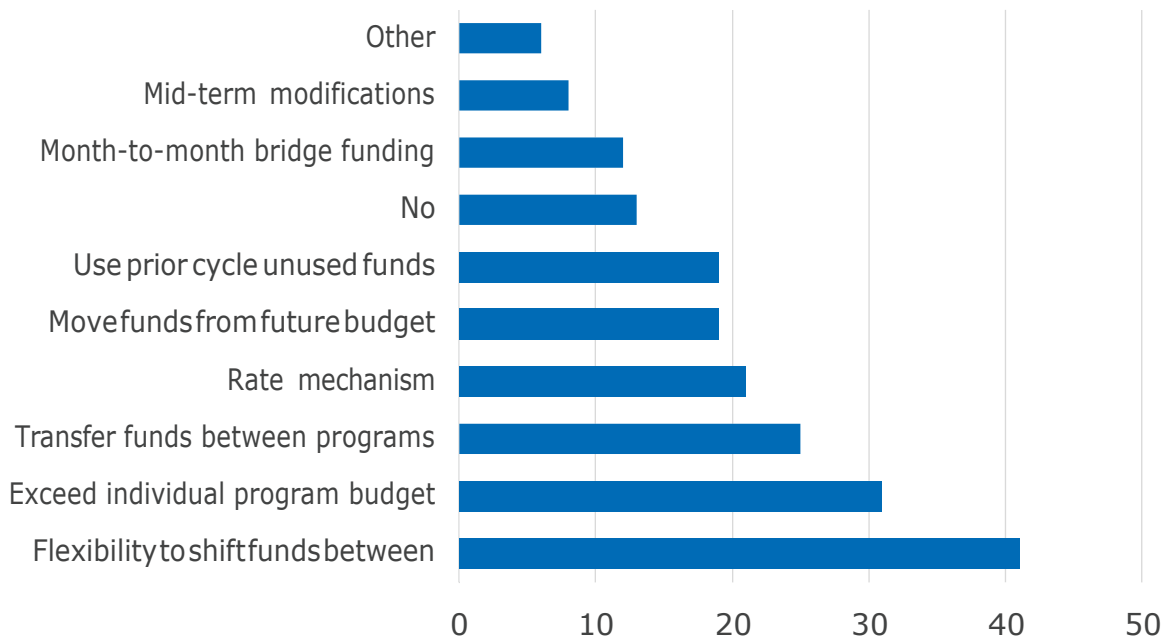
Policy Goals Governing Efficiency Program Implementation Number of Programs by Goal/Target			
2022 Data			
Target/Path	Program Provider Goal	Policy Target in Legislation	Regulator Goal
Minimize Customer Bill Payment Arrears and Utility's Uncollectable Balances	30	9	30
Behavioral Change (Via Education, Training Feedback or Direct Outreach to Customers and Others)	51	15	33
Encourage the Use of Combined Heat and Power	12	6	12
Customer Dollar Savings/ Reduce Customer Bills	48	24	38
Value-Added Customer Service and Options	49	9	21
Economic Development and Job Creation (or Green Jobs)	23	12	22
Meet State Energy Efficient Resource Standards (EERS) or Renewable Portfolio Standards Targets	14	18	22
Meet Electric Demand Side Management Program Targets	13	12	16
Promote Energy Conservation/ Direct Impact on Energy Saving	64	39	49
Reduce Natural Gas Supply and Infrastructure Costs	27	15	28
Reduce Green House Gas Emissions/Direct Impact on Avoided Emissions	32	18	25
Reduce Low-Income Customer's Energy Use and Cost Burden	49	25	44
Improve Safety and Comfort Benefits to Low Income Customers	45	12	30
Reduce Peak/Off-Peak Electric Generation Needs and Electric Infrastructure Costs	15	10	15
Market Transformation (Via Manufacturers, Distributors, Retailers and Consumers of Energy of Energy-Related Projects/Services)	39	16	28
Other	N/A	4	3

Utilities often employ mechanisms to prevent intra-year program funding disruptions. Seventy-one respondents had at least one mechanism in place. Most utilities, 41 participants, had the flexibility to shift funds between programs, while 31 participants were allowed to exceed individual program budgets, provided the portfolio as a whole is cost-effective. Two utilities had all eight mechanisms in place to prevent intra-year program funding disruptions, while 22 utilities had four or more mechanisms in place. The other category included mechanisms such as a 5-25% variance and rebate flexibility with portfolio cost-effectiveness.

Even though some utilities had mechanisms built in to prevent program funding disruptions, interruptions may still occur depending on the severity or type of disruptions, which were metrics that were not collected in this survey. However, implementing mechanisms built in to prevent program funding disruptions can decrease the negative impact that disruptions may have on your program.

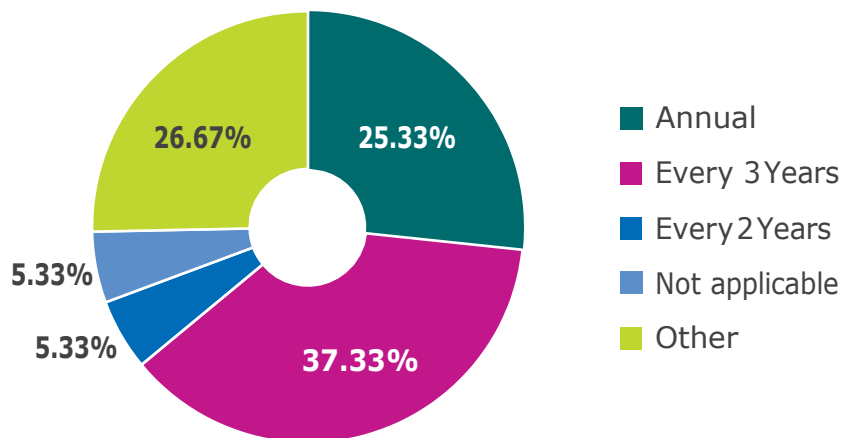
¹³ Utility efficiency goals are governed by program, policy and/or regulatory paths and may be counted multiple times if they indicated various targets.

Built in Mechanisms to Prevent Intra-Year Program Funding Disruptions in the U.S.



When asked “on what basis is your funding approved by your regulator or appropriate legal authority,” for the 2022 program year, 25% (19 out of 75) utilities in the U.S. have their funding approved annually, 37% (28 out of 75) utilities from have their funding approved every three years, 5% (4 out of 75) utilities are approved every two years. Additionally, 27% (20 out of 75) indicated “other” which includes an approval cycle of 4-5 year or sector-specific approval, as seen below.

Regulator or Legal Authority Cycle of Efficiency Funding Approval (2022 Data)



Rate Structures and Regulatory Treatment Aligned with Utility and Energy Efficiency Goals

An investor-owned utility has an intricate accounting and rate-setting methodology to recover its costs. Many resources explain utility accounting and rate design in depth. For this report, a simplified, brief description is provided as background for relaying the policies that have been

progressively adapted to protect utilities from losses associated with energy conservation practices and to incentivize them to invest in energy efficiency programs.

When setting rates, an investor-owned utility negotiates with its regulator (public utility/ service commission) what it is permitted to charge its customers to be able to continue to meet its obligation to serve its customer base. These rates are calculated to match the revenue requirement of the utility, allowing it:

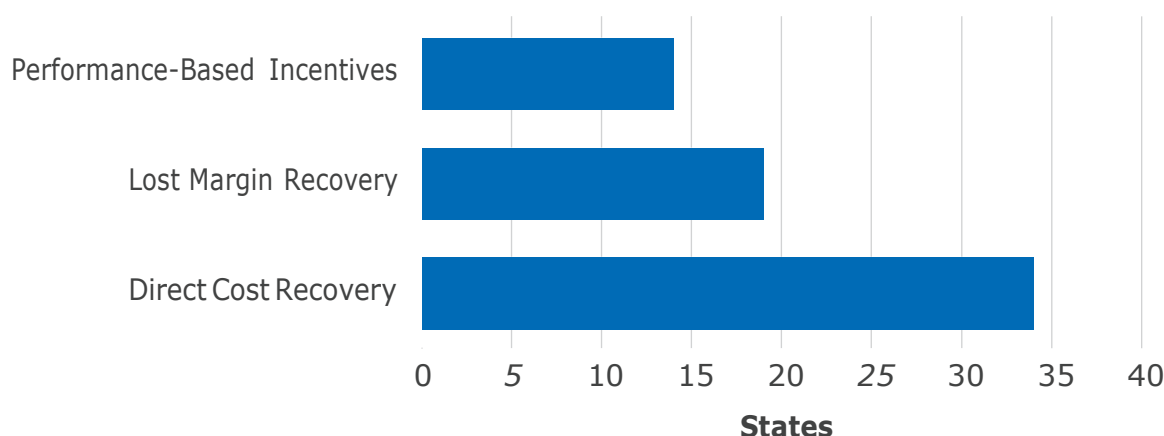
1. to recover its incurred costs — both variable and fixed
2. to pay the interest cost on its capital debts
3. to earn a return for shareholders on investments

The profit margin is approved by the regulator, who sets the rate of return (or percentage) the utility may earn on its equity (a return on equity or ROE). In traditional rate designs, a portion of fixed costs is recovered via a volumetric charge or a price per therm. With this rate structure — because energy consumption varies while infrastructure costs remain fixed in the short term — the utility is at risk of under-recovering its fixed costs should customers reduce their gas consumption. In the long-term, it is thought that reductions in usage should eventually result in reduced natural gas supply capacity requirements and thus decreased capital costs, thereby eventually reducing costs for customers. Also, decreased energy usage that results from successful efficiency program implementation can negatively impact the utility's revenues, furthering the potential disincentive for utilities to promote efficient energy use.

With growing interest in energy conservation and demand-side management, policymakers have increasingly approved mechanisms that allow utilities to recover the direct costs and the margin losses associated with implementing energy efficiency programs. Policymakers have also approved financial rewards to shareholders for investments in energy efficiency programs — quantifying the value of these demand-side programs and treating them similarly to supply-side resource investments (e.g., distribution infrastructure, transportation capacity, underground storage, etc.).

Respondents identified 34 states that allow utilities to recover the direct costs of natural gas efficiency programs, 19 states that permit recovery of lost margins due to efficiency program implementation and 14 states that financially reward utilities for well-performing natural gas efficiency programs as seen below.

Regulatory Treatment for Gas Efficiency Program Direct Costs, Lost Revenues and Based Incentives Number of States (2022 Data)



Recovery of Energy Efficiency Costs

Energy efficiency program costs are divided into two categories in this survey: direct costs and margin costs. Direct costs may be recovered in three ways:

1. Base rates
2. Trackers (e.g., tariff riders, bill surcharges)
3. Deferral accounts

Margin losses (and gains) are adjusted and recovered in one of two ways:

1. Deferred and recovered via base rates (e.g., revenue decoupling, straight fixed variable rates and rate stabilization) *and/or*
2. Margin trackers (e.g., lost revenue adjustment mechanisms or LRAMs).

These mechanisms are discussed in more detail in the following sections.

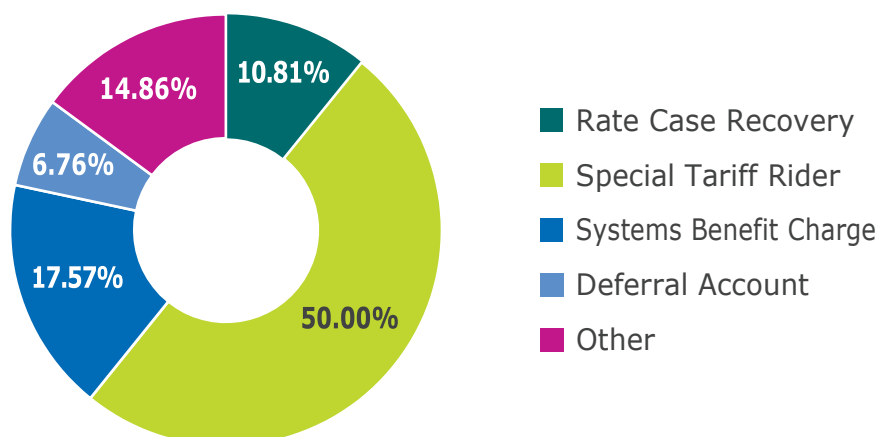
Direct Program Cost Recovery

Direct cost recovery generally allows utilities to pass through efficiency costs to customers in one of three ways:

1. Program costs are treated as expenses that are embedded in base rates (or the charge per therm) in a general rate case.
2. Efficiency program costs are recovered via a separate tariff rider or a surcharge on customer bills (also known as system benefits charge), and the surcharge amount may be adjusted periodically to correct for over or under-recovery of efficiency costs.
3. Program expenditures accrue and are tracked in a balancing account for amortization and later recovery from customers over a period of time.

According to survey respondents, special tariffs or efficiency riders are currently the most common method for recovering program costs, which is consistent with previous years of this survey since 2011. Fifty percent of respondents (37 out of 74) use a special efficiency or conservation tariff rider, 18% (13 out of 74) apply a mandated system benefits (or public goods) surcharge to customer bills and 11% (8 out of 74) embed natural gas efficiency program costs in base rates. Additionally, five utilities track expenditures in a balancing account for amortization and later recovery over a period of time, as seen in the figure below. Fifteen percent (11 out of 74) of companies used “other” methods to recover program costs; which can be a combination of up to 3 recovery mechanisms, a conservation adjustment mechanisms, annual true-up and collection rate adjustments or local distribution adjustment charges.

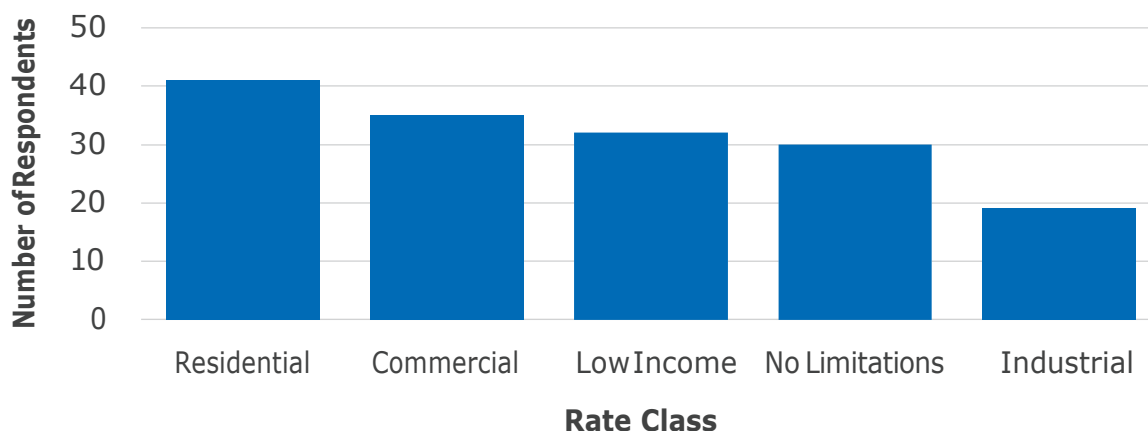
**Regulator-Approved Gas Efficiency Program Recovery Cost Mechanisms —
88 Respondents (2022 Data)**



For some utilities, recovery of energy efficiency programs costs apply only to specific rate classes within their programs. Out of the 88 respondents, 30 respondents didn't have any limitations; however, this was not the case for the other 58 utilities. According to 41 respondents, residential programs had the highest applicability for the recovery of energy efficiency program costs. Commercial and low-income programs with 35 responses and 32 responses, respectively, were second and third most utilized. Industrial programs had 19 utility respondents that could recover energy efficiency program costs through the mechanisms mentioned above.

Of the 73 respondents that can recover their costs, 19 respondents were able to apply cost recovery methods for all four rate classes, eight respondents were able to apply the mechanisms to 3 rate categories and 11 respondents were able to apply recovery methods to two rate classes.

**Recovery of Energy Efficiency Program Costs by Rate Class —
88 Respondents (2022 Data)**



Lost Margin Recovery

Recovery of margin losses and revenue shortfalls due to efficiency program implementation are increasingly allowed in more states, thereby removing the disincentive to invest in natural gas efficiency programs due to falling revenues. For the 2022 program year, thirty-four companies

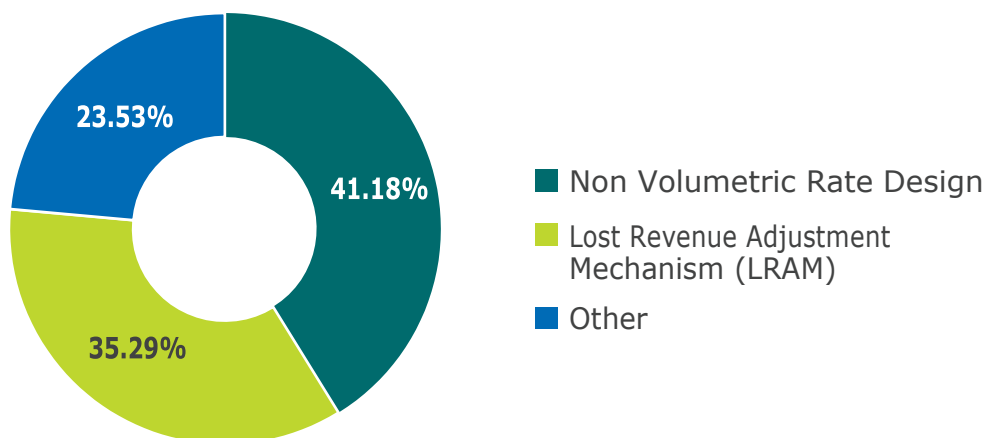
reported having an authorized mechanism for recovering lost margins correlating to efficiency implementation. Forty-four respondents reported, on the other hand, that they are not allowed to recover the revenue losses resulting from implementing efficiency programs. Methods for recovering efficiency-related lost margins vary.

Non-volumetric rate structures form one method of recovering lost margins. With such rate designs, utilities may collect revenues from customers independent of therm usage. Here margin recovery is not applied on a per therm basis but approximates a per-customer basis. These mechanisms include revenue decoupling, straight fixed variable (or SFV) rates and rate stabilized mechanisms.

Lost revenue adjustment mechanism or LRAM is the other method of recovering lost margins. It requires the utility to identify unrecovered margins associated with efficiency programming, track them over a time period and recover them after the fact. In this case, revenues continue to be recovered on a therm usage basis; however, rates are adjusted to correct for under- or over-recovery of margins. This type of margin true-up is also generically referred to as a conservation adjustment mechanism.

As shown in the figure below, of the thirty-four responding utilities that are allowed to recover lost margins in the U.S. and Canada, 14 utilities have a non-volumetric rate design, 12 utilities use a lost revenue adjustment mechanism (LRAM) and eight use another method to recover lost margins.

Approved Mechanism for Recovering Lost Margins (2022 Data)



Revenue decoupling mechanisms have different names, such as conservation enabling tariff, conservation incentive program, conservation margin tracker, conservation rider and so on. Decoupling breaks the link between utility revenues or profits and gas throughput (or delivered volumes). It may be applied to total revenues or on a revenue-per-customer basis. When the recovered revenue varies from the allowed recovery amount, it is trued up via periodic rate adjustments to adjust the under or over-recovery. Revenue variances specific to efficiency may be tracked in a separate balancing or adjustment account and applied to the next rate adjustment. Decoupling takes on different forms:

1. Full revenue decoupling
2. Partial revenue decoupling where only a portion of losses are recovered
3. Revenue decoupling with certain restrictions (see below)

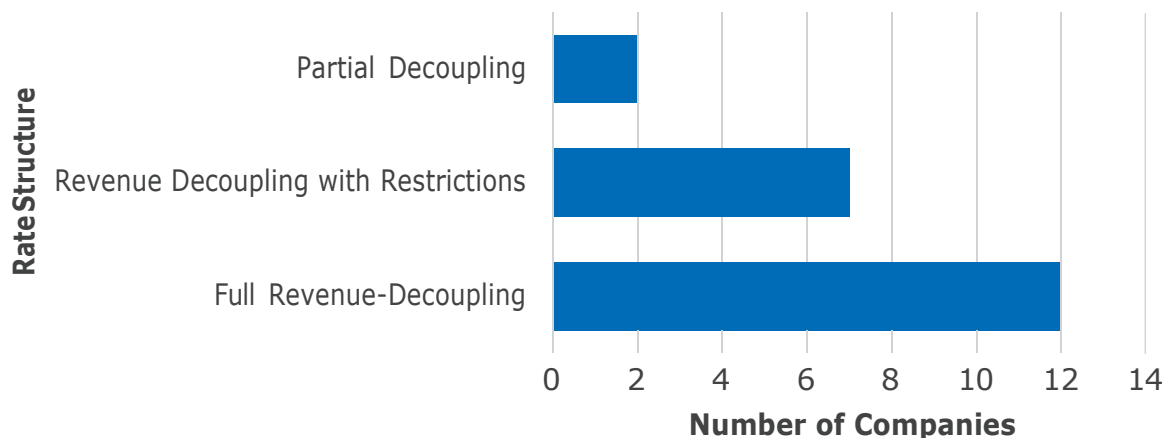
In some cases, the margin shortfall or surplus, specific to efficiency investments, is allowed to accrue in a deferral account, treated as a regulatory asset and the recovery is amortized over a period of time, generally applied to the class of customers benefiting from efficiency savings. Sometimes utilities may charge an annual interest rate on the unamortized balances, thus recovering the carrying cost on the deferred margins.

Partial revenue decoupling limits margin recovery to a specific percentage of revenues or must be equal to the achieved natural gas cost saving. Revenue decoupling with restrictions may involve caps on the authorized return on equity (ROE) or other limits on regulated earnings.

A revenue stabilization mechanism (also known as rate stabilization) is another form of non-volumetric rates, where utility revenues are de-linked from the amount of gas throughput. Rate stabilization combines lost margin recovery and recovery of operating costs within one mechanism. Here rates are adjusted periodically to adjust for variances in returns from the regulator-authorized ROE and utility cost variances since the last rate adjustment.

With straight fixed variable rates, there are no revenue impacts resulting from efficiency programming, because most or all fixed costs are recovered via a non-volumetric charge. The per-customer charge remains stable regardless of consumption variances (approximating a flat monthly fee).

Non-Volumetric Rate Structures in 2022: 23 Natural Gas Utilities (17 States)



Of the 23 utilities in the 17 states that have non-volumetric rate design, 12 (in 13 states) have full revenue decoupling, seven (in five states) have revenue decoupling with restrictions and two (in two states) reported partial revenue decoupling. Straight fixed variable rates, rate stabilization mechanisms and non-specified revenue decoupling were not used by the participants in this survey cycle.

Non-Volumetric Rate Structures in the U.S. 2022: 23 Gas Utilities in 17 States		
Mechanism	Number of Companies	Number of States
Full Revenue-Decoupling	12	13
Revenue Decoupling with Restrictions	7	5
Non-Specified Revenue Decoupling	0	0
Straight Fixed Variable	0	0
Partial Decoupling	2	2
Rate Stabilization Mechanism	0	0

Utility Performance-Based Incentives

Recovery of efficiency program costs and associated lost margins removes the utility's disincentive to promote energy efficiency, thereby making program implementation revenue neutral. To incentivize investor-owned utilities to commit fully to efficiency program improvements and expenditures, regulators have gradually approved more mechanisms that financially reward utilities for making energy efficiency investments. Efficiency performance-based incentives for utilities involve three mechanisms: shared savings, performance target rewards and rate of return incentives.

Shared savings mechanisms reward utilities either for investing in energy efficiency at pre-determined minimum spending levels or for making cost-effective efficiency investments. Financial incentives are calculated as a percentage of efficiency spending or as a percentage of the achieved net system benefits (the difference between efficiency costs and energy savings or other economic benefits). Awards are often capped at a specified dollar amount regardless of the rate applied to spend levels or net benefits. Commonly, investors and ratepayers share the savings. In some cases, penalties are applied when programs fail to meet the minimum threshold.

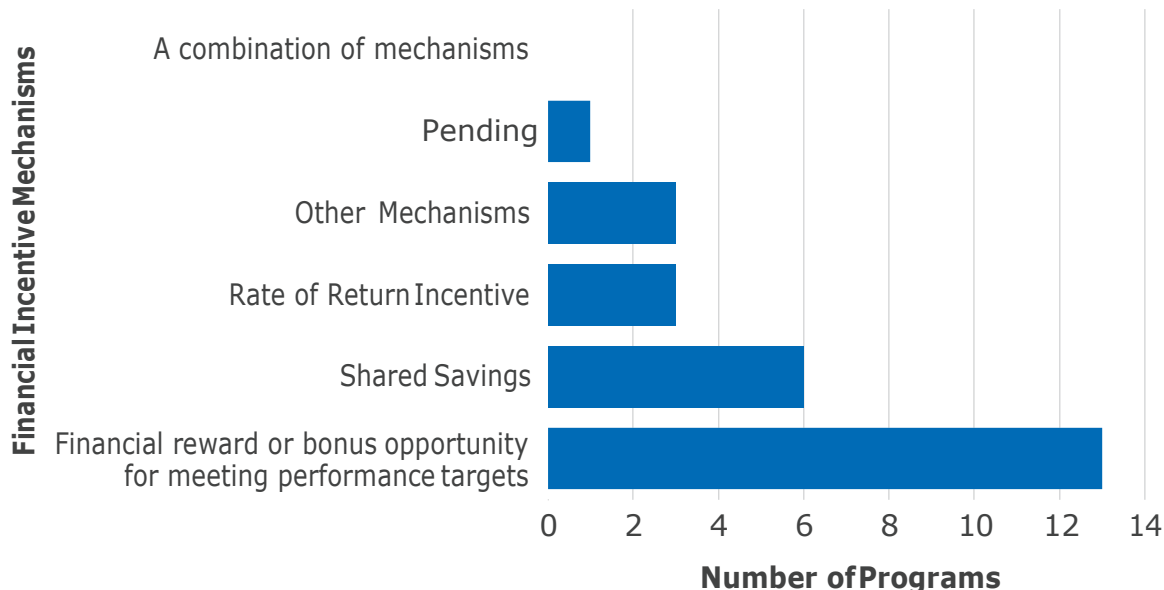
Performance targets are often conditions for capturing earnings on efficiency investments. The pre-determined goals may be set at certain investment levels, total energy savings, the extent of cost-effective savings or the number of units installed. Financial awards may be tiered according to performance thresholds: for example, for attaining at least a proportion of goals, meeting the target or exceeding them. Also, penalties may apply if the utility falls short of the minimum requirements. Additionally, incentives may be capped, even if performance surpasses the maximum threshold and may involve a dead band, where incentives are suspended within this performance range.

Rate of return incentives allows earnings on natural gas efficiency expenditures either equal to the utility's authorized ROE or at an enhanced level — an added or bonus ROE applied to efficiency investments. Incentive structures may involve a combination of these three mechanisms, making performance targets a prerequisite to shared savings or returns on efficiency investments.

In this survey cycle, twenty-six natural gas efficiency programs implemented in 20 states identified as having utility performance-based incentives. When asked to identify all mechanisms that formed their incentives, they indicated having one of the following mechanisms: six companies (in six states) had a shared saving mechanism, three (in three states) had a rate of return (ROR) mechanism and 13 companies (in 9 states) had a bonus opportunity for meeting performance targets. There were no utilities who had more than one incentive mechanism for this program cycle, although three reported other mechanisms. The table below shows the various arrangements as reported by companies.

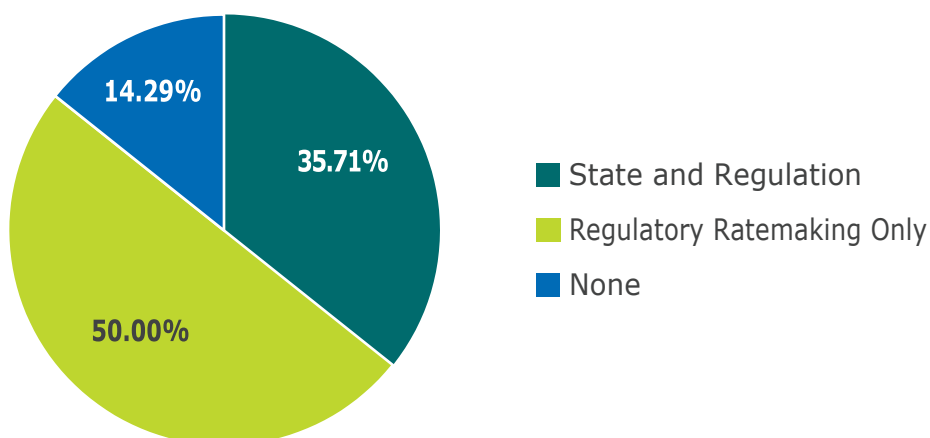
Utility Financial Incentive Structure Specific to Natural Gas Efficiency Program Implementation and Performance (2022 Data)		
Financial Incentive Mechanisms	Number of programs	Number of states (20)
Shared Savings	6	6
Rate of Return Incentive	3	3
Financial reward or bonus opportunity for meeting performance targets	13	9
Pending	1	1
A combination of mechanisms	0	0
Other Mechanisms	3	1

Utility Financial Incentive Structures Specific to Natural Gas Efficiency Program Implementation and Performance



When asked what authority their regulator-approved utility performance incentive mechanism originated from, 14 utilities of 28 respondents indicated it was by regulatory ratemaking. In comparison, another 10 utilities indicated it was by statute and regulation. Four of the 28 utility respondents indicated that none of the above two authorities were involved, as outlined in the figure below.

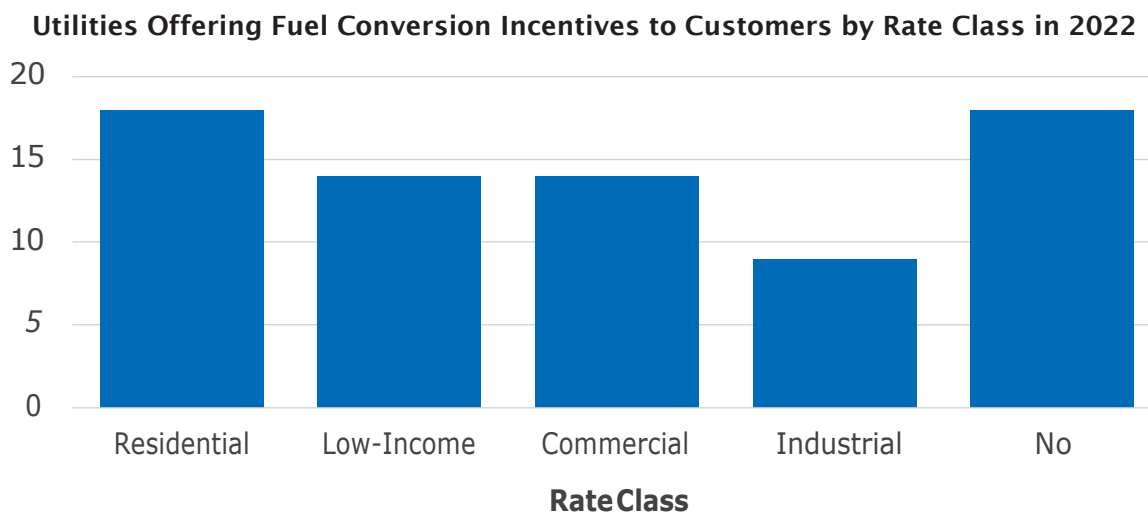
Regulatory Authority Supporting Utility Performance Incentive Mechanism in the U.S. in 2022



Fuel Switching

For the 2022 program year, 29% of respondents (24 of 84) reported that their regulator-approved natural gas efficiency program encourages fuel switching through financial incentives (e.g., rebates, loans and other benefits) for customers who install natural gas equipment in new homes, convert to natural gas from other fuels or replace old equipment with new higher-efficiency natural gas equipment.

The programs that offered fuel conversion incentives to their customers varied by rate classes, with 18 utilities offering residential program incentives and 14 utilities offering commercial incentives. Seven utility participants offered fuel conversion incentives for the low-income rate class and four utility participants offered industrial customers the incentive as well. Seventeen utility programs offered two or more rate cases the opportunity for fuel switching incentives, of which seven utilities were offering all four rate classes incentives in their program followed by six utilities offering three rate classes the incentive.



Five utilities were offering higher rebates for converting to natural gas, and 15 participants offered the same rebate level as for upgrading a gas appliance. Six other utilities offered other financial incentives, including covering installment costs, low-interest loans and tiered rebates.

In this case, fuel switching can apply for electric, fuel oil, propane, or other energy sources to natural gas. The types of equipment that were included in the fuel-switching incentives programs included a range to technologies from boilers, furnaces, water heaters, stoves/cooking ranges, dryers, HVAC and space heating to combined heat & power. In addition to the numerous technologies that were included in the fuel-switching program, there were also conditions or limitations that programs needed to work within. The most common constraint, according to utility participants, was that installed equipment must meet minimum efficiency levels followed by fuel switching being limited to specific applications or measures. Other limitations included cost-effectiveness requirements, customer cost-sharing and city/state fuel substitution requirements.

The other 14% of participants (12 out of 84) reported that they could encourage fuel switching through financial incentives, but not through their efficiency programs. When fuel switching was allowed but not through efficiency program incentives, utilities offered the financial incentive through other state-sponsored energy programs, voter-approved bonds or other regulatory authorities.

According to 11 of 45 utilities (10 states), promoting fuel switching/converting to natural gas is expressly prohibited in their states. Four of those respondents are prohibited by statute and one by regulator and statute.

Conclusion

Overall, in 2022 the members survey results indicate that natural gas utilities continue to help their customers to reduce energy usage, lower their annual energy bills and reduce greenhouse gas emissions by investing in successful and innovative efficiency programs, which include cash rebates and financial incentives, low-income specific programs, strategic partnerships, joint programs with other electric and gas utilities, efficiency loans, education campaigns, targeted marketing, energy audits and more.

- In 2020, there were at least 74 natural gas utility rate-payer funded efficiency programs in North America – 70 programs in the U.S. and four programs in Canada.
- In 2022 there were 83 such programs, with the U.S. accounting for 79 programs and Canada maintaining four.
- Investments in these efficiency programs in North America increased roughly 37% from 2021 to 2022, rising from \$1.1 billion to \$1.5 billion.
- With these significant investments, natural gas utilities in the U.S. aided their customers in offsetting more than 1.7 million metric tons of CO₂ in 2022, equivalent to removing 424 million cars from the road for a year.
- U.S. customers saved more than 336 million therms in 2022, equating to roughly 33.6 trillion BTUs of energy saved.