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June 27, 2023

Ms. Melanie Sandoval
New Mexico Public Regulation Commission
P. O. Box 1269
Santa Fe, New Mexico 87504-1269

**RE: New Mexico Gas Company Inc.'s 2022 Energy Efficiency Program Annual Report
NMPRC Case No. 19-00248-UT**

Dear Ms. Sandoval:

Pursuant to New Mexico Public Regulation Commission's ("NMPRC" or the "Commission") Case No. 19-00248-UT and Rule 17.7.2.8 NMAC, New Mexico Gas Company, Inc ("NMGC" or the "Company") hereby submits, its 2022 Energy Efficiency Program Annual Report ("2022 Report"). The Company's 2022 Report includes the Annual Reconciliation, Rate 1-15 calculations, and Evaluation of the Company's 2022 Energy Efficiency Programs - Measurement and Verification Report ("M&V Report") submitted by the independent program evaluation firm Evergreen Economics, Inc., as designated by the Commission.

In accordance with NMPRC Rule 17.7.2.14 NMAC, NMGC will post separately its 2022 Report and M&V Report to its website at www.nmgco.com.

If you have any questions or require any additional information, please do not hesitate to contact me at (505) 697-3831. Thank you for your assistance in this matter.

Sincerely,

/s/Lisa Trujillo

Lisa Trujillo
Project Manager, Regulatory Affairs

Enclosures

cc: Certificate of Service



2022

Energy Efficiency Program

Annual Report

June 27, 2023

NEW MEXICO GAS COMPANY, INC.

2022 Energy Efficiency Program Annual Report

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2022 Energy Efficiency Program Annual Report

Introduction

New Mexico Gas Company, Inc. (“NMGC” or the “Company”) hereby submits its 2022 Energy Efficiency Programs’ Annual Report (“2022 Report”) for the period of April 1, 2022, through March 31, 2023 (“2022 Program Year”). Additionally, included as Appendix C to the 2022 Report is the independent evaluator’s, Evergreen Economics, Inc. (“Evergreen”) final report, entitled “Evaluation of the 2022 New Mexico Gas Company Energy Efficiency Programs,” (“M&V Report”), which was completed on June 14, 2023.

On August 30, 2019, NMGC filed its 2020, 2021 and 2022 Program Plan (“Program Plan”) with the New Mexico Public Regulation Commission (“NMPRC” or “Commission”) docketed as Case No. 19-00248-UT. The 2022 Program Plan was approved by the NMPRC on May 20, 2020, and became available to customers on April 1, 2022. The 2022 Report covers all costs incurred in the implementation of the programs and customer participation during the 2022 Program Year.

The following programs and offerings are included in the 2022 Report:

- (1) Water Heating - tankless water heaters, condensing tank water heaters, showerheads, faucet aerators and pipe wrap measures.
- (2) Space Heating - furnaces, boilers, insulation and smart thermostat measures.
- (3) New Homes –incentives to home builders to build high performance homes through several methodologies including high efficiency furnaces, boilers and water heaters, tightening of envelope and ductwork, location of equipment, and increased insulation values.
- (4) Income Qualified - multiple natural gas saving measures for individual low-income residences including Native American communities.
- (5) Multi-Family - multiple natural gas saving measures for both low-income and market-rate multi-family facilities.
- (6) Efficient Buildings - multiple natural gas saving measures for commercial and school facilities including direct install, prescriptive and custom.

The 2022 Report includes an Executive Summary that presents a high-level assessment of the program performance for the 2022 Program Year, followed by a summary of the findings of the M&V Report and the impacts on the future of the programs. The 2022 Report also includes specific program information as required by 17.7.2 NMAC (“EE Rule”) as well as additional program information.

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2022 Energy Efficiency Program Annual Report

Executive Summary

This is NMGC’s fourteenth annual report on the Company’s Energy Efficiency Program (“Program”), that includes detailed results of the Company’s six programs for the 2022 Program Year as approved in NMPRC Case No. 19-00248-UT.

The following table reflects the total number of customer participants, savings, and program costs for the 2022 Program Year. The savings for each program are net savings derived from the final conclusions in the M&V Report reached by Evergreen’s evaluation of NMGC’s 2022 Program Year.

Program Savings and UCT Results per M&V						
Program	Total Number of Rebates Processed (April 1, 2022 to March 31, 2023)**	Total Annual NET Savings (Therms)*	Lifetime NET Savings (Therms)*	Total Program Costs	UCT	Cost per Therm Saved
Water Heating	4145	103,588	1,428,453	\$518,079	1.27	\$0.36
Space Heating	2055	189,599	3,495,269	\$713,339	2.13	\$0.20
New Homes	979	348,688	8,019,835	\$1,357,577	2.44	\$0.17
Income Qualified	493	195,696	4,123,099	\$1,794,312	1.17	\$0.44
Multi-Family*	1020	257,621	3,794,945	\$1,421,297	1.45	\$0.37
Efficient Buildings**	119	815,504	7,515,927	\$1,987,450	1.88	\$0.26
Portfolio Costs	N/A	N/A	N/A	\$316,104	N/A	N/A
Total		1,910,696	28,377,528	\$8,108,159	1.65	\$0.29
<i>*Net savings adjusted for free-ridership and derived from M&V Report</i>						
<i>**Multi-Family are the number of units and Efficient Buildings participation are projects associated with those programs</i>						

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Except where otherwise noted, the following table indicates the Program's costs for its energy efficiency portfolio during the 2022 Program Year.

Program Year 2022	Total Actual Costs
Administration (Internal and External)	\$2,975,966
Promotion/Marketing	\$121,081
Measurement and Verification	\$113,691
Rebates	\$4,581,317
Portfolio Costs	\$316,104
Total	\$8,108,159

*Program Year 2022 - NMPRC Case No. 19-00248-UT

Administration

The figures in this category include both internal and external administration of the Program. Internal administration is the labor and administrative costs for the NMGC Energy Efficiency Department Staff ("EE Staff"), expended on energy efficiency programs in research, development and oversight of the program plan, as well as NMPRC compliance reporting and ongoing interface with the Company's program administrators and M&V activity. External administration are the costs associated with third party program administration of NMGC's programs. Administering the Water Heating, Space Heating and New Homes programs is ICF International ("ICF"). Administering the Income Qualified program is New Mexico Mortgage Finance Authority ("MFA") for the Weatherization Assistance Program and EnergyWorks for the Native American Energy Efficiency Program. Administering the Multi-Family program is ICAST and administering the Efficient Buildings program is CLEAResult. All five of the third party program administrators are under contract with NMGC. Third party administration costs include labor and other direct expenses related to program implementation planning, program marketing and website materials development and management, outreach and marketing of the programs to eligible participants, energy efficiency opportunity identification and assessment, energy engineering and energy savings validation, some direct installation of high efficiency faucet aerators and low flow pre-rinse spray valves, rebate processing and quality control inspections. Review of rebate applications and qualifying of customers by ICF, MFA, EnergyWorks, ICAST and CLEAResult for their respective programs is also included. To the extent that these contracts require the third parties to conduct promotional activities acceptable to NMGC, those promotional costs are considered third party administrative costs.

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Promotion/Marketing

This cost category contains all promotional costs expended on the Program including brochures, direct mail costs, newspaper, radio, television, media design and production expended by NMGC and all other promotional or marketing costs not included in third party contracts.

Measurement and Verification

The M&V costs include final invoices received from Evergreen since April 1, 2022, for performing final M&V activities for the 2021 Program Year and their annual independent program evaluation report for the 2021 Program Year, completed June 2022. Also included in the costs are invoices received and paid through March 31, 2023, from Evergreen for their continued evaluation of NMGC's 2022 Program Year.

Rebates

The rebate cost category includes all rebates paid directly to participating customers or for measures and services provided under the Income Qualified, Multi-Family and Efficient Buildings programs. Labor and materials necessary for some direct-install measures are included in this category.

Portfolio Costs

This cost category includes all costs related to the energy efficiency portfolio but not directly associated to an individual program such as legal expenses, training, research and development, and general education activities.

The EE Rule requires that an independent evaluator conduct M&V assessments of all energy efficiency programs. For the 2022 Program Year, the NMPRC selected Evergreen to provide an M&V Report on all six of the energy efficiency programs offered by NMGC and approved by the Commission in NMPRC Case No. 19-00248-UT.

The M&V Report contains important findings and recommendations. A more complete summary of these findings and recommendations along with NMGC's comments is provided in the following section. These findings include the following:

- The overall Utility Cost Test ("UCT") for all six programs was 1.65.
- Program recommendations that have either already been implemented or will be implemented in the next filing.

Tariff Collections

As of April 1, 2022, when the 2022 Program Year began, NMGC was charging eligible sales service and transportation customers the approved Rider rate of \$0.0117/therm (Advice Notice No. 84), for recovery of program costs. The rate remained in effect from April 1, 2022, through July 31, 2022. On June 24, 2022, NMGC submitted Advice Notice No. 90, updating the rate charged by Rate No. 1-15 - Rate Rider No. 15 Energy Efficiency Rider ("Rider 15") in alignment

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with the annual reconciliation. This Advice Notice was accompanied by supporting testimony and exhibits which included the annual Rider 15 reconciliation report pursuant to 17.7.2.13(C) NMAC, requiring reconciliation of collections from the prior year, along with proposals to make up under or over-collections. The new rate of \$0.0185/therm for Rider 15 was approved with an effective date of the first billing cycle for August 2022. Total cost recoveries through Rider 15 from April 1, 2022, to March 31, 2023, were \$9,153,440. Rider 15 continues at the current rate of \$0.0185 as of this filing.

Tariff Reconciliation

The beginning balance in the Energy Efficiency account on April 1, 2022, was an over-collection of \$779,135. Expenses incurred between April 1, 2022, through March 31, 2023, totaled \$7,975,609 (although additional expenses attributed to the 2022 Program Year were incurred after March 31, 2023). Additional expenses of \$132,549 were incurred after March 31, 2023, but attributable to the 2022 Program Year, mostly due to invoices received from customers after March 31, 2023. Actual carrying charges of \$26,490 charged to customers for the same period increased the net expense to \$8,002,099. Total collections for the period totaled \$9,153,440. Collections included \$653,350 for Incentives. Collections not including Incentives were \$8,500,091, resulting in a net over-collection of \$497,992. Including the beginning balance of an over-collection of \$779,135 on April 1, 2022, the total net over-collection on March 31, 2023, was \$1,277,126.

Pursuant to the provisions of 17.7.2.13 NMAC and NMGC's Second Rule No. 37 – Rate Rider No. 15 Details (“Rule No. 37”), which require reconciliation of collections from the prior year, along with proposals to make up under or over-collections, attached as Appendix B is the Program Reconciliation and Cost Recovery Calculation and the Program Cost Rider Calculation reports.

Based on the above and pursuant to NMPRC Case No. 22-00232-UT, approving NMGC's 2023 Program Year budget of \$15,990,251, NMGC's calculated Surcharge Factor of \$0.0304/therm for the 2023 Program Year will, upon approval, be implemented and charged through the 2023 Program Year for the recovery of the Program costs.

Regulatory Proceedings

On May 20, 2020, the Commission unanimously approved NMGC's 2020, 2021 and 2022 Program Plan (NMPRC Case No. 19-00248-UT) and the 2022 Program became available to NMGC's customers on April 1, 2022.

NMGC filed its energy efficiency application for the 2023 – 2025 Program Years on August 31, 2022. It subsequently was assigned NMPRC Case No. 22-00232-UT.

The Hearing for NMPRC Case No. 22-00232-UT was held January 9, 2023. The Hearing Examiner provided a Recommended Decision (“RD”) to the Commission and the RD was approved through a Final Order on March 22, 2023. Included in the Final Order was a directive for NMGC to consult with the Office of the Attorney General (“OAG”) to address MFA's

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weatherization waiting list and report no later than July 1, 2023, as to how it plans to reduce the list.

NMGC has consulted with the OAG and MFA, and NMGC and OAG are working on a report to the Commission on this issue.

NMGC received the final M&V Report for its 2022 Program Year from Evergreen on June 14, 2023. On June 27, 2023, NMGC filed with the Commission its M&V and its 2022 Program Year Annual Reports.

Also, on June 27, 2022, NMGC submitted a report on the rate charged by Rider 15. The Rider 15 reconciliation report is pursuant to 17.7.2.13C NMAC, requiring reconciliation of collections from the prior year, along with proposals to make up under or over-collections. NMGC filed Advice Notice No. 94 to increase the Energy Efficiency Fee to \$0.0304 per therm as of the first billing cycle for August 2023.

Summary of M&V Report Findings

Background and Purpose of Independent Evaluation

The NMPRC selected Evergreen to perform an independent evaluation, measurement, and verification of NMGC's Energy Efficiency Programs for Program Years 2017 through 2022. NMGC and its program administrators worked with Evergreen to provide the data necessary to complete the 2022 M&V Report. This included providing rebate processing files, budget data by program, net and gross savings assumptions, and avoided cost information.

The primary purpose of the independent evaluation is to assess the cost-effectiveness of the programs using the UCT Test. A second purpose of the evaluation is to perform a basic process evaluation of the program to determine customer satisfaction with how the programs operated.

2022 M&V Report

The 2022 Program Year evaluation consists of an analysis of all six programs offered. Attached as Appendix C is the complete M&V Report.

Summary of Findings and NMGC Comments

Evergreen concluded that the overall portfolio UCT for the six programs was 1.65. NMGC believes that Evergreen has conducted a professional assessment of the six programs offered under the 2022 Program Year and substantially agrees with their findings and recommendations. Below is a summary of their findings and recommendations along with NMGC's comments.

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Efficient Buildings Program

- The evaluation team modified savings for several projects in the sample that installed efficient commercial kitchen gas fryers. The supplied energy savings calculations utilized the average value of gas savings (therms) for various facility types for both the Standard and Large Vat fryers in the savings algorithm. The modification decreased the savings for some projects and increased savings for other projects.
 - **Recommendation:** Use the deemed savings values listed in the NMGC Commercial Work Papers for the applicable facility type.
 - **NMGC Response:** NMGC’s implementer will utilize the Work Papers when applicable when the New Mexico Technical Resource Manual (“TRM”) does not adequately apply. The Work Papers will enable the savings to be more specific to the establishment where the unit was installed.
- The evaluation team modified savings for custom project number RBT-3061461.
 - **Recommendation:** The *ex ante* calculation considered a boiler efficiency of 86%. The combustion efficiency test certificate indicated an 86.6% combustion efficiency. The evaluator assumed other boiler losses to be minimal and considered this as boiler efficiency. The evaluation team recommends utilizing the combustion efficiency test certificate for the combustion efficiency value.
 - **NMGC Response:** NMGC’s implementer will utilize the combustion efficiency test certificate for the combustion efficiency value.
 - **Recommendation:** The *ex ante* calculated discharge rate of steam leaking from steam trap from the Armstrong Steam Leak Calculator. Since the link provided in the Final Calculation file no longer exists, it was not possible to verify the leaking steam discharge rate as considered in the *ex ante* calculations. The evaluator considered the same steam leak rate as per the screenshots of calculations provided in *ex ante* calculations. The evaluation team recommends ensuring custom projects are equipped with functioning links and/or files for the evaluation team to analyze and verify.
 - **NMGC Response:** NMGC’s implementer will ensure custom projects are equipped with functioning links and/or files for the evaluation team to analyze and verify.
- The evaluation team modified savings for custom project number RBT-2998769.
 - **Recommendation:** The *ex ante* calculation considered a pool surface area of 6,048.17 square feet. The *ex post* analysis revised the surface area of the pool to 5,877 square feet based on project documentation verification and Google Earth. The evaluator recommends utilizing information provided in project documentation for variables such as pool surface area.

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- **NMGC Response:** NMGC's implementer will utilize the Work Papers when applicable when the TRM does not adequately apply.
- **Recommendation:** The passive solar heat gain in the *ex ante* calculation was only for 1 m² of the pool surface area, and was not multiplied by the total pool area. As such, the *ex post* analysis considered the solar heat gain for the total surface area of the pool which increased the total solar heat gain. The evaluator recommends ensuring total surface area is utilized where applicable.
- **NMGC Response:** NMGC's implementer will be responsible to ensure total surface area is utilized where applicable.

Multi-Family Program

- The evaluation team modified savings for two projects located in Silver City, New Mexico. Silver City is in Grant County and, according to the TRM, corresponds to the Albuquerque climate zone, where the inlet temperature is 62.6 °F.
 - **Recommendation:** The *ex ante* calculation for one project assumed the Las Cruces climate zone, where the inlet water temperature is 69.2 °F. The *ex ante* calculation at a second project assumed the Santa Fe climate zone, where the inlet water temperature is 57.5 °F. The evaluator recommends ensuring the correct weather zone is used for calculating savings. Refer to the table in the TRM that lists weather zones by county.
 - **NMGC Response:** NMGC's implementer will ensure the correct weather zone is used to calculate savings and reference the TRM.
- The evaluation team modified savings for one project that included the installation of programmable thermostats.
 - **Recommendation:** The *ex ante* calculation used EFLH = 2,162, which is from an older version of the TRM. The *ex post* calculation used a more recent TRM where EFLH = 1,358. This modification decreased the RR. The evaluator recommends utilizing the appropriate version of the TRM.
 - **NMGC Response:** NMGC's implementer will utilize the appropriate TRM going forward.
- The difference between *ex ante* and *ex post* savings is not clear for projects including Domestic Hot Water pipe insulation measures for one project.
 - **Recommendation:** This measure does not appear to follow TRM methodology/inputs. The *ex post* calculation followed 4.17 Water Heater Pipe Insulation in TRM – Conditioned Space. The Evaluator recommends utilizing the appropriate version of the TRM.
 - **NMGC Response:** NMGC's implementer will utilize the appropriate TRM going forward.

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In summary, this is NMGC's fourteenth evaluation of its programs and the fourteenth time that M&V has concluded that the Company's program portfolio is cost-effective. The program portfolio cost/benefit analysis was determined to have a UCT of 1.65. NMGC believes this corroborates the adjustments proposed and taken each year to enhance its portfolio and make the programs more cost-effective.

NMGC concurs with Evergreen's report that overall NMGC's customers are satisfied with NMGC's programs and find them of value and had an influence on their decisions. All the programs in NMGC's portfolio were successful and received high customer satisfaction remarks.

It is important to note that under the 2022 Program Year, a portion of the savings under the Efficient Buildings program were through direct-install measures. These direct-install measures are energy efficient showerheads, pre-rinse valves and faucet aerators that reduce water usage. Combined with the Water Heating, Income Qualified and Multi-Family programs these measures accounted for more than 27,034,078 gallons of water saved annually. Based on the City of Albuquerque's previously calculated savings of 3.548 kWh per 1000 gallons pumped, these measures provide an additional 95,917 kWh savings in pumping costs. Although NMGC maintains that the reduction in water usage from energy efficient showerheads, faucet aerators, and pre-rinse spray valves does directly affect energy usage by reducing the quantity of water pumped by the water utility or municipality, NMGC does not include these savings in calculating the UCT for its programs. Electric savings for NMGC's programs are not allowed under the UCT but the water savings will continue to be documented as non-energy benefits for future programs.

Energy Efficiency Rule Reporting Requirements

This section of the 2022 Report follows the reporting requirements and section headings as specified in 17.7.2.14(D) NMAC of the EE Rule.

D(1) Independent Measurement and Verification Report

As required by the NMPRC, NMGC contracted with Evergreen to conduct the independent evaluation of its energy efficiency programs. Their report entitled "Evaluation of the 2022 New Mexico Gas Company Energy Efficiency Programs" is submitted with this report (Appendix C) and includes an analysis of the energy savings realized by all six programs.

D(2) Program Expenditures Not Included in the M&V Report

The M&V Report for the 2022 Program Year contains an analysis of all six programs. Therefore, all expenditures were included in the M&V Report. The expenditures for all programs for the 2022 Program Year were \$8,108,159. These expenditures include all expenses incurred by NMGC to develop and implement the programs.

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D(3) Material Variances in Program Costs

The table below provides comparisons on estimated savings and monetary costs to actual savings and costs for each program for the 2022 Program Year. The information for each program was derived from the final conclusions reached by Evergreen's evaluation of NMGC's 2022 Program Year and documented in the attached 2022 M&V report (see Appendix C). Avoided costs used to calculate savings can be found in Appendix A of this document.

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Estimated Program Budget and UCT Results						
Program	2022 Year Estimated Participation	Estimated Annual Therms Saved*	Estimated Lifetime Therms Saved *	Total Program Budget	UCT	Cost per Therm Saved
Water Heating	4970	156,712	2,616,810	\$725,715	1.67	\$0.28
Space Heating	1325	74,529	1,424,872	\$530,692	1.11	\$0.37
New Homes	850	221,631	5,540,775	\$1,199,084	1.85	\$0.22
Income Qualified	679	209,000	3,390,413	\$1,644,374	1.11	\$0.49
Multi-Family**	2134	198,478	2,977,170	\$1,364,479	1.09	\$0.46
Efficient Buildings**	357	649,090	9,077,864	\$2,093,932	2.07	\$0.23
Portfolio Costs	N/A	N/A	N/A	\$181,445	N/A	
Total		1,509,440	25,027,904	\$7,739,720	1.51	\$0.31

* Adjusted for free ridership as derived from the M&V report and/or the NMTRM

**Efficient Buildings participation are projects associated with that program and Multi-Family are units associated with that program

Actual Program Budget and UCT Results						
Program	2022 Year Actual Participation	Actual Annual Therms Saved*	Actual Lifetime Therms Saved *	Total Program Costs	UCT	Cost per Therm Saved
Water Heating	4145	103,588	1,428,453	\$518,079	1.27	\$0.36
Space Heating	2055	189,599	3,495,269	\$713,339	2.13	\$0.20
ThermSmart New Homes	979	348,688	8,019,835	\$1,357,577	2.44	\$0.17
Income Qualified	493	195,696	4,123,099	\$1,794,312	1.17	\$0.44
Multi-Family**	1020	257,621	3,794,945	\$1,421,297	1.45	\$0.37
Efficient Buildings**	119	815,504	7,515,927	\$1,987,450	1.88	\$0.26
Portfolio Costs	N/A	N/A	N/A	\$316,104	N/A	N/A
Total		1,910,696	28,377,528	\$8,108,159	1.65	\$0.29

*Net savings adjusted for free-ridership and derived from M&V Report

**Efficient Buildings participation are projects associated with that program and Multi-Family are units associated with that program

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D(4) Number of Program Participants

Total number of participants for each program for 2022 Program Year is reflected in the table below.

Program Year 2022	Total Number of Participants for Program Year 2022
Water Heating	4145
Space Heating	2055
New Homes	979
Income Qualified	493
Multi-Family*	1020
Efficient Buildings*	119
* Efficient Buildings participation are projects associated with that program and Multi-Family are units associated with that program	

D(5) Economic Benefits

The table below reflects the economic benefits from the 2022 Program Year and are derived from the M&V Report.

Program	Cost per Therm Saved	2022 Economic Benefits*	NPV of Total Economic Benefits*
Water Heating	\$0.36	\$47,727	\$ 658,157
Space Heating	\$0.20	\$82,544	\$ 1,521,718
New Homes	\$0.17	\$144,141	\$ 3,315,251
Income Qualified	\$0.44	\$99,652	\$ 2,099,554
Multi-Family**	\$0.37	\$139,460	\$ 2,054,346
Efficient Buildings**	\$0.26	\$405,158	\$ 3,734,059
All Programs	\$0.29	\$918,682	\$ 13,383,085
* Economic Benefits and NPV of Total Economic Benefits are derived from the M&V Report.			

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D(6) Self-Direct Programs

There were no customer applications for the self-direct program in the 2022 Program Year.

D(7) Other Information of Interest to the Commission

Cost Allocation and Expenses by Program

All energy efficiency expenses are tracked through a unique set of account numbers. The following table shows the allocation of costs to the various programs for the 2022 Program Year.

Program Year 2022	Rebates	Internal Administration	External Administration	Promotion	M&V Expenses	Total Program Costs
Water Heating	\$262,162	\$44,281	\$172,508	\$20,180	\$18,948	\$518,079
Space Heating	\$296,797	\$44,281	\$333,133	\$20,180	\$18,948	\$713,339
New Homes	\$845,596	\$44,281	\$428,572	\$20,180	\$18,948	\$1,357,577
Income Qualified	\$1,540,709	\$44,281	\$170,194	\$20,180	\$18,948	\$1,794,312
Multi-Family*	\$1,106,300	\$44,281	\$231,588	\$20,180	\$18,948	\$1,421,297
Efficient Buildings**	\$529,753	\$44,281	\$1,374,288	\$20,180	\$18,948	\$1,987,450
Portfolio Costs	N/A	\$316,104	N/A	N/A	N/A	\$316,104
Total	\$4,581,317	\$581,788	\$2,710,282	\$121,081	\$113,691	\$8,108,159

Internal administration is the labor and administrative costs expended on energy efficiency programs by the Company's Energy Efficiency Department. As of March 31, 2023, NMGC's Energy Efficiency Department consisted of three full-time staff members ("EE Staff"). EE Staff labor, during the 2022 Program Year, was spent on oversight of the existing energy efficiency programs, vetting programs and measures for potential future filings, preparing and submitting NMPRC compliance reporting, ongoing interface with NMGC's program administrators and M&V activity.

External administration are the costs associated with third party program administration of NMGC's programs. Administering the Water Heating, Space Heating and New Homes programs is ICF. Administering the Income Qualified program is MFA for the EnergySmart program and EnergyWorks for the Native American program. Administering the Multi-Family program is ICAST and administering the Efficient Buildings program is CLEARResult. All five third party program administrators are under contract with NMGC. Third party administration costs include labor and other direct expenses related to program implementation planning, program marketing and website materials development and management, outreach and marketing of the programs to eligible participants, energy efficiency opportunity identification and assessment, energy engineering and energy savings validation, rebate processing, quality control inspections, and some direct installation of high efficiency showerheads, faucet aerators, pre-rinse spray valves, weatherstripping, and bay door brush seals. Review of rebate applications and qualifying of customers by ICF, MFA, EnergyWorks, ICAST and CLEARResult for their respective programs is also included. To the extent that these contracts require the third

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parties to conduct promotional activities acceptable to NMGC, those promotional costs are considered third party administrative costs.

Promotional expenses for the 2022 Program Year were used primarily for raising awareness on all programs through brochures and advertising campaigns and were allocated equally among the energy efficiency programs except those costs specific to individual programs.

M&V expenses for the 2022 Program Year include final invoices received from Evergreen since April 1, 2022, for performing final M&V activities for the 2021 Program Year and their annual independent program evaluation report for the 2021 Program Year, completed June 2022. Also included in the costs are invoices received and paid through March 31, 2023, from Evergreen for their continued evaluation of NMGC's 2022 Program Year.

Portfolio costs include all costs related to the energy efficiency portfolio but not directly associated to an individual program such as legal, training, research and development, and general education activities.

Non-Energy Benefits

Third-party contractors are utilized to implement NMGC's energy efficiency programs. The continued growth of NMGC's portfolio has contributed to an increase in jobs created to successfully administer the programs. In a survey of its implementers by NMGC, the equivalent of approximately 46 full time ("FTE's) jobs are required to implement all the programs in its portfolio. The majority of these FTE's reside in New Mexico. Additional implementer resources are utilized periodically for engineering and quality control inspections.

NMGC's programs also have an impact on the environment. The following table shows the CO₂ emission reductions associated with the portfolio of programs. The annual and lifetime avoided emissions are determined by multiplying the emissions rates times the annual and lifetime therms saved by the portfolio of programs.¹ In addition, three of NMGC's energy efficiency measures contribute directly to water savings. The Efficient Buildings program direct-install measures of low flow pre-rinse valves and faucet aerators combined with the Water Heating, Income Qualified, and Multi-Family measures account for more than 27,034,078 gallons of water saved annually. The expected lifetime for those measures is 10 years as determined by New Mexico's TRM.

* The avoided CO₂ emissions rate for gas combustion was taken from U.S. Department of Energy - Energy Information Administration's Annual Energy Outlook 2022.

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2022 Energy Efficiency Program Annual Report

2022 Program Year			
Emission Impact	Annual Avoided Gas Emissions Rate (lbs/therm)*	Annual Avoided Gas Emissions Rate (Metric tons)	Lifetime Avoided Emissions (Metric tons)
CO ₂	117	111,776	1,660,085
Water Impact		Annual Water Saved (gallons)	Lifetime Water Saved (gallons)
Water Savings		27,034,078	270,340,780

Promotional Activities

Most promotional and marketing activities for NMGC’s programs are the responsibility of the third-party implementers to work with builders, contractors, distributors, manufacturers, architects and other trade allies to educate and make them aware of NMGC’s programs. Outreach directly to NMGC’s customers is a joint effort with shared budgets. For NMGC’s 2022 Program, activities included the following:

Mass Media Communications

NMGC began its promotional effort after receiving the Final Order in NMPRC Case No. 19-00248-UT approving the 2022 Program Year. Promotional efforts and program information for the 2022 Program Year began in April 2022 updating rebate applications, promoting the continuation of existing programs and marketing the new programs. A brochure that outlines all the approved programs continued to be distributed throughout the State at NMGC offices. The brochures and promotion of the programs are offered at various events throughout the year including, but not limited to, the Albuquerque Home & Garden Show, the Albuquerque Home & Lifestyle Show, the New Mexico Municipal League Annual Conference and the Albuquerque Home & Remodeling Show. Radio ads informing and promoting NMGC’s energy efficiency programs to the public ran throughout the year along with internet banner ads and social media.

Targeted Communications

In conjunction with ICF and CLEAResult, NMGC held meetings throughout the State with contractors, vendors, and suppliers to inform them of the programs and began signing them up as participating contractors in April 2022. Additional contractors were added throughout the 2022 Program Year and all participating contractors were kept in communications regarding the 2022 Program Year and to solicit continued participation. To participate, contractors are required to have a license and insurance and understand the program criteria. They are then listed on NMGC’s website including the areas they serve. NMGC also held meetings and promotions with pueblos, ran social media campaigns and bill messages promoting its programs and the

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Home Energy Analyzer that helps homeowners determine the most effective measures to make their home more energy efficient.

NMGC understands the value of promotion and education of its energy efficiency programs and the importance of expanding the outreach. The EE Staff has continued to communicate with NMGC offices throughout the state to better educate NMGC employees about its energy efficiency programs. The intent is to have more employees understand the background of the energy efficiency programs and be able to transfer that knowledge to customers in their region of the State.

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**Energy Efficiency Avoided Costs
2022 Program Year**

<u>Year</u>	<u>Projected Avoided Cost (per MMBtu)</u>	<u>Per Therm</u>
2021	\$6.60	\$0.66
2022	\$6.42	\$0.64
2023	\$6.08	\$0.61
2024	\$5.71	\$0.57
2025	\$5.51	\$0.55
2026	\$5.48	\$0.55
2027	\$5.59	\$0.56
2028	\$5.77	\$0.58
2029	\$5.92	\$0.59
2030	\$6.03	\$0.60
2031	\$6.12	\$0.61
2032	\$6.14	\$0.61
2033	\$6.21	\$0.62
2034	\$6.21	\$0.62
2035	\$6.19	\$0.62
2036	\$6.19	\$0.62
2037	\$6.20	\$0.62
2038	\$6.21	\$0.62
2039	\$6.21	\$0.62
2040	\$6.25	\$0.62
2041	\$6.25	\$0.63
2042	\$6.23	\$0.62
2043	\$6.23	\$0.62
2044	\$6.19	\$0.62
2045	\$6.16	\$0.62
2046	\$6.16	\$0.62
2047	\$6.15	\$0.62
2048	\$6.17	\$0.62
2049	\$6.15	\$0.62
2050	\$6.15	\$0.61

Program Reconciliation and Cost Recovery

Calculation 2022-2023

Line No.	Over/(Under) Recovered Amounts
1	Reconciliation Amounts at 3/31/2023 \$ 1,277,126
2	2022 Plan expenses incurred after 3/31/2023 \$ (974,411)
3	Net Over Collection for Program Year 2022 \$ 302,715
4	Actual Cost recovery 4/1/2023 - 5/31/2023 \$ 1,439,262
5	Cost recovery estimate 6/1/2023 - 7/31/2023 (see calcs below) \$ 652,337
6	Program Cost - 2023 \$ (15,764,359)
7	Cost recovery estimate 8/1/2022 - 3/31/2023(see calculation below) \$ (13,370,044)

		Rate 10 - Residential					Current Recovery	Rider No. 15
		Therms					Rate	Recovery
		Distribution	Transmission	Commodity	Bills	Number of Customers		
8	June 2023 through July 2023 (Based on 2021 Rate Case) 6/1/2023- 7/31/2023	16,795,741	16,310,485	16,801,706	1,006,887	503,444	\$ 0.0185	\$ 310,832
9	Total	16,795,741	16,310,485	16,801,706	1,006,887	503,444		310,832

		Rate 54 - Small Volume Service					Current Recovery	Rider No. 15
		Therms					Rate	Recovery
		Distribution	Transmission	Commodity	Bills	Number of Customers		
10	June 2023 through July 2023 (Based on 2021 Rate Case) 6/1/2023- 7/31/2023	11,821,155	11,488,984	11,860,133	82,703	41,351	\$ 0.0185	\$ 219,412
11	Total	11,821,155	11,488,984	11,860,133	82,703	41,351		219,412

		Rate 56 - Medium Volume Service					Current Recovery	Rider No. 15
		Therms					Rate	Recovery
		Distribution	Transmission	Commodity	Bills	Number of Customers		
12	June 2023 through July 2023 (Based on 2021 Rate Case) 6/1/2023- 7/31/2023	5,509,622	6,338,428	6,599,630	215	107	\$ 0.0185	\$ 122,093
13	Total	5,509,622	6,588,318	6,946,954	215	107		122,093
14	Total Rates 10, 54 & 56	34,126,517	34,387,786	35,608,794	1,089,804	544,902		\$ 652,337

		Rate 10 - Residential					Proposed Recovery	Rider No. 15
		Therms					Rate	Recovery
		Distribution	Transmission	Commodity	Bills	Number of Customers		
15	August 2023 through March 2024 (Based on 2021 Rate Case) 8/1/2023 - 3/31/2024	273,568,384	265,197,613	273,657,886	4,046,202	505,775	\$ 0.0304	\$ 8,312,397
16	Total	273,568,384	265,197,613	273,657,886	4,046,202	505,775		8,312,397

		Rate 54 - Small Volume Service					Proposed Recovery	Rider No. 15
		Therms					Rate	Recovery
		Distribution	Transmission	Commodity	Bills	Number of Customers		
17	August 2023 through March 2024 (Based on 2021 Rate Case) 8/1/2023 - 3/31/2024	127,048,471	123,498,820	127,607,292	333,027	41,628	\$ 0.0304	\$ 3,876,090
18	Total	127,048,471	123,498,820	127,607,292	333,027	41,628		3,876,090

		Rate 56 - Medium Volume Service					Proposed Recovery	Rider No. 15
		Therms					Rate	Recovery
		Distribution	Transmission	Commodity	Bills	Number of Customers		
19	August 2023 through March 2024 (Based on 2021 Rate Case) 8/1/2023 - 3/31/2024	32,260,531	36,692,477	38,898,828	862	108	\$ 0.0304	\$ 1,181,557
20	Total	32,260,531	36,692,477	38,898,828	862	108		1,181,557
21	Total Rates 10, 54 & 56	432,877,386	425,388,910	440,164,005	4,380,091	547,511		\$ 13,370,044

April 2023 through May 2023 actuals at 0.0185
 June 2023 through July 2023 estimates at 0.0185
 August 2023 through March 2024 estimates at 0.0304

Program Cost Rider Calculation

Line	<u>8/1/23 - 3/31/24</u>		
No. Program Budget Costs			
1 Internal Administration	\$ 1,017,500		
2 External Administration	\$ 5,347,412		
3 Rebates	\$ 7,944,291		
4 Promotional Costs	\$ 195,000		
5 Measurement & Verification Costs	\$ 251,000		
6 Portfolio Costs	<u>\$ 238,000</u>		
7 TOTAL for EE Plan Budget	<u>\$ 14,993,203</u>		
8 Incentive Rate	<u>\$ 997,048</u>		
9 Incentive Reconciliation - Over Recovered 2022 Program Year	\$ (60,170)		
10 Actual Incentive recovery 4/1/2023 - 5/31/2023	\$ (108,748)		
11 Incentive recovery estimate 6/1/2023 - 7/31/2023 (see calcs below)	<u>\$ 56,974</u>		
12 Total Cost to be Recovered	<u>\$ 15,764,359</u>		
13 Cost recovery 8/1/2023 - 3/31/2024 (See SLC-3, page 1, Line 7)	\$ (13,370,044)		
<u>Revenues by Rate Class - Projected for 8/1/2023 through 3/31/2024</u>			
Based on Rate Case Rates & Determinants			
	<u>Revenues</u>	<u>Bills</u>	<u>Therms</u>
14 Residential (Rates 10 and 70)	\$ 275,510,710	4,089,878	273,662,638
15 Small Volume (Rates 54 and 70)	\$ 105,863,240	333,055	127,607,292
16 Medium Volume (Rates 56 and 70)	<u>\$ 29,146,211</u>	<u>867</u>	<u>38,898,828</u>
17 Totals	<u>\$ 410,520,161</u>	<u>4,423,800</u>	<u>440,168,758</u>
<u>Program Cost Rider</u>			
18 Program Costs to be Recovered	\$ (13,370,044)		
19 Revenues 8/1/23 - 3/31/24	\$ 410,520,161		
20 Percentage of Revenues	-3.257%		
21 Rider 15 as a Charge per Therm	(0.0304)		
<u>Proof of Revenue</u>			
22 Charge per Therm	\$ (0.0304)		
23 Therms	440,168,758		
24 Rider 15 Revenue Generated	\$ (13,370,044)		
<u>Cost per therm saved</u>			
25 Therms Saved Over the Life of the Measures		48,892,998	
26 Cost of the Programs		\$ 14,993,203	
27 Cost per therm Saved		\$ 0.3067	
28 Cost of Gas Purchases Avoided (before FF & GRT)		\$ 0.5250	
29 Savings per therm		\$ 0.2183	
30 Total Avoided Cost of Gas Purchases		\$ 25,668,824	
31 Net Savings to Customers from Energy Efficiency Programs		\$ 10,675,621	



Evaluation of the 2022 New Mexico Gas Company Energy Efficiency Programs



Final Report

Submitted by Evergreen Economics

June 14, 2023





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Executive Summary

This report presents the independent evaluation results for the New Mexico Gas Company (NMGC) energy efficiency programs for program year 2022 (PY2022).

The NMGC programs and evaluation requirements were first established in 2005 by the New Mexico legislature's passage of the 2005 Efficient Use of Energy Act (EUEA).¹ The EUEA requires public utilities in New Mexico, in collaboration with other parties, to develop cost-effective programs that reduce energy consumption. Utilities are required to submit their proposed portfolio of programs to the New Mexico Public Regulation Commission (NMPRC) for approval. As a part of its approval process, the NMPRC must find that the program portfolio is cost effective based on the Utility Cost Test (UCT).

An additional requirement of the EUEA is that each program must be evaluated at least once every three years. As part of the evaluation requirement, NMGC must submit to the NMPRC a comprehensive evaluation report prepared by an independent program evaluator. As part of the reporting process, the evaluator must measure and verify energy savings, determine program cost effectiveness, assess how well the programs are being implemented, and provide recommendations for program improvements as needed. The Evergreen evaluation team consisted of the following firms:

- **Evergreen Economics** was the prime contractor and managed all evaluation tasks and deliverables;
- **EcoMetric** provided engineering capabilities and conducted the desk reviews; and
- **Research & Polling** fielded all the phone surveys.

For PY2022, the following NMGC programs were evaluated:

- Efficient Buildings
- Multi-Family

¹ NMSA §§ 62-17-1 *et seq* (SB 644). Per the New Mexico Public Regulation Commission Rule^{SEP} Pursuant to the requirements of the EUEA, the NMPRC issued its most recent *Energy Efficiency Rule (17.7.2 NMAC)* effective September 26, 2017, which sets forth the NMPRC's policy and requirements for energy efficiency and load management programs. This Rule can be found online at <https://www.srca.nm.gov/parts/title17/17.007.0002.html>



For the Efficient Buildings and Multi-Family programs, the evaluation team estimated realized gross and net therm impacts and calculated program cost effectiveness using the UCT. A brief process evaluation was also conducted for the Efficient Buildings and Multi-Family programs.

The analysis methods used for the evaluated PY2022 programs are summarized as follows:

Efficient Buildings. A large number of projects in the Efficient Buildings program are prescriptive in nature and as such, a significant portion of the evaluation of this program was centered on a deemed savings review, phone survey verification, and project desk reviews. The custom projects with more complicated savings calculations were evaluated using a desk review and participant phone survey. The deemed savings review for prescriptive and direct install measures focused on verifying that the appropriate savings values were applied based on the equipment installed and per the referenced source of savings, whether that was the New Mexico Technical Reference Manual (TRM) or another source. The phone survey was used to verify that program-rebated measures are still installed and functional as well as gather information to calculate a free ridership rate. Finally, desk reviews conducted by engineers examined the savings assumptions and calculations specific to each project that was selected for review.

Multi-Family. The Multi-Family program provides turnkey services to install efficiency measures at a reduced cost to both market rate and low-income multi-family properties. In PY2022, the vast majority of projects were completed in low-income housing units. Measures include air sealing, bath and kitchen aerators, domestic hot water, duct sealing, furnace upgrades, pipe insulation, showerheads, and programmable thermostats. For PY2022, the evaluation focused on project desk reviews to verify that the appropriate savings values were applied based on the equipment installed and per the referenced source of savings, whether that is the New Mexico TRM or another source. The phone survey was used to verify that program-rebated measures are still installed and functional as well as gather information to calculate a free ridership rate.

Table 1 summarizes the PY2022 evaluation methods used for these programs.

Table 1: Summary of PY2022 Evaluation Methods by Program

Program	Deemed Savings Review	Phone Survey	Engineering Desk Reviews
Efficient Buildings	◆	◆	◆
Multi-Family	◆	◆	◆

The results of the PY2022 impact evaluation are shown in Table 2, with the programs evaluated highlighted in blue.



Table 2: PY2022 Savings Summary – Therms

Program	# of Projects	Expected Gross Therm Savings	Engineering Adjustment Factor	Realized Gross Therm Savings	NTG Ratio	Realized Net Therm Savings
Efficient Buildings	119	921,198	0.9632	887,285	0.9191	815,504
Income Qualified	493	195,696	1.0000	195,696	1.0000	195,696
Multi-Family Low Income	653	217,054	0.9980	216,630	1.0000	216,630
Multi-Family Market Rate	367	48,319	0.9980	48,225	0.8500	40,991
ThermSmart New Homes	979	475,505	1.0000	475,505	0.7333	348,688
ENERGY STAR Water Heating	548	60,364	1.0000	60,364	0.5854	35,338
ENERGY STAR Water Heating – New Construction	96	17,786	1.0000	17,786	0.7333	13,043
ENERGY STAR Water Heating – Direct Mail	2,510	62,479	1.0000	62,479	0.6000	37,488
ENERGY STAR Water Heating – Home Energy Checkup	991	17,719	1.0000	17,719	1.0000	17,719
ENERGY STAR Space Heating – Furnace and Insulation	1,222	217,896	1.0000	217,896	0.7313	159,499
ENERGY STAR Space Heating – Smart Thermostats	833	39,090	1.0000	39,090	0.7700	30,100
Total	8,811	2,273,106		2,238,675		1,910,696



Lifetime therm savings are shown in Table 3 by program and for the portfolio overall. This includes expected gross, realized gross, and realized net lifetime savings.

Table 3: PY2022 Lifetime Savings Summary – Therms

Program	Expected Gross Lifetime Savings (therms)	Realized Gross Lifetime Savings (therms)	Realized Net Lifetime Savings (therms)
Efficient Buildings	8,490,038	8,177,486	7,515,927
Income Qualified	4,123,099	4,123,099	4,123,099
Multi-Family Low Income	3,272,470	3,266,077	3,266,077
Multi-Family Market Rate	623,411	622,198	528,868
ThermSmart New Homes	10,936,615	10,936,615	8,019,835
ENERGY STAR Water Heating	2,209,108	2,209,108	1,428,453
ENERGY STAR Space Heating	4,755,940	4,755,940	3,495,269
Total	34,410,681	34,090,523	28,377,528

Beginning in 2021, the impact evaluation moved to applying new net-to-gross (NTG) ratios prospectively in future years, rather than retrospectively as had been done in prior years. The PY2021 NTG ratios are being applied to the PY2022 results. The NTG ratios calculated in PY2022 will then be applied to the PY2023 results.

Table 4 summarizes the updates to the NTG ratios for PY2023, with the updated values shaded in green.

Table 4: Net-to-Gross Ratio Updates for PY2023

Program	PY2022 NTG Ratio	PY2023 NTG Ratio
Efficient Buildings	0.9191	0.9190
Income Qualified	1.0000	1.0000
Multi-Family Low Income	1.0000	1.0000
Multi-Family Market Rate	0.8500	0.8083
ThermSmart New Homes	0.7333	0.7333
ENERGY STAR Water Heating	0.5854	0.5854



Program	PY2022 NTG Ratio	PY2023 NTG Ratio
ENERGY STAR Water Heating – New Construction	0.7332	0.7332
ENERGY STAR Water Heating – Direct Mail	0.6000	0.6000
ENERGY STAR Water Heating – Home Energy Checkup	1.0000	1.0000
ENERGY STAR Space Heating - Furnace	0.7313	0.7313
ENERGY STAR Space Heating – Insulation	0.7313	0.7313
ENERGY STAR Space Heating – Smart Thermostat	0.7700	0.7700

Using net realized savings from this evaluation and cost information provided by NMGC, the evaluation team calculated the ratio of benefits to costs for each of NMGC’s programs and for the portfolio overall. The evaluation team calculated cost effectiveness using the UCT, which compares the benefits and costs to the utility or program administrator implementing the program.² The evaluation team conducted this test in a manner consistent with the California Energy Efficiency Policy Manual.³ The results of the UCT are shown in Table 5. The UCT was greater than 1.00 for all programs, and the portfolio overall was found to have a UCT ratio of 1.65.

² The Utility Cost Test is sometimes referred to as the Program Administrator Cost Test, or PACT.

³ California Public Utilities Commission. 2020. *California Energy Efficiency Policy Manual – Version 6*.

<https://www.cpuc.ca.gov/-/media/cpuc-website/files/legacyfiles/e/6442465683-ee-policymanualrevised-march-20-2020-b.pdf>



Table 5: PY2022 Cost Effectiveness

Program	Utility Cost Test (UCT)
Efficient Buildings	1.88
Income Qualified	1.17
Multi-Family	1.45
ThermSmart New Homes	2.44
ENERGY STAR Water Heating	1.27
ENERGY STAR Space Heating	2.13
Overall Portfolio	1.65

Based on the data collection and analysis conducted for this evaluation, the evaluation team found that overall, NMGC is operating high quality programs that are achieving significant energy savings and producing satisfied participants.

The impact evaluation included engineering desk reviews for a sample of Efficient Buildings and Multi-Family projects. Adjustments to savings based on the desk reviews were due to an adjustment to the boiler efficiency for one custom project as well as an adjustment to pool surface area and solar heat gain for another custom project. Additionally, the implementation team averaged deemed savings values for Commercial Kitchen measures in the Efficient Buildings program whereas the evaluation team utilized deemed savings based on applicable facility type.



1 Evaluation Methods

The general analysis methods used for the evaluated PY2022 programs are described below.

1.1 Phone Surveys

Participant phone surveys were fielded in April and May 2023 for participants in the Efficient Buildings and Multi-Family programs. The surveys averaged about 20 minutes in length and covered the following topics:

- Verification of measures included in NMGC’s program tracking database;
- Satisfaction with the program experience;
- Survey responses for use in the free ridership calculations;
- Participation drivers and barriers; and
- Customer characteristics.

The goal was to complete 40 phone surveys for the Efficient Buildings program and a total of five phone surveys for the Multi-Family program. Ultimately, 40 phone surveys were completed for the Efficient Buildings program, with 31 direct install and nine non-direct install customers. The evaluation team completed five surveys with Multi-Family participants. Table 6 shows the distribution of completed surveys.

Table 6: NMGC Phone Survey Summary

Program	Customers with Valid Contact Info	Target # of Survey Completes	Completed Surveys
Efficient Buildings	78	40	40
Multi-Family	13	5	5
Total	91	45	45

The final survey instrument for the Efficient Buildings program is included as Appendix A, and the final survey instrument for the Multi-Family program is included as Appendix B.

1.2 Engineering Desk Reviews

To verify gross savings estimates, the evaluation team conducted engineering desk reviews for a sample of projects in the Efficient Buildings and Multi-Family programs. The goal of the desk reviews was to verify equipment installation, operational parameters, and estimated savings.



Section 1: Evaluation Methods

Both prescriptive and custom projects received desk reviews that included the following:

- Review of project description, documentation, specifications, and tracking system data;
- Confirmation of installation using invoices and supporting project documentation; and
- Review of project documentation, when available, detailing differences between installed equipment and subsequent adjustments.

For projects in the Efficient Buildings programs that used deemed savings values for prescriptive measures, the engineering desk reviews included the following:

- Review of measures available in the New Mexico TRM and utility Work Papers to determine the most appropriate algorithms that apply to the installed measure;
- Recreation of savings calculations using TRM or Work Paper algorithms and inputs as documented by submitted specifications, invoices, and other project documentation; and
- Review of New Mexico TRM algorithms to identify candidates for future updates and improvements.

For the custom projects included in the Efficient Buildings program, the engineering desk reviews included the following:

- Review of engineering analyses for technical soundness, proper baselines, and appropriate approaches for the specific applications;
- Review of input data for appropriate baseline specifications and variables such as weather data, bin hours, and total annual hours to determine if they are consistent with facility operation; and
- Consideration and review for interactive effects between affected systems.

For projects in the Multi-Family program, the engineering desk reviews included the following:

- Review of files provided by the implementation contractor for savings generated using the PSD Targeted Retrofit Energy Analysis Tool (TREAT) software for consistency;
- Ensured TREAT software utilized the correct equipment type, capacity, and efficiency;
- Cross checked data provided with values in the program tracking data; and
- Verification that the claimed equipment match the project documentation.



1.3 Net Impact Analysis

1.3.1 Self-Report Approach

The evaluation team estimated net impacts for the Efficient Buildings and Multi-Family programs using the self-report approach. This method uses responses to a series of carefully constructed survey questions to learn what participants would have done in the absence of the utility's program. The goal is to ask enough questions to paint an adequate picture of the influence of the program activities (rebates and other program assistance) within the confines of what can reasonably be asked during a phone survey.

With the self-report approach, specific questions that are explored include the following:

- What were the circumstances under which the customer decided to implement the project (i.e., new construction, retrofit/early replacement, replace-on-burnout)?
- To what extent did the program accelerate installation of high efficiency measures?
- What were the primary influences on the customer's decision to purchase and install the high efficiency equipment?
- How important was the program rebate on the decision to choose high efficiency equipment?
- How would the project have changed if the rebate had not been available (e.g., would less efficient equipment have been installed, would the project have been delayed)?
- Were there other program or utility interactions that affected the decision to choose high efficiency equipment (e.g., was there an energy audit done, has the customer participated before, is there an established relationship with a utility account representative, was the installation contractor trained by the program)?

The method used for estimating free ridership (and ultimately the NTG ratio) using the self-report approach is based on the 2017 Illinois Statewide Technical Reference Manual (TRM).⁴ For the NMGC programs, questions regarding free ridership were divided into several primary components:

- A **Program Component** series of questions that asked about the influence of specific program activities (rebate, customer account rep, contractor recommendations, other assistance offered) on the decision to install energy efficient equipment;

⁴ The full Illinois TRM can be found at Illinois Energy Efficiency Stakeholder Advisory Group. 2017. "IL Statewide TRM Version 6.0." https://www.ilsag.info/il_trm_version_6.html



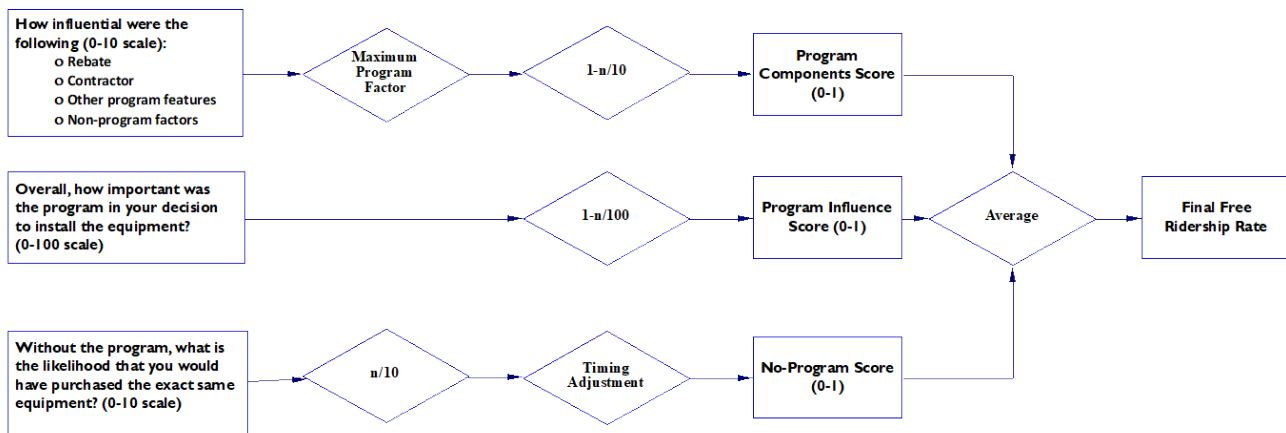
Section 1: Evaluation Methods

- A **Program Influence** question, where the respondent was asked directly to provide a rating of how influential the overall program was on their decision to install high efficiency equipment; and
- A **No-Program Component** series of questions, based on the participant’s intention to carry out the energy-efficient project without program funds or due to influences outside of the program.

Each component was assessed using survey responses that rated the influence of various factors on the respondent’s equipment choice. Since opposing biases potentially affect the main components, the *No-Program* component typically indicates higher free ridership than the *Program Component/Influence* questions. Therefore, combining these opposing influences helps mitigate the potential biases. This framework also relies on multiple questions that are crosschecked with other questions for consistency. This prevents any single survey question from having an excessive influence on the overall free ridership score. It also allows the evaluation team to review all of the responses together and check for consistency in responses, and to make adjustments to the final free ridership estimate if needed.

Figure 1 provides a simplified version of the scoring algorithm. In some cases, multiple questions were asked to assess the levels of efficiency and purchase timing in absence of the program. For each of the scoring components, the question responses were scored so that they were consistent and resulted in values between 0 and 1. Once this was accomplished, the three question components were averaged to obtain the final free ridership score.

Figure 1: Self-Report Free Ridership Scoring Algorithm



Source: Adapted by Evergreen Economics from the 2017 Illinois TRM.

More detail on each of the three question tracks is provided below.



Program Component Questions

The **Program Component** battery of questions was designed to capture the influence of the program on the equipment choice. These questions were also designed to be as comprehensive as possible so that all possible channels through which the program is attempting to reach the customer were included.

The type of questions included in the Program Component question battery included the following:

- How influential were the following on your decision to purchase your energy efficient equipment?
 - Rebate amount
 - Contractor recommendation
 - Utility advertising/promotions
 - Technical assistance from the utility (e.g., energy audit)
 - Recommendation from utility customer representative (or program implementer)
 - Previous participation in a utility efficiency program

As shown at the top of Figure 1, the question with the highest value response (i.e., the program factor that had the greatest influence on the decision to install a high efficiency measure) was the one that was used in the scoring algorithm as the Program Component score.

Program Influence Question

A separate **Program Influence** question asked the respondent directly to rate the combined influence of the various program activities on their decision to install energy efficient equipment. This question allowed the respondent to consider the program as a whole and incorporated other forms of assistance (if applicable) in addition to the rebate. Respondents were also asked about potential non-program factors (condition of existing equipment, corporate policies, maintenance schedule, etc.) to put the program in context with other potential influences.

The Program Influence question also provided a consistency check so that the stated importance of various program factors could be compared across questions. If there appeared to be inconsistent answers across questions (rebate was listed as very important in response to one question but not important in response to a different question, for example), then the interviewer asked follow-up questions to confirm responses. The verbatim responses were recorded and were reviewed by the evaluation team as an additional check on the free ridership results.

No-Program Questions

A separate battery of **No-Program** component questions was designed to understand what the customer might have done if the NMGC rebate program had not been available. With these



questions, the evaluation team attempted to measure how much of the decision to purchase the energy efficient equipment was due to factors that were unrelated to the rebate program or other forms of assistance offered by NMGC.

The types of questions asked for the No-Program component included the following:

- If the program had not existed, would you have
 - Purchased the exact same equipment?
 - Chosen the same energy efficiency level?
 - Delayed your equipment purchase?
- Did you become aware of the utility rebate program before or after you chose your energy efficient equipment?

The question regarding the timing of awareness of the rebate was used in conjunction with the importance rating the respondent provided in response to the earlier questions. If the respondent had already selected the high efficiency equipment prior to learning about the rebate **and** said that the rebate was the most important factor, then a downward adjustment was made on the influence of the rebate in calculating the Program Component score.

The responses from the No-Program questions were analyzed and combined with a timing adjustment to calculate the No-Program score, as shown in Figure 1. The timing adjustment was made based on whether or not the respondent would have delayed their equipment purchase if the rebate had not been available. If the purchase would have been delayed by one year or more, then the No-Program score was set to zero, thereby minimizing the level of free ridership for this algorithm component only. As an additional check on free ridership, verbatim responses were reviewed by the evaluation team, and scores have been adjusted to better reflect program influence.

Free Ridership and NTG Calculation

The values from the Program Component score, the Program Influence score, and the No-Program score were averaged in the final free ridership calculation; the averaging helped reduce potential biases from any particular set of responses. The fact that each component relied on multiple questions (instead of a single question) also reduced the risk of response bias. As discussed above, additional survey questions were asked about the relative importance of the program and non-program factors. These responses were used as a consistency check, which further minimized potential bias. In some cases, adjustments to the free ridership rate may be made during the evaluation if responses regarding program influence are inconsistent across the survey components.

Once the self-report algorithm was used to calculate free ridership, the total NTG ratio was calculated using the following formula:



$$\text{Net-to-Gross Ratio} = (1 - \text{Free Ridership Rate})$$

As mentioned in the Executive Summary, beginning in 2021, any updates to program NTG ratios will be applied prospectively. As a result, the NTG ratios for the Efficient Buildings, ENERGY STAR Water Heating, and ENERGY STAR Space Heating programs developed in the PY2021 evaluation are being applied to the PY2022 results. Additionally, due to the Multi-Family NTG ratio not being updated since the prior evaluation team before 2017 and due to the small sample sizes, the PY2023 NTG ratio is calculated by averaging the results from the prior evaluation with the PY2022 results. The NTG ratios calculated using the PY2022 data will then be applied to the PY2023 results.

1.4 Gross and Net Realized Savings Calculations

The final step in the impact evaluation process is to calculate the realized gross and net savings, based on the program-level analysis described above. The **Gross Realized Savings** are calculated by taking the original *ex ante* savings values from the participant tracking databases and adjusting them using an **Installation Adjustment** factor (based on the count of installed measures verified through the phone surveys) and an **Engineering Adjustment** factor (based on the engineering analysis, desk reviews, etc.):

$$\text{Gross Realized Savings} = (\text{Ex Ante Savings}) * (\text{Installation Adjustment}) * (\text{Engineering Adjustment Factor})$$

Net Realized Savings are then determined by multiplying the Gross Realized Savings by the net-to-gross ratio:

$$\text{Net Realized Savings} = (\text{Net-to-Gross Ratio}) * (\text{Gross Realized Savings})$$

1.5 Cost Effectiveness

The cost effectiveness of NMGC's programs was tested using the Utility Cost Test (UCT). In the UCT, the benefits of a program are the present value of the net energy saved, and the costs are the present value of the program's administrative costs plus incentives paid to customers. To perform the cost effectiveness analysis, the evaluation team requested the following from NMGC:

- Program costs (all expenditures associated with program delivery);
- Avoided cost of energy (costs per therm over a 20-year time horizon);
- Discount rate (percentage used to calculate the net-present value of future savings);
- Distribution loss factor (percentage used to adjust avoided cost for distribution losses);
- Proportions of programs that are targeted at low-income customers; and



Section 1: Evaluation Methods

- Any additional (i.e., non-low-income) assumed non-energy benefits, expressed in monetary terms or as a percentage of savings for each measure or program.

In response to the request for these data, NMGC provided its annual average avoided costs, discount rate, and program administrative costs. The avoided costs provided were in 2017 dollars, and so an inflation rate and a discount rate provided by NMGC were applied to analyze avoided costs in terms of 2022 dollars. This approach is consistent with previous years. NMGC does not quantify the distribution loss factor separate from the avoided cost of energy.

The evaluation team obtained the program savings and effective useful life values from the final PY2022 tracking data submitted by NMGC. The final net energy savings values estimated from the PY2022 impact evaluation were used in the final cost effectiveness calculations.

Additionally, Section 17.7.2.9.B(4) of the New Mexico Energy Efficiency Rule allows utilities to claim utility system economic benefits for low-income programs equal to 20 percent of the calculated energy benefits. The evaluation team applied this 20 percent adder to the benefits calculated for the Income Qualified program.

The evaluation team input the savings and cost data into a cost effectiveness model that calculated the benefits, costs, and benefit-cost ratio for each measure, project, or program entered, and rolled up the data into program-level UCT values.



2 Impact Evaluation Results

The results of the PY2022 impact evaluation are shown in Table 7. As noted previously, each program is required to be evaluated a minimum of once every three years. For 2022, the evaluated programs covered 52 percent of the *ex ante* therm savings.

Table 7: PY2022 Savings Summary – Therms

Program	# of Projects	Expected Gross Therm Savings	Engineering Adjustment Factor	Realized Gross Therm Savings	NTG Ratio	Realized Net Therm Savings
Efficient Buildings	119	921,198	0.9632	887,285	0.9191	815,504
Income Qualified	493	195,696	1.0000	195,696	1.0000	195,696
Multi-Family Low Income	653	217,054	0.9980	216,630	1.0000	216,630
Multi-Family Market Rate	367	48,319	0.9980	48,225	0.8500	40,991
ThermSmart New Homes	979	475,505	1.0000	475,505	0.7333	348,688
ENERGY STAR Water Heating	548	60,364	1.0000	60,364	0.5854	35,338
ENERGY STAR Water Heating – New Construction	96	17,786	1.0000	17,786	0.7333	13,043
ENERGY STAR Water Heating – Direct Mail	2,510	62,479	1.0000	62,479	0.6000	37,488
ENERGY STAR Water Heating – Home Energy Checkup	991	17,719	1.0000	17,719	1.0000	17,719
ENERGY STAR Space Heating – Furnace and Insulation	1,222	217,896	1.0000	217,896	0.7313	159,499
ENERGY STAR Space Heating – Smart Thermostats	833	39,090	1.0000	39,090	0.7700	30,100
Total	8,811	2,273,106		2,238,675		1,910,696



Section 2: Impact Evaluation Results

Lifetime therm savings are shown in Table 8 by program and for the portfolio overall. This includes expected gross, realized gross, and realized net lifetime savings.

Table 8: PY2022 Lifetime Savings Summary – Therms

Program	Expected Gross Lifetime Savings (therms)	Realized Gross Lifetime Savings (therms)	Realized Net Lifetime Savings (therms)
Efficient Buildings	8,490,038	8,177,486	7,515,927
Income Qualified	4,123,099	4,123,099	4,123,099
Multi-Family Low Income	3,272,470	3,266,077	3,266,077
Multi-Family Market Rate	623,411	622,198	528,868
ThermSmart New Homes	10,936,615	10,936,615	8,019,835
ENERGY STAR Water Heating	2,209,108	2,209,108	1,428,453
ENERGY STAR Space Heating	4,755,940	4,755,940	3,495,269
Total	34,410,681	34,090,523	28,377,528

Details on the individual program impacts are summarized below, with additional details on the analysis methods and results for some programs included as appendices where noted.



2.1 Efficient Buildings Program

2.1.1 Efficient Buildings Gross Impacts

The *ex ante* PY2022 impacts are summarized in Table 9 for the Efficient Buildings program. In total, the Efficient Buildings program accounted for 41 percent of energy impacts in NMGC's overall portfolio for PY2022.

Table 9: Efficient Buildings Program Savings Summary

Measure Category	# of Projects	Expected Gross Therm Savings
Custom	27	589,296
Prescriptive	27	14,699
Direct Install	65	317,203
Total	119	921,198

The majority of the gross impact evaluation activities were devoted to engineering desk reviews of a sample of projects. For the desk reviews, the sample frame included projects across the prescriptive, custom, and direct install categories. The sample was stratified to cover a range of different measure types so that no single measure would dominate the desk reviews. The sample was also stratified based on total energy savings within each measure group. Overall, the sampling strategy ensured that a mix of projects in terms of both project size and measure type would be included in the desk reviews.

The final sample design is shown in Table 10. The resulting sample achieved a relative precision of 90/5 for the program overall.

Table 10: Efficient Buildings Program Desk Review Sample

Measure Group	Stratum	Count	Average Therms	Total Therms	% of Savings	Final Sample
Custom	0	1	239,977	239,977	26%	1
	1	5	40,801	204,004	22%	3
	2	21	6,920	145,315	16%	2
Prescriptive Kitchen Appliance	1	6	665	3,988	<1%	3
	2	21	313	6,255	1%	2
Water Conservation	0	3	384	1,152	<1%	3



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Weather Stripping	0	2	29,681	59,363	6%	2
	1	5	14,961	74,803	8%	2
	2	15	7,137	107,061	12%	2
	3	40	1,934	79,280	9%	2
Total		119	34,277	921,198	100%	22

As discussed in the Evaluation Methods section, the evaluation team determined gross realized impacts by performing engineering desk reviews on the sample of projects.

For prescriptive projects in the Efficient Buildings program, some of the measure savings were calculated using algorithms and assumptions contained in the New Mexico TRM. For projects where these types of measures were installed, the evaluation team reviewed project-specific inputs and project documentation to confirm that the proper TRM algorithms and associated input values were used.

Savings for prescriptive weather stripping and commercial cooking equipment measures in the Efficient Buildings program were calculated using algorithms and assumptions documented in the utility Work Papers prepared by the program implementer, CLEAResult, for NMGC. The evaluation team reviewed the general assumptions and methodologies contained in the Work Papers for accuracy and appropriateness. For projects where these measures were installed, the evaluation team reviewed project-specific inputs and project documentation to confirm that the proper input values were used.

Custom projects in the Efficient Buildings program calculated savings using a variety of spreadsheet-based methods. The analyses submitted were reviewed by the evaluation team to ensure accuracy of the calculation methodology used, including verification that proper inputs were used based on submitted supporting documentation. When applicable, approaches and assumptions used in custom analyses were compared to those contained in the New Mexico TRM.

Table 11 shows the result of the desk reviews and how the resulting engineering adjustment factor was used to calculate realized savings. For the Efficient Buildings program overall, these adjustments resulted in an engineering adjustment factor of 0.9632.

Table 11: PY2022 Efficient Buildings Program Gross Impact Summary

Program	# of Projects	Expected Gross Therm Savings	Engineering Adjustment Factor	Realized Gross Therm Savings
Efficient Buildings	119	921,198	0.9632	887,285



Engineering adjustment factors that varied from 1.0 for individual projects were due to the following reasons:

- The evaluation team modified savings for several projects in the sample that installed efficient commercial kitchen gas fryers. The supplied energy savings calculations utilized the average value of gas savings (therms) for various facility types for both the Standard and Large Vat fryers in the savings algorithm. The modification decreased the savings for some projects and increased savings for other projects.
 - **Recommendation:** Use the deemed savings values listed in the NMGC Commercial Kitchen Work Papers for the applicable facility type.
- The evaluation team modified savings for custom project number RBT-3061461.
 - The *ex ante* calculation considered a boiler efficiency of 86%. The combustion efficiency test certificate indicated an 86.6% combustion efficiency. The evaluator assumed other boiler losses to be minimal and considered this as boiler efficiency.
 - **Recommendation:** Utilize the combustion efficiency test certificate for the combustion efficiency value.
 - The *ex ante* calculated discharge rate of steam leaking from steam trap from the Armstrong Steam Leak Calculator. Since the link provided in the Final Calculation file no longer exists, it was not possible to verify the leaking steam discharge rate as considered in the *ex ante* calculations. The evaluator considered the same steam leak rate as per the screenshots of calculations provided in *ex ante* calculations.
 - **Recommendation:** Ensure custom projects are equipped with functioning links and/or files for the evaluation team to analyze and verify.
- The evaluation team modified savings for custom project number RBT-2998769.
 - The *ex ante* calculation considered a pool surface area of 6,048.17 square feet. The *ex post* analysis revised the surface area of the pool to 5,877 square feet based on project documentation verification and Google Earth.
 - **Recommendation:** Utilize information provided in project documentation for variables such as pool surface area.
 - The passive solar heat gain in the *ex ante* calculation was only for 1 m² of the pool surface area, and was not multiplied by the total pool area. The *ex post* analysis considered the solar heat gain for the total surface area of the pool which increased the total solar heat gain.
 - **Recommendation:** Ensure total surface area is utilized where applicable.

2.1.2 Efficient Buildings Net Impacts

Net impacts for the Efficient Buildings program were calculated using an NTG ratio that was developed using the self-report method described in the Evaluation Methods section using



participant phone survey data. For all direct install projects and steam trap projects (which involved a steam trap test provided by the program), an NTG ratio of 1.00 was applied.⁵ The resulting NTG ratio for the Efficient Buildings program overall is 0.9191. This is a weighted average of the NTG ratio for custom and prescriptive projects from the participant survey and the assumed NTG ratio of 1.00 for direct install projects. In PY2023, the NTG ratio will change from 0.9191 to 0.9190.

Table 12 summarizes the PY2022 net impacts for the Efficient Buildings program using the NTG ratio described above. Net realized savings for the program overall are 815,504 therms.

Table 12: PY2022 Efficient Buildings Program Net Impact Summary

Program	# of Projects	Realized Gross Therm Savings	NTG Ratio	Realized Net Therm Savings
Efficient Buildings	119	887,285	0.9191	815,504

2.2 Multi-Family Program

The Multi-Family program is implemented by International Center for Appropriate and Sustainable Technology (ICAST) as a turnkey program for multi-family buildings, including both market rate and low-income properties. Efficiency upgrades are available for individual tenant units as well as for common areas at a reduced project cost that reflects the incentive offered by NMGC. In PY2022, projects consisted of low-income direct installs, market rate direct installs, and market rate deep retrofits. In total, the Multi-Family program accounted for 12 percent of energy impacts in NMGC’s overall portfolio for PY2022.

For the Multi-Family program, the gross impact analysis consisted of an engineering desk review of a statistically representative sample of projects. A stratified random sample was used to select the projects for review, as shown in Table 13. A total of 11 projects were reviewed, which was a sufficient sample to achieve a 90/3 level of relative precision.

⁵ NMGC currently has an *ex ante* NTG ratio of 1.00 for direct install projects, and the evaluation team agrees this is appropriate, as the targeted customers are very unlikely to complete these projects on their own. This is analogous to assigning an NTG ratio of 1.00 to low-income programs, which is typically done for the same reason.



Table 13: Multi-Family Program Desk Review Sample

Program	Stratum	Count	Average Therms	Total Therms	% of Savings	Final Sample
Multi-Family	0	8	28,345	204,135	77%	8
	1	12	5,103	61,238	23%	3
Total		20	16,724	265,373	100%	11

Savings for measures in the Multi-Family program were quantified using algorithms and assumptions contained in the program’s Technical Resource Library (TRL). Most of the algorithms in the TRL are taken from the New Mexico TRM, with others taken from sources such as the Texas TRM. The evaluation team reviewed the approaches from the New Mexico TRM to ensure that they were being applied correctly and reviewed the approaches from other sources to determine if any adjustments or alternative methods were appropriate.

Based on this review, the evaluation team made adjustments to project savings for the following reasons:

- The evaluation team adjusted the savings for two of the sampled projects that included the installation of low-flow faucet aerators. The evaluated savings was calculated using the methodology in the 2020 TRM and the corresponding flow rates found in the tracking data.
- The evaluation team adjusted the savings for two of the sampled projects that included the installation of low-flow faucet aerators, kitchen aerators, and showerheads to be consistent with the climate zone water temperatures. The evaluation team calculated the savings for each of the projects using the water temperatures and savings methodology in the 2020 TRM.
- There were 3 sampled projects that included the installation of programmable and smart thermostats where the savings were adjusted as part of the evaluation review. The engineering adjustments range from 0.84 to 1.20 depending on the climate zone where the measure is installed. The savings assumptions appear to use consistent unit efficiencies, ages, and capacities for every thermostat installation, when there may be notable differences between buildings. The evaluation team utilized the savings methodology and default algorithm inputs listed in the 2020 TRM to calculate the *ex post* savings.

The resulting engineering adjustment factor for the Multi-Family program is 0.9980. A summary of the individual desk review findings for each of the sampled projects is included in Appendix E.

For net impacts, the NTG ratio for low-income properties is assumed to be 1.0000. For market rate deep retrofits, the evaluation team applied the *ex ante* value of 0.8500.



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The final realized gross and net savings in therms are shown in Table 14.

Table 14: Multi-Family Program PY2022 Impact Summary

Program	# of Projects	Expected Gross Therm Savings	Engineering Adjustment Factor	Realized Gross Therm Savings	NTG Ratio	Realized Net Therm Savings
Multi-Family Low Income	653	217,054	0.9980	216,630	1.0000	216,630
Multi-Family Market Rate	367	48,319	0.9980	48,225	0.8500	40,991
Total	1,020	265,373		264,855		257,621



3 Cost Effectiveness Results

The evaluation team calculated cost effectiveness using the Utility Cost Test (UCT) for each individual NMGC energy efficiency program, as well as the cost effectiveness of the entire portfolio of programs.⁶ The evaluation team conducted these tests in a manner consistent with the California Energy Efficiency Policy Manual.⁷

Cost effectiveness tests compare relative benefits and costs from different perspectives. The specific cost effectiveness test used in this evaluation, the UCT, compares the benefits and costs to the utility or program administrator implementing the program. The UCT explicitly accounts for the benefits and costs shown in Table 15.

Table 15: Utility Cost Test Benefits and Costs

Benefits	Costs
<ul style="list-style-type: none"> • Utility avoided energy-related costs • Utility avoided capacity-related costs, including generation, transmission, and distribution 	<ul style="list-style-type: none"> • Program overhead/ administrative costs • Utility incentive costs • Utility installation costs

Using net realized savings from this evaluation and cost information provided by NMGC, the evaluation team calculated the ratio of benefits to costs for each of NMGC’s programs and for the portfolio overall. The results of the UCT are shown in Table 16. The portfolio overall was found to have a UCT ratio of 1.65.

⁶ The Utility Cost Test is sometimes referred to as the Program Administrator Cost Test, or PACT.

⁷ California Public Utilities Commission. 2020. *California Energy Efficiency Policy Manual – Version 6*. <https://www.cpuc.ca.gov/-/media/cpuc-website/files/legacyfiles/e/6442465683-ee-policy-manual-revised-march-20-2020-b.pdf>



Section 3: Cost Effectiveness Results

Table 16: PY2022 Cost Effectiveness

Program	Utility Cost Test (UCT)
Efficient Buildings	1.88
Income Qualified	1.17
Multi-Family	1.45
ThermSmart New Homes	2.44
ENERGY STAR Water Heating	1.27
ENERGY STAR Space Heating	2.13
Overall Portfolio	1.65

Through conversations with the utility regarding Non-Energy Benefits (NEBs), the utility expressed interest in quantifying all benefits associated with the installed measures. The evaluation team will investigate these additional benefits in the future as they relate to water savings associated with low-flow showerheads, faucet aerators, and pre-rinse spray valves energy efficiency measures.



4 Process Evaluation Results

This section summarizes key methods and findings from the PY2022 process evaluation of the NMGC Efficient Buildings and Multi-Family programs. These findings, along with findings from the impact evaluation, inform the conclusions and recommendations presented in the following section.

Throughout the analysis described here, the evaluation team presents the survey results as weighted percentages based on the proportion of savings represented by survey respondents relative to the total savings of all program participants.

4.1 Efficient Buildings Program Participant Surveys

The evaluation team conducted phone surveys with representatives from 40 participating companies (31 direct install and 9 non-direct install) that received rebates through the NMGC Efficient Buildings program. These surveys were completed in May 2023 and ranged from 15 to 20 minutes in length.

The participant survey was designed to cover the following topics:

- Verification of the measure installations included in the program tracking database;
- Collection of information on participants' satisfaction with the program experience;
- Survey responses for use in the free ridership calculations;
- Baseline data on energy use and/or equipment holdings;
- Participant drivers and barriers; and
- Additional process evaluation topics.

NMGC provided program data on the Efficient Buildings participant projects, which allowed us to select a sample for surveys. The evaluation team randomly selected and recruited program participants from the population of Efficient Buildings program participants that had valid contact information.

The following subsections report results on company demographics, sources of program awareness, motivations for participation, and program satisfaction.

4.1.1 Company Demographics

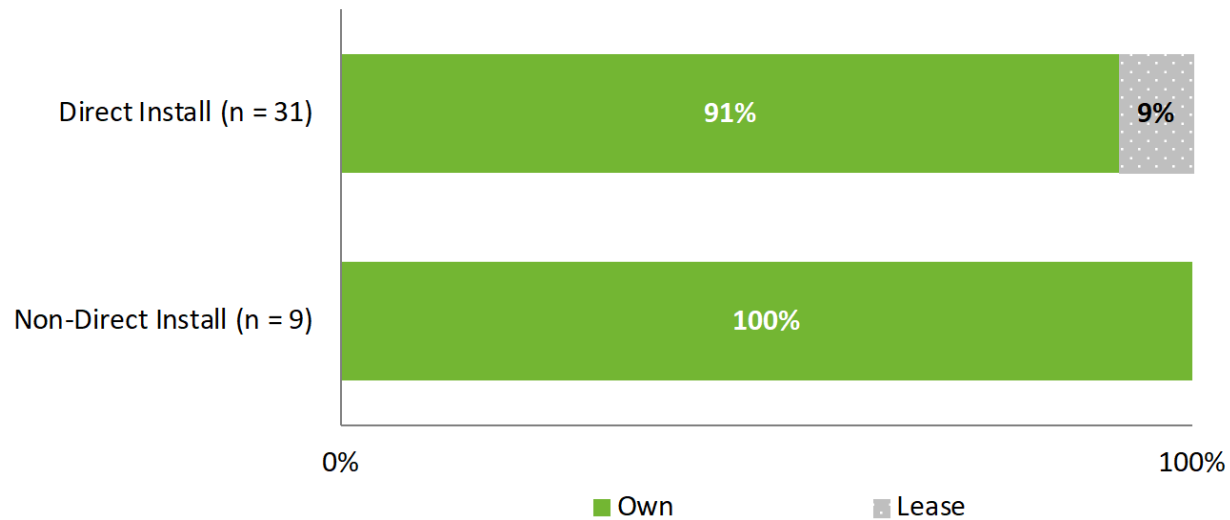
The evaluation team asked survey respondents whether their company owns or leases the building where the project was completed. Ninety-one percent of participants with direct install projects



Section 4: Process Evaluation Results

and 100 percent of participants with non-direct install projects reported that they own their building (Figure 2).

Figure 2: Participant Buildings Ownership



The following two figures summarize the survey respondents' building size and number of employees by whether they had direct install or non-direct install projects. Figure 3 shows that most businesses serviced through the direct install program were over 5,000 square feet in size (66%). Businesses serviced through the non-direct install program were mainly over 10,000 square feet (98%). Figure 4 presents participant number of full-time employees. Direct install projects were more commonly completed by small-sized businesses, with 85 percent reporting 19 or fewer employees. Non-direct install projects were more commonly completed by businesses with 20 or more full-time employees (91%).



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Figure 3: Participant Building Square Footage

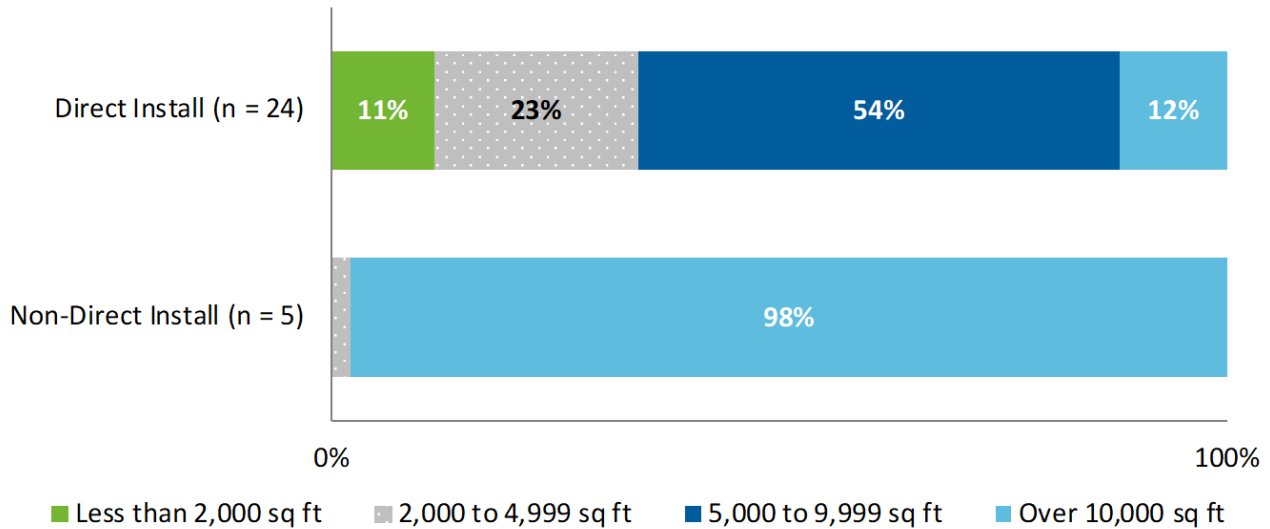
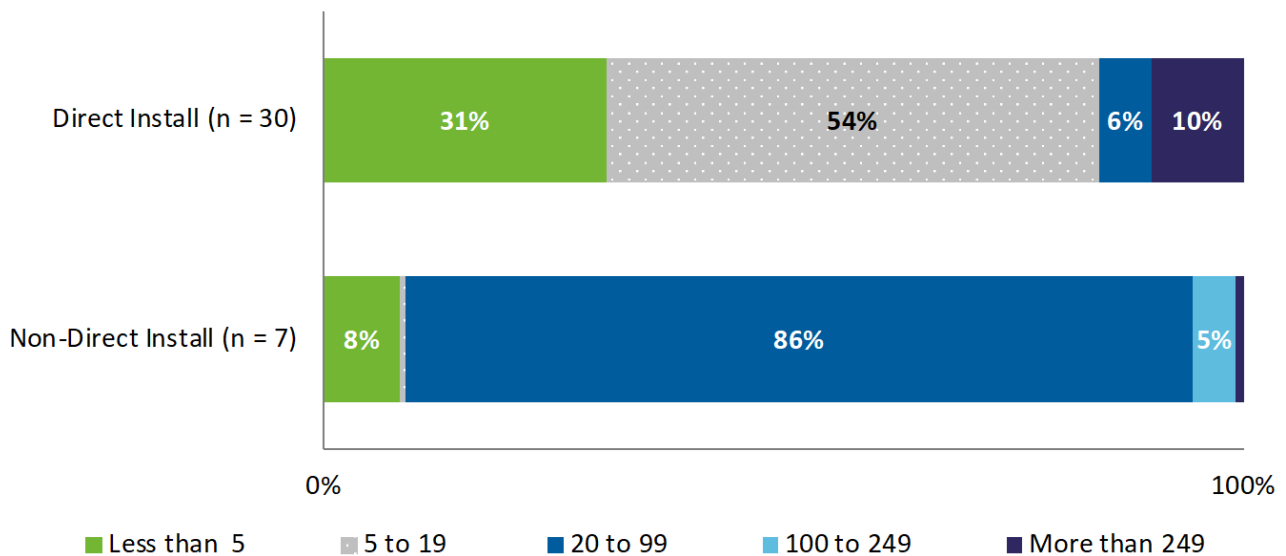


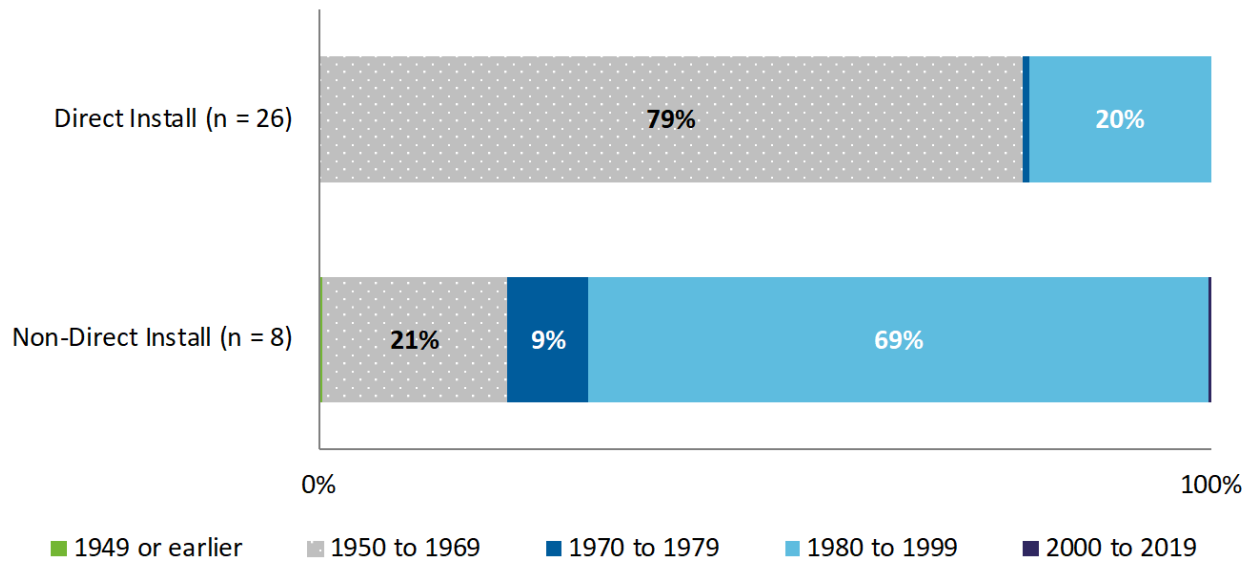
Figure 4: Participant Number of Full-Time Employees



When asked to report the year when their buildings were built, 79 percent of direct install participants estimated that their building was built between 1950 to 1969. Non-direct install participants were more likely to report newer buildings, with 69 percent built in 1980 or after (Figure 5).



Figure 5: Participant Building Age



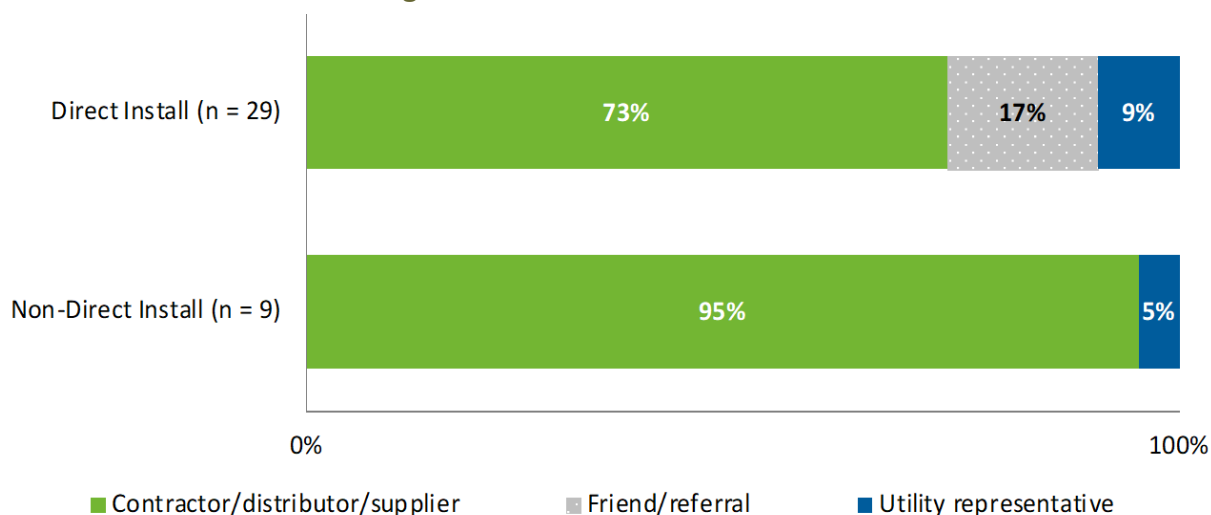
4.1.2 Sources of Awareness

Efficient Buildings program participants became aware of the program rebates and assistance through a variety of sources, including contractors, distributors, suppliers, utility representatives or utility marketing, and friends/referrals.

Figure 6 shows that both direct install and non-direct install participants most commonly reported first hearing about the program through a contractor, distributor, or supplier (73% and 95%, respectively). Participants were then asked to identify which sources were most useful in the decision to participate in the program. All participants attributed utility informational material—such as program staff, the implementer, or the utility website—as the most influential source to their decision to participate.



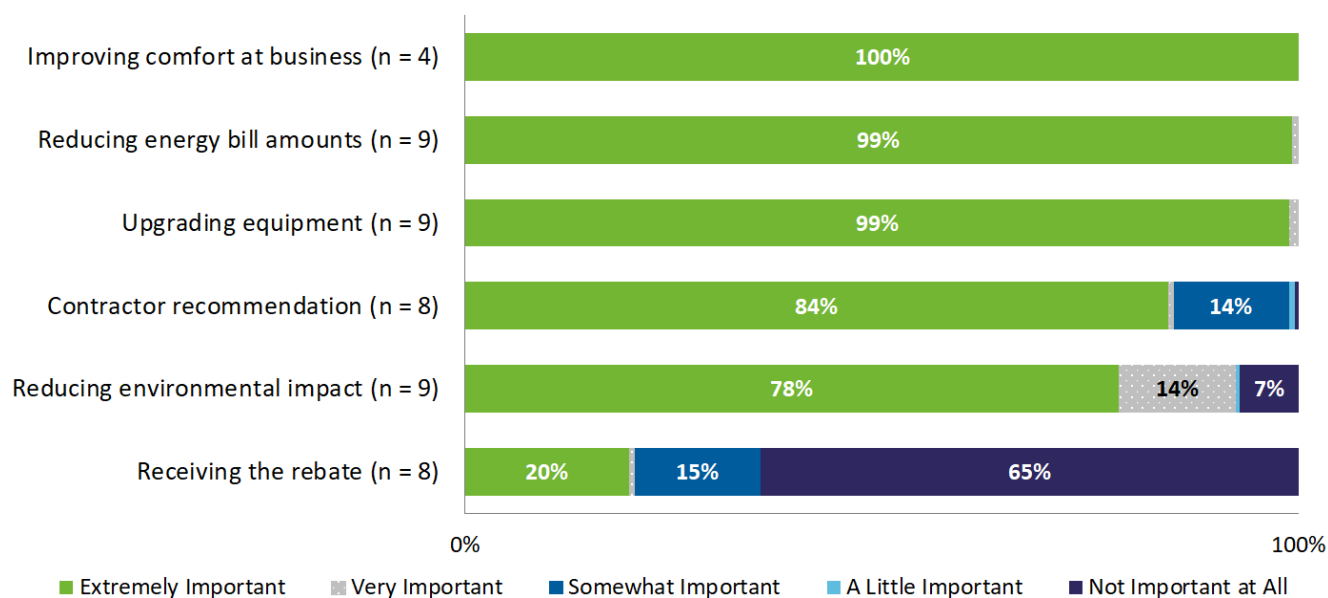
Figure 6: Initial Source of Awareness



4.1.3 Motivations for Participation

Figure 7 shows the level of importance placed on a variety of factors that might be influencing non-direct install customers to participate in the program. Participants were most likely to cite factors such as improving comfort at business, reducing energy bill amounts, upgrading equipment, and the contractor recommendations as extremely important. Receiving the rebate was the least important factor in their decision, with 65 percent rating it as not important at all.

Figure 7: Motivations for Participation

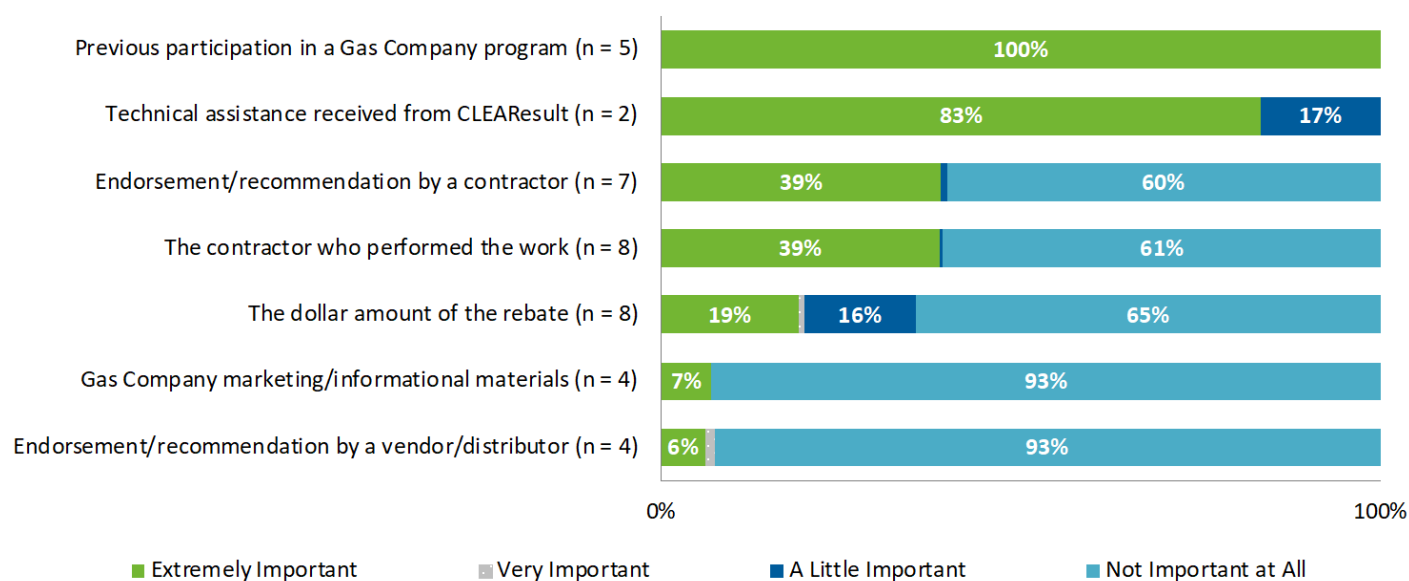




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In addition to motivations for participating, non-direct install respondents were given a list of potential program and non-program factors that may have influenced their decision about how energy efficient their equipment would be and were then asked to rate their importance on a 0-to-10-point scale.⁸ Figure 8 shows that 100 percent of participants rated previous participation in a Gas Company program as extremely important. Additionally, 83 percent reported that the technical assistance from CLEAResult was extremely important to influencing their decision about how energy efficient their equipment would be.

Figure 8: Importance of Program Factors

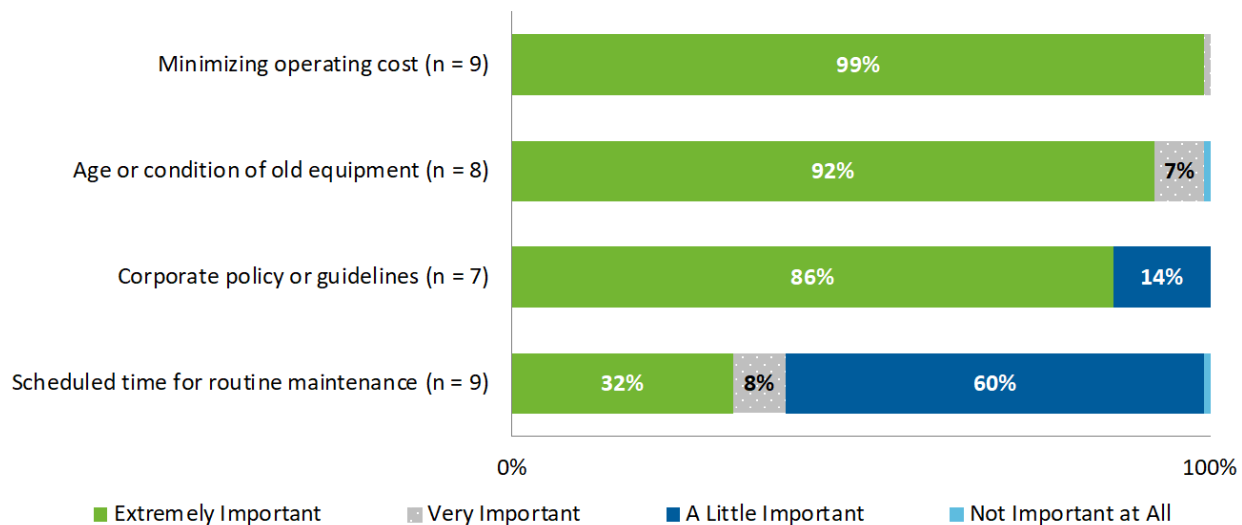


Similarly, participants ranked non-program factors that may have played a role in their decision to determine how energy efficient their project would be (Figure 9). Minimizing operating costs and the age or condition of the old equipment were the most influential non-program factors in their decision regarding the efficiency level of the equipment, with 99 percent of participants rating these factors as extremely or very important. Scheduled time for routine maintenance had the highest percentage of participants ranking it as a little important (60%) in their decision to determine the efficiency level of their equipment.

⁸ On the 0-to-10-point scale, 0 indicated “not at all important” and 10 indicated “extremely important.”



Figure 9: Importance of Non-Program Factors



4.1.4 Participant Satisfaction

The participants evaluated their satisfaction with various components of the Efficient Buildings program on the following scale: very satisfied, somewhat satisfied, neither satisfied nor dissatisfied, somewhat dissatisfied, and very dissatisfied. The individual components that participants were asked to rank their satisfaction with included:

- NMGC as an energy provider
- The rebate program overall
- The equipment installed through the program
- The contractor who installed the equipment
- Overall quality of the equipment installation
- The time it took to receive the rebate
- The dollar amount of the rebate
- Interactions with NMGC
- The overall value of the equipment for the price they paid
- The time and effort required to participate
- The project application process

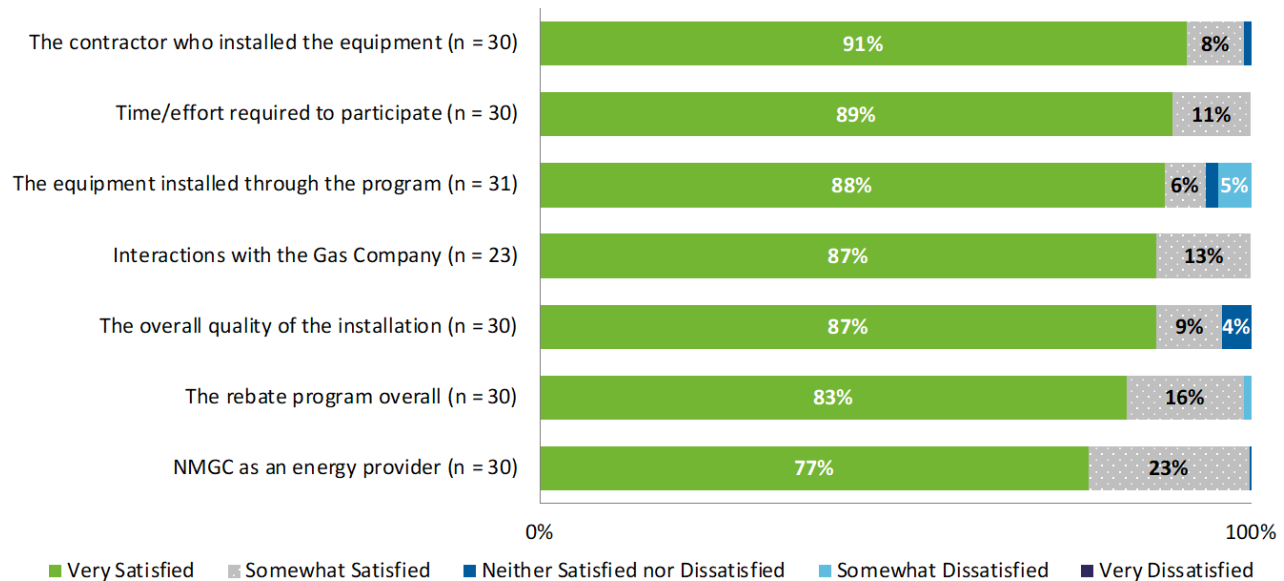
Figure 10 and Figure 11 summarize the satisfaction levels for direct install and non-direct install rebate participants.



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Overall, surveyed participants expressed high levels of satisfaction with the direct install and non-direct install program components. Direct install participants expressed high levels of satisfaction across each individual program component, with the majority of respondents reporting being very satisfied (Figure 10).

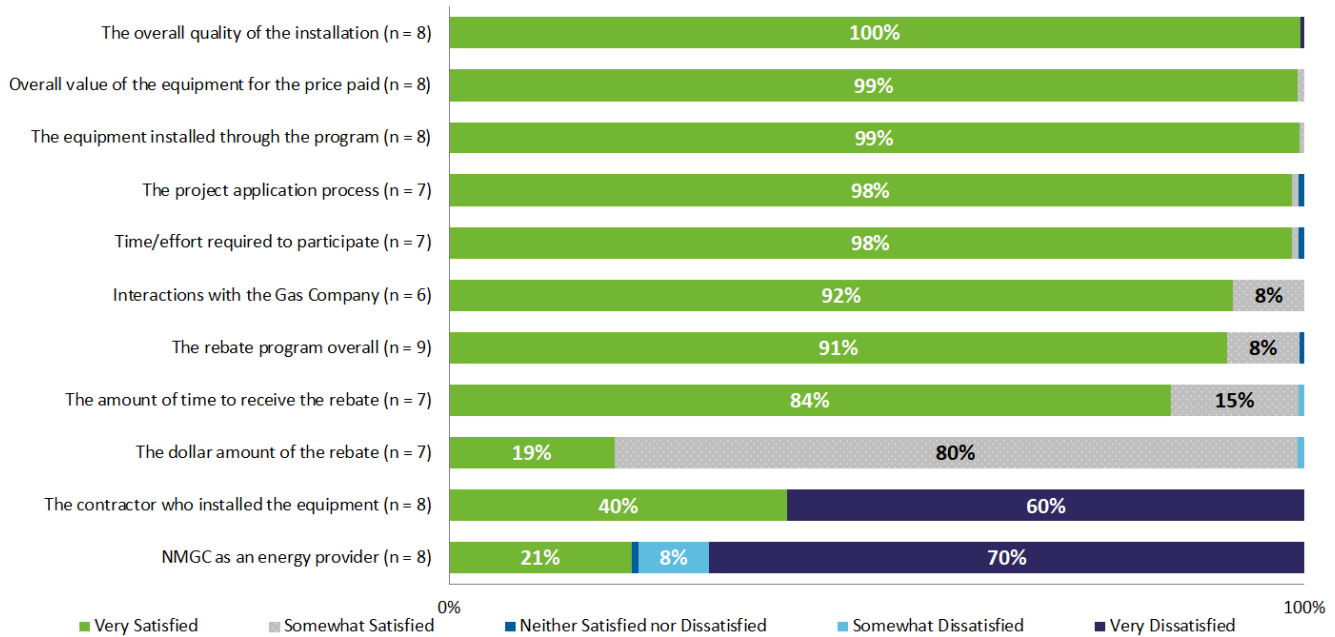
Figure 10: Direct Install Participant Program Satisfaction



As shown in Figure 11, non-direct install participants also expressed high levels of satisfaction, with over 80 percent of participants reporting being very satisfied with eight of the eleven program components. Respondents reported being very dissatisfied with the contractor who installed the equipment (60%), and NMGC as an energy provider (70%). When asked to elaborate on their dissatisfaction, one respondent noted that the contractor walked away from the job unfinished and increases in NMGC energy prices as reasons.



Figure 11: Non-Direct Install Participant Program Satisfaction



4.2 Efficient Buildings Program Contractor Interviews

The evaluation team conducted five telephone interviews with contractors who participated in the Efficient Buildings program in PY2022. The interviews ranged from 15 to 30 minutes and covered the following topics:

- Contractor background and program involvement;
- Role and influence of program in the market; and
- Program satisfaction.

4.2.1 Contractor Background and Program Involvement

The interviewed contractors varied in regard to the scope of their work and geographic reach of their businesses. Respondents work in both the commercial and industrial sectors and completed projects in schools, hotels, hospitals, and data centers. Interviewed contractors work across the state with a focus on Santa Fe, Albuquerque, and Los Alamos. The contractors offer a range of services, some more specialized than others. The contractors noted that their work encompasses general HVAC, lighting, or restaurant equipment; others said that they specialize in commercial boilers and energy audits and modeling.



4.2.2 Program Involvement

All the interviewed contractors reported an understanding and awareness of the Efficient Buildings program prior to the 2022 program year. Three of the contractors attributed this awareness to existing institutional processes, such as learning about the program through a colleague. Two of the contractors were tasked to investigate rebate opportunities for customers.

The interviewed contractors described the ways that they are involved with the program. None of the interviewees interacted directly with NMGC, but most mentioned engaging with the NMGC implementer for this program. The contractors shared that their interactions with the program entail supporting customers through the paperwork process of the rebate program. Interviewees engage with the NMGC implementer with questions about the paperwork process, qualifying services, or general program inquiries.

The contractors elaborated on types of reoccurring questions that arise. Three of the five interviewed contractors felt that NMGC makes it clear which products or services are eligible for rebates. Two contractors expressed that it is difficult to know with certainty which products or services are eligible.

To build a better understanding of how the contractors engage with the program, the evaluation team asked how the energy efficiency program impacts businesses. All the contractors said that the rebate program is helpful for their customers or clients. As a result, the businesses benefit from increased customer satisfaction and even increased product sales. One contractor emphasized that “the product we sell is energy efficiency. So, [the NMGC Efficient Buildings program] helps achieve that”.

4.2.3 Program Influence

To gauge the level of influence the Efficient Buildings program has on the market for energy efficient equipment, the evaluation team explored when contractors communicate about the NMGC rebates with customers and what role they play in the contractors’ and customers’ ultimate choices.

All the interviewed contractors shared that they promote the program and its rebates as soon as possible. One contractor shared that they include the program’s incentives in proposals and the other said that their business advertises the program on their store’s windows.

The rebate program has influenced the types of measures contractors suggests to their customers. One contractor clarified that while the program has not influenced specific brands to promote, it has made selling higher energy efficient equipment a priority.



4.2.4 Program Satisfaction

Contractors were asked to quantify their level of satisfaction with the program overall using a 1 to 5-point scale, with 1 being very dissatisfied and 5 being very satisfied. Contractors were then asked to estimate their customers' satisfaction with the program using the same 1 to 5-point scale. The interviewed contractors estimated customer satisfaction as a 4 on the scale, indicating relatively high levels of satisfaction.

Interviewees identified areas of potential improvement or ideas that they hoped NMGC would consider. These included:

- **Increasing customer service contacts** – Interviewed contractors expressed a desire for more customer service support. One contractor felt that the inaccessibility of their customer service contact was a barrier to their interaction with the program.
- **Adding more information to program website**—Contractors explained that it was difficult to find program-specific information online, and that customers, contractors, and businesses would benefit from having more detail on eligible products or services.
- **Advertising to small businesses**—One contractor identified small businesses as a market that they felt New Mexico Gas Company Efficient Buildings program is not reaching well.

4.3 Multi-Family Participant Surveys

The evaluation team completed five in-depth interviews with PY2022 NMGC Multi-Family program participants. The interviewees represented a variety of completed projects including both market rate and low-income multi-family properties. The interviews covered the following topics:

- Participant background and program involvement;
- Role and influence of the program in the market; and
- Program satisfaction.

4.3.1 Participant Background and Program Involvement

Interviewees had varying levels of interaction with the NMGC Multi-Family program directly; however, all five confirmed they could speak to the program's impact on specific efficiency projects at their properties and were the primary decision makers for participating in the program. Interviewees consisted of property owners, property managers, and an energy efficiency consultant. The size of the properties that received rebates through the Multi-Family program ranged from approximately 20 to 100 units.

Most of the participants reported an understanding and awareness of the Multi-Family program prior to the 2022 program year. These participants attributed their awareness to NMGC itself. Other participants noted that they learned about the program through word-of-mouth.



4.3.2 Program Influence

To gauge the level of influence the Multi-Family program has on the market for energy efficient equipment, the evaluation team explored when participants include the program in their decision-making process and what role the program plays in their ultimate choices.

When asked to discuss the ways in which the program is helpful to property owners/managers and their tenants, all participants were consistent in their response. Each participant reported the program as being very helpful in making the energy efficient upgrades. The participants shared that they were planning to make the upgrades but would not have made as timely nor as energy efficient of purchases without the program. One participant shared that they had to make their equipment upgrade because of an emergency; the Multi-Family program allowed this property manager to make a “better decision” in that situation.

Participants were asked to quantify and provide additional context to the program’s level of influence on their decisions. Participants were asked to rate their likelihood of installing the same equipment with the same efficiency level without the program using a 0 to 10-point scale, with 0 being not at all likely and 10 being extremely likely. On average, the participants rated the likelihood of installing the same equipment with the same efficiency level as somewhat unlikely (rating a “3.5” overall), meaning the program did have some influence on decision-making. One participant offered a project-specific nuance, noting that the program had less influence on their thermostat upgrades, but moderate influence on their aerator upgrades.

The participants struggled to estimate when they would have made the upgrades without the program. A couple of participants estimated within the next year or so, but other participants guessed that some of their equipment could have lasted up for another five years. Overall, participants make equipment upgrades on a case-by-case basis, as opposed to by a routine schedule.

4.3.3 Program Satisfaction

Participants were asked to quantify their level of satisfaction with aspects of the program using a 1 to 5-point scale, with 1 being very dissatisfied and 5 being very satisfied. Most of the participants could speak to their satisfaction with NMGC as an energy provider, averaging it a 3.25 on the 5-point scale. Interviewees who reported not being satisfied noted that they’ve had issues with the responsiveness when calling in and asking about additional energy efficiency rebate programs.

When asked to provide a level of satisfaction for the equipment installed through the program, participants reported an average of a 4.4. on the 5-point scale. Participants shared levels of satisfaction with their project’s contractor. Overall, participants were satisfied (4.5) with the contractor who installed the equipment. Participants were very satisfied with the quality of the equipment installation; all participants reported 5 on the 5-point satisfaction scale. Participants



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were largely satisfied with the amount of time it took to receive the rebate and the dollar amount of the rebate, reporting a 4 and 5 for each measure, respectively.

Participants felt satisfied with both the amount of time and effort required to participate in the program as well as the project application process (4.5). The participants rated the rebate program as a 4.4, indicating high levels of satisfaction with the program overall. One participant offered perspective on the program overall, sharing that their only issue with the program was its accessibility—namely, the communication and responsiveness of program staff. Given that this was the most constructive type of feedback, the program may want to consider new communication processes or assigning customer service contacts to projects.



5 Conclusions and Recommendations

Based on the results from the data collection and analysis methods described in the previous sections, the evaluation team has developed a number of conclusions and associated recommendations to improve NMGC's programs. These are organized below by program.

5.1 Efficient Buildings Program

Conclusions and recommendations resulting from the evaluation of the Efficient Buildings Program include the following:

- The evaluation team modified savings for several projects in the sample that installed efficient commercial kitchen gas fryers. The supplied energy savings calculations utilized the average value of gas savings (therms) for various facility types for both the Standard and Large Vat fryers in the savings algorithm. The modification decreased the savings for some projects and increased savings for other projects.
 - **Recommendation:** Use the deemed savings values listed in the NMGC Commercial Kitchen Work Papers for the applicable facility type.
- The evaluation team modified savings for custom project number RBT-3061461.
 - The *ex ante* calculation considered a boiler efficiency of 86%. The combustion efficiency test certificate indicated an 86.6% combustion efficiency. The evaluator assumed other boiler losses to be minimal and considered this as boiler efficiency.
 - **Recommendation:** Utilize the combustion efficiency test certificate for the combustion efficiency value.
 - The *ex ante* calculated discharge rate of steam leaking from steam trap from the Armstrong Steam Leak Calculator. Since the link provided in the Final Calculation file no longer exists, it was not possible to verify the leaking steam discharge rate as considered in the *ex ante* calculations. The evaluator considered the same steam leak rate as per the screenshots of calculations provided in *ex ante* calculations.
 - **Recommendation:** Ensure custom projects are equipped with functioning links and/or files for the evaluation team to analyze and verify.
- The evaluation team modified savings for custom project number RBT-2998769.
 - The *ex ante* calculation considered a pool surface area of 6,048.17 square feet. The *ex post* analysis revised the surface area of the pool to 5,877 square feet based on project documentation verification and Google Earth.
 - **Recommendation:** Utilize information provided in project documentation for variables such as pool surface area.
 - The passive solar heat gain in the *ex ante* calculation was only for 1 m² of the pool surface area, and was not multiplied by the total pool area. As such, the *ex post*



analysis considered the solar heat gain for the total surface area of the pool which increased the total solar heat gain.

- **Recommendation:** Ensure total surface area is utilized where applicable.

5.2 Multi-Family Program

Conclusions and recommendations resulting from the evaluation of the Multi-Family Program include the following:

- The evaluation team modified savings for two projects located in Silver City, NM. Silver City is in Grant County, and according to the NM TRM, corresponds to the Albuquerque climate zone, where the inlet temperature is 62.6 °F.
 - The *ex ante* calculation for one project assumed the Las Cruces climate zone, where the inlet water temperature is 69.2 °F.
 - The *ex ante* calculation a second project assumed the Santa Fe climate zone, where the inlet water temperature is 57.5 °F.
 - **Recommendation:** Ensure the correct weather zone is used for calculating savings. Refer to the table in the NM TRM that lists weather zones by county.
- The evaluation team modified savings for one project that included the installation of programmable thermostats.
 - The *ex ante* calculation used EFLH = 2,162, which is from an older version of the NM TRM. The *ex post* calculation used a more recent TRM where EFLH = 1,358. This modification decreased the RR.
 - **Recommendation:** Utilize the appropriate version of the NM TRM.
- The difference between *ex ante* and *ex post* savings is not clear for projects including DHW pipe insulation measures for one project.
 - This measure does not appear to follow TRM methodology/inputs.
 - The *ex post* calculation followed 4.17 Water Heater Pipe Insulation in TRM - Conditioned Space.
 - **Recommendation:** Utilize the appropriate version of the NM TRM.

BEFORE THE NEW MEXICO PUBLIC REGULATION COMMISSION

**IN THE MATTER OF THE APPLICATION)
OF NEW MEXICO GAS COMPANY, INC.)
FOR APPROVAL OF ITS 2020 - 2022 ENERGY)
EFFICIENCY PROGRAM PURSUANT TO)
THE NEW MEXICO PUBLIC UTILITY AND)
EFFICIENT USE OF ENERGY ACT)**

Case No. 19-00248-UT

**NEW MEXICO GAS COMPANY, INC.)
Applicant.)**

CERTIFICATE OF SERVICE

I CERTIFY that on this day I sent, via email only, a true and correct copy of the **New Mexico Gas Company, Inc.’s 2022 Energy Efficiency Program Annual Report**, to the individuals listed below:

- | | | | |
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DATED on June 27, 2023

Respectfully submitted,

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