New Mexico
GAS COMPANY®
AN EMERA COMPANY

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June 29, 2021

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 2020 Annual Energy Efficiency and Measurement and Verification Reports

Dear Ms. Sandoval:

In compliance with 17.7.2.8 NMAC, New Mexico Gas Company, Inc ("NMGC") is submitting its 2020 Annual Energy Efficiency Report, which includes the annual reconciliation and Rate 1-15 (Rider 15) calculations as well as the Measurement and Verification Report ("M&V") submitted by the independent program evaluation firm Evergreen Economics, Inc., as designated by the Commission.

Pursuant to 1.2.2.10B NMAC requiring electronic filings, NMGC hereby submits these documents in PDF format. Additionally, a copy of NMGC's 2020 Annual Energy Efficiency and M&V Reports will be posted to NMGC's website at www.nmgco.com.

If you have any questions or require any additional information, please do not hesitate to contact me at (505) 697-3559. Thank you for your assistance in this matter.

Sincerely,

/s/ Steven Cordova

Steven Cordova
Regulatory Affairs

Enclosures

cc: Tim Martinez – NMPRC
Bradford Borman – NMPRC
John Reynolds – NMPRC
Elisha Leyba-Tercero – NMPRC

New Mexico
GAS COMPANY®
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2020
Energy Efficiency Program
Annual Report

June 29, 2021

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Introduction

New Mexico Gas Company ("NMGC") submits this annual report on the Energy Efficiency Programs for Program Year 2020. This will be NMGC's twelfth annual report and will cover the time period April 1, 2020 through March 31, 2021. Also submitted is the final report prepared by the independent evaluator, Evergreen Economics, Inc. ("Evergreen"), entitled "Evaluation of the 2020 New Mexico Gas Company Energy Efficiency Programs, ("M&V Report"), which was completed on June 16, 2021.

NMGC filed its 2020, 2021 and 2022 Program Plan, New Mexico Public Regulation Commission ("NMPRC" or "Commission") Case No. 19-00248-UT, on August 30, 2019. The Program Plan was approved by the NMPRC on May 20, 2020 and the 2020 Program Year became available to customers on April 1, 2020. This report covers all costs incurred in the implementation of the programs and all customer participation in the programs from April 1, 2020 through March 31, 2021.

The following programs and offerings are included in this annual 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 – provides incentives to home builders to build high performance homes though 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.

This report begins with an executive summary that presents a high-level assessment of program performance from April 1, 2020 through March 31, 2021. This is followed by a summary of the findings of the M&V Report and the impacts on the future of the programs. This report also includes specific program information as required in the NMPRC Energy Efficiency Rule (17.7.2 NMAC) ("Rule"). as well as additional program information.

Executive Summary

This is the twelfth annual report on NMGC's Energy Efficiency Program ("Program"), and it presents the detailed results of six programs for Program Year 2020 (NMPRC Case No. 19-00248-UT).

The following table shows the total number of customer participants, savings and program costs for Program Year 2020. The savings for each program are net savings as derived from the final

conclusions in the M&V Report reached by Evergreen's evaluation of NMGC's 2020 Program Year. Program Year 2020 was approved by the NMPRC on May 20, 2020 and became available to customers on April 1, 2020. Program Year 2020 ended March 31, 2021.

Program Savings and UCT Results per M&V						
Program	Total Number of Rebates Processsed (April 1, 2020 to March 31, 2021)**	Total Annual NET Savings (Therms)*	Lifetime NET Savings (Therms)*	Total Program Costs	UCT	Cost per Therm Saved
Water Heating	7465	119,123	1,612,908	$736,678	1.06	$0.46
Space Heating	1341	61,339	1,317,319	$559,261	1.00	$0.42
ThermSmart New Homes	1060	267,698	6,157,058	$1,331,764	1.93	$0.22
Income Qualified	256	101,026	1,835,080	$778,025	1.27	$0.42
Multi-Family*	1473	378,612	5,670,004	$1,333,025	2.07	$0.24
Efficient Buildings**	135	665,247	7,693,355	$1,929,600	2.01	$0.25
Portfolio Costs	N/A	N/A	N/A	$93,163	N/A	N/A
Total		1,593,045	24,285,724	$6,761,517	1.71	$0.28
*Net savings adjusted for free-ridership and derived from M&V Report						
**Multi-Family are the number of units and Efficient Buildings participation are projects associated with those programs						

Except where otherwise noted, the following table indicates NMGC costs for its energy efficiency portfolio from April 1, 2020 through March 31, 2021 and allocated to Program Year 2020.

Program Year 2020	Total Actual Costs
Administration (Internal and External)	$ 2,977,515
Promotion/Marketing	$ 120,310
Measurement and Verification	$ 105,801
Rebates	$ 3,464,728
Portfolio Costs	$ 93,163
Total	$6,761,517
*Program Year 2020 - NMPRC Case No. 19-00248-UT	

Administration

The figures in this category include both internal and external administration of the programs. Internal administration is the labor and administrative costs the NMGC Energy Efficiency Department 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 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 International ("ICF"). Administering the Income Qualified program is New Mexico Mortgage Finance Authority ("MFA") for the Energy$mart program and EnergyWorks for the Native American program. Administering the Multi-Family program is ICAST and administering the Efficient Buildings program is CLEAResult. 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, 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.

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 measurement and verification costs include final invoices received from Evergreen Economics from April 1, 2020 for performing final M&V activities for Program Year 2019 and their annual independent program evaluation report for Program Year 2019, completed June 2020. Also included in the costs are invoices received and paid through March 31, 2021, from Evergreen for their continued evaluation of NMGC's 2020 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 Rule requires that an independent evaluator conduct measurement and verification assessments of all energy efficiency programs.

For Program Year 2020, the NMPRC selected Evergreen to provide an M&V Report on all six of the energy efficiency programs offered by NMGC and approved under 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 next section. These findings include the following:

- The overall Utility Cost Test ("UCT") for all six programs was 1.71.
- All individual programs passed the UCT.
- Program recommendations that have either already been implemented or will be implemented in the next filing.

Tariff Collections

As of April 1, 2020, when the 2020 Program Year began, NMGC was charging eligible sales service and transportation customers the approved Rider rate of $0.0116/therm (Advice Notice No. 76), for recovery of program costs. The rate remained in effect from April 1, 2020 through July 31, 2020. On June 29, 2020 NMGC submitted Advice Notice No. 80, updating the rate charged by Rate No. 1-15 - Rate Rider No. 15 Energy Efficiency Rider ("Rider 15") in alignment with the annual reconciliation. This Advice Notice was accompanied by supporting testimony and exhibits which included the annual Rider 15 reconciliation report pursuant to 17.7.2.13C NMAC, requiring reconciliation of collections from the prior year, along with proposals to make up under or over-collections. The new rate of $0.0178/therm for Rider 15 was approved with an effective date of the first billing cycle for August 2020. Total cost recoveries through Rider 15 from April 1, 2020 to March 31, 2021 were $8,568,612.11. Rider 15 continues at the current rate of $0.0178 as of this filing.

Tariff Reconciliation

The beginning balance in the Energy Efficiency account on April 1, 2020 was an over-collection of $952,941.72. Expenses for the period April 1, 2020, through March 31, 2021 totaled $6,750,054.47. Actual carrying charges of $13,006.82 charged to NMGC for the same period increases the net expense to $6,763,061.29. Total collections for the period totaled $8,568,612.11. Collections included $529,234.79 for Incentives. Collections not including Incentives were $8,039,377.32, resulting in a net over-collection of $1,276,316.03. Including the beginning balance of an over-collection of $952,941.72 on April 1, 2020, the total net over-collection at March 31, 2021 was $2,229,257.75. Expenses associated with the 2020 Program Year were $6,761,516.50 of the $6,750,054.47 actually reported during the period. The difference of $11,462.03 is mostly attributed to invoices received after March 31, 2021 but allocated to the 2020 Program Year.

Based on the above and the NMPRC's approval of NMGC's 2021 Program Year budget of $7,739,720 (Case No. 19-00248-UT), NMGC has calculated that $0.0117 per therm is the amount needed to recover costs through the 2021 Program Year.

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 2020 Plan became available to NMGC's customers on April 1, 2020.

On June 10, 2019, the Coalition for Clean Affordable Energy (CCAE) filed a Petition to Amend the Energy Efficiency Rule 17.7.2 NMAC to incorporate the 2019 amendments to the Efficient Use of Energy Act (House Bill 291). On June 26, 2019, the Commission issued an Order Opening Docket, Providing Notice, and Requesting Written Comments (NMPRC Case No.19-00168-UT). On July 24, 2019, NMGC and other stakeholders provided comments on NMPRC Case No. 19-00168-UT in regard to amending the Energy Efficiency Rule 17.7.2 NMAC. Responses to those comments were then sent by the interested parties, including NMGC, on August 7, 2019. On March 24, 2021, an Order Initiating Proposed Rulemaking was issued by the PRC requesting comments. NMGC submitted response comments on June 4, 2021. A Public Comment Hearing was held June 18, 2021 for all parties to respond to comments. The matter is pending as of this filing.

NMGC received the final M&V Report for its 2020 Program Year from Evergreen Economics Inc., on June 16, 2021 and submitted both the M&V and NMGC's 2020 Program Year Annual Reports to the NMPRC on June 29, 2021.

Also, on June 29, 2021, NMGC submitted a report on the rate charged by Rate No. 1-15 - Rate Rider No. 15 Energy Efficiency Rider ("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. 84 to reduce the Energy Efficiency Fee to $0.0117 per therm as of the first billing cycle for August 2021.

Summary of M&V Report Findings

Background and Purpose of Independent Evaluation

The NMPRC approved Evergreen Economics, Inc. to perform independent evaluation, measurement, and verification of NMGC's Energy Efficiency Programs for Program Years 2017 through 2021. NMGC and its program administrators worked with Evergreen to provide the data necessary to complete the 2020 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.

2020 M&V Report

The 2020 program year evaluation consists of an analysis of all six of the offered programs (Please see Appendix B for the complete M&V Report).

Summary of Findings and NMGC Comments

Evergreen concluded that the overall portfolio UCT for the six programs was 1.71 and that each individual program also passed the UCT. NMGC believes that Evergreen has conducted a professional assessment of the six programs offered under Program Year 2020 and agree with most of their findings and recommendations. Below is a summary of their findings and recommendations along with NMGC's comments.

Efficient Buildings Program

- The evaluation team adjusted the savings for two projects which installed efficient water heaters. The ex-ante savings were not able to be recreated based on the documentation in the project files. Therefore, the evaluation team used a combination of the savings methodology in the 2018 NM TRM and supplied equipment specification sheets to calculate the savings for the installation of water heaters in fast food facilities.
    - **Recommendation:** Use the deemed savings values listed in the NM TRM for the applicable building type and equipment capacities from the specification sheets to calculate the energy savings for efficient water heaters.
    - **NMGC Response:** NMGC's implementer will utilize the NM TRM when applicable and provide workpapers and calculations when the TRM does not adequately apply.

- The evaluation team adjusted the savings for five water conservation projects which included the installation of low-flow faucet aerators and showerheads. The ex-ante savings were not able to be recreated based on the documentation in the project files. Therefore, the evaluation team used the savings methodology in the 2018 NM TRM to calculate the savings for the installation of these measures.
    - **Recommendation:** Use the deemed savings values listed in the NM TRM for the applicable building type to calculate the savings for the installation of faucet aerators and low-flow showerheads.
    - **NMGC Response:** NMGC's implementer will utilize the NM TRM when applicable and provide workpapers and calculations when the TRM does not adequately apply.

- The evaluator adjusted the savings for one custom project, which installed a high-efficiency boiler. The supplied energy savings calculations included a calculation error in the savings algorithm, which decreased the savings for the project.
    - **Recommendation:** Ensure the NM TRM methodology is consistently followed to calculate savings for boiler replacements.
    - **Recommendation:** Provide nameplate information and pre/post installation photos to allow for independent equipment verification.
    - **NMGC's Response:** NMGC's implementer will follow the NM TRM methodology when applicable. They will also provide nameplate information and pre/post installation photos to provide equipment verification.

- The evaluation team adjusted the savings for the three projects in the sample which installed weather-stripping measures. The evaluation team calculated savings by multiplying the installed linear feet listed on the application by the per-linear foot savings listed on the application. In addition to weather-stripping measures, projects also included aerators and pre-rinse spray valves. This resulted in savings which differed from the claimed savings. No additional calculations were available for the evaluation team's review, so the source of these discrepancies is unknown.
    - **Recommendation:** Consider including documentation that summarizes the claimed savings for each measure when multiple measure types are included in a project. Such documentation will help identify specific discrepancies in savings for projects where multiple measures are installed.
    - **NMGC's Response:** NMGC's implementer will document savings for each individual measure that apply to a project to ensure total savings are accurate and can account for any discrepancies.

Space and Water Heating Programs

- Even with the relatively high free ridership rates, both of these programs are cost effective for PY2020. NMGC may be able to improve cost effectiveness by limiting rebates to the most energy efficient models, and possibly increasing the rebate amounts for these units.
    - **Recommendation:** Consider limiting program eligibility to the most energy efficient units and increasing rebates to offset the higher equipment costs.
    - **NMGC Response:** NMGC will take this recommendation into consideration in its next proposed application to be filed in August 2022.

New Homes Program

- Impact evaluation activities for the ThermSmart Star New Homes program included engineering desk reviews for a sample of projects. Based on these desk reviews, an engineering adjustment factor of 0.9997 was calculated for therm impacts. Net impacts were determined through statewide interviews with participating builders

(combined results from PY2018 and PY2020) that yielded a NTG ratio of 0.7333. Builders were generally satisfied with the program. Given the very few engineering adjustments to gross savings, the NTG ratio consistent with expectations, and the high levels of builder satisfaction, we have no recommendations for program improvement at this time.

- **Recommendation:** None.
- **NMGC Response:** NMGC agrees with the evaluator's assessment.

In summary, this is NMGC's twelfth evaluation of its programs and the twelfth time that M&V has concluded that its program portfolio is cost-effective. The program portfolio cost/benefit analysis was determined to have a UCT of 1.71. NMGC believes this corroborates the adjustments proposed and taken each year to enhance its portfolio and make the programs more cost-effective. NMGC is pleased that Evergreen reported that NMGC's customers overall 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 Program Year 2020 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 and Multi-Family programs these measures accounted for more than 58,882,435 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 208,915 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 annual report follows the reporting requirements and section headings as specified in the NMPRC Energy Efficiency Rule Section 17.7.2.14.D.

D(1) Independent Measurement and Verification Report

NMGC contracted with Evergreen to conduct the independent evaluation of its energy efficiency programs. Their report entitled "Evaluation of the 2020 New Mexico Gas Company Energy Efficiency Programs" is submitted with this report (Appendix B) 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 Program Year 2020 contains an analysis of all six programs. Therefore, all expenditures were included in the M&V Report. The expenditures for all programs for Program Year 2020 were $6,761,517. These expenditures include all expenses incurred by NMGC to develop and implement the programs.

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 Program Year 2020. The information for each program was derived from the final conclusions reached by Evergreen's evaluation of NMGC's 2020 Program Year and documented in the attached 2020 M&V report (see Appendix B). Avoided costs used to calculate savings can be found in Appendix A of this document.

Estimated Program Budget and UCT Results

Program	2020 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
ThermSmart 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	2020 Year Actual Participation	Actual Annual Therms Saved*	Actual Lifetime Therms Saved *	Total Program Costs	UCT	Cost per Therm Saved
Water Heating	**7465**	**119,123**	**1,612,908**	**$736,678**	**1.06**	**$0.46**
Space Heating	**1341**	**61,339**	**1,317,319**	**$559,261**	**1.00**	**$0.42**
ThermSmart New Homes	**1060**	**267,698**	**6,157,058**	**$1,331,764**	**1.93**	**$0.22**
Income Qualified	**256**	**101,026**	**1,835,080**	**$778,025**	**1.27**	**$0.42**
Multi-Family**	**1473**	**378,612**	**5,670,004**	**$1,333,025**	**2.07**	**$0.24**
Efficient Buildings**	**135**	**665,247**	**7,693,355**	**$1,929,600**	**2.01**	**$0.25**
Portfolio Costs	**N/A**	**N/A**	**N/A**	**$93,163**	**N/A**	**N/A**
Total		**1,593,045**	**24,285,724**	**$6,761,517**	**1.71**	**$0.28**

**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*

D(4) Number of Program Participants

Total number of participants for each program for Program Year 2020 is reflected in the table below.

Program Year 2020	Total Number of Participants for Program Year 2020
Water Heating	7465
Space Heating	1341
New Homes	1060
Income Qualified	256
Multi-Family*	1473
Efficient Buildings*	135
* 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 Program Year 2020 and are derived from the M&V Report.

Program	Cost per Therm Saved	2020 Economic Benefits*	NPV of Total Economic Benefits*
Water Heating	$0.46	$57,823	$ 782,918
Space Heating	$0.42	$26,166	$ 561,955
ThermSmart New Homes	$0.22	$111,583	$ 2,566,398
Income Qualified	$0.42	$54,483	$ 989,648
Multi-Family**	$0.24	$183,990	$ 2,755,384
Efficient Buildings**	$0.25	$334,891	$ 3,872,897
All Programs	$0.28	$768,936	$ 11,529,200
** Economic Benefits and NPV of Total Economic Benefits are derived from the M&V Report.*			

D(6) Self-Direct Programs

There were no customer applications for the self-direct program in Program Year 2020.

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 Program Year 2020.

Program Year 2020	Rebates	Internal Administration	External Administration	Promotion	M&V Expenses	Total Program Costs
Water Heating	$294,786	$60,323	$343,884	$20,052	$17,634	**$736,678**
Space Heating	$271,197	$60,323	$190,056	$20,052	$17,634	**$559,261**
New Homes	$858,028	$60,323	$375,727	$20,052	$17,634	**$1,331,764**
Income Qualified	$598,693	$60,323	$81,324	$20,052	$17,634	**$778,025**
Multi-Family*	$918,040	$60,323	$316,976	$20,052	$17,633	**$1,333,025**
Efficient Buildings**	$523,984	$60,323	$1,307,608	$20,052	$17,633	**$1,929,600**
Portfolio Costs	N/A	$93,163	N/A	N/A	N/A	**$93,163**
Total	**$3,464,728**	**$455,103**	**$2,615,574**	**$120,310**	**$105,801**	**$6,761,517**

Internal administration is the labor and administrative costs the NMGC Energy Efficiency Department staff expended on energy efficiency programs. Staff time during Program Year 2020 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. As of March 31, 2021, the NMGC Energy Efficiency Department consisted of three full-time staff members.

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 Energy$mart program and EnergyWorks for the Native American program. Administering the Multi-Family program is ICAST and administering the Efficient Buildings program is CLEAResult. 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, some direct installation of high efficiency showerheads, faucet aerators and 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.

Promotional expenses for 2020 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. (Please see the Promotional Activities section below for more details on specific promotional activities).

M&V expenses for the 2020 Program Year include final invoices received from Evergreen Economics from April 1, 2020 for performing final M&V activities for Program Year 2019 and their annual independent program evaluation report for Program Year 2019, completed June 2020. Also included in the costs are invoices received and paid through March 31, 2021, from Evergreen for their continued evaluation of NMGC's 2020 Program Year.

Portfolio costs includes 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

The following table shows the CO_2 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 and Multi-Family measures account for more than 58,882,435 gallons of water saved annually. The expected lifetime for those measures is 10 years as determined by New Mexico's Technical Resource Manual.

2020 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	93,193	1,420,715
Water Impact		**Annual Water Saved (gallons)**	**Lifetime Water Saved (gallons)**
Water Savings		58,882,435	588,824,350

* The avoided CO_2 emissions rate for gas combustion was taken from U.S. Department of Energy - Energy Information Administration's Annual Energy Outlook 2021.

Promotional Activities

Most promotional and marketing activities for NMGC's programs are the responsibility of the third-party administrators to work with builders, contractors, distributers, 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 2020 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 2020 Program Year. Promotional efforts and program information for Program Year 2020 began in April 2020 updating rebate applications, promoting the continuation of existing programs and marketing the new programs. A brochure that outlines all of the approved programs continued to be distributed throughout the state at NMGC offices. Typically they would also be 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, but due to COVID those events were not held. Radio ads informing and promoting NMGC's energy efficiency programs to the public ran throughout the fall and winter 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 2020. Additional contractors were added throughout the 2020 Program Year and all participating contractors were kept in communications regarding the 2020 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 ran social media campaigns and bill messages promoting its programs and the 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 Energy Efficiency 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.

Appendix A – NMGC Avoided Costs

Natural Gas Avoided Costs

The following tables provide the avoided energy costs (in real terms) used in the UCT model for Program Year 2020.

Year	NMGC Projected Avoided Cost (per MMBtu)	Per Therm
2017	$5.50	$0.55
2018	$5.39	$0.54
2019	$5.46	$0.55
2020	$5.56	$0.56
2021	$5.48	$0.55
2022	$5.49	$0.55
2023	$5.62	$0.56
2024	$5.81	$0.58
2025	$6.06	$0.61
2026	$6.15	$0.62
2027	$6.17	$0.62
2028	$6.25	$0.63
2029	$6.26	$0.63
2030	$6.30	$0.63
2031	$6.29	$0.63
2032	$6.43	$0.64
2033	$6.50	$0.65
2034	$6.55	$0.66
2035	$6.60	$0.66
2036	$6.69	$0.67
2037	$6.72	$0.67
2038	$6.74	$0.67
2039	$6.76	$0.68
2040	$6.83	$0.68
2041	$6.81	$0.68
2042	$6.85	$0.69
2043	$6.93	$0.69
2044	$7.03	$0.70
2045	$7.12	$0.71
2046	$7.20	$0.72
2047	$7.31	$0.73
2048	$7.47	$0.75
2049	$7.60	$0.76
2050	$7.70	$0.77

Appendix B – Evergreen M&V Report

Evaluation of the 2020 New Mexico Gas Company Energy Efficiency Programs

Final Report

Submitted by Evergreen Economics

June 16, 2021

ECOMETRIC

RESEARCH & POLLING INC

Table of Contents

Executive Summary

This report presents the independent evaluation results for the New Mexico Gas Company (NMGC) energy efficiency programs for program year 2020 (PY2020).

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.

PY2020 had some obvious complications due to the COVID restrictions that were in place over the entire program year (April 1, 2020 through March 31, 2021) that hindered the programs' ability to access homes and businesses. Despite these challenges, most programs were able to still reach their savings goals for the year. However, the design of the Income Qualified programs and the need to gain access into homes during the year greatly affected the number of homes that could be treated through the program. Although these programs were able to still reach many homes and reach the minimum savings and UCT levels, they did fall short on budget due to the lower number of homes treated in PY2020.

To conduct the independent program evaluations, the Evergreen evaluation team was chosen to be the independent evaluator for NMGC in May 2017, and a project initiation meeting was held with NMGC staff for the PY2020 evaluation on February 22, 2021. The Evergreen evaluation team consisted of the following firms:

[1] NMSA §§ 62-17-1 *et seq* (SB 644). Per the New Mexico Public Regulation Commission Rule 1 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, that sets forth the NMPRC's policy and requirements for energy efficiency and load management programs. This Rule can be found online at http://164.64.110.134/parts/title17/17.007.0002.html

- **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 PY2020, the following NMGC programs were evaluated:

- Efficient Buildings
- ThermSmart New Homes
- Space Heating
- Water Heating

For each of the evaluated 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 Space Heating and Water Heating programs.

The analysis methods used for the evaluated PY2020 programs are summarized as follows:

Efficient Buildings. The measures eligible for the Efficient Buildings program include a variety of end uses that are installed in prescriptive, custom, and direct install projects. In PY2020, custom projects made up the majority of savings, and direct install projects made up the largest number of projects. Gross impacts were estimated based on engineering desk reviews of a statistically representative sample of projects covering a range of major measure types. Due to Covid-19, no site visits were conducted this year. A phone survey was used to verify installation and to collect information needed for a self-report analysis of free ridership to determine net impacts.

ThermSmart New Homes. The ThermSmart New Homes (New Homes) program offers incentives to builders that take a whole home approach to efficiency upgrades. This program is coordinated with the other residential new construction programs offered by New Mexico's electric utilities. Gross savings for this program were estimated based on engineering desk reviews for a statistically representative sample of projects plus a review of the deemed savings for more prescriptive measures. Interviews with builders statewide were used for the process evaluation and to estimate a net-to-gross ratio for calculating net impacts. Due to the small number of builders available, the interview results were combined with the results from the PY2018 evaluation when builders were also interviewed.

Water Heating. This program offers rebates to residential customers for tankless water heaters, faucet aerators, low flow showerheads, and pipe wrap. Gross impacts were estimated by a review of deemed savings values used for prescriptive measures. A phone survey was used to verify installation and to collect information needed for a self-report analysis of free ridership to determine net impacts.

Space Heating. Similar in design to the Water Heating program, except with a focus on space heating equipment, this program offers rebates to residential customers for boiler upgrades, furnace upgrades, smart thermostats, and insulation. Gross impacts were estimated by a review of deemed savings values. A phone survey was used to verify installation and to collect information needed for a self-report analysis of free ridership to determine net impacts.

Table 1 summarizes the PY2020 evaluation methods used for these programs.

Table 1: Summary of PY2020 Evaluation Methods by Program

Program	Deemed Savings Review	Phone Survey	Engineering Desk Reviews	Builder Interviews
Efficient Buildings	◆	◆	◆	
New Homes	◆		◆	◆
Space Heating	◆	◆		
Water Heating	◆	◆		

The results of the PY2020 impact evaluation are shown in Table 2.

Table 2: PY2020 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	135	760,662	0.9728	739,986	0.8990	665,247
Income Qualified	256	101,026	1.0000	101,026	1.0000	101,026
Multi-Family Low Income	352	49,376	1.0000	49,376	1.0000	49,376
Multi-Family Market Rate	3,528	387,336	1.0000	387,336	0.8500	329,236
ThermSmart New Homes	1,060	365,151	0.9997	365,059	0.7333	267,698
Water Heating	7,465	246,249	1.0016	246,631	0.4830	119,123
Space Heating	1,341	114,746	1.0097	115,865	0.5294	61,339
Total	**14,137**	**2,024,546**		**2,005,279**		**1,593,045**

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: PY2020 Lifetime Savings Summary – Therms

Program	Expected Gross Lifetime Savings (therms)	Realized Gross Lifetime Savings (therms)	Realized Net Lifetime Savings (therms)
Efficient Buildings	8,796,788	8,553,883	7,693,355
Income Qualified	1,835,080	1,835,080	1,835,080
Multi-Family	6,540,096	6,540,096	5,670,004
ThermSmart New Homes	8,398,473	8,396,362	6,157,058
Water Heating	3,334,177	3,339,348	1,612,908
Space Heating	2,464,300	2,488,322	1,317,319
Total	**31,368,914**	**31,153,091**	**24,285,725**

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 below in Table 4. All programs had a UCT of equal or greater than 1.00, and the portfolio overall was found to have a UCT ratio of 1.71.

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

[3] http://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/Utilities_and_Industries/Energy_-_Electricity_and_Natural_Gas/EEPolicyManualV5forPDF.pdf

Table 4: PY2020 Cost Effectiveness

Program	Utility Cost Test (UCT)
Efficient Buildings	2.01
Income Qualified	1.27
Multi-Family	2.07
ThermSmart New Homes	1.93
Water Heating	1.06
Space Heating	1.00
Overall Portfolio	**1.71**

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 New Homes projects. Adjustments to savings based on the desk reviews were typically due a lack of documentation that necessitated the evaluation team creating its own estimates of savings for a few projects using the algorithms from the New Mexico TRM. A number of recommendations were made to improve savings values that include calculating savings specific to the installed equipment and other minor consistency improvements.

1 Evaluation Methods

The general analysis methods used for the evaluated PY2020 are described below.

1.1 Phone Surveys

Participant phone surveys were fielded in spring 2020 for participants in the Efficient Buildings and Space Heating and Water Heating 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 original goal was to complete 50 phone surveys for the Efficient Buildings program and 150 total across the Space Heating and Water Heating programs. Given the relatively small number of participants for the Efficient Buildings program, we attempted to contact a census of participants for the survey to try and get as close to our goal of 50 completed surveys. Ultimately, 17 phone surveys were completed for this program, with seven direct install and 10 non-direct install customers. Table 5 shows the distribution of completed surveys.

Table 5: NMGC Phone Survey Summary

Program	Customers with Valid Contact Info	Target # of Survey Completes	Completed Surveys
Efficient Buildings	43	50	17
Space Heating	598	75	97
Water Heating	204	75	53
Total	**845**	**200**	**167**

The final survey instrument for the Efficient Buildings program is included as Appendix A, and the final survey instrument for the Space Heating and Water Heating programs is included as Appendix B.

1.2 Engineering Desk Reviews

In order to verify gross savings estimates, the evaluation team conducted engineering desk reviews for a sample of projects in the Efficient Buildings and High Performance New Homes programs. The goal of the desk reviews was to verify equipment installation, operational parameters, and estimated savings.

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
- 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 workpapers to determine the most appropriate algorithms which apply to the installed measure
- Recreation of savings calculations using TRM or workpaper algorithms and inputs as documented by submitted specifications, invoices, and other project documentation
- Review of New Mexico TRM algorithms to identify candidates for future updates and improvements

For the custom projects included in the Efficient Buildings, 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
- Consideration and review for interactive effects between affected systems

For projects in the High Performance New Homes programs, the engineering desk reviews included the following:

- Review of report generated by REM/Rate – Residential Energy Analysis and Rating Software for consistency
- Insured software version to have appropriate baseline efficiencies
- Cross checked data provided with values in the program tracking data
- Verified the claimed equipment match the project documentation

Normally we would collect additional information if needed through on-site visits, but due to COVID-19 restrictions there were no on-sites completed for the PY2020 evaluation.

1.3 Net Impact Analysis

1.3.1 Self-Report Approach

The evaluation team estimated net impacts for the Efficient Buildings, ThermSmart New Homes, Water Heating, and Space Heating 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. A streamlined version of the approach described below was used for the ThermSmart New Homes program based on data from builder interviews. 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:

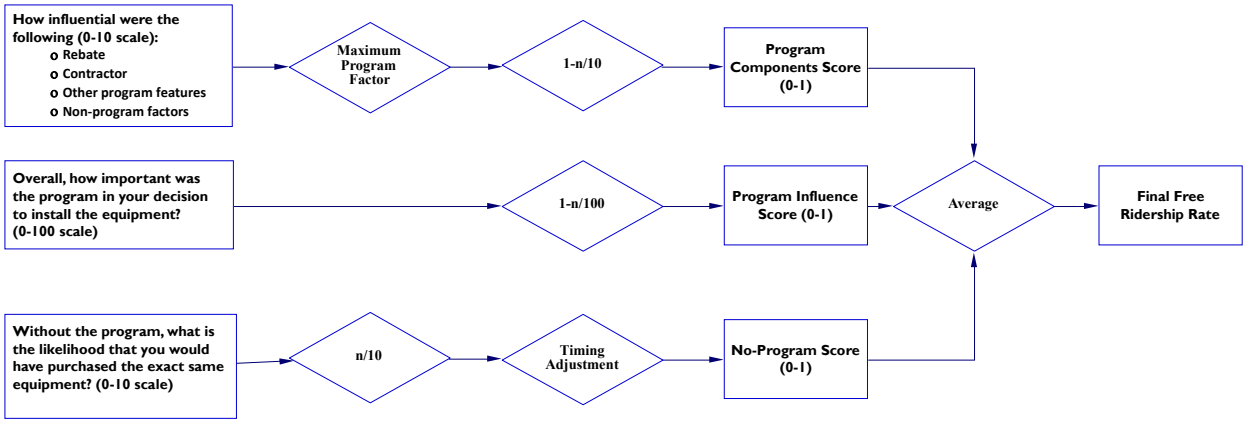
[4] The full Illinois TRM can be found at http://www.ilsag.info/il_trm_version_6.html

- 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;
- 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 are 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:

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

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.):

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

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
- 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 2020 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 PY2020 tracking data submitted by NMGC. The final net energy savings values estimated from the PY2020 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 and the low-income projects in the Multi-Family 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 PY2020 impact evaluation are shown in Table 6. As noted previously, each program is required to be evaluated a minimum of once every three years. For 2020, the evaluated programs covered 73 percent of the *ex ante* therm savings.

Table 6: PY2020 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	135	760,662	0.9728	739,986	0.8990	665,247
Income Qualified	256	101,026	1.0000	101,026	1.0000	101,026
Multi-Family Low Income	352	49,376	1.0000	49,376	1.0000	49,376
Multi-Family Market Rate	3,528	387,336	1.0000	387,336	0.8500	329,236
ThermSmart New Homes	1,060	365,151	0.9997	365,059	0.7333	267,698
Water Heating	7,465	246,249	1.0016	246,631	0.4830	119,123
Space Heating	1,341	114,746	1.0097	115,865	0.5294	61,339
Total	**14,137**	**2,024,546**		**2,005,279**		**1,593,045**

Lifetime therm savings are shown in Table 7 by program and for the portfolio overall. This includes expected gross, realized gross, and realized net lifetime savings.

Table 7: PY2020 Lifetime Savings Summary – Therms

Program	Expected Gross Lifetime Savings (therms)	Realized Gross Lifetime Savings (therms)	Realized Net Lifetime Savings (therms)
Efficient Buildings	8,796,788	8,553,883	7,693,355
Income Qualified	1,835,080	1,835,080	1,835,080
Multi-Family	6,540,096	6,540,096	5,670,004
ThermSmart New Homes	8,398,473	8,396,362	6,157,058
Water Heating	3,334,177	3,339,348	1,612,908
Space Heating	2,464,300	2,488,322	1,317,319
Total	**31,368,914**	**31,153,091**	**24,285,725**

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* PY2020 impacts are summarized in Table 8 for the Efficient Buildings program. In total, the Efficient Buildings program accounted for 38 percent of energy impacts in NMGC's overall portfolio for PY2020.

Table 8: Efficient Buildings Program Savings Summary

Measure Category	# of Projects	Expected Gross Therm Savings
Custom	27	582,759
Prescriptive	28	15,148
Direct Install	80	162,755
Total	**135**	**760,662**

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. In some cases, very large projects were assigned to a "certainty" stratum and were automatically added to the sample (rather than randomly assigned). This allowed for the largest projects to be included in the desk reviews and maximized the amount of savings covered in the sample. 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 9. The resulting sample achieved a relative precision of 90/9 for the program overall.

Table 9: Efficient Buildings Program Desk Review Sample

Measure Group	Stratum	Count	Average Therms	Total Therms	% of Savings	Final Sample
Custom	Certainty	2	107,245	214,490	28%	2
	1	4	50,862	203,447	27%	3
	2	21	7,849	164,822	22%	3
Prescriptive Kitchen Appliance	1	3	1,595	4,784	1%	2
	2	6	641	3,846	1%	2
	3	17	308	5,237	1%	2
Prescriptive Water Heating	Certainty	2	640	1,281	0%	2
Water Conservation	1	3	2,560	7,680	1%	2
	2	5	749	3,746	0%	2
	3	27	191	5,155	1%	2
Weather stripping	1	7	8,704	60,929	8%	3
	2	10	4,693	46,935	6%	3
	3	27	1,419	38,310	5%	2
Total		**135**	**14,420**	**760,662**	**100%**	**30**

As discussed in the *Evaluation Methods* chapter, 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 workpapers prepared by the program implementer, CLEAResult, for NMGC. The evaluation team reviewed the general assumptions and methodologies contained in the workpapers 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 10 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 0.9728.

Table 10: PY2020 Efficient Buildings Program Gross Impact Summary

Program	# of Projects	Expected Gross Therm Savings	Engineering Adjustment Factor	Realized Gross Therm Savings
Efficient Buildings	135	760,662	0.9728	739,986

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

- There were two water heater projects where we were unable to replicate the original *ex ante* savings estimates. Savings for these projects were estimated in the evaluation using the savings methodology described in the 2018 New Mexico TRM and the supplied equipment specification sheets.
- There were five water conservation projects which included the installation of faucet aerators and low-flow shower heads. The evaluation team used a combination of the savings methodology listed in the 2018 NM TRM and project documentation to calculate the savings for these projects.
- There were three projects in the sample that included weather stripping and other measures such as faucet aerators, low-flow shower heads, and pre-rinse spray values. The

evaluation team referenced the per unit savings values for the weather stripping measures from the supplied implementer workpapers while the savings for the faucet aerators, low-flow showerheads, and pre-rinse spray valves were referenced from the 2018 NM TRM. This resulted in savings which differed from the claimed savings, but the discrepancy between the savings values was unclear due in part to the multiples measures and in part to a lack of documentation to show how much savings were claimed for each measure.

- For one custom boiler project, the savings calculations provided in the project documentation included a calculation error, which reduced the savings.

Recommendations based on these desk review adjustments are provided in the final section of this report, and a summary of the individual desk review findings for each of the 30 projects is included in the appendices.

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* chapter using participant phone survey data. For all direct install projects and steam trap projects (which involved a steam trap test provided by the program), a NTG ratio of 1.00 was applied.[5] The resulting NTG ratio for the Efficient Buildings program overall is 0.8990 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.

Table 11 summarizes the PY2020 net impacts for the Efficient Buildings program using the NTG ratios described above. Net realized savings for the program overall are 644,390 therms.

Table 11: PY2020 Efficient Buildings Program Net Impact Summary

Program	# of Projects	Realized Gross Therm Savings	NTG Ratio	Realized Net Therm Savings
Efficient Buildings	135	739,986	0.8990	665,247

[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.

2.2 Space Heating and Water Heating Programs

2.2.1 Space Heating and Water Heating Gross Impacts

The *ex ante* PY2020 impacts are summarized in Table 12 for the Space Heating and Water Heating programs. In total, the Space Heating program accounted for six percent of energy impacts in NMGC's overall portfolio in PY2020, whereas the Water Heating program accounted for 12 percent. Because of the similar program design and evaluation approach for these programs, we are presenting the results together in this section.

Table 12: Space Heating and Water Heating Program Savings Summary

Program	# of Projects	Expected Gross Therm Savings
Space Heating	1,341	114,746
Water Heating	7,465	246,249
Total	**8,806**	**360,995**

The gross impact evaluation of the Space Heating and Water Heating programs consisted of a deemed savings review of per-unit savings values for each of the measures offered in the programs. We compared the per-unit values contained in the NMGC program tracking data to the New Mexico TRM to determine whether they were correct and appropriate.

Table 13 shows the summary of the deemed savings reviews and how the resulting engineering adjustments were used to calculate realized savings.

Table 13: PY2020 Space Heating and Water Heating Gross Impact Summary

Program	# of Projects	Expected Gross Therm Savings	Engineering Adjustment Factor	Realized Gross Therm Savings
Space Heating	1,341	114,746	1.0097	115,865
Water Heating	7,465	246,249	1.0016	246,631
Total	**8,806**	**360,995**		**362,496**

2.2.2 Space Heating and Water Heating Net Impacts

Net impacts for the Space Heating and Water Heating programs were calculated using NTG ratios from the participant phone survey.

For the Space Heating and Water Heating programs, the NTG ratio was developed using the self-report method described in the *Evaluation Methods* chapter using participant survey data. The survey questions were modified in the current evaluation to more clearly emphasize the role that the NMGC program was having on just the efficiency level of the chosen equipment, and not the overall decision on whether or not to purchase a new furnace of water heater. Even with the updated questions, the free ridership rates were similar to what was estimated in the PY2018 evaluation. These values are also consistent with what we have observed in similar programs. The resulting NTG ratio for the Space Heating program is 0.5294 and 0.4830 for the Water Heating program.

Table 14 summarizes the PY2020 net impacts for the Space Heating and Water Heating programs using the NTG ratios described above. Net realized savings for the Space Heating program are 61,339 therms, and for the Water Heating program are 119,123 therms.

Table 14: PY2020 Space Heating and Water Heating Programs Net Impact Summary

Program	# of Projects	Realized Gross Therm Savings	NTG Ratio	Realized Net Therm Savings
Space Heating	1,341	115,865	0.5294	61,339
Water Heating	7,465	246,631	0.4830	119,123
Total	**8,806**	**362,496**		**180,462**

2.3 ThermSmart New Homes

2.3.1 ThermSmart New Homes Gross Impacts

The *ex ante* PY2020 impacts are summarized in Table 15 for the ThermSmart New Homes program. In total, the ThermSmart New Homes program accounted for 18 percent of energy impacts in NMGC's overall portfolio for PY2020.

Table 15: ThermSmart New Homes Program Savings Summary

Program	# of Projects	Expected Gross Therm Savings
ThermSmart New Homes	1,060	365,151

The majority of the gross impact activities for the ThermSmart New Homes program were devoted to engineering desk reviews of a sample of projects from the Performance path, as these homes accounted for almost 80 percent of the total program savings. A stratified random sample was

used to select the projects for review, as shown in Table 16. A total of nine projects were reviewed, which was a sufficient sample to achieve a 90/1 level of relative precision.

Table 16: ThermSmart New Homes Desk Review Sample

Measure Group	Stratum	Count	Average Therms	Total Therms	% of Savings	Final Sample
Performance	1	190	513	97,389	34%	3
Performance	2	277	347	96,074	33%	3
Performance	3	377	255	96,062	33%	3
Total		**844**	**371**	**289,525**	**100%**	**9**

Savings for the performance homes ThermSmart New Homes program are quantified using REM/Rate energy modeling software. For these projects, the evaluation team compared the baseline refence home parameters to the 2009 International Energy Conservation Code, compared the proposed home parameters to the submitted project documentation, and confirmed the savings from the REM/Rate reports were accurately claimed in the program tracking data.

The resulting engineering adjustment factor for the ThermSmart New Homes program is 0.9997. A summary of the individual desk review findings for each of the nine projects is included in the appendices.

2.3.2 ThermSmart New Homes Net Impacts

Net impacts for the ThermSmart New Homes program were calculated using the combined results of the builder interviews from the PY2020 and PY2018 evaluations. The evaluation team conducted interviews with 17 participating home builders and asked them a series of questions to determine how the program has influenced their home building practices and decisions to include efficient equipment and envelope measures for these homes.

Respondents commonly indicated that the rebates offered were very influential in their ability to build energy efficient homes; however, responses to the question of whether or not builders would still be building to the same specs in absence of the program were not consistent with these findings. The evaluation team believes that the question was misinterpreted and not reflective of what responding builders meant, resulting in higher free ridership scores. Therefore, for the purpose of this analysis, this question was removed from the free ridership calculation. We believe

that the NTG ratio of 0.7333 is a reasonable estimate of the impacts of the program on builders' decisions to incorporate efficient options into their homes.[6]

For the ThermSmart New Homes program, the self report responses from the statewide interviews of participating builders were used to calculate a free ridership rate and determine net impacts. The final realized gross and net impacts are shown in Table 17.

Table 17: PY2020 ThermSmart New Homes Impact Summary

Program	# of Projects	Expected Gross Therm Savings	Engineering Adjustment Factor	Realized Gross Therm Savings	NTG Ratio	Realized Net Therm Savings
ThermSmart New Homes	1,060	365,151	0.9997	365,059	0.7333	267,698

[6] For comparison, a recent impact evaluation of Xcel Energy's Efficient New Home Construction program in Minnesota estimated a slightly higher level of free ridership rate of 0.29, which translates to a comparable NTG ratio of 0.71. https://www.xcelenergy.com/staticfiles/xe-responsive/Company/Rates%20&%20Regulations/Regulatory%20Filings/2020-Efficient-New-Home-Construction-Evaluation.pdf.

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.[7] The evaluation team conducted these tests in a manner consistent with the California Energy Efficiency Policy Manual.[8]

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 18.

Table 18: Utility Cost Test Benefits and Costs

Benefits	Costs
• Utility avoided energy-related costs • Utility avoided capacity-related costs, including generation, transmission, and distribution	• 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 19. All programs had a UCT equal or greater than 1.00, and the portfolio overall was found to have a UCT ratio of 1.71.

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

[8] http://www.cpuc.ca.gov/uploadedFiles/CPUC_Public_Website/Content/Utilities_and_Industries/Energy_-_Electricity_and_Natural_Gas/EEPolicyManualV5forPDF.pdf

Table 19: PY2020 Cost Effectiveness

Program	Utility Cost Test (UCT)
Efficient Buildings	2.01
Income Qualified	1.27
Multi-Family	2.07
ThermSmart New Homes	1.93
Water Heating	1.06
Space Heating	1.00
Overall Portfolio	**1.71**

4 Process Evaluation Results

This chapter summarizes key methods and findings from the PY2020 process evaluation of the NMGC Efficient Buildings and Space Heating and Water Heating programs. These findings, along with findings from the impact evaluation, inform the conclusions and recommendations presented in the following chapter.

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 Participant Surveys

The evaluation team conducted phone surveys with representatives from 17 participating companies (7 direct install and 10 non-direct install) that received rebates through the NMGC Efficient Buildings program. These surveys were completed in April 2021 and ranged from 15 to 20 minutes in length.

The participant survey was designed to cover the following topics:

- Verifying the installation of measures included in the program tracking database;
- Collecting 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.

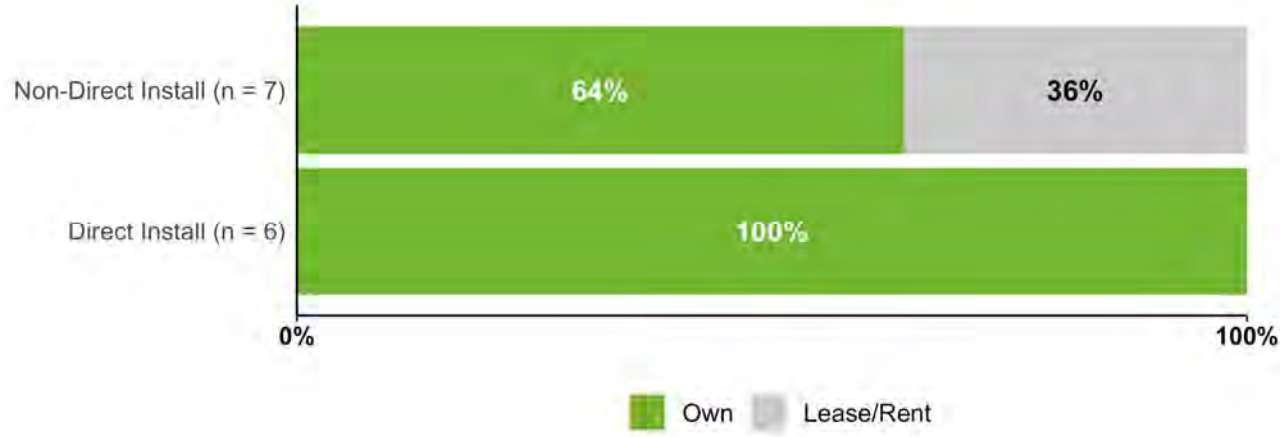
The following subchapters report results on company demographics, sources of program awareness, motivations for participation, and program satisfaction.

4.1.1 Company Demographics

The evaluation team asked survey respondents whether their company owns or leases the building where the project was completed. Figure 2 shows that 100 percent of participants with direct install projects own their building, which is somewhat unexpected as direct install programs are

often targeted towards customers that rent their spaces. However, this result is only based on six respondents.

Figure 2: Participant Buildings Ownership



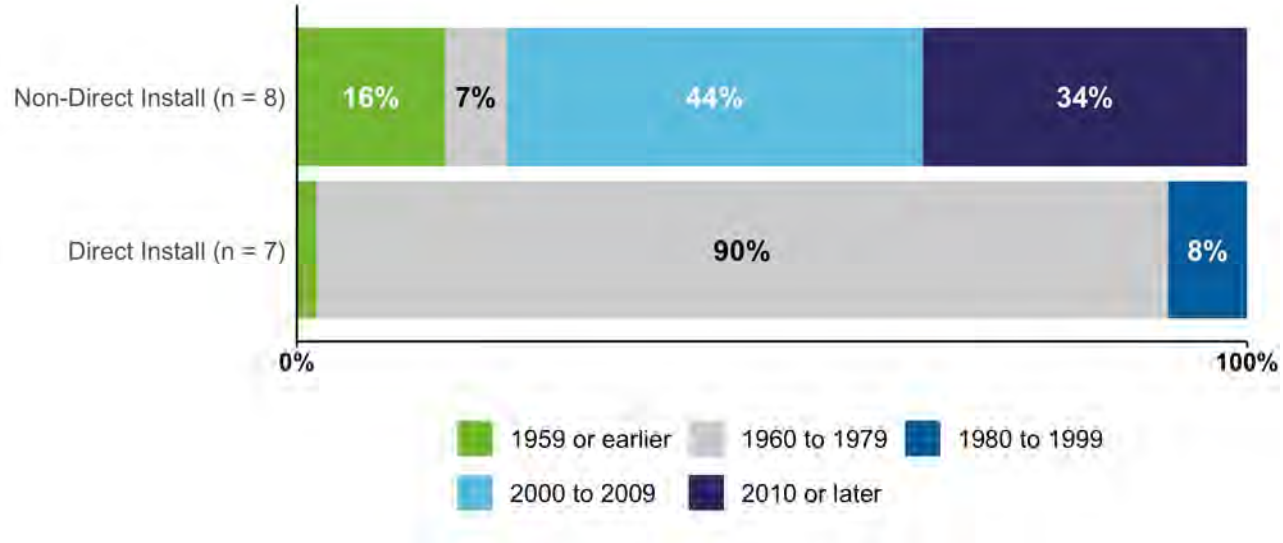
The following two figures summarize the survey respondents' building size and number of employees by whether they had direct install or non-direct install projects. Figure 3 and Figure 4 both show that the majority of smaller businesses are being serviced through both the non-direct install and direct install channels of the program, with 92 percent of direct install participants and 77 percent of non-direct install participants occupying buildings less than 5,000 square feet. A small portion (13%) of non-direct install participants occupied larger buildings (between 50,000 and 99,999 square feet). Additionally, 71 percent of non-direct install participants reported having less than 10 full-time employees. Similarly, direct install projects were more commonly completed by small-sized customers, with 86 percent of direct install participants having less than 10 full-time employees.

Figure 3: Participant Building Square Footage

Figure 4: Participant Number of Full-Time Employees

When estimating the year the participants buildings were built, 90 percent of direct install participants stated that their building was built between 1960 and 1979. Non-direct install participants were more likely to report newer buildings with 78 percent built in 2000 or later (Figure 5).

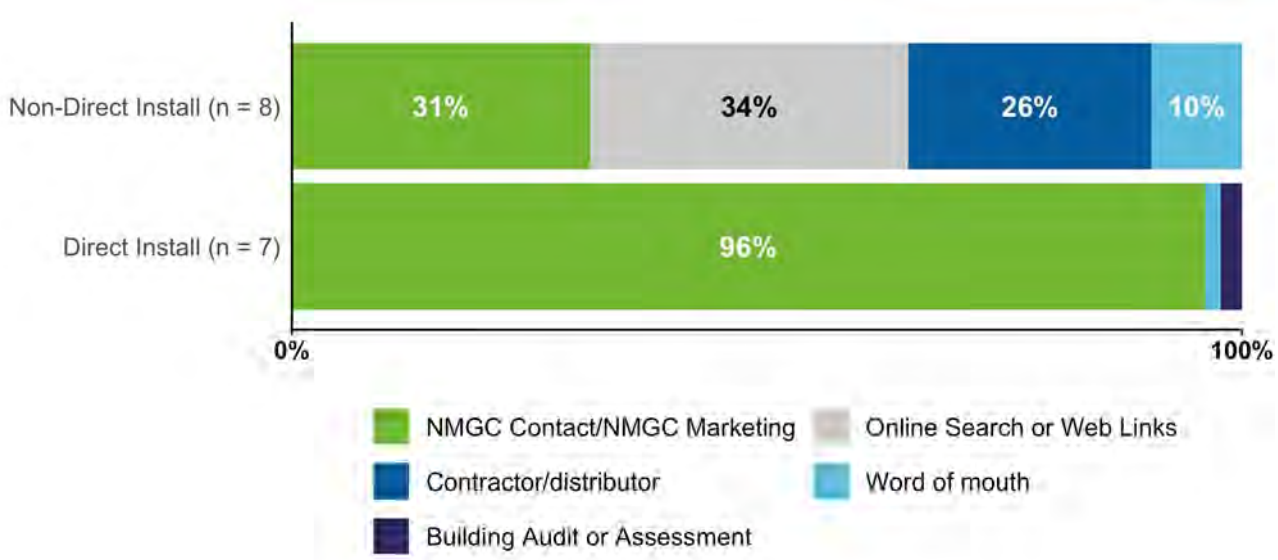
Figure 5: Participant Building Age



4.1.2 Sources of Awareness

Efficient Buildings program participants became aware of the program rebates and assistance through a variety of sources, including NMGC marketing and outreach, online searches or web links, contractors and/or distributors, word of mouth, and through a building audit or assessment. Figure 6 shows the large majority (96%) of direct install participants reported first hearing about the program through some form of NMGC contact or marketing outreach. Non-direct install participants first heard about the program through a variety of means, including online searches or web links (34%), NMGC contact or marketing (31%), contractors and/or distributor (26%), and word of mouth (10%).

Figure 6: Initial Source of Awareness

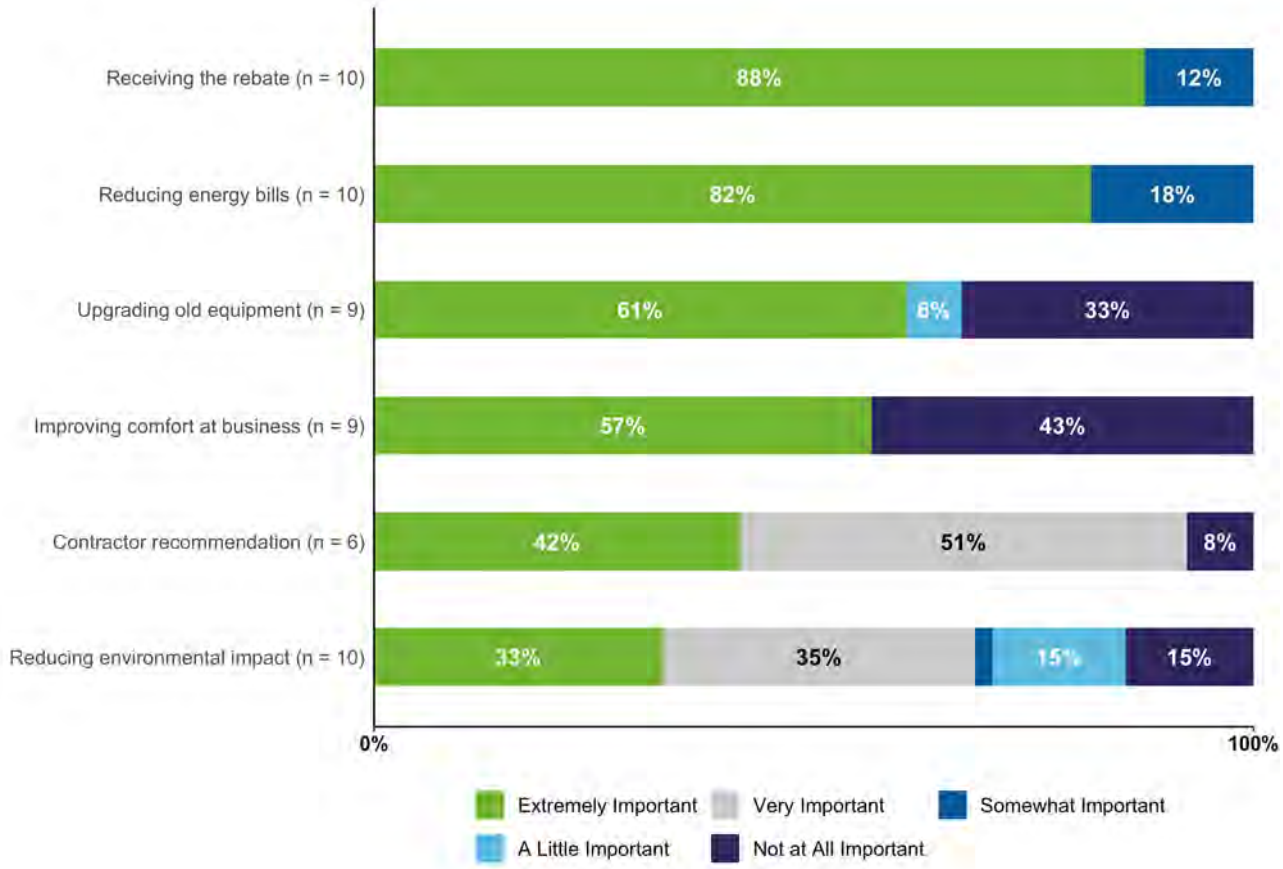


Four participants mentioned that they had heard about the Efficient Buildings program through multiple sources. Of the four, three reported a most useful source for participation. The most useful sources reported were word of mouth and NMGC marketing and outreach.

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 the rebate (88%) and reducing energy bills (82%) as extremely important factors that influenced their decision to participate. In contrast, reducing environmental impact was ranked the lowest, with only 33 percent of participants considering it extremely important and 15 percent reporting it as not at all important. Improving comfort at participants buildings and upgrading old equipment had the highest percentages of participants reporting the factors were not at all important, with 43 percent and 33 percent respectively reporting the factors were not at all important.

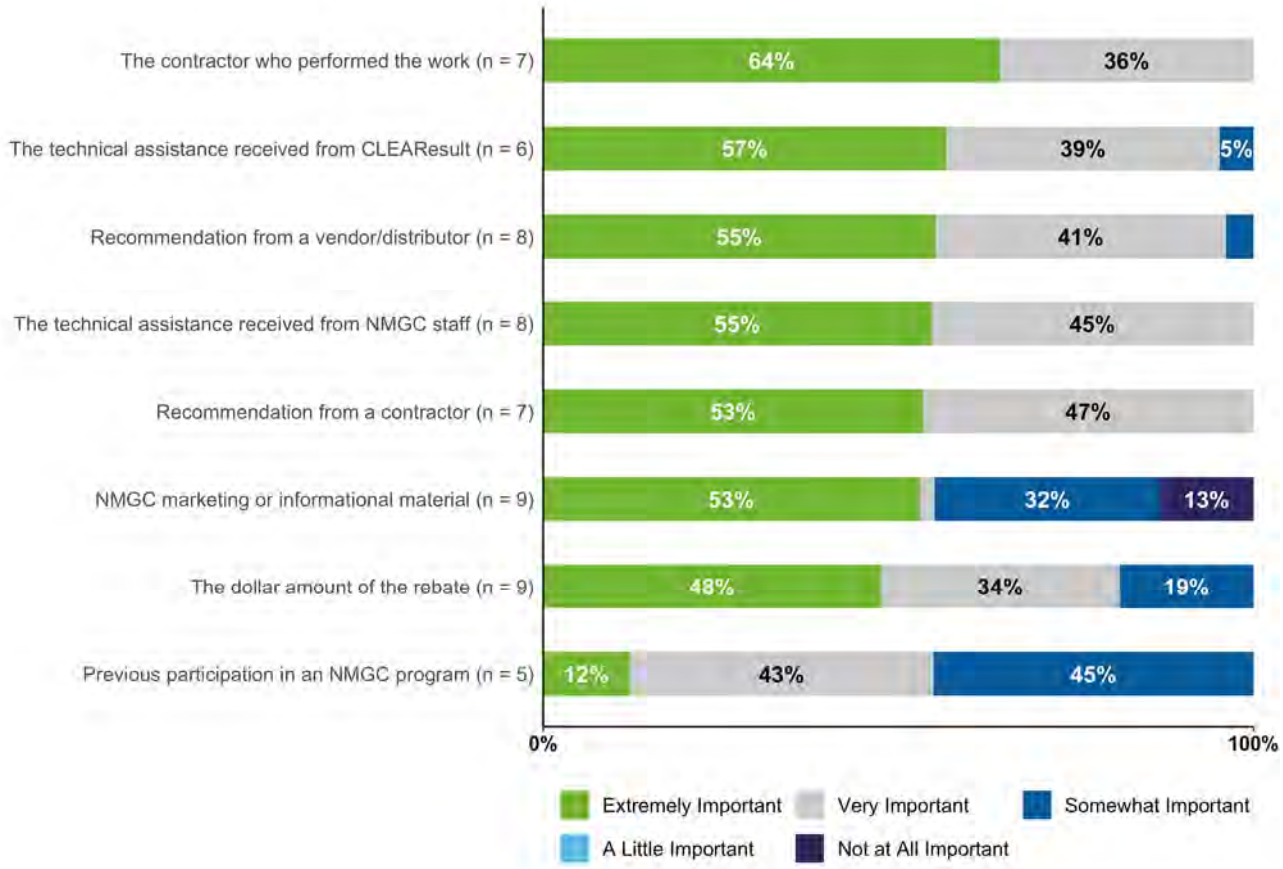
Figure 7: Motivations for Participation



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.[9] Figure 8 shows that the majority of participants rated all program factors as very or extremely important (a score of 6 to 10) in their decision to determine how energy efficient their project would be. These factors include the recommendation or endorsement by the contractor, vendor, distributor, or CLEAResult (the Efficient Buildings program implementer); the technical assistance received from CLEAResult; the contractor who performed the work; marketing materials from NMGC; the dollar amount of the rebate; and previous participation in an NMGC program.

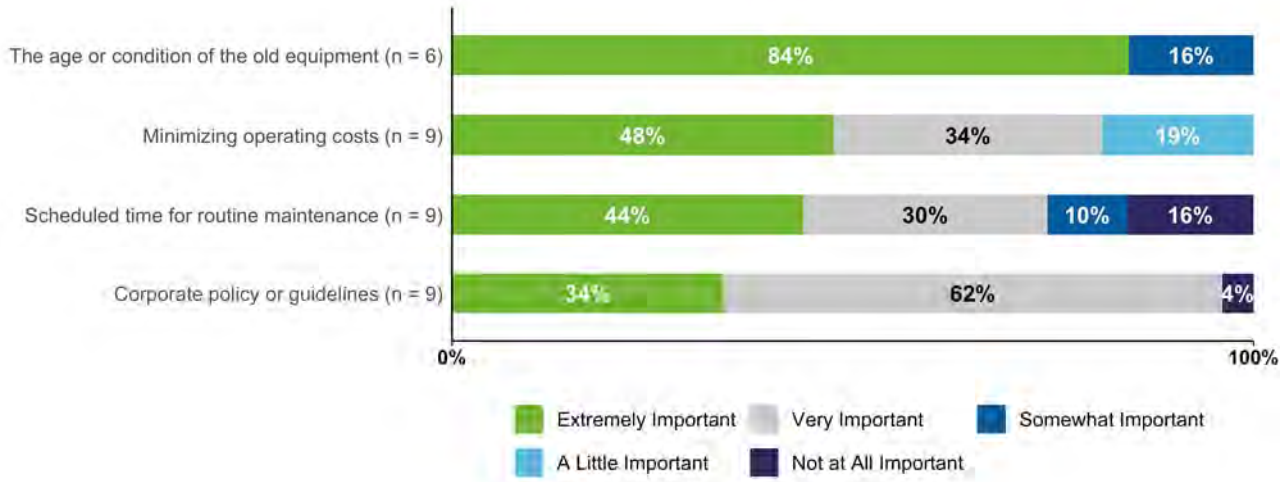
[9] On the 0 to 10 point scale, 0 indicated "not at all important" and 10 indicated "extremely important."

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). The age or condition of the old equipment was the most influential non-program factor in the decision regarding efficiency level of the equipment, with 84 percent rating it as extremely important. Scheduled time for routine maintenance had the highest percentage of participants ranking it as not at all important (16%) in their decision to determine the efficiency level of their equipment.

Figure 9: Importance of Non-Program Factors



To get a sense of the condition of their existing equipment, participants were asked about the functionality of their replaced equipment and approximately how much longer their equipment would have lasted if it had not been replaced. Eighty-one percent of participants reported that replaced equipment needed major repairs and 70 percent of participants estimated the replaced equipment would have lasted less than a year. No participants estimated replaced equipment to last longer than two years or that replaced equipment needed only minor repairs.

4.1.4 Participant Satisfaction

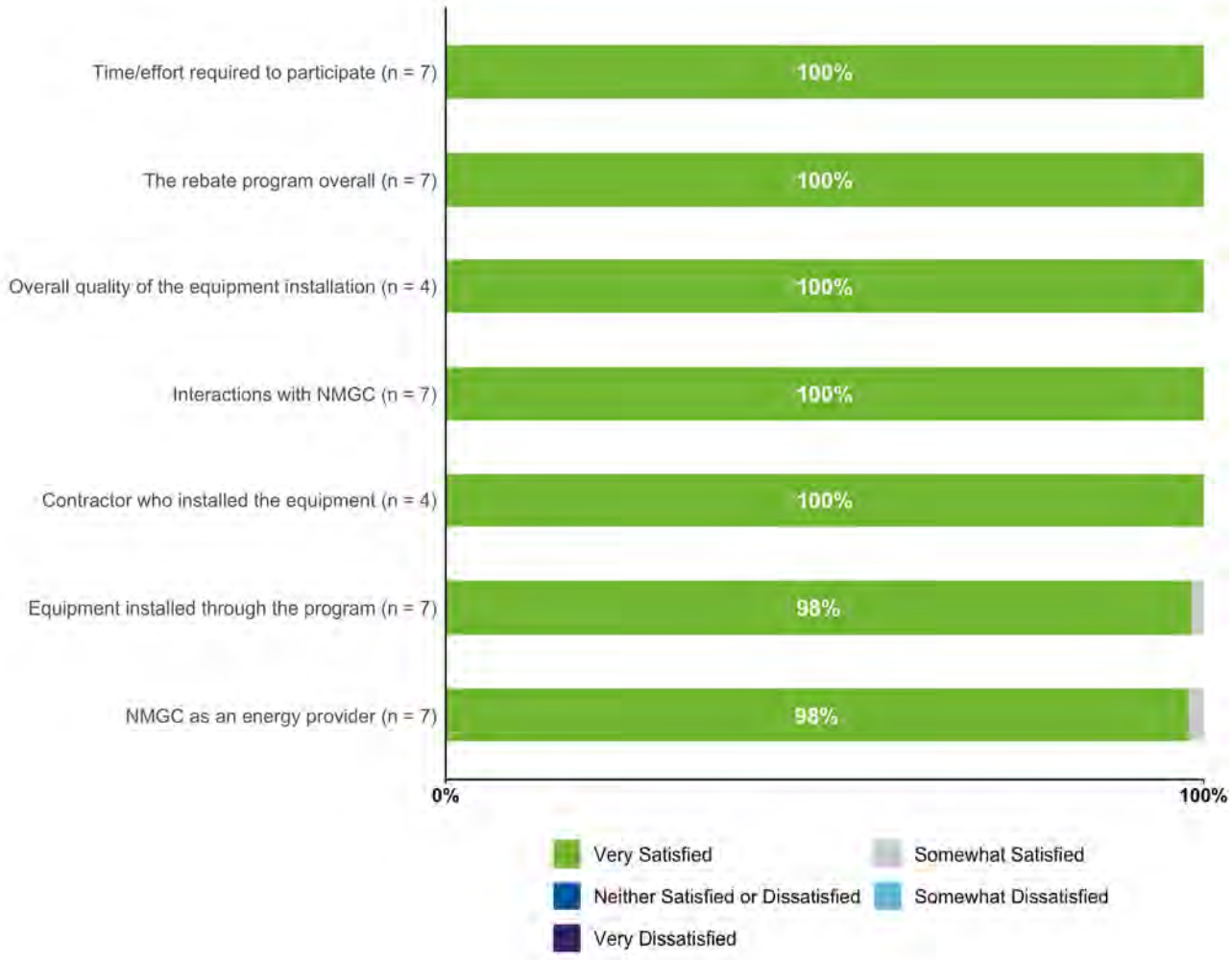
The participants evaluated their satisfaction with various components of the Efficient Buildings program on the following scale: very satisfied, somewhat satisfied, neither satisfied nor dissatisfied, somewhat dissatisfied, and very dissatisfied. The individual components that participants were asked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

Overall, surveyed participants expressed high levels of satisfaction with the direct install and non-direct install program components. As shown in Figure 10, direct install participants expressed high levels of satisfaction across each individual program component, with nearly 100 percent of respondents reporting being very satisfied.

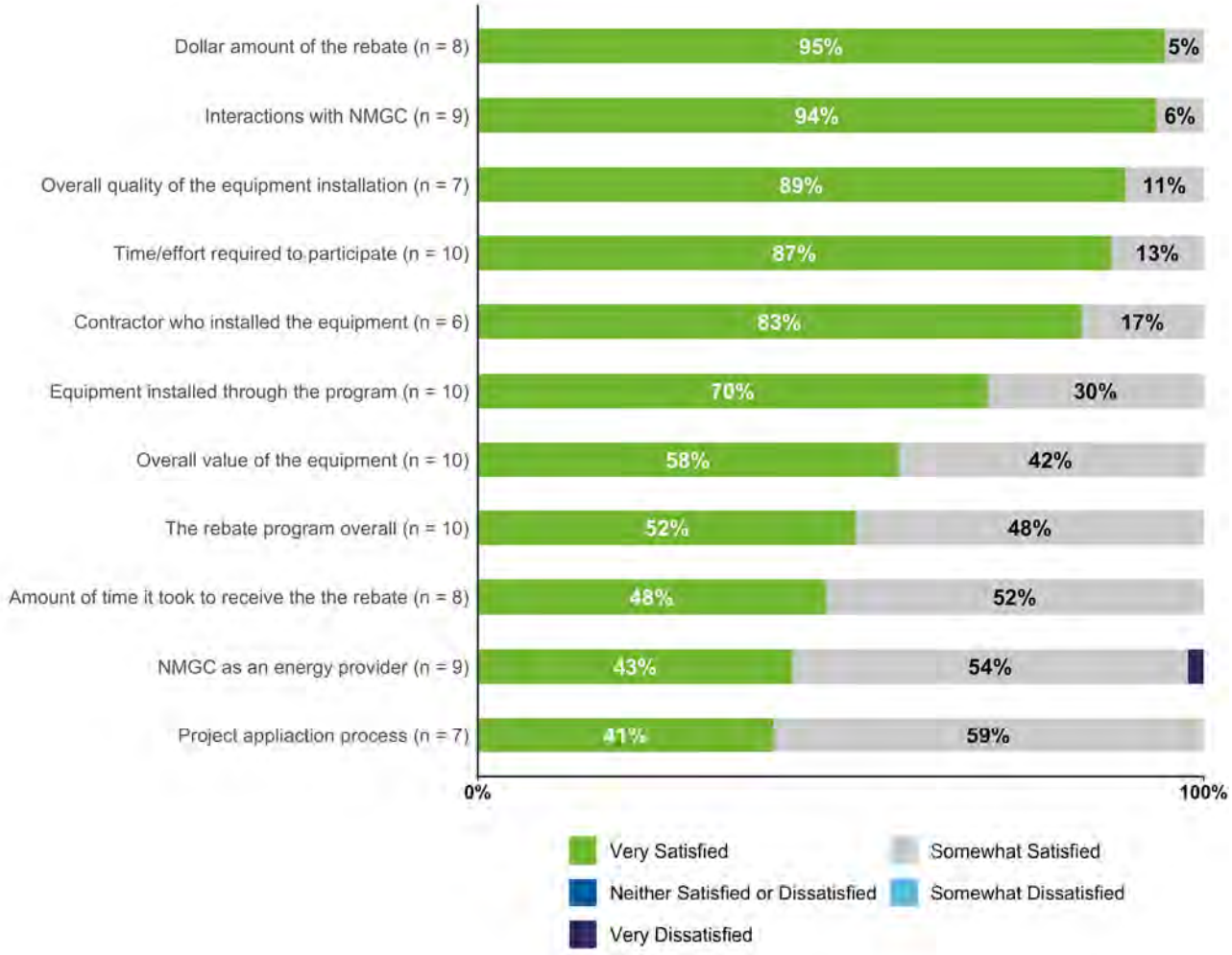
Figure 10: Direct Install Participant Program Satisfaction



As shown in Figure 11, non-direct install participants also expressed high levels of satisfaction, with the majority of participants reporting being very satisfied with multiple program components. Ninety-five percent reported being very satisfied with the dollar amount of the rebate, followed by 94 percent being very satisfied with their interactions with NMGM. Contrarily, the majority of non-direct install participants reported being somewhat satisfied with the amount of time it took to

receive the rebate, NMGC as an energy provider, and the project application process. One respondent reported being very dissatisfied with NMGC as an energy provider, noting "that I'm upset that I am paying for gas each month when I'm not using any in the building that I'm remodeling."

Figure 11: Non-Direct Install Participant Satisfaction



4.2 Space and Water Heating Participant Surveys

As part of the evaluation, the evaluation team conducted phone surveys with 150 participating residential customers that received rebates through the NMGC Space Heating and Water Heating programs. Ninety-seven Space Heating and 53 Water Heating program participants completed the survey, though each respondent did not answer every question. These surveys were completed in April 2021 and ranged from 15 to 20 minutes in length.

The participant survey was designed to cover the following topics:

- Verifying the installation of measures included in the program tracking database;
- Collecting information on participants' satisfaction with the program experience;
- Survey responses for use in the free ridership calculations;
- Participant drivers and barriers; and
- Additional process evaluation topics.

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

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

The results for the Space Heating and Water Heating programs are presented together, as the distribution of responses across Space Heating and Water Heating program participants was broadly the same.

4.2.1 Participant Demographics

We asked survey respondents a number of questions about the characteristics of their home and household, including whether they own or rent, the size of their home, the number of people in the household, and the age of their home. One hundred percent of survey respondents own their home.

The following two figures summarize the survey respondents' home and household size. As shown in Figure 12, 47 percent of survey respondents reported residing in homes between 1,500 and 2,499 square feet. Additionally, the majority (75%) of respondents have 2 to 3 residents living in the home where the project was completed (Figure 13).

Figure 12: Residential Space and Water Heating Participant Home Size (n=145)

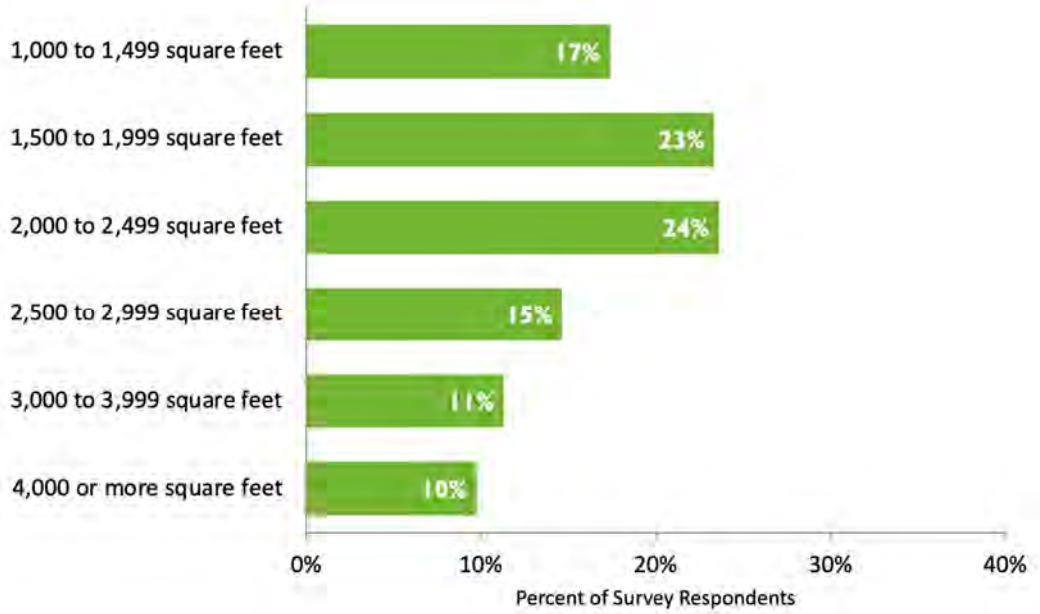
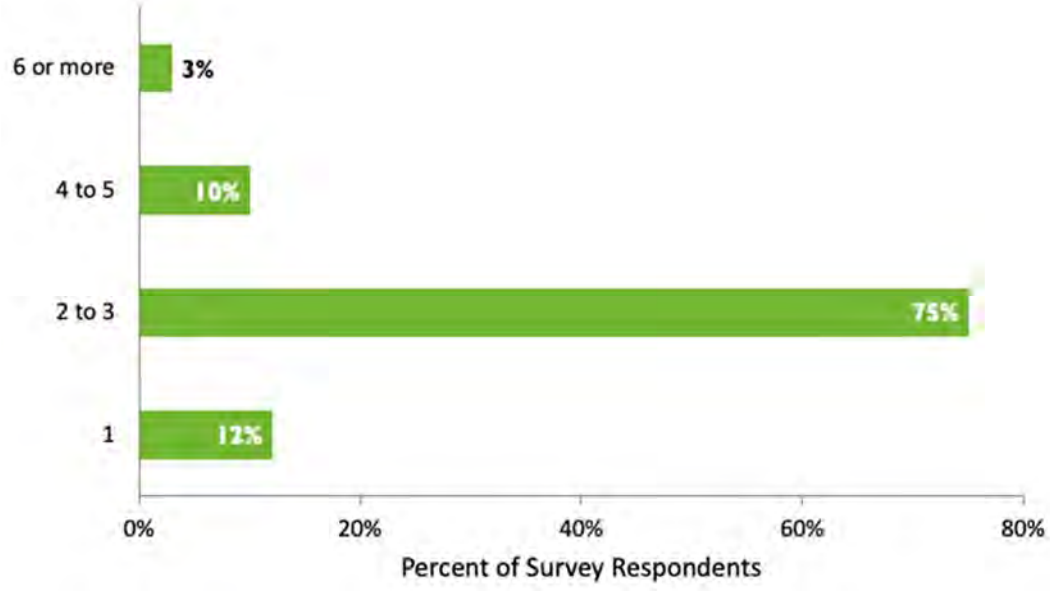
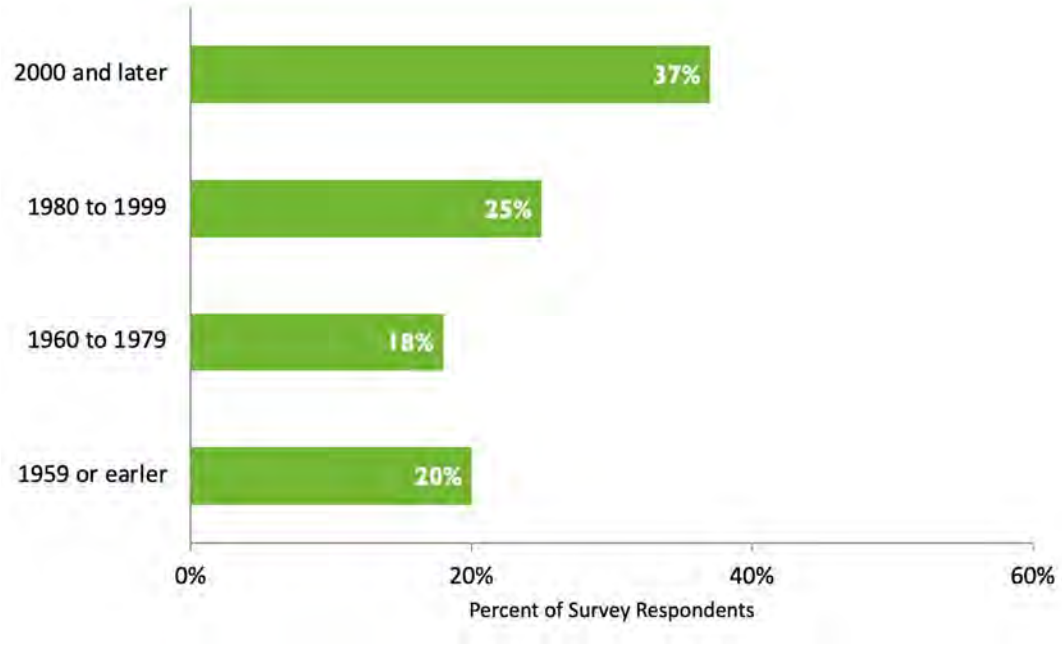


Figure 13: Residential Space and Water Heating Participant Household Size (n=148)



The majority (63%) of Space Heating and Water Heating survey respondents reported that their homes were built sometime before 1999, as shown in Figure 14. This suggests that the program is effectively targeting older homes where the potential for significant energy savings is greatest.

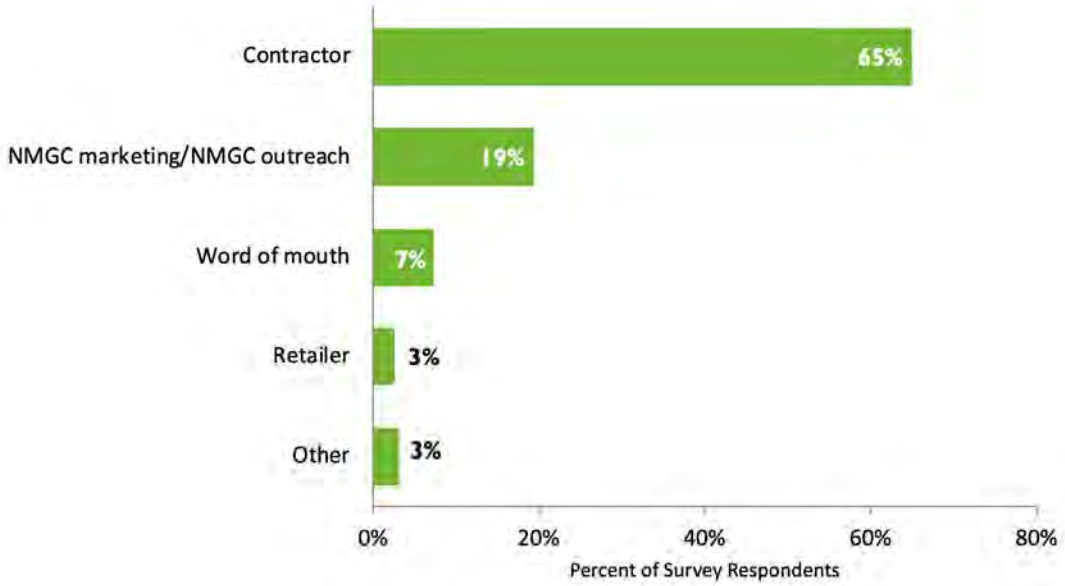
Figure 14: Residential Space and Water Heating Home Vintage (n=144)



4.2.2 Sources of Awareness

Participants became aware of the program assistance through a variety of channels, including contractors, NMGC marketing/NMGC outreach, retailers, and word of mouth. As shown in Figure 15, the majority (65%) of survey respondents learned about the program offerings through a contractor. Interactions with NMGC (either through direct contact or marketing) were also a frequent source of awareness for survey respondents (19%).

Figure 15: Residential Space and Water Heating Participants' Source of Awareness (n=137)

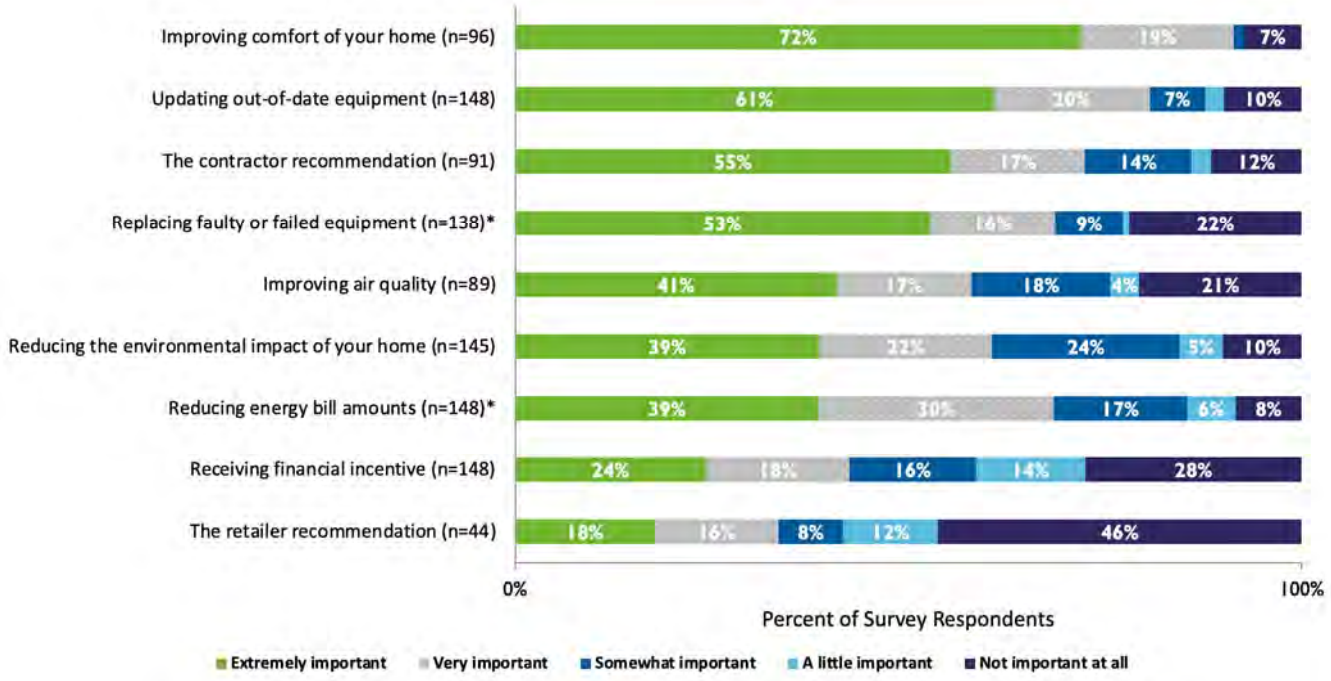


4.2.3 Motivations for Participation

Respondents were asked to rate a variety of factors that might have been important in their decision to participate in the Space Heating and Water Heating programs. The majority of survey respondents rated all but two factors as "very" or "extremely important" in their decision to participate in the program (Figure 16). Improving the comfort of one's home was the most important factor, with 91 percent of respondents reporting that it was "very" or "extremely" important. In contrast, the retailer recommendation was the least important factor (but still important), with 34 percent reporting it as very or extremely important. Note that the financial incentive provided by NMGC was rated as having relatively lower importance. This finding along with the influence of other non-program factors such as improving comfort and replacing faulty equipment is consistent with the higher free ridership estimated for both these programs.

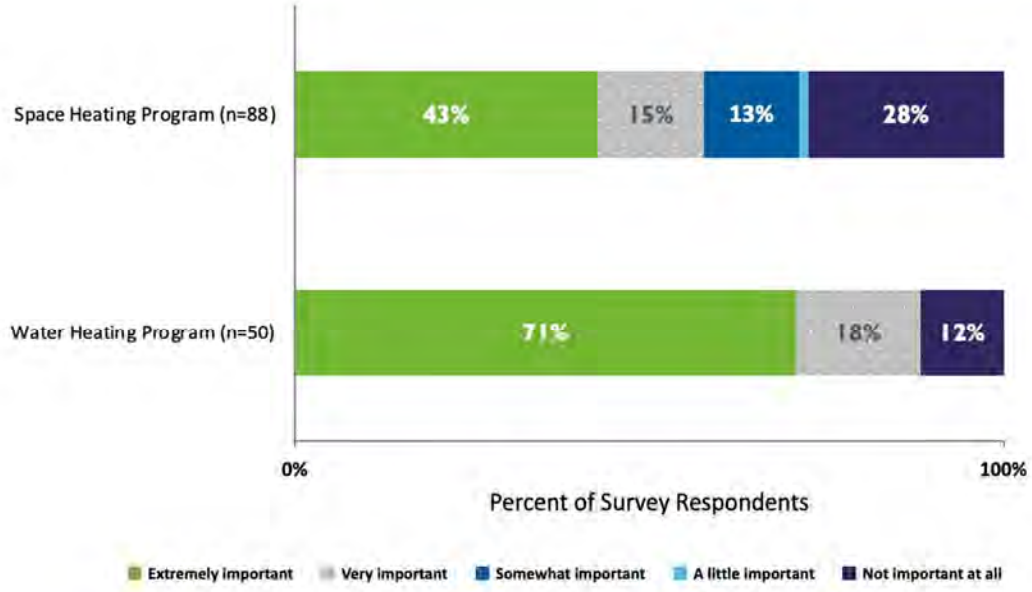
Among those who used a contactor, the contractor recommendation was rated as highly important, with 72 percent rating it as very or extremely important.

Figure 16: Residential Space Heating and Water Heating Motivation for Participation



Replacing faulty equipment was more important to those participating in the water heating program than the space heating program, with 89 percent of water heating program participants rating the factor as “very” or “extremely” important, compared to 58 percent of space heating program participants (Figure 17). There is also more variability within space heating participants for this factor, whereas the remainder of water heating participants rated replacing faulty equipment as “not important at all”. These trends suggest that replacing broken equipment is a stronger motivator for water heating measures than for space heating.

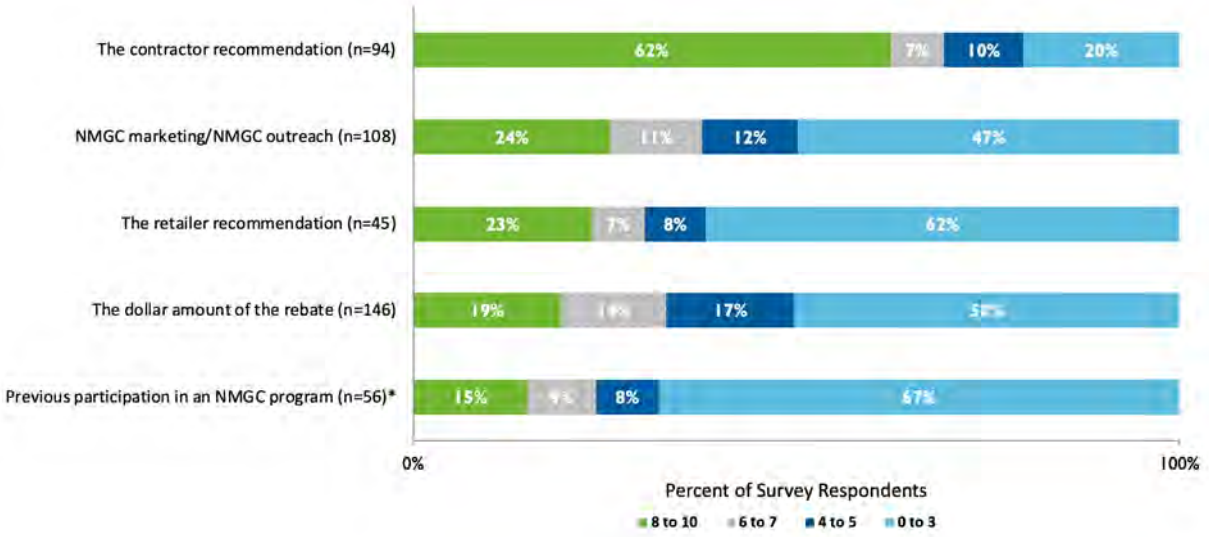
Figure 17: Importance of Replacing Faulty Equipment by Program



In addition to motivations for participating, survey respondents were given a list of program factors that may have potentially influenced their decision to upgrade their space heating or water heating equipment and were then asked to rate the influence of those factors on a 0 to 10-point scale[10]. Consistent with what is shown in Figure 16, Figure 18 shows that the contractor's recommendation was a highly influential factor in respondents' decision to participate in the programs, with 62 percent of respondents reporting it as extremely influential (ratings of 8 to 10). Previous participation in NMGC programs was the least influential factor, with 67 percent of respondents reporting it as not at all influential.

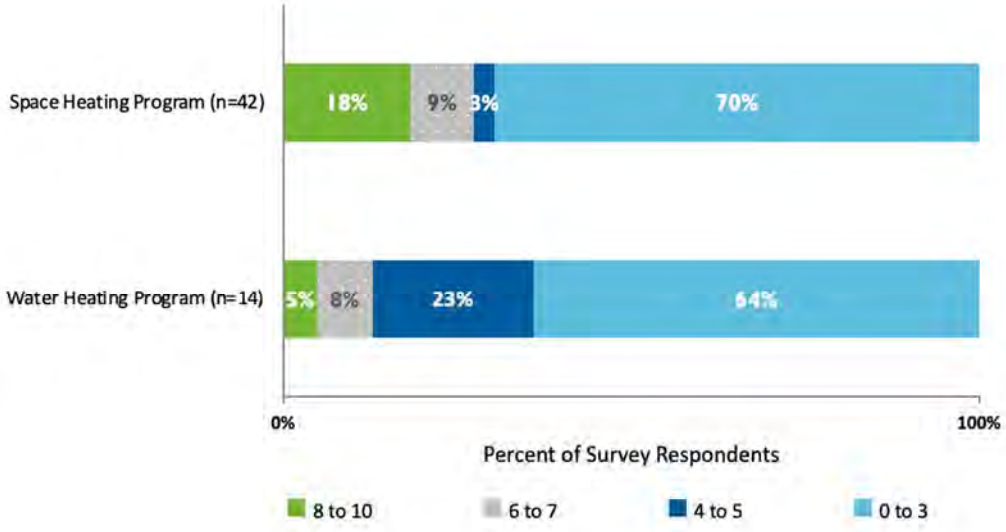
[10] On the 0 to 10 point scale, 0 indicated 'not at all influential' and 10 indicated 'extremely influential.'

Figure 18: Residential Space and Water Heating Influence of Program Factors



Only the importance of previous participation varied significantly in distribution across both programs. Both groups frequently rated this factor as less influential, but space heating participants more frequently rated previous participation as highly influential (18%) than did water heating participants (5%; Figure 19). This trend suggests that even though previous participation is largely less influential, it is frequently a more influential factor for space heating than for water heating.

Figure 19: Importance of Previous Participation by Program



4.2.4 Participant Satisfaction

The participants evaluated their satisfaction with various components of the Space and Water Heating programs 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:

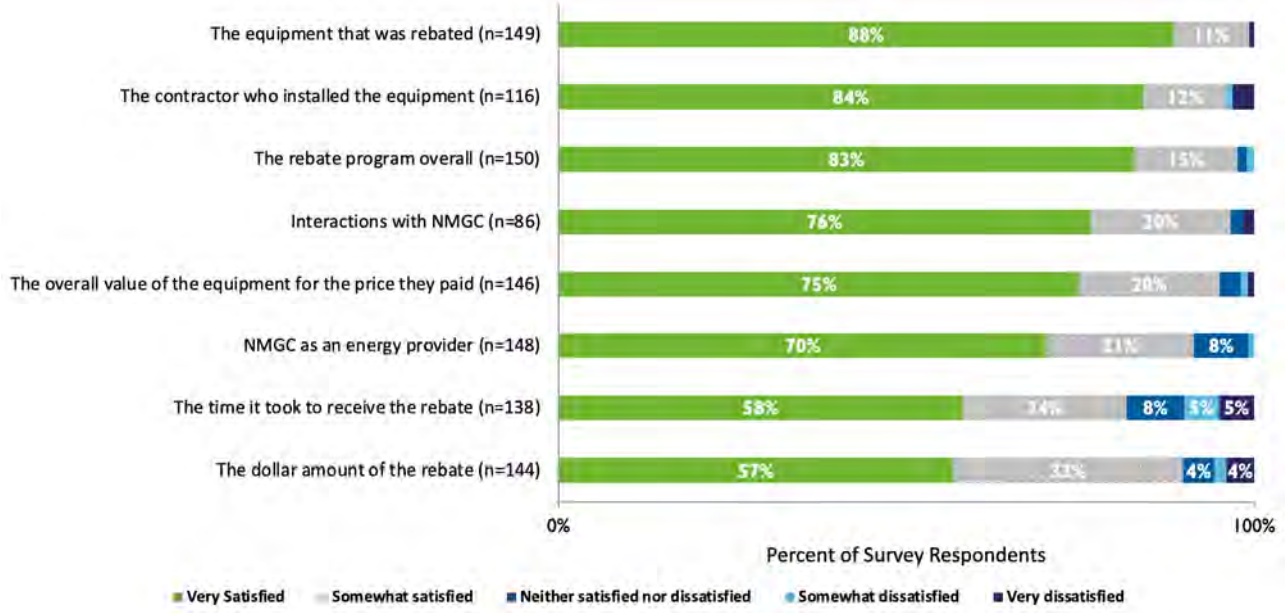
- NMGC as an energy provider
- The rebate program overall
- The equipment that was rebated
- The contractor who installed the equipment
- The time it took to receive the rebate
- The dollar amount of the rebate
- Interactions with NMGC
- The overall value of the equipment for the price they paid

Figure 20 summarizes the survey respondents' satisfaction with the Space Heating and Water Heating program.

Overall, surveyed program participants expressed high levels of satisfaction with the Space Heating and Water Heating program components. As shown in Figure 20, survey respondents expressed high levels of satisfaction across each individual component, with the majority being "very satisfied." Respondents gave the highest satisfaction ratings to the equipment that was rebated (88%), the contractor who installed the equipment (84%), and the rebate program overall (83%). A small percentage of surveyed participants reported lower satisfaction ratings, primarily with the time it took to receive the rebate.

Some of the justifications provided for the low satisfaction ratings included "[the rebate] took too long to get", "too many emails back and forth", and "for the cost of the equipment, the rebate should be much higher".

Figure 20: Residential Space and Water Heating Program Satisfaction



4.3 Space Heating and Water Heating Contractor Interviews

The evaluation team completed interviews with eight contractors involved in the Space Heating and Water Heating programs. The interviews focused on the following topics:

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

Due to the low number of interviews and the depth of the discussion, this section presents results in a qualitative fashion to show the range of perceptions and responses.

4.3.1 Contractor Background and Program Involvement

Contractors involved in the Space Heating and Water Heating programs identified themselves as their company's office manager, administrative assistant, bookkeeper, and owner. Other than space heating and water heating equipment, interviewed contractors reported additional work coming from HVAC repairs, plumbing, and insulation. While respondents had varying levels of interaction with the Space Heating and Water Heating programs directly, all eight were familiar with the program and played a significant role in their business's participation in the program.

4.3.2 Program Influence

In an effort to gauge the level of influence the Space Heating and Water Heating programs had on the market for energy efficient equipment, the evaluation team explored how contractors became

aware of the NMGC program, when contractors communicate about the NMGC rebates with customers, and what role they play in the contractors' and customers' choices.

In recalling how contractors first became involved with the program, two contractors reported initially hearing about it through a customer, two heard about it directly from CLEAResult (the program implementer), and two contractors heard about it directly from NMGC. Another contractor recalled hearing about the program from their wholesale distributor who had given them a brochure detailing the program. One contractor could not recall how they first heard of and became aware of the program.

When asked to discuss the ways in which the program is helpful to contractors in their business, five of the eight contractors mentioned the importance of program incentives being the difference in pushing the efficiency upgrades. One contractor mentioned that being on the approved NMGC contractor list tends to bring in additional work, allowing customers to verify the legitimacy of their business. Two contractors said the program is not helpful to them in their business, although one of the contractors noted that the contractors themselves don't like to use the more energy efficient equipment due to the extra maintenance required and thus don't push the customers to upgrade to the higher efficiency equipment.

4.3.3 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. Three contractors rated the program a 5 (very satisfied), three reported they were somewhat satisfied (rating of 4), and one contractor was neither satisfied nor dissatisfied with the program. Additionally, the remaining contractor had just purchased the business and felt they did not have enough experience with the program yet to say definitively how satisfied they are.

Further, interviewed contractors were also asked to rate their customers satisfaction with the program overall. One contractor opted to not speak on behalf of their customers and did not provide a satisfaction rating. Of the seven contractors who did provide a satisfaction rating, one reported that their customers were very satisfied with the program, three thought their customers were somewhat satisfied, and three felt their customers would give a rating of 3 (neither satisfied nor dissatisfied).

Three contractors went on to provide reasons for their lower satisfaction scores, stating "enable an online application," "provide marketing materials directly to customers to make them more aware and increase engagement," and "if the program [rebate form] was simpler the program would be better, we are afraid that if the wrong information is provided to a customer, the customer won't receive the rebate."

4.3.4 Effect of COVID-19 on Business

Lastly, the evaluation team wanted to get a sense of how the COVID-19 pandemic affected the participating contractor's business during PY2020. Six of the eight contractors reported that their business was not affected by COVID-19 and actually resulted in increased business due to customers being more likely to be at home and realizing their homes were in need of repair or upgrades. One contractor reported an initial loss of business and employees but has since seen an increase in business but can no longer handle the demand due to initial employee layoffs. Lastly, another contractor reported it affected their business negatively but didn't provide any details on how.

4.4 ThermSmart New Homes Builder Interviews

The evaluation team conducted telephone interviews with builders who participated in the New Homes program. Due to the low response rate for PY2020, the evaluation team combined the results from the evaluation of the PY2018 New Homes builder interviews for the purpose of this analysis. Between PY2018 and PY2020, the evaluation team conducted a total of 17 interviews with participating home builders across the three New Mexico utilities that offer a New Homes program: PNM, El Paso Electric, and NMGC.

The interviews focused on the following topics:

- Project context and background;
- Role and influence of the New Homes program; and
- Program satisfaction.

Participants were categorized into three groups based on the number of projects completed in PY2020: lightly active (1 to 12 projects), moderately active (13 to 100 projects), and highly active (more than 100 projects). The evaluation team interviewed nine moderately active firms and seven lightly active firms, and one highly active firm. While respondents had varying levels of interaction with the New Homes program directly, all 17 were familiar with the eligible projects and played a significant role in their business's participation in the program.

4.4.1 Program Satisfaction

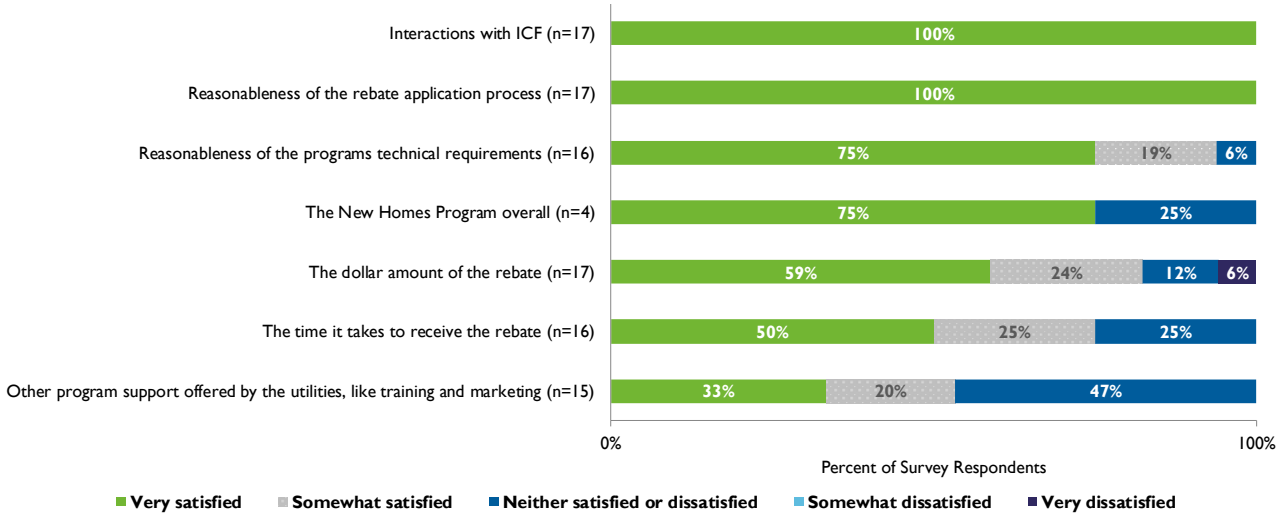
New Homes builder interviewees were asked a series of questions to quantify their level of satisfaction with various components of the program using a 1 to 5-point scale, with 1 indicating very dissatisfied and 5 indicating very satisfied.

Consistent with the results of the PY2018 New Homes program builder interviews, satisfaction with the program in PY2020 was high overall. As shown in Figure 21, all 17 interviewees reported being "very satisfied" with their interactions with ICF and the reasonableness of the rebate application process. Other program support offered by the utilities, like training and marketing

received the lowest satisfaction rating but one respondent noted that it's mainly a product of COVID-19, there weren't too many opportunities to take advantage of trainings in PY2020.

Further, respondents were mostly satisfied with the reasonableness of the program technical requirements but one of the highly active firms brought up a concern, stating "we have [the firm] heard whisperings that the program requirements are going to continue to creep up. We understand that they will increase each year but there is talks [internally] that they are getting to be too high. If they continue to increase the requirements at this rate, my company will not be able to continue to use it if we can't justify the extra costs to get to the new efficiency level."

Figure 21: New Homes Program Builder Satisfaction



5 Conclusions and Recommendations

Based on the results from the data collection and analysis methods described in the previous chapters, 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

Impact evaluation activities for the Efficient Buildings program included engineering desk reviews for a sample of projects. Based on these desk reviews, an overall engineering adjustment factor of 0.9728 was found for therm savings.

Conclusions and recommendations resulting from these reviews are discussed below. As noted below, many of these issues and recommendations were also discussed during the PY2019 evaluation of this program.

- The evaluation team adjusted the savings for two projects which installed efficient water heaters. The ex ante savings were not able to be recreated based on the documentation in the project files. Therefore, the evaluation team used a combination of the savings methodology in the 2018 NM TRM and supplied equipment specification sheets to calculate the savings for the installation of water heaters in fast food facilities.
    - **Recommendation:** Use the deemed savings values listed in the NM TRM for the applicable building type and equipment capacities from the specification sheets to calculate the energy savings for efficient water heaters.
- The evaluation team adjusted the savings for five water conservation projects which included the installation of low-flow faucet aerators and showerheads. The ex ante savings were not able to be recreated based on the documentation in the project files. Therefore, the evaluation team used the savings methodology in the 2018 NM TRM to calculate the savings for the installation of these measures.
    - **Recommendation:** Use the deemed savings values listed in the NM TRM for the applicable building type to calculate the savings for the installation of faucet aerators and low-flow showerheads.
- The evaluation team adjusted the savings for the three projects in the sample which installed weather-stripping measures. The evaluation team calculated savings by multiplying the installed linear feet listed on the application by the per-linear foot savings listed on the application. In addition to weather-stripping measures, projects also included aerators and pre-rinse spray valves. This resulted in savings which differed from the claimed savings. No additional calculations were available for the evaluation team's review, so the source of these discrepancies is unknown.

    - **Recommendation:** Consider including documentation that summarizes the claimed savings for each measure when multiple measure types are included in a project. Such documentation will help identify specific discrepancies in savings for projects where multiple measures are installed.
- The evaluator adjusted the savings for one custom project, which installed a high-efficiency boiler. The supplied energy savings calculations included a calculation error in the savings algorithm, which decreased the savings for the project.
    - **Recommendation:** Ensure the NM TRM methodology is consistently followed to calculate savings for boiler replacements.
    - **Recommendation:** Provide nameplate information and pre/post installation photos to allow for independent equipment verification.

5.2 Space Heating and Water Heating Programs

The gross impact evaluation of the Space Heating and Water Heating programs comprised a review of the deemed savings values. Per unit savings values in the tracking data were compared to the New Mexico TRM to determine whether the correct savings were applied for each measure. For all measures, the source of savings and calculations (if any) were confirmed, and no adjustments were made to gross savings for either program. Net impacts for the Space Heating and Water Heating programs were calculated using the NTG ratio developed using the self-report method with participant phone survey data. The resulting NTG ratio for the Space Heating program is 0.5294, and for the Water Heating program, the NTG is 0.4830. These NTG ratios are similar to the rates estimated for these programs in the PY2018 evaluation.

- Even with the relatively high free ridership rates, both of these programs are cost effective for PY2020. NMGC may be able to improve cost effectiveness by limiting rebates to the most energy efficient models, and possibly increasing the rebate amounts for these units.
    - **Recommendation:** Considering limiting program eligibility to the most energy efficient units, and increasing rebates to offset the higher equipment costs.

5.3 ThermSmart New Homes Program

Impact evaluation activities for the ThermSmart Star New Homes program included engineering desk reviews for a sample of projects. Based on these desk reviews, an engineering adjustment factor of 0.9997 was calculated for therm impacts. Net impacts were determined through statewide interviews with participating builders (combined results from PY2018 and PY2020) that yielded a NTG ratio of 0.7333. Builders were generally satisfied with the program. Given the very few engineering adjustments to gross savings, the NTG ratio consistent with expectations, and the high levels of builder satisfaction, we have no recommendations for program improvement at this time.