

VERMONT SINGLE-FAMILY RETROFIT MARKET

PROCESS EVALUATION

Final Report

Prepared for:

Vermont Public Service Department

Prepared by:

GDS Associates, Inc.

With lead input from:

Research Into Action, Inc.

P.O. Box 12312

Portland, Oregon 97212

503 / 287-9136

February 20, 2013

ACKNOWLEDGEMENTS

The Evaluation Team would like to thank Brian Cotterill and Kelly Launder, of the Vermont Public Service Department; Gaye Symington and Cheryl Eaton, of the High Meadows Fund and Wild Genius Group, respectively; Emily Levin and Nancy Gamble, of the Vermont Energy Investment Corporation and Efficiency Vermont, respectively; Scott Harrington and Karen Horne, of Vermont Gas Systems, Inc.; and John Lincoln, of the Burlington Electric Department.

In addition, the Evaluation Team would like to thank the Vermont Home Performance with ENERGY STAR[®] and Home Retrofit program; the participants and stalled participants that answered our questions; and the hundreds of Vermonters that spoke with us about their experience and perspectives on energy efficiency in their homes.

This work could not be done without their cooperation.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS	I
TABLE OF CONTENTS	II
LIST OF FIGURES	IV
LIST OF TABLES	IV
EXECUTIVE SUMMARY	ES-1
PROCESS EVALUATION OBJECTIVES.....	ES-1
SECTION 1: PROJECT INTRODUCTION AND METHODS	1-1
1.1 Process Evaluation Objectives	1-1
1.2 Program Descriptions.....	1-2
1.2.1 Efficiency Vermont (EVT)	1-2
1.2.2 Vermont Gas Systems, Inc. (VGS).....	1-3
1.3 Participant and Stalled Participant Survey Methodology	1-4
1.3.1 Survey Development.....	1-4
1.3.2 Sampling Design.....	1-4
SECTION 2: EFFICIENCY VERMONT (EVT) PROCESS FINDINGS.....	2-1
2.1 Demographics	2-1
2.2 Participant and Stalled Participant Heating	2-1
2.3 Awareness	2-3
2.4 Motivation.....	2-4
2.5 Participation	2-6
2.5.1 Home Energy Audit	2-6
2.5.2 Barriers.....	2-8
2.5.3 Contractor Experience	2-10
2.5.4 Inspection Experience.....	2-11
2.6 Satisfaction.....	2-11
2.7 Summary	2-14
SECTION 3: VERMONT GAS SYSTEMS (VGS) SYSTEM PROCESS FINDINGS.....	3-1
3.1 Demographics	3-1
3.1.1 Participant and Stalled Participant Heating	3-1
3.2 Awareness	3-2
3.3 Motivation.....	3-3
3.3.1 Participation Experience	3-4
3.3.2 Financing.....	3-6

3.4 Satisfaction..... 3-8

3.5 Summary 3-11

SECTION 4: CONCLUSIONS AND RECOMMENDATIONS 4-1

4.1 Background and Research Objectives 4-1

4.2 Findings & Recommendations..... 4-1

 4.2.1 Process Surveys 4-1

4.3 Recommendations..... 4-2

APPENDIX A: PROCESS EVALUATION DETAILED DEMOGRAPHICS..... A-1

APPENDIX B: HOMEOWNER PARTICIPANT SURVEYB-1

APPENDIX C: STALLED PARTICIPANT SURVEY C-1

APPENDIX D: 2011 AND 2012 INCENTIVES D-1

LIST OF FIGURES

Figure 2-1: Participant/Stalled Participant Motivations for Energy-Saving Home Improvements [Portion rating a “4” or a “5”].....	2-4
Figure 2-2: Experience with EVT Program Elements, Percent of 4 or 5 ratings.....	2-11
Figure 2-3: Satisfaction with EVT Program Elements, Percent of 4 or 5 ratings.....	2-12
Figure 2-4: Satisfaction with EVT Program Interaction, Participants and Stalled Participants, Percent of 4 or 5 ratings	2-12
Figure 3-1: Ratings of Influence Factors, (Rating a “4” or a “5”) n=48.....	3-3
Figure 3-2: Satisfaction with VGS Audit Report.....	3-5
Figure 3-3: Experience with VGS Program Elements, Percent of 4 or 5 Ratings	3-9
Figure 3-4: Satisfaction with VGS Program Elements, Percent of 4 or 5 Ratings	3-10
Figure 3-5: VGS Participant and Stalled Participant Satisfaction Comparison (Offering a “4” or a “5”)*	3-10

LIST OF TABLES

Table 1-1: EVT Surveyed Populations	1-4
Table 1-2: VGS Surveyed Populations	1-5
Table 1-3: Participant Survey Disposition (Both Programs)	1-5
Table 1-4: Stalled Participant Attempted Call Disposition (Both Programs).....	1-6
Table 2-1: Primary Heating Fuel Source	2-2
Table 2-2: EVT Participant and Stalled Participant Source of Supplemental Heat.....	2-2
Table 2-3: Participant and Stalled Participant Supplemental Heating Behavior after Participation	2-3
Table 2-4: Participant and Stalled Participant Initial Awareness of Program Offering .	2-3
Table 2-5: Most Important Motivation	2-5
Table 2-6: Role of Program Services in Participant Decision Making, Percent of “4” or “5” ratings	2-5
Table 2-7: Audit Cost.....	2-6
Table 2-8: Value of Audit (Rating a “4” or a “5” on a 5-point scale)	2-7
Table 2-9: How Stalled Participants Completed Upgrades	2-8
Table 2-10: Barriers to Completing Recommended Upgrades Multiple mentions	2-9
Table 2-11: Additional Detail on Cost or Financing Barriers (Multiple Responses Allowed)	2-9
Table 2-12: How Participants Found Contractors, Percent of 4 or 5 ratings.....	2-10
Table 2-13: Participant Reasons for Low Satisfaction Ratings	2-13
Table 3-1: VGS Respondents’ Access to Supplemental Heat	3-2

Table 3-2: Supplementary Heating Behavior, at time of survey	3-2
Table 3-3: Source of Initial Awareness of Program Offering.....	3-2
Table 3-4: Role of VGS Program Services in Decision, Percent of 4 or 5 Ratings.....	3-4
Table 3-5: How Stalled Participants Completed Upgrades (n=24)	3-6
Table 3-6: Additional Detail: VGS Participants with Cost or Financing Barriers	3-6
Table 3-7: Additional Detail: Stalled VGS Participants with Cost or Financial Barriers.....	3-7
Table 3-8: Contractor Referral (n=48).....	3-7
Table 3-9: Reasons for not Completing All Recommended Upgrades (Multiple Responses Allowed).....	3-8
Table 3-10: Participant Reasons for Low Satisfaction Ratings	3-11
Table A-1: VGS Respondent’s Household Size	A-1
Table A-2: VGS Respondent’s Age.....	A-1
Table A-3: VGS Respondent’s Level of Education.....	A-2
Table A-4: VGS Respondent’s Income	A-2
Table A-5: VGS Respondent’s Home Age	A-3
Table A-6: VGS Respondent’s Time Owning Home	A-3
Table A-7: EVT Respondent’s Household Size	A-4
Table A-8: EVT Respondent’s Age.....	A-4
Table A-9: EVT Respondent’s Level of Education.....	A-4
Table A-10: EVT Respondent’s Income.....	A-5
Table A-11: EVT Respondent’s Home Age	A-5
Table A-12: EVT Respondent’s Time Owning Home	A-6

EXECUTIVE SUMMARY

This document presents the results of the Vermont Single-family Retrofit Market Process Evaluation. This evaluation was conducted by GDS Associates, Inc., together with Research Into Action, Inc., West Hill Energy and Computing, Inc., and RKM Research and Communications (the Evaluation Team). This research consists of a process evaluation of the single-family existing home building retrofit programs for Efficiency Vermont (EVT) and Vermont Gas Systems (VGS).

This work was part of a larger research project that included:

- An impact evaluation of both the thermal (regulated and unregulated fuels) and electric energy savings achieved through these programs; and
- Market research focused on understanding the motivations and expectations of Vermont homeowners, including questions asked of participants and stalled participants, with a focus of identifying opportunities to reach deeper into the overall residential market.

This document presents the findings of the process evaluation work.

The process evaluation spans two programs: the EVT Home Performance with ENERGY STAR[®] program and the VGS Home Retrofit program. EVT Home Performance with ENERGY STAR[®] program aims to make participants' homes more comfortable and energy efficient by offering incentives for, and guidance on, energy efficiency improvements completed through a participating Home Performance with ENERGY STAR contractor. The Building Performance Institute (BPI) certifies these contractors to conduct testing and ensure safe living conditions. In addition to the EVT offerings, residents of Rutland County have access to additional American Reinvestment and Recovery Act (ARRA) funded services available through NeighborWorks of Western Vermont, which provides access to Home Energy Checkup audits and other project support and facilitates access to low interest financing.

The primary goal of the VGS Home Retrofit Program is to address efficiency and building envelope improvements to drive natural-gas energy savings for residential customers that consume in excess of 50,000 Btus per square foot per year (0.5CCF/square foot). Potential participants are qualified based on their home's thermal energy intensity.

PROCESS EVALUATION OBJECTIVES

The process evaluation for the Vermont Single-Family Existing Buildings market relied primarily on data gathered from surveys of two groups: participants and stalled participants. Participants were known to have completed a project and received an incentive from either EVT or VGS. Stalled participants were known to the program to

have received an energy audit, but were not known to have completed any incentive-qualified project. In addition to these surveys, the Evaluation Team also completed interviews with program staff regarding their experience with the programs and programs' structures, and to identify important themes of interest.

Surveys with participants and stalled participants examined respondents' awareness of the programs, participation motivations, interactions with program staff and contractors, audit experiences, barriers to participation, and overall satisfaction.

FINDINGS

The following is a high-level summary of the findings from the process evaluation.

- Participants in both the EVT and VGS programs tend to be more highly educated, have higher than average incomes. This is not surprising, since completing a residential energy retrofit typically requires a substantial financial investment by the participant.
- Participants and stalled participants in both the EVT and VGS programs identified saving energy or heating fuel as the primary motivation for undertaking energy saving home improvements.
- Many stalled participants reported that they had completed at least one of the recommended upgrades, despite not completing projects through the programs. About half of EVT stalled participants (49%) and more than half (60%) of VGS stalled participants reported having completed at least one of the recommended upgrades—most commonly installing insulation.
- The primary reason for not completing all recommended upgrades differed between the programs. Although cost was a major barrier for both, it was the primary barrier for EVT, but ranked second for VGS, behind concern or uncertainty about the amount of projected savings in energy or money.
- Fewer VGS than EVT participants recalled receiving an audit report from their contractor or auditor. A majority of EVT respondents (77%) indicated that the information from the energy audit was important in their decision to move forward with their project. Only 37% of VGS stalled participants recalled reviewing their report with a program representative, which may be an opportunity for increased uptake.
- The process evaluation found no major process issues with either of the programs. Findings suggest that increasing homeowner confidence in the savings potential of projects, and reducing the financial hurdles associated with whole house projects could increase participation.

RECOMMENDATIONS

In general, both programs need to increase homeowner confidence in the savings potential and environmental benefit associated with this type of project, and do this without overpromising. The specific recommendations, based on this research, are as follows:

Recommendation 1: Improve and maintain tracking of energy savings estimates and project cost estimates. These factors are important components of comprehensive home upgrades and provide the information required to build consumer confidence and increase the conversion rate of energy audit to retrofit project. Because of the difference between the VGS and EVT programs, opportunities for improving the accuracy of savings estimates will differ.¹ However, both programs will need to ensure these data are tracked in order to ensure that estimated savings projections and associated costs are reasonable. This tracking could occur at the point of application or project scoping and does not necessarily need to be reported to every participant.

Recommendation 2: Engage in multiple strategies for increasing confidence that these projects are the right choice for Vermont homeowners. Confidence comes from many sources: marketing, friends and family, trusted contractors, testimonials. Engaging all strategies is appropriate to overcome this substantial issue.

Recommendation 3: Consider options for staging or breaking projects down in to steps. It may be possible to keep people on track and engaged while they work through the items identified in their audit. This would ensure that the upgrades now installed outside of the program are installed properly and meet efficiency requirements, even if it takes several years for participants to get them all done.

Recommendation 4: Further investigate the issue of “stalled participants” installing efficiency measures after the audit, but outside of the program. To what extent are these self-reported actions valid? If valid, identify why these customers are not participating in the rest of the program. If valid, also identify, why additional technical assistance and incentives are not appealing to these customers.

Recommendation 5: Build and maintain a wide assortment of program tools. Given the high goals for residential efficiency and the recommendations flowing from the market research component of this project, the Evaluation Team believes that the existing programs should develop and maintain an expanded suite of levers or tools capable of reaching more broadly and deeper into the residential efficiency market. These programs

¹ See the standalone impact evaluations conducted for EVT and VGS for specific recommendations on improving accuracy of savings estimates. Both reports are available on the Vermont Public Service Department website.

will need to have access to solutions that overcome specific homeowner barriers. It will be important to keep financing, project assistance, rebates, quality control and other tools available to overcome customer-specific barriers as appropriate.

PROJECT INTRODUCTION AND METHODS

GDS Associates, Inc., together with Research Into Action, Inc., West Hill Energy and Computing, Inc., and RKM Research and Communications (the Evaluation Team), completed an evaluation of single-family existing home building retrofit programs for Efficiency Vermont (EVT) and Vermont Gas Systems (VGS). The evaluation included process evaluation and market research focused on understanding the experiences of participants and stalled participants, as well as opportunities to reach deeper into the overall residential market.

This work was embedded in a larger research project that also included an impact evaluation of both the thermal (regulated and unregulated fuels) and electric energy savings achieved through these programs. The impact evaluation independently documented electric, natural gas, and delivered fuel (oil) savings from the 2008 to 2010 program years.

This document presents the findings of the process evaluation work.

1.1 PROCESS EVALUATION OBJECTIVES

The process evaluation for the Vermont Single-Family Existing Buildings market relied primarily on data gathered from surveys of two groups: participants and stalled participants. Participants were known to have completed a project and received an incentive from either EVT or VGS. Stalled participants were known to the program to have received an energy audit, but were not known to have completed any incentive-qualified project. In addition to these surveys, the Evaluation Team also completed interviews with program staff regarding their experience with the programs and programs' structures, and to identify important themes of interest.

The process evaluation surveys focused on several elements of the participant and stalled participant experience, including:

- Awareness of the programs
- Motivations for participation
- Coordination with program staff and contractors
- Audit experiences and results
- Satisfaction with the program processes and results

In addition to these factors, the surveys collected participant and stalled participant feedback about barriers to participation and potential motivators for taking action. While

participants overcame barriers they experienced and were able to move forward, stalled participants did not proceed with program-qualified projects. The surveys asked respondents about financial barriers, risk aversion, hassle or time barriers, and the potential lack of motivation to complete projects.

The process evaluation results are presented in Sections 2 and 3 of this document.

1.2 PROGRAM DESCRIPTIONS

1.2.1 Efficiency Vermont (EVT)

The EVT Home Performance with ENERGY STAR[®] program aims to make participants' homes more comfortable and energy efficient by offering incentives for, and guidance about, energy efficiency improvements completed through a participating Home Performance with ENERGY STAR contractor. The Building Performance Institute (BPI) certifies these contractors to conduct testing and ensure safe living conditions.

Participants may find their contractor through word of mouth, an internet search, or through a list on the program website of approved contractors. Potential participants pay for an energy audit conducted by a participating Home Performance with ENERGY STAR contractor. The cost of the audit is negotiated directly between participants and their contractors and can range from \$0 to more than \$500. The audit provides homeowners with a list of energy saving recommendations for their home. Using the information from the audit, contractors prepare a bid. The final scope of work is negotiated with participants, who typically work with the same contractor to complete the upgrades.

Efficiency Vermont operates with an incentive schedule that starts at \$250 for air leakage reduction of at least 10%.² Efficiency Vermont offers a bonus incentive of \$250 for comprehensive projects—those that reduce air leakage by 35% and install insulation in areas equivalent to at least 75% of the home's finished floor area. Incentives for several categories were reduced somewhat in 2012, including the maximum total incentive per project, lowered to \$2,000 in 2012 from \$2,500 in 2011. After completion, a minimum of 5% of jobs are inspected for quality and completeness. (For a complete schedule of 2011 and 2012 incentives, see Appendix D.)

Participants can fund their projects with their own upfront capital, use loan options available through a local bank or credit union, or obtain a low-cost energy loan through other programs, such as NeighborWorks Alliance of Western Vermont. An American Recovery and Reinvestment Act (ARRA) grant recipient, within the Rutland County region, NeighborWorks offers an additional layer of support to Rutland County

² All health and safety measures must be installed before incentives are provided.

homeowners interested in energy efficiency upgrades, including reduced-cost audits, low interest loans, and assistance with project coordination.

1.2.2 Vermont Gas Systems, Inc. (VGS)

The primary goal of the VGS Home Retrofit Program is to address efficiency and building envelope improvements to drive natural-gas energy savings for residential customers that consume in excess of 50,000 Btus per square foot per year (0.5CCF/square foot). Potential participants are qualified based on their home's thermal energy intensity. Customers may qualify themselves online through the program website by providing their account information or by calling the program directly. Qualified homeowners receive a free energy audit that provides a list of recommended energy saving home upgrades. The audit report includes both cost effective measures with short payback periods and measures with longer paybacks that could improve home comfort. The auditors and program staff encourage potential participants to complete as many measures as possible in order to leverage the interactive effects of multiple home upgrades.

Common measures include insulation and air sealing. When appropriate, domestic hot water conservation measures are also installed, as well as electric energy efficiency measures.

The program provides a list of contractors, but participants are permitted to choose their own qualified contractor. The auditor may help the customer select a contractor who suits their needs. Participants have the option to finance their project through a credit union that works with the program. Vermont Gas Systems buys down the interest rate for participants to between 0% and 4%. In addition to financing, VGS provides cash incentives for up to 50% of the installed measure costs. After the work is completed, VGS inspects the job to ensure that all of the planned measures were installed and installed correctly.

In addition to the Home Retrofit Program, VGS also provides rebates for installing high efficiency space and water heating equipment through its Residential Equipment Replacement (RER) program. Vermont Gas Systems also partners with EVT on a Home Performance with ENERGY STAR pilot in VGS service territory. Through this pilot, VGS customers who do not qualify for, or do not choose to proceed with, projects through the VGS Retrofit program can work with a Home Performance with ENERGY STAR contractor to complete their home upgrades. Vermont Gas Systems typically pays for customer incentives and claims savings for these projects.

1.3 PARTICIPANT AND STALLED PARTICIPANT SURVEY METHODOLOGY

1.3.1 Survey Development

For both participants and stalled participants, survey instruments included questions about initial awareness of program offerings, motivations for considering a project, and barriers to project completion. Additionally, the participant survey instrument included questions about experiences with project completion, inspection, and satisfaction with project results. The stalled participant survey instrument included more questions about reasons for not moving forward and any energy efficiency upgrades that might have been completed outside of the programs.

1.3.2 Sampling Design

The Evaluation Team conducted phone surveys with 120 Vermont homeowners who completed projects (participants) and 111 homeowners who initiated a project, but were not known to have completed it (stalled participants) (Table 1-1 and Table 1-2). The Evaluation Team conducted phone surveys with 72 participants in EVT territory and 48 participants in VGS territory. This study defines participants as homeowners who completed a project through the EVT Home Performance or VGS Home Retrofit programs. Nine surveyed participants lived in Rutland County.³ The Evaluation Team selected surveyed participants randomly from lists of participants provided by EVT and VGS.

Table 1-1: EVT Surveyed Populations

	Population				Completes			
	Participant		Stalled Participant		Participant		Stalled Participant	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Rutland County	234	25%	259	53%	9	13%	37	52%
Other Counties	708	75%	234	47%	63	88%	34	48%
All Counties	942	100%	493	100%	72	100%	71	100%

³ While nine of the surveyed EVT participants lived in Rutland County, we did not incorporate NeighborWorks H.E.A.T Squad participant lists and therefore do not know the extent of involvement with NeighborWorks among these participants. Rutland County residents are not required to come to the program through the H.E.A.T Squad. Only seven of the nine were willing to rate their satisfaction with their experience with the H.E.A.T Squad.

Table 1-2: VGS Surveyed Populations

	Population	Completes
Participant	141	48
Stalled Participant	193	40

The evaluation team received a list of 1,082 total participant contacts from program contacts at EVT and VGS. We did not contact 704 contacts because our survey quota was met. Table 1-3 shows the results of calls made to the contacts on this list.

Table 1-3: Participant Survey Disposition (Both Programs)

Disposition	Count	Percent
Completed	120	32%
Not Eligible	75	20%
No eligible respondent	1	0%
Wrong Number	69	18%
Business	2	1%
Fax	1	0%
Do Not Call/Duplicate	2	1%
Eligible but not Completed, or Eligibility Unknown	116	31%
Answering Machine	98	26%
Call Backs	13	3%
No Answer	4	1%
Busy	1	0%
Contacted, not Completed	67	18%
Refusals	58	15%
Terminates during interview	9	2%
Total	378	100%

The Evaluation Team also conducted phone surveys with stalled participants (71 EVT, 40 VGS) (Tables 1-1 and 1-2). Stalled participants are defined as potential participants who were known to have completed an audit, but did not go on to complete a program-qualified project and receive an incentive. The evaluation team received a list of 665 total stalled participants from program staff at EVT and VGS. The survey team did not attempt to call 299 of the available contacts as the quotas were met. Table 1-4 shows the results of calls made to the contacts on this list.

Just over half (36) of the surveyed EVT stalled participants lived in Rutland County.

Table 1-4: Stalled Participant Attempted Call Disposition (Both Programs)

Disposition	Count	Percent
Completed	111	30%
Not Eligible	86	23%
No eligible respondent	3	1%
Wrong Number	68	19%
Business	9	2%
Fax	2	1%
Do Not Call/Duplicate	4	1%
Eligible but not Completed, or Eligibility Unknown	146	40%
Answering Machine	103	28%
Call Backs	32	9%
No Answer	9	2%
Spanish/Other Language	1	0%
Busy	1	0%
Contacted, not Completed	134	37%
Refusals	127	35%
Terminates during interview	7	2%
Total	366	100%

Section 2:

EFFICIENCY VERMONT (EVT) PROCESS FINDINGS

The Evaluation Team surveyed 72 Efficiency Vermont Home Performance with ENERGY STAR participants, including nine from Rutland County. Rutland County offers additional services through the NeighborWorks H.E.A.T. Squad.⁴ Participants had completed a project between 2008 and 2012, with or without assistance from the NeighborWorks H.E.A.T. Squad.

The Evaluation Team also surveyed 71 EVT program stalled participants. Stalled participants were known to have received an audit or expressed interest in a project, but had not completed a project through the program. Of these surveyed stalled participants, just over half (52%) lived in Rutland County.

2.1 DEMOGRAPHICS

Based on available lists, the Evaluation Team randomly sampled available participants and stalled participants. Participant respondents consisted of slightly more women (54%) than men (46%) and represented households varying in size from one occupant to five or more. Stalled participant respondents had a similar composition with 55% men and households ranging from one occupant to seven.

Most participant respondents reported being over 45 years of age with slightly over a quarter of the respondents being over age 65. Stalled participants had a similar age composition, with more than half of respondents being between 45 and 64 years of age. Participant and stalled participant incomes reflected similar ranges with most respondents making between \$60,000 and \$150,000 annually. According to the latest census, the median household income in Vermont is \$51,841.⁵

2.2 PARTICIPANT AND STALLED PARTICIPANT HEATING

Most EVT participants (those that completed both an audit and installed recommended energy efficiency measures through the program) reported that their primary heating fuel is fuel oil (49%) or liquid propane gas (26%) (Table 2-1). Stalled participants (those that had an energy audit completed, but did not apply for incentives for installation of recommended efficiency measures) similarly indicated that fuel oil (55%) was their primary heat source prior to having an audit completed through the program. Ten percent

⁴ NeighborWorks provides information and support for homeowners interested in efficiency upgrades through the H.E.A.T. Squad; however it is possible for Rutland County residents to participate in EVT's program without having any contact with NeighborWorks or the H.E.A.T. Squad.

⁵ US Census, <http://quickfacts.census.gov/qfd/states/50000.html> Accessed October 8, 2012.

of participants reported they had changed their heating fuel type through participation in the program.

Table 2-1: Primary Heating Fuel Source

Fuel Type	Participants (n=72)		Stalled Participants (n=71)
	Before Project	After Project	
Fuel Oil	56%	49%	54%
Liquid Propane	21%	26%	14%
Wood	18%	18%	25%
Wood Pellets	3%	6%	6%
Natural Gas	1%	1%	1%
Kerosene	1%	--	--

Over 70% of EVT Home Performance with Energy Star (HPwES) participants reported having a supplemental heating source. Among those participants who reported using a supplemental heating source, the most frequently reported type was a woodstove or wood fireplace insert (Table 2-2).

Table 2-2: EVT Participant and Stalled Participant Source of Supplemental Heat

Supplemental Heat	Participants (n=72)	Stalled Participants (n=71)
Woodstove or fireplace insert	37%	31%
Oil furnace or boiler	7%	17%
Oil, propane, or kerosene space heater	6%	6%
Propane furnace or boiler	10%	3%
Propane fireplace	6%	1%
Pellet stove or fireplace	4%	1%
Electric baseboards or plug-in heater	1%	11%
Natural gas fireplace	--	3%
No supplemental heat	30%	27%

Respondents reported various levels of supplemental heat use. Nearly half of EVT participants reported using their supplemental heat through the entire heating season. Participants were asked if they used their supplemental heat differently since participating in the program. Forty-four of the fifty-one participants reporting that they used supplemental heat were able to assess how their supplemental heat use had changed since they participated in the program. Most of these participants indicated that they used their supplemental heat the same amount (25, or 57% of those responding) or less (16, or

36% of those responding) since participating in the program. Three participants reported using their supplemental heat more since participating in the program.

Stalled participants were more likely to report that they used their supplemental heat source rarely or only on the coldest days. About a third (31%) of stalled participants used their supplemental heat through the entire heating season (Table 2-3). Stalled participants reported using their supplemental heat the same amount (78%) or less (17%) after participating in the program.

Table 2-3: Participant and Stalled Participant Supplemental Heating Behavior after Participation

Supplemental Heating Use	Participants (n=51)	Stalled Participants (n=52)
Rarely	16%	33%
Only on the coldest days	14%	19%
Only during the coldest months	18%	15%
Through the heating season	49%	31%

2.3 AWARENESS

Participants and stalled participants reported similar sources of initial awareness about the opportunity to get assistance with energy efficiency projects (Table 2-4). Respondents most frequently cited word of mouth, newspaper, or a workshop/community event as their source of initial awareness.⁶ Stalled participants from Rutland County selected word-of-mouth most frequently as their source of initial awareness (10 of 37), followed by newspaper ads or articles (8 of 37).

Table 2-4: Participant and Stalled Participant Initial Awareness of Program Offering

Source of Awareness	Participants (n=72)	Stalled Participants (n=71)
Friend/family/colleague	26%	30%
Newspaper	19%	14%
Workshop/community event	16%	8%
Contractor	16%	4%
Online	7%	6%

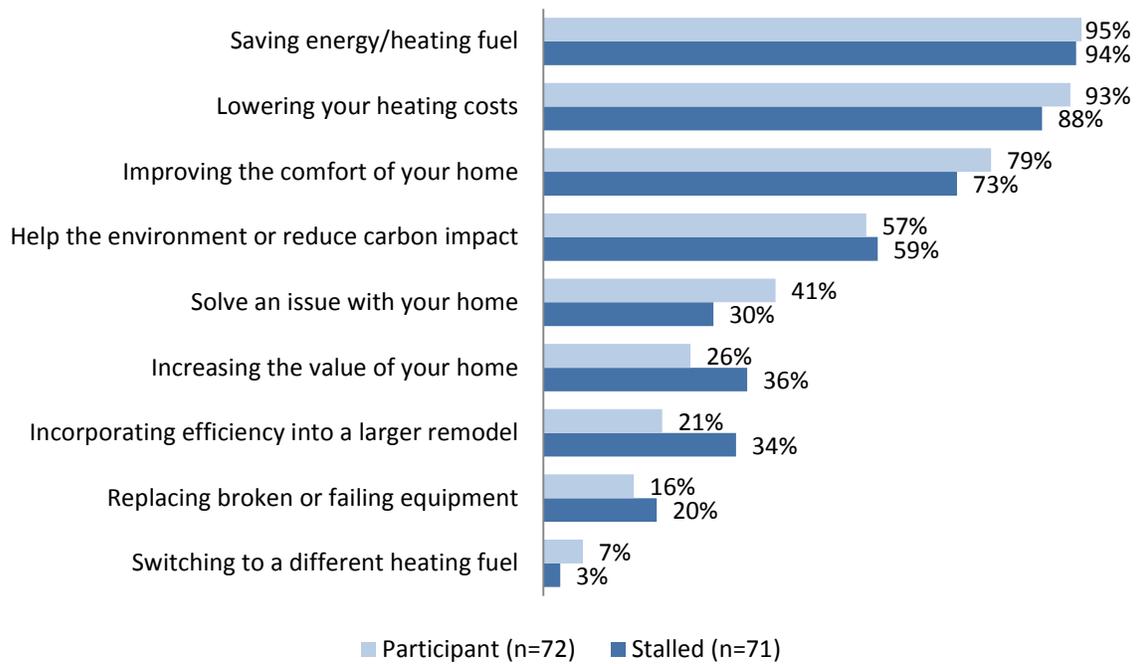
⁶ Participants from Rutland County most commonly reported the newspaper as initial source of program awareness (4 of 9), followed by NeighborWorks H.E.A.T. Squad (2 of 9). Stalled participants from Rutland County selected word-of-mouth most frequently as their source of initial awareness (10 of 37), followed by newspaper ads or articles (8 of 37).

Source of Awareness	Participants (n=72)	Stalled Participants (n=71)
Radio	6%	1%
NeighborWorks H.E.A.T. Squad	4%	3%
Bill insert	2%	0%
Program representative	2%	1%
Television	1%	1%
Other	1%	17% ⁷

2.4 MOTIVATION

The Evaluation Team asked participants and stalled participants about their motivations for considering (or completing) energy efficiency improvements in their homes. These questions were closed-ended and asked respondents to answer using a five-point scale, where “1” is not at all influential and “5” is very influential. This was not a ranking exercise, thus respondents could report that multiple factors were highly influential. Saving energy or heating fuel and lowering heating costs were rated as highly influential most often by both participants and stalled participants (Figure 2-1).

Figure 2-1: Participant/Stalled Participant Motivations for Energy-Saving Home Improvements [Portion rating a “4” or a “5”]



⁷ Other responses included ENERGY STAR, Land Trust of Vermont, and polling locations.

Both groups of respondents were asked which of the factors was the *most* influential for them. Stalled participants were more likely to report wanting to lower heating fuel costs than participants, while participants were more likely to report non-economic reasons as their primary motivation, particularly solving problems with one’s home.

Table 2-5: Most Important Motivation

Reason	EVT Participants (n=72)	EVT Stalled Participants (n=71)
Lowering heating fuel costs*	31%	45%
Saving energy/heating fuel	21%	20%
Improving comfort	15%	11%
Solving an issue with one’s home*	18%	6%
Helping the environment/reducing carbon impact	10%	7%

*z-test for proportions, $p < .05$

To understand the relative importance of different program services on participant decision-making, the Evaluation Team asked participants how much of a role several program elements played in their decision to make home energy improvements (Table 2-6). Participants rated each element on a five-point scale, where “1” meant “no role at all” and “5” meant “a large role.”

Table 2-6: Role of Program Services in Participant Decision Making, Percent of “4” or “5” ratings

How large of a role did the following play:	Participants (n=72)
The information provided in the energy audit	77%
Contractor explanation of project benefits	66%
The financial incentives you received	51%
Assistance from the program	49%
Financing, if you used any	12%

The survey also asked about the influence of tax credits. About a third (32%) of EVT participants received a tax credit in addition to an incentive from the program (15 of 72, or 20% did not know whether or not they had received a tax credit). Fifteen of these participants were willing to discuss the importance of the tax credit. Of the 15, a third (5) indicated that the tax credit was not at all important; three indicated that it was of minor importance, and the remainder (7) indicated that it was fairly or very important in their decision.

2.5 PARTICIPATION

2.5.1 Home Energy Audit

Both participants and stalled participants received a home energy audit to identify energy saving opportunities in their homes. The Evaluation Team asked both groups about their audit experiences. Nearly all participants (96%) and stalled participants (99%) reported that their contractor had provided them with a report describing the results of their home energy audit.

EVT participants are charged separately for their audits, depending on their contractors practices. Participants reported a wide range of costs for their audits, most respondents paid between \$100 and \$500. Table 2-7 illustrates the wide range of audit prices paid by participants and stalled participants; including 22 that reported paying less than \$50 or nothing at all (10 participants and 12 stalled participants). It is also important to note that 40% of participants did not know what their audit cost, indicating that the cost of the audit was likely rolled into the cost of the project or that the cost of the audit was not a concern for these participants.

Table 2-7: Audit Cost

Audit Cost	EVT Participants (n=72)	EVT Stalled Participants (n=71)
No cost	8%	7%
\$50 and under	6%	10%
\$50 to \$99	0%	14%
\$100 to \$199	10%	13%
\$200 to \$299	3%	6%
\$300 to \$399	13%	14%
\$400 to \$499	15%	13%
Over \$500	6%	4%
Don't know/refused	40%	20%

Of the 69 participants that reported receiving an audit, most (95%) reported receiving an audit report. Of those who received a report, 57 were able to offer additional details about their experience. Of those 57, that majority (47 or 82%) indicated that their contractor reviewed the audit report with them. A lower portion of stalled participants, but still more than half (68%), recalled reviewing the report with their contractor or auditor.

Participants and stalled participants were asked to rate their experiences with the audit report (Table 2-8). Interestingly, stalled participants offered as high or higher ratings of

the value of their audit report. This indicates that differences in perceived value of the audit report may not be creating a barrier for those that fail to complete program-qualified projects.

Table 2-8: Value of Audit (Rating a “4” or a “5” on a 5-point scale)

Audit Report Statements	Participants (n=72)	Stalled Participants (n=70)
The report was comprehensive	89%	93%
The report clearly showed what improvements my home needed	87%	88%
I was satisfied with the report	89%	89%

After the audit, most participants (93%) indicated that their contractor provided them with an estimate of the incentive amount they would receive for the upgrades they might complete. Participants were asked if these estimates included the extent to which their fuel or electricity costs would be lowered. Sixty-four percent of EVT participants said that their project estimate included estimated fuel or electricity savings.⁸

Participants and stalled participants offered both positive and negative comments about their experiences with the audit process:

I learned how energy escapes and how that contributes to icicles. I now notice how many homes are losing heat. I wish more people would do it.

I was very pleased with (the audit) and I learned a lot from it.

Through the energy audit, I really understood how my house functions. I learned about heat, moisture flow, waste of electricity and heat, venting, insulation, and air changes.

I was very frustrated, after paying \$400 for the audit, that we had to use the program contractor, who was much more expensive [than other contractors].

The auditor did not show confidence that he knew what he was doing.

Participants were asked how many of the recommended upgrades they made in their homes. More than half (63%) indicated that they did all of the recommended upgrades. The most frequently cited reason for not completing all of the upgrades was the cost of the project. Most EVT participants (89%) reported that they did not seek financing for their energy upgrade project. Of those participants who pursued financing, nearly all (6 of 7 participants) reported that they had secured financing.

⁸ 24% could not recall

Among stalled participants, half (35, 49%) reported having completed at least one of the recommended upgrades. Stalled participants who completed the recommended upgrades outside of the program were asked who completed their upgrades (Table 2-9). Most stalled participants reported that they used a contractor not associated with the program or did the work themselves. Most stalled participants (77%) reported that they did not pursue financing for their projects, but nearly all of those who did secured funds (7 of 8).

Table 2-9: How Stalled Participants Completed Upgrades

Who Did The Upgrade(s)?	Stalled Participants (n=26)
Another contractor	37%
Did it myself (DIY)	31%
Friend or family member	11%
Contractor from program	11%
Other ⁹	9%

In open-ended comments, 35 stalled participants discussed completing some of the recommended upgrades. Of these upgrades, respondents reported insulating most frequently (20 mentions), followed by air sealing (10 mentions), HVAC upgrades (4 mentions) and windows (4 mentions).

2.5.2 Barriers

Any participants or stalled participants reporting that they had not completed all of the recommended upgrades were asked what stopped them. Participants and stalled participants offered a variety of reasons for not completing all of the recommended upgrades (Table 2-10). The most frequently cited reason was project cost. The survey instruments allowed respondents to identify multiple reasons for not completing projects.

Most participants completed all upgrades, but 24 of 72 (or 33%), of participants reported that they did not complete all recommended upgrades. Half of the stalled participants reported that they had completed at least some of the recommended upgrades. We cannot confirm that they did, or if the work would have met the program criteria, but it is important to note that among those that were only known to have received an audit (but not to have completed a project) half reported that they had completed at least part of their project.

⁹ Remaining “other” responses were unclear and could not be coded

Table 2-10: Barriers to Completing Recommended Upgrades Multiple mentions

Barrier	Participants (n=24)		Stalled Participants (n=36)	
Project cost	63%	15	78%	28
Financing issues	13%	3	50%	18
Amount of energy or money the project would save is small	4%	1	31%	11
Not ready/other priorities	4%	1	6%	2
Did some of them myself (DIY)	4%	1	0%	0
Pre-existing home conditions (knob & tube, vermiculite)	4%	1	0%	0
Hassle/time constraints	4%	1	0%	0
Working with the program was difficult or confusing	0%	0	3%	1
Planning to sell my home	0%	0	3%	1

The evaluation team considered differences in income in relation to the barriers, but did not find significant differences for the various income categories, although respondents with higher incomes (\$100,000 a year or more) were less likely to cite finances (either project cost or financing) as a barrier.

For both participants and stalled participants, either upfront or overall cost presented the largest hurdle to project completion. For those participants who indicated that cost was a barrier, the Evaluation Team asked what specifically about the cost or financing was an issue (Table 2-11). In open-ended comments, stalled participants expressed concerns about costs, payback for their investment, and a lack of available incentives for recommended measures.

Table 2-11: Additional Detail on Cost or Financing Barriers (Multiple Responses Allowed)

Barrier	Count of Mentions	
	Participants (n=18)	Stalled Participants (n=28)
Overall cost is too high	7	12
Up-front cost of the improvements is too high	4	9
Other priorities for available funds	4	3
Didn't want to take on debt	3	6

Barrier	Count of Mentions	
	Participants (n=18)	Stalled Participants (n=28)
Didn't want to deal with hassle of arranging financing	--	2
Needed financing	--	4

2.5.3 Contractor Experience

Participants reported varying methods for finding the contractors who performed their upgrade projects (Table 2-12). Most EVT participants found their contractors via referral from a friend, family member, or colleague; or indicated that the contractor who performed their upgrade was the same contractor who performed their energy audit.

Table 2-12: How Participants Found Contractors, Percent of 4 or 5 ratings

Method of Finding Contractor	Participants (n=72)
Referral from friend/family/other	35%
The contractor that did the energy audit also completed the work	18%
The utility or program website	13%
I got a referral from the auditor who did the energy assessment/audit	11%
I already knew the contractor	7%
Yellow pages of a phone book/online search	4%
Didn't use a contractor	1%
Don't know/other	8%

Nearly all of participants (90%) reported that their contractor completed the work as proposed. Those participants whose work was not completed on schedule indicated that they had done the work themselves, the scope of the work changed, or that correcting minor issues caused delays.

Participants offered mostly positive comments about their experiences with contractors:

I thought it was great. He explained everything in simple terms that I could understand.

It was a very good experience. He gave me some tips that wouldn't cost a lot of money that we could do right away.

They were good guys and they were respectful. They even sent us a copy of the report.

It wasn't an unpleasant experience; he was knowledgeable and told me what the costs will be.

The contractor left my place a mess when he finished and I was not confident in his abilities.

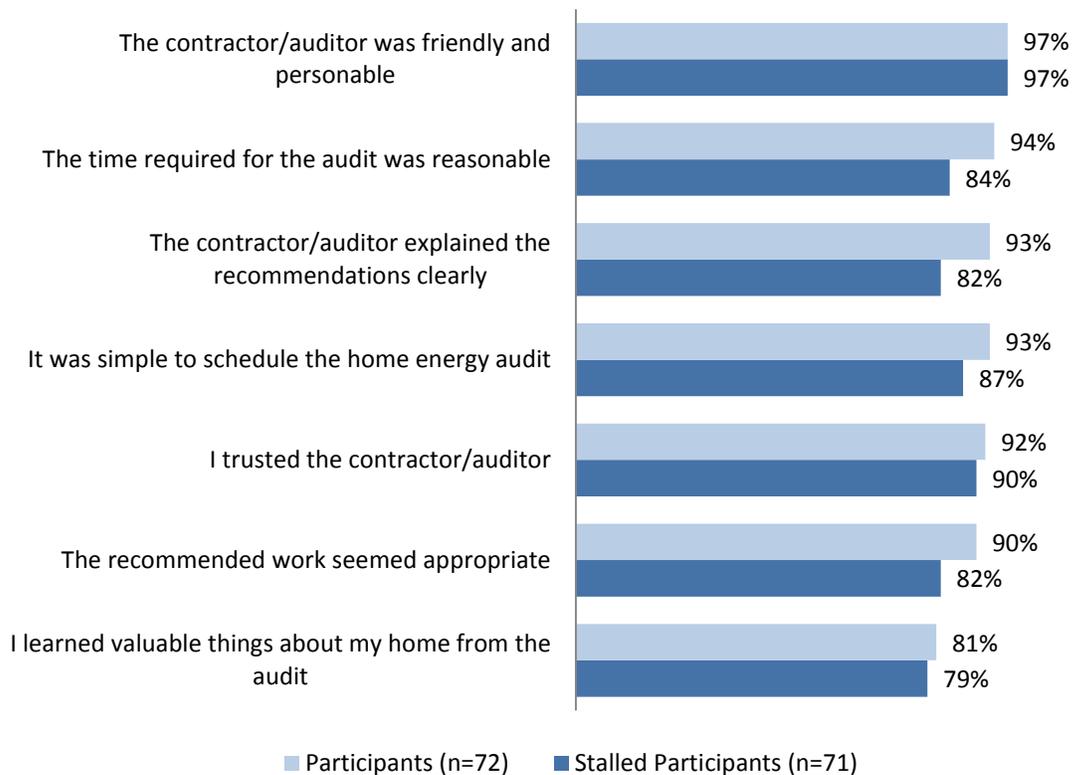
2.5.4 Inspection Experience

EVT does not inspect every completed project, and so not surprisingly, less than a quarter of participants (17%) reported that someone came to their home to inspect the completed work. Three participants reported issues emerging during the inspection, all of which were addressed by their contractors.

2.6 SATISFACTION

Participants and stalled participant were asked about their experiences with various elements of program participation. Respondents were asked if they agreed with several statements. While somewhat expected, stalled participants provided a lower level of agreement with positive statements about most of the program elements (Figure 2-2).

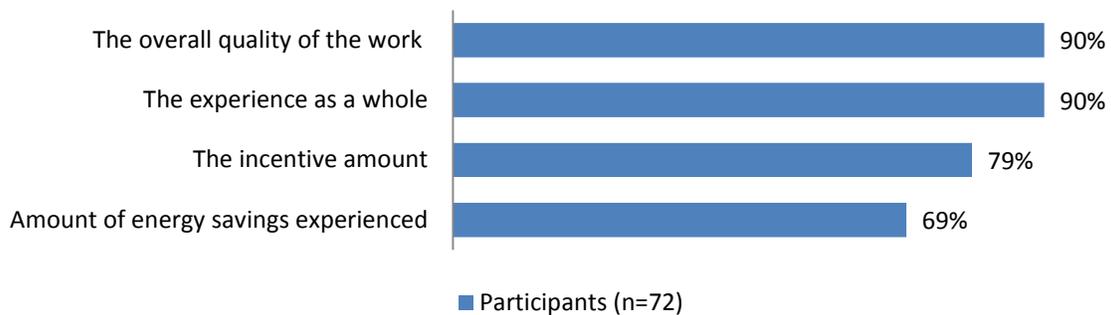
Figure 2-2: Experience with EVT Program Elements, Percent of 4 or 5 ratings



Participants were also asked to rate their satisfaction with various program elements on a five-point scale ranging from “not at all satisfied” to “extremely satisfied” (Figure 2-3 and Figure 2-4). Participants gave fairly high satisfaction scores for all program elements. Stalled participants offered their satisfaction with the elements of the program they experienced and generally had similar levels of satisfaction as participants.

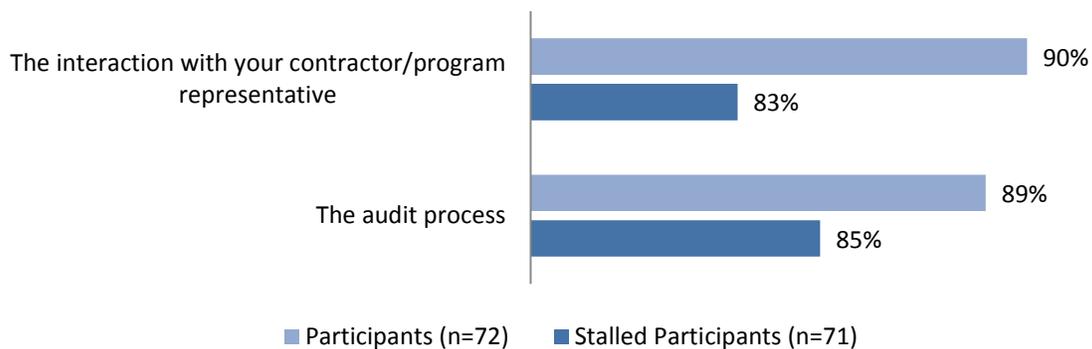
Participants offered the lowest satisfaction scores to the level of energy savings obtained since completing their project. It is important to note that 28% offered a “don’t know” response, as opposed to low satisfaction, meaning that only 3% were less than satisfied with the level of energy savings obtained.

Figure 2-3: Satisfaction with EVT Program Elements, Percent of 4 or 5 ratings



Stalled participants only offered scores for the elements of the program they experienced: the audit process and interactions with contractors or program representatives (Figure 2-4).

Figure 2-4: Satisfaction with EVT Program Interaction, Participants and Stalled Participants, Percent of 4 or 5 ratings



The data suggest that not all Rutland County respondents interacted with NeighborWorks H.E.A.T. Squad. Of nine participants from Rutland County, seven offered feedback regarding their experiences with NeighborWorks H.E.A.T. Squad. Of the 37 stalled

participants from Rutland County, 28 offered a rating of their experience with H.E.A.T. Squad. Of Rutland County participants, six of seven reported being satisfied or very satisfied with their experience of the H.E.A.T. Squad. Of Rutland County stalled participants, 24 of 28 reported being satisfied or very satisfied.

Participants and stalled participants offered relevant comments about their overall experience. Representative comments from stalled participants included:

I think it is an awesome program but it would have cost me \$16,000 and I am not going to get that much money back in resale.

I think people should not be locked into hiring the contractor that does the audit. That seems like a conflict of interest.

I needed more help determining which things were the most important to do and I didn't know where to go for that information.

Representative comments from participants included:

There needs to be monitoring between the contractors and Efficiency Vermont, because someone needs to make sure things are getting done.

For the program to really be effective they need to find a better way to offer more financial incentives. I can't imagine how low income people could afford to do the program. The return on investment needs to be shorter.

It would be nice if I could get credit for everything I did, even if I don't do the whole project.

Any participants who offered a “3” or lower in their rating of any of the contractor satisfaction elements were asked to explain why they were dissatisfied. Six (of six) offered reasons; the most frequently mentioned reason was problems with the contractor (four mentions), including communication issues and poor quality of work (Table 2-13). The other reasons were lack of savings (one mention) and high prices for work (one mention).

Table 2-13: Participant Reasons for Low Satisfaction Ratings

Reason	Count of Mentions
Dissatisfied with contractor	4
Dissatisfied with savings	1
Quote for work was high	1

2.7 SUMMARY

EVT participants and stalled participants reported being interested in energy efficiency projects primarily because they wanted to save energy or heating fuels and reduce their energy costs. Both groups received energy audits, which they found to be educational and comprehensive. After receiving audit results, participants went on to complete energy saving projects, while stalled participants either moved forward with partial projects outside the program or opted not to make any upgrades. More than half of participants did all of the recommended upgrades, while about half of stalled participants reported doing at least one recommended upgrade.

Participants and stalled participants identified project costs as the largest barrier to completion. This finding could indicate that the cost of the HPwES project is simply unaffordable for many homeowners that receive an audit and bid; or that the cost was more than they had expected, and they are unwilling or unable to re-allocate other household funds to cover the difference. Additional qualitative research focused on homeowner expectations for home energy upgrades relative to the actual cost of qualified projects could shed light on the extent to which this is an expectation issue as opposed to cost. As mentioned earlier, most participants and stalled participants did not pursue financing for their projects, but those who did were usually able to secure it.

Both participants and stalled participants reported being satisfied with the program elements they experienced, including interactions with program representatives. Participants and stalled participants suggested increasing the amount of flexibility in the program, including allowing participants to spread projects out over time, as a potential improvement. Participants also suggested that the program increase quality control, although no suggestions for how to do this were offered. Overall, satisfaction with the program is high, and many stalled participants completed at least some energy savings actions.

Also visible in the results of the stalled participant survey is the high level of representation from Rutland County in the stalled participant population. The availability of reduced cost audits through NeighborWorks of Western Vermont and the tracking required to meet Department of Energy requirements of ARRA grants clearly increased the known activity in Rutland County.

VERMONT GAS SYSTEMS (VGS) SYSTEM PROCESS FINDINGS

The Evaluation Team surveyed 48 participants from Vermont Gas System's (VGS) service territory. These participants had completed a project through the Vermont Gas Home Retrofit program between 2008 and 2012. In addition, 40 stalled participants were surveyed who had expressed interest in a project and received an energy audit, but did not complete a project through the program. These stalled participants had initiated a project between 2008 and 2011.

3.1 DEMOGRAPHICS

Vermont Gas Systems provided the Evaluation Team with a list of 142 program participants known to have completed a residential retrofit project and 194 participants thought to have stalled in their progress (referred to as stalled participants). The Evaluation Team randomly sampled available participants and stalled participants in Vermont Gas territory. Participant respondents consisted of slightly more women (52%) than men and represented households ranging in size from one to five occupants. Stalled participant respondents had a similar composition, although they consisted of slightly more men (55%) than women and households ranging from one occupant to seven. Most surveyed households had two (54%) or three (21%) occupants, with slightly fewer households having three occupants. Most participants reported being over 45 years of age with slightly more than a quarter (26%) over age 65.

Participant and stalled participant incomes reflected similar ranges with most respondents making between \$60,000 and \$150,000 annually. According to the most recent census, the median household income in Vermont is \$51,841.¹⁰

3.1.1 Participant and Stalled Participant Heating

All VGS participants and nearly all stalled participants (98%) indicated that natural gas is their primary heating fuel.

The majority of participants (66%) and stalled participants (65%) reported having no supplemental heat. Those with a supplemental heating source most frequently reported using a woodstove or wood fireplace insert (Table 3-1).

¹⁰ US Census, <http://quickfacts.census.gov/qfd/states/50000.html> Accessed October 8, 2012.

Table 3-1: VGS Respondents’ Access to Supplemental Heat

Supplemental Heat	Participants (n=47)	Stalled Participants (n=40)
None	66%	65%
Woodstove or fireplace insert	15%	18%
Electric baseboards or plug-in heater	9%	8%
Natural gas fireplace	6%	3%
Pellet stove or fireplace	2%	3%
Oil, propane, or kerosene space heater	2%	5%

Of the 16 VGS participants with supplemental heat, nearly half (47%) reported rarely using it (Table 3-2). Most participants with supplemental heat (15 of 16, or 94%) indicated that they have used their supplementary heat the same amount (65%) or less (29%) since participating in the program.

Of the 14 VGS stalled participants with supplemental heat, 43% (6 of 14) indicated that they rarely use it (Table 3-2). Stalled participants, similar to participants, indicated that their interactions with the program did not change their supplementary heating usage.

Table 3-2: Supplementary Heating Behavior, at time or survey

Supplementary Heating Use	Participants (n=17)	Stalled Participants (n=14)
Rarely	47%	43%
Only on the coldest days	6%	14%
Only during the coldest months	18%	21%
Through the heating season	29%	21%

3.2 AWARENESS

Participants reported hearing about the program from bill inserts or their newspapers while stalled participants were more likely to find out about the program online or through word of mouth (Table 3-3).

Table 3-3: Source of Initial Awareness of Program Offering

Source of Awareness	Participants (n=48)	Stalled Participants (n=40)
Bill insert	24%	5%
Newspaper	23%	5%
Friend/family/colleague	15%	13%
Online	14%	25%
Program representative	13%	5%
Contractor	5%	5%

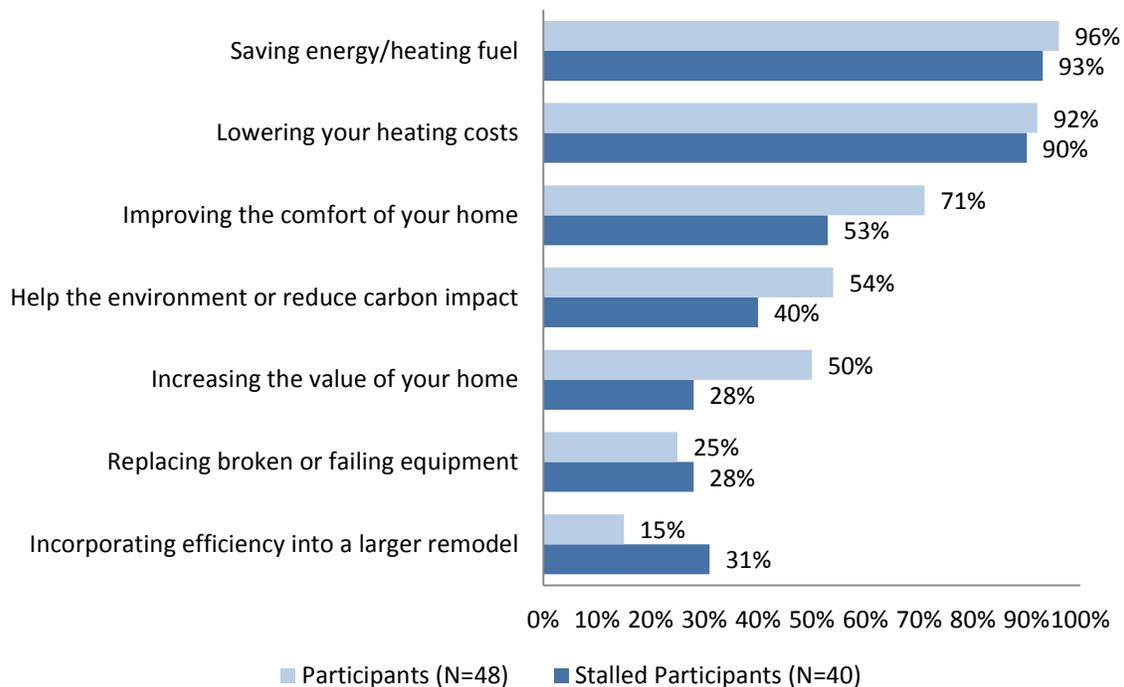
Source of Awareness	Participants (n=48)	Stalled Participants (n=40)
Workshop/community event	2%	3%
Television	2%	0%
Other	2%	13% ¹¹

3.3 MOTIVATION

Participants and stalled participants were asked about factors that might have motivated them to complete, or consider completing, energy efficiency improvements in their homes. Participants and stalled participants rated several factors on a five-point scale of influence, where one meant “not at all influential” and five meant “extremely influential” (Figure 3-1).

Participants most commonly rated saving energy or heating fuel as an influential factor in their decision. Stalled participants reported similarly high ratings to saving energy or heating fuel and lowering heating costs, but offered lower ratings for many other factors. Stalled participants were more than twice as likely to indicate that incorporating efficiency into a larger remodel was important and nearly half as likely to indicate that increasing the value of their home was an influential factor.

Figure 3-1: Ratings of Influence Factors, (Rating a “4” or a “5”) n=48



¹¹ Other responses included real estate agent and preexisting relationships with the utility.

When asked which reason was the most important, participants identified lower heating fuel costs (31%) and saving energy/heating fuel (21%) as most important. When asked to choose the most important reason, stalled participants answered lowering heating costs more often than any other reason (50%).

In order to better understand participant motivations, respondents were asked how significant of a role various program elements played in their decision (Table 3-4). Participants rated various program services on a five-point scale, where one means “no role at all” and five means “it played a large role.”

Table 3-4: Role of VGS Program Services in Decision, Percent of 4 or 5 Ratings

How Large of a Role Did the Following Play...	Participants (n=48)
The information provided in the energy audit	65%
Contractor explanation of project benefits	61%
The financial incentives you received	67%
Assistance from the program	69%
Financing, if you used any	48%

3.3.1 Participation Experience

Home Energy Audit

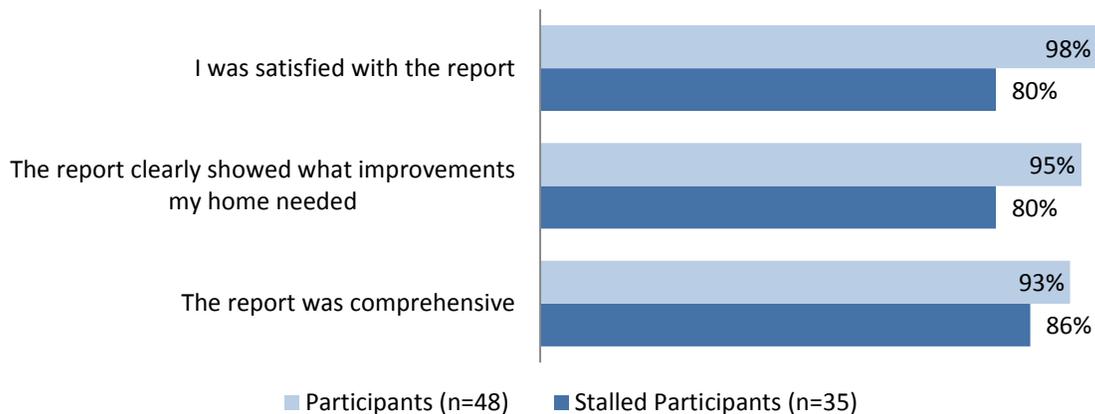
All VGS participants and stalled participants received a home energy audit to identify energy saving opportunities in their homes. Vermont Gas Systems participants do not pay for the audit directly; instead, the cost is recovered through rates as part of the utility cost of the program. Participants and stalled participants were asked about their experiences with the home energy audit. The majority of participants (79%) reported that their auditor¹² provided them with a report with the results of their home energy audit. Three-quarters (76%) of stalled participants reported receiving a report.¹³ Stalled participants were less likely (37%) to recall reviewing the report with their contractor or auditor.

Participants and stalled participants were also asked to rate their experiences with the audit report (Figure 3-2). Participants offered high levels of agreement with a set of positive statements about the audit. Stalled participants were less likely to agree with each of these statements.

¹² VGS does not have contractors providing audits, all of VGS HR participants receive audits through a utility representative.

¹³ Ten percent of stalled participants could not remember if they received a report.

Figure 3-2: Satisfaction with VGS Audit Report



After the audit, most participants (94%) indicated that their auditor or contractor provided them with an estimate of the amount of financial incentive they would receive for the upgrades they might complete. Participants were also asked if their auditor provided an estimate of the extent to which their fuel or electricity costs might be lowered. Nearly half (46%) indicated that their estimate included potential energy or fuel savings.¹⁴

Participants offered comments about the audit, including:

They need better follow up after the audit, to let you know where you can save money. There is a void between the audit and getting the work done.

I didn't think the auditor explained things as well as he could have.

I would have liked to have an audit afterwards to see if the projected savings would be correct.

Participants were asked if they had completed the recommended upgrades. More than half of participant respondents (56%) indicated that they performed all of the recommended upgrades. The most frequently cited reason for not completing all of the upgrades was the project cost.

Among stalled participants, slightly more than half (60%) reported having completed at least one of the recommended upgrades. Stalled participants most commonly indicated they had completed insulation measures (nine mentions), air sealing (five mentions), window replacements (four mentions), and other projects. Stalled participants who completed any of the recommended upgrades outside of the program were asked who performed the upgrades (Table 3-5). Most stalled participants reported that they used a contractor outside of the program or did the work themselves.

¹⁴ Fifteen percent could not recall.

Table 3-5: How Stalled Participants Completed Upgrades (n=24)

Who Did the Upgrade(s)?	Percent Reporting
A non-program contractor	42%
Did it myself	38%
Friend or family member	4%
Contractor from program	8%
Other ¹⁵	8%

3.3.2 Financing

Close to half of VGS participants (40%) pursued financing for their home upgrades. All 29 participants who pursued financing were able to secure financing. Most stalled participants (79%) did not pursue financing for their projects, but those who did were generally able to obtain funds (4 of 5). Even with financing, stalled participants did not complete their projects through the program. We did not ask participants and stalled participants what type of financing they used, but it is likely that many took advantage of the interest rate reduction provided by the program.

For both participants and stalled participants, cost—either upfront or overall—presented the largest hurdle to project completion. We asked those participants who indicated that cost was a barrier to completion of potential upgrades what, specifically, about the cost or financing was an issue (Table 3-6). In open-ended comments, participants expressed concerns about the up-front costs of potential improvements, having other priorities for their available funds, and the overall costs associated with the home improvement project.

Table 3-6: Additional Detail: VGS Participants with Cost or Financing Barriers

Barrier	Participants (n=7)
Up-front cost of the improvements is too high	4
Other priorities for available funds	2
Overall cost is too high	1

While participants were able to overcome barriers to complete projects, stalled participants encountered barriers that prevented them from completing their project. Stalled participants experienced similar barriers to participants (Table 3-7). In open-ended comments, stalled participants expressed concerns about costs, payback for their investment, and a lack of available incentives for recommended measures.

¹⁵ Remaining “other” responses were unclear and could not be coded.

Table 3-7: Additional Detail: Stalled VGS Participants with Cost or Financial Barriers

Barrier	Count of Stalled Participants (n=16)
Overall cost is too high	11
Didn't want to take on debt	2
Didn't want to deal with hassle of arranging financing	1
Needed financing	1
Couldn't qualify for financing	1

Of the nine stalled participant contacts who offered additional information about what prevented them from moving forward, the most common reason (offered by five) was lack of money or insufficient financial incentives. Comments from stalled participants included:

I don't make much money; I'm hardly getting by as it is.

The contractor was knowledgeable, but in the end the proposal just didn't fit our circumstances at the time.

The benefits were not worth the costs.

Experience with Contractors

Participants reported varying methods for finding their contractors (Table 3-8). Participants most commonly indicated that they found their contractor via the Vermont Gas System Home Retrofit website or through a referral from their auditor.

Table 3-8: Contractor Referral (n=48)

Method of Finding Contractor	Percent Responding
The program website	40%
A referral from the auditor who did the energy assessment/audit	23%
Already knew the contractor	15%
Referral from friend/family/other	10%
Yellow pages/phone book/online search	8%
Don't know/other	2%
Didn't use a contractor	2%

The majority of participants (94%) who worked with a contractor reported that their contractor completed the work as proposed and on schedule. Those participants whose work was not completed on schedule indicated that the scope of the work changed, the

contractor was too busy to complete the work on time, or that correcting minor issues caused delays.

More than half of participants (65%) reported that someone came to their home to inspect their upgrade project. Few participants (four) reported any issues emerging during the inspection. Those participants with issues reported that the contractors addressed any issues.

Barriers

All respondents who had not completed every recommended upgrade were asked to explain what had prevented them from doing so. Eighteen of the 48 (38%) participants surveyed reported that they had not completed all of the upgrades recommended by their auditor. Stalled participants were allowed to identify multiple reasons for not completing projects. Participants and stalled participants had a variety of reasons for not completing all of the recommended upgrades (Table 3-9).

Among stalled participants, the most frequently cited reason, mentioned by 14 of 31 that provided a reason, was project cost. After cost, the most frequently mentioned reason was concern about the level of financial or energy savings. Participants were less likely to mention project cost than stalled participants. The most common reason participants offered for not completing all upgrades (mentioned by 5 of the 18 providing a reason) was the belief that the amount of energy or money saved would be small.

Table 3-9: Reasons for not Completing All Recommended Upgrades (Multiple Responses Allowed)

Barrier	Participants (n=18)	Stalled Participants (n=31)
Amount of energy or money the project would save is small	5	8
Project cost	4	14
Financing issues	3	7
Not ready ready/other priorities	4	1
Did some of them myself	1	0
Didn't know what to do	1	0
Pre-existing home conditions (knob & tube, vermiculite)	0	0
Hassle/time constraints	0	1

3.4 SATISFACTION

The Evaluation team asked participants and stalled participants about their experiences with various elements of program participation. Respondents were asked to rate the extent to which they agreed with several positive statements about the program (Figure 3-3). Participants and stalled participants gave similar marks to the level of trust for the

auditor and agreement that the contractor was friendly and personable. Participants rated two important components higher than stalled participants: that their contractor had explained the recommendations clearly and that they had learned valuable things about their homes from the audit. Given the low level of exposure to the audit report by stalled participants in section 3.3.1, a more thorough explanation of the audit results could offer an opportunity to increase the conversion rate among customers that receive an audit.

Figure 3-3: Experience with VGS Program Elements, Percent of 4 or 5 Ratings



Because participants would have had more extensive experience with each of the program components, they were asked an additional set of satisfaction questions. Participants rated their satisfaction with each element using a five-point scale, where one meant “not at all satisfied” and five meant “extremely satisfied” (Figure 3-4 and Figure 3-5). Stalled participants were asked only about the components of the program they had experienced: the audit process and their interaction with their contractor or other program representatives (Figure 3-5).

Participants gave fairly high satisfaction scores for all program elements; however, 29% (14 of 48) could not rate the level of energy savings since completing their project. Stalled participants offered their satisfaction with the elements of the program they experienced and generally had similar levels of satisfaction as participants.

Figure 3-4: Satisfaction with VGS Program Elements, Percent of 4 or 5 Ratings

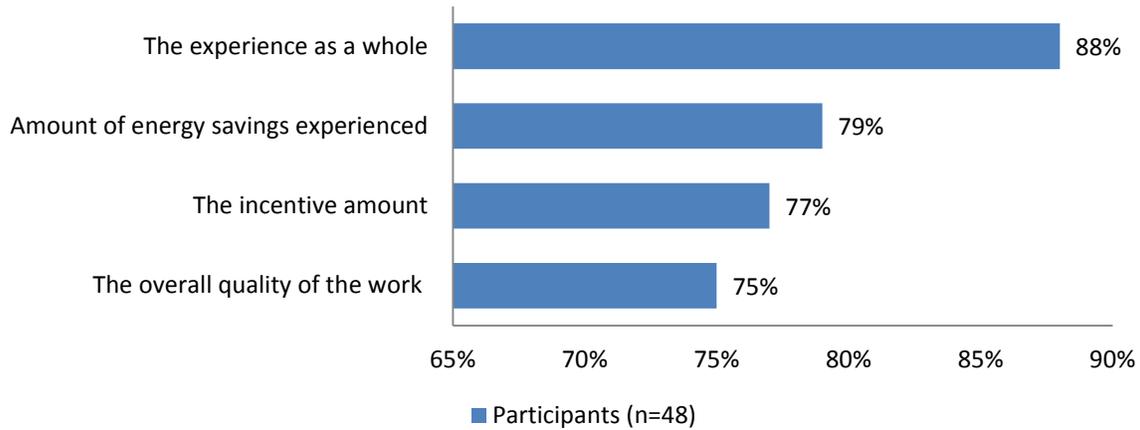
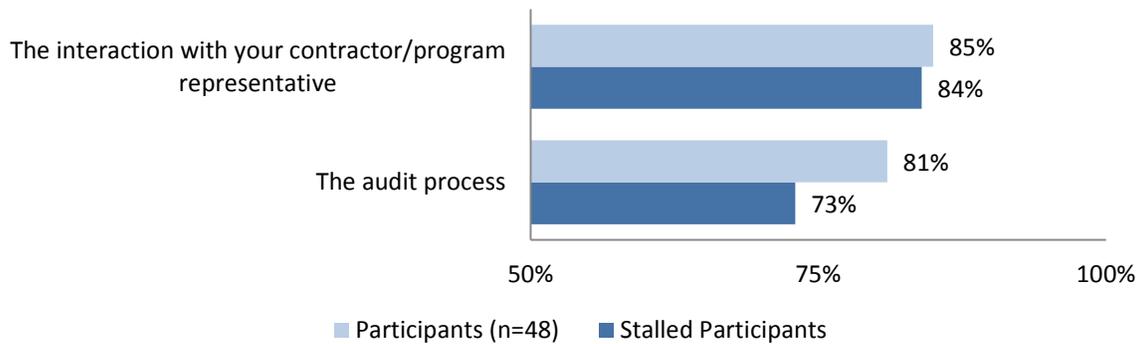


Figure 3-5: VGS Participant and Stalled Participant Satisfaction Comparison (Offering a “4” or a “5”)*



*Only 19 of the stalled participants rated “interaction with contractor or program representative” while all 40 stalled participants rated the audit process

Both participants and stalled participants offered comments about their experiences overall. Participant comments included:

I found it to be an excellent experience to improve the comfort of our home and save money.

I found the experience generally very positive and the financing was very appealing, especially at one percent.

It was a worthwhile thing to do. It even pays dividends in hot weather.

Stalled participant comments included:

I wish everyone could take advantage of this. All of us should do more to help save energy and money.

I don't think many people know about the free audit or the incentives for improvements.

It was overwhelming for me. If the project was broken down and I didn't feel like I had to take out a loan to do it- I probably would have done it.

Participants who rated any of the experience aspects a “3” or lower on a five-point satisfaction scale were asked to elaborate on why. Issues included problems with the contractor, including communication problems and poor quality of work (Table 3-10). In open-ended comments, participants most frequently mentioned raising awareness and increased advertising as areas for program improvement. In other comments, participants also expressed concerns about the accuracy of expectations set before work is conducted and seeking contractor quality control.

Table 3-10: Participant Reasons for Low Satisfaction Ratings

Reason	Count of Mentions
Dissatisfied with contractor	2
Didn't meet/match expectations	2
Dissatisfied with savings	1
Communication with program staff was unsatisfactory	1

3.5 SUMMARY

Participants and stalled participants reported that their primary motivation for considering energy saving upgrades was saving energy or heating fuel. Slightly fewer respondents indicated that lowering their heating costs was very influential in their decision. Participants and stalled participants received an audit to identify opportunities to save energy in their homes. Most respondents reported being satisfied with the audit report and the resulting recommendations; however stalled participants were less likely to report having reviewed their audit report.

After the audit, participants went on to complete many, if not all, of the recommended upgrades through a qualified contractor. Most stalled participants reported having done at least one of the recommended actions. Both participants and stalled participants identified project costs as the primary barrier for not completing all recommended actions.

Participants and stalled participants rated various program elements highly on a satisfaction scale. The few dissatisfied participants or stalled participants indicated their dissatisfaction was the result of interactions with a contractor or expectations that were

not met. Overall, the majority of participants and stalled participants were satisfied with all elements of the program and offered favorable comments about their experiences.

CONCLUSIONS AND RECOMMENDATIONS

4.1 BACKGROUND AND RESEARCH OBJECTIVES

The research presented in this report includes several tasks designed to support the improvement of energy efficiency programs focused on making single-family homes in Vermont more energy efficient. In addition to the existing single-family home programs managed by VGS and EVT, residents of Rutland County have access to an ARRA-funded pilot program managed by NeighborWorks. The NeighborWorks effort provides an additional layer of support and includes access to low interest financing.

4.2 FINDINGS & RECOMMENDATIONS

4.2.1 Process Surveys

Participants in both programs tend to be highly educated with higher than average household incomes. Respondents sought to lower their energy bills and reduce their energy use.

- EVT participants and stalled participants reported similar motivations for initially considering energy saving home improvements and identified saving energy/heating fuel or lowering heating costs as the most influential reasons for completing or considering their project.
- VGS participants most commonly rated saving energy or heating fuel as an influential factor in their decision. Stalled participants assigned similarly high ratings to saving energy or heating fuel and lowering heating costs.

It was not uncommon for stalled participants in both programs to report having completed at least one of the upgrades recommended in their audits. About half of EVT stalled participants (49%) and more than half (60%) of VGS stalled participants reported having completed at least one of the recommended upgrades—most commonly installing insulation. Project cost was the number one reason EVT participants and stalled participants did not install all recommended measures. For VGS, project cost was also a substantial barrier for stalled participants, but slightly more reported not completing the entire project because the amount of energy or money the project saved was too small.

Process surveys revealed no major problems with either program. One of the few areas that emerged as a potential opportunity for improvement in both programs involved activities to increase homeowner confidence in the projected savings and overall project quality. Respondents frequently cited cost as a barrier to making upgrades, therefore, the

program should consider tailoring incentives to help various segments of the population overcome financial barriers.

While 88% of VGS participants provided high satisfaction ratings to their experience as a whole, fewer gave high ratings to the amount of energy saved since the project was completed, the incentive amount, and the overall quality of work performed by the contractor (79%, 77%, and 75%, respectively).

Efficiency Vermont earned higher satisfaction ratings on some, but not all of these factors. While 90% of EVT participants gave favorable ratings to their experience as a whole and the overall quality of work performed by their contractor, the incentive amount and energy savings experienced since project completion were rated lower (79% and 69%, respectively).

Nearly all of the EVT program contacts recalled receiving an audit report from their contractor, and 77% of EVT participants reported that the information provided in the energy audit played a large role in their decision to go forward with their project. A lower percentage of VGS participants and stalled participants reported receiving the report¹⁶, and only 37% of VGS stalled participants recalled reviewing their report with their contractor or auditor. High ratings on the value of the audit from respondents in both programs indicate that increasing exposure to detailed audit findings could help VGS convert a higher number of audit recipients.

Also visible in the EVT findings is the presence and effect of the NeighborWorks H.E.A.T Squad. The high representation of Rutland County in the stalled participant population demonstrates the expected result of providing free audits. It also reflects the tracking of audit activity associated with the requirements of ARRA grant recipients—this level of audit tracking is likely not occurring throughout the state.

4.3 RECOMMENDATIONS

Both programs need to guard against overpromising on the part of contractors and ensure that all aspects of the program are aligned to increase overall confidence in the contractor and the estimated energy savings. While EVT contractors received high overall satisfaction ratings, the level of energy savings experienced since completing the project was rated lower and many participants simply didn't know. While they may be satisfied with their project and their experience, maximizing the effectiveness of word-of-mouth communication and testimonials will require a cohort of participants able to assuage the fears of their friends and neighbors.

¹⁶ All participants should have received a report. This percentage reflects only those who recall receiving it.

It is important to remember that there are two sides to the retrofit equation. The programs need to ensure that savings estimates are reasonable and accurate, but also that the project costs are reasonable. While neither program should expect to set prices, monitoring the overall cost of projects as application materials are submitted could provide a sense for the overall cost of these projects and perhaps how those costs compare to out-of-program upgrades.

Recommendation 1: Improve and maintain tracking of energy savings estimates and project cost estimates. These factors are important components of comprehensive home upgrades and provide the information required to build consumer confidence and increase the conversion rate of energy audit to retrofit project. Because of the difference between the VGS and EVT programs, opportunities for improving the accuracy of savings estimates will differ.¹⁷ However, both programs will need to ensure these data are tracked in order to ensure that estimated savings projections and associated costs are reasonable. This tracking could occur at the point of application or project scoping and does not necessarily need to be reported to every participant.

Recommendation 2: Engage in multiple strategies for increasing confidence that these projects are the right choice for Vermont homeowners. Confidence comes from many sources: marketing, friends and family, trusted contractors, testimonials. Engaging all strategies is appropriate to overcome this substantial issue.

Recommendation 3: Consider options for staging or breaking projects down in to steps. It may be possible to keep people on track and engaged while they work through the items identified in their audit. This would ensure that the upgrades now installed outside of the program are installed properly and meet efficiency requirements, even if it takes several years for participants to get them all done.

Recommendation 4: Further investigate the issue of “stalled participants” installing efficiency measures after the audit, but outside of the program. To what extent are these self-reported actions valid? If valid, identify why these customers are not participating in the rest of the program. If valid, also identify, why additional technical assistance and incentives are not appealing to these customers.

Recommendation 5: Build and maintain a wide assortment of program tools. Given the high goals for residential efficiency and the recommendations flowing from the market research component of this project, the Evaluation Team believes that the existing programs should develop and maintain an expanded suite of levers or tools capable of

¹⁷ See the standalone impact evaluations conducted for EVT and VGS for specific recommendations on improving accuracy of savings estimates. Both reports are available on the Vermont Public Service Department website.

reaching more broadly and deeper into the residential efficiency market. These programs will need to have access to solutions that overcome specific homeowner barriers. It will be important to keep financing, project assistance, rebates, quality control and other tools available to overcome customer-specific barriers as appropriate.

APPENDIX A:

PROCESS EVALUATION DETAILED DEMOGRAPHICS

VERMONT GAS SYSTEMS PARTICIPANT AND STALLED PARTICIPANT DEMOGRAPHICS

Participant respondents consisted of slightly more women (52%) than men and represented households varying from in size from one occupant to five. Stalled participants respondents had a similar composition with 55% men and households ranging from one occupant to seven. Most surveyed households had two occupants (Table A-1).

Table A-1: VGS Respondent's Household Size

Household Size	Participants (n=48)	Stalled Participants
One	13%	18%
Two	54%	43%
Three	21%	15%
Four	6%	20%
Five or more	2%	6%

Most participant respondents reporting being over 45 years of age (Table A-2) with slightly over a quarter of the respondents being over age 65. According to the 2011 US Census, 15% of the state population is over 65¹⁸.

Table A-2: VGS Respondent's Age

Age	Participants (n=46)	Stalled Participants
25 to 44	28%	33%
45 to 64	46%	42%
65 and Over	26%	25%

Respondents varied in education level from less than high school education to post-graduate degree obtainment (Table A-3). Survey respondents had obtained more education than the average, according to the 2011 census which indicated that 33% of Vermont citizens possess a Bachelor's degree or higher.¹⁹

¹⁸ US Census, <http://quickfacts.census.gov/qfd/states/50000.html> Accessed October 8, 2012.

¹⁹ US Census, <http://quickfacts.census.gov/qfd/states/50000.html> Accessed October 8, 2012.

Table A-3: VGS Respondent’s Level of Education

Level of Education	Participants (n=47)	Stalled Participants
Less than high school	0%	0%
High school/GED	14%	8%
Some college	11%	13%
College degree	48%	48%
Some graduate school	2%	0%
Postgraduate degree	25%	33%

Participant and stalled participant incomes reflected similar ranges with most respondents making between \$60,000 and \$150,000 dollar annually (Table A-4). The median household income in Vermont between 2006 and 2010 was \$51,841.²⁰

Table A-4: VGS Respondent’s Income

Income Range	Participants (n=48)	Stalled Participants
Under \$20,000	2%	3%
\$20,000 to under \$30,000	2%	8%
\$30,000 to under \$40,000	2%	10%
\$40,000 to under \$50,000	10%	8%
\$50,000 to under \$60,000	13%	10%
\$60,000 to under \$75,000	23%	8%
\$75,000 to under \$100,000	4%	13%
\$100,000 to under \$150,000	15%	15%
\$150,000 to under \$200,000	2%	3%
Over \$200,000	2%	0%
Refused/Don’t know	25%	26%

Homes owned by participants varied in age from pre-1940 to 2000 and ranged in size from 400 to 7,000 square feet. (Table A-5). Stalled participants reported having homes of a similar ages and ranging from 500 to 4,000 square feet.

²⁰ US Census, <http://quickfacts.census.gov/qfd/states/50000.html> Accessed October 8, 2012.

Table A-5: VGS Respondent’s Home Age

Age of Home	Participants (n=48)	Stalled Participants
2001-2012	0%	0%
1990 to 2000	0%	4%
1981 to 1989	0%	4%
1971 to 1980	6%	8%
1961 to 1970	13%	21%
1951 to 1960	23%	23%
1941 to 1950	15%	8%
1940 or earlier	42%	15%
Don’t know	2%	0%

Respondents had owned their homes from just a few years to more than thirty years (Table A-6).

Table A-6: VGS Respondent’s Time Owning Home

How long have you owned your home?	Participants (n=48)	Stalled Participants
One to two years	23%	18%
Three to five years	10%	23%
Six to ten years	6%	13%
Eleven to fifteen years	17%	15%
Sixteen to twenty years	8%	13%
Twenty-one to thirty years	10%	10%
More than 30 years	25%	10%

EFFICIENCY VERMONT (EVT) PARTICIPANT AND STALLED PARTICIPANT DEMOGRAPHICS

Based on available lists, we randomly sampled available participants and stalled participants. Participant respondents consisted of slightly more women (54%) than men (46%) and represented households varying from in size from one occupant to five or more (Table A-7). Stalled participants respondents had a similar composition with 55% men and households ranging from one occupant to seven.

Table A-7: EVT Respondent’s Household Size

Household Size	Participants (n=72)	Stalled Participants (n=71)
One	18%	20%
Two	57%	55%
Three	14%	8%
Four	6%	11%
Five or more	5%	5%

Most participant respondents reporting being over 45 years of age (Table A-8) with slightly over a quarter of the respondents being over age 65. Stalled participants had a similar age composition, with more than half of respondents being between 45 and 64 years of age. According to the 2011 US Census, 15% of the state population is over 65²¹.

Table A-8: EVT Respondent’s Age

Age	Participants (n=72)	Stalled Participants(n=68)
25 to 44	11%	21%
45 to 64	61%	65%
65 and Over	28%	15%

Respondents varied in education level from less than high school education to post-graduate degree obtainment (Table A-9). Survey respondents had obtained more education than the average, according to the 2011 census which indicated that 33% of Vermont citizens possess a Bachelor’s degree or higher.²²

Table A-9: EVT Respondent’s Level of Education

Level of Education	Participants (n=72)	Stalled Participants (n=71)
Less than high school	1%	1%
High school/GED	11%	4%
Some college	13%	17%
College degree	35%	32%
Some graduate school	1%	6%
Postgraduate degree	39%	39%

²¹ US Census, <http://quickfacts.census.gov/qfd/states/50000.html> Accessed October 8, 2012.

⁵ US Census, <http://quickfacts.census.gov/qfd/states/50000.html> Accessed October 8, 2012.

Participant and stalled participant incomes reflected similar ranges with most respondents making between \$60,000 and \$150,000 dollar annually (Table A-10). The median household income in Vermont between 2006 and 2010 was \$51,841.²³

Table A-10: EVT Respondent’s Income

Income Range	Participants (n=72)	Stalled Participants (n=71)
Under \$20,000	3%	1%
\$20,000 to under \$30,000	6%	6%
\$30,000 to under \$40,000	11%	7%
\$40,000 to under \$50,000	1%	10%
\$50,000 to under \$60,000	8%	13%
\$60,000 to under \$75,000	13%	15%
\$75,000 to under \$100,000	15%	14%
\$100,000 to under \$150,000	13%	15%
\$150,000 to under \$200,000	10%	1%
Over \$200,000	7%	3%
Refused/Don’t know	14%	14%

Homes owned by participants varied in age from pre-1940 to 2000 and ranged in size from 400 to 7,000 square feet. (Table A-11). Stalled participants reported having homes of a similar ages and ranging from 500 to 4,000 square feet.

Table A-11: EVT Respondent’s Home Age

Age of Home	Participants (n=72)	Stalled Participants (n=71)
2001-2012	0%	3%
1990 to 2000	7%	8%
1981 to 1989	17%	19%
1971 to 1980	14%	11%
1961 to 1970	10%	13%
1951 to 1960	4%	7%
1941 to 1950	4%	3%
1940 or earlier	43%	35%
Don’t know	1%	0%

²³ US Census, <http://quickfacts.census.gov/qfd/states/50000.html> Accessed October 8, 2012.

Respondents had owned their homes from just a few years to more than thirty years (Table A-12).

Table A-12: EVT Respondent’s Time Owning Home

How long have you owned your home?	Participants (n=72)	Stalled Participants (N=71)
One to two years	6%	10%
Three to five years	8%	11%
Six to ten years	8%	20%
Eleven to fifteen years	17%	18%
Sixteen to twenty years	19%	11%
Twenty-one to thirty years	29%	18%
More than 30 years	13%	11%

APPENDIX B:

HOMEOWNER PARTICIPANT SURVEY

Vermont Gas System's Home Retrofit and Efficiency Vermont's Home Performance with ENERGY STAR® Programs

(August 28 , 2012)

BACKGROUND AND PURPOSE

Participant phone survey guide prepared by Research Into Action for Vermont Gas System's Home Retrofit and Efficiency Vermont's Home Performance with ENERGY STAR programs. The survey will:

- Ask about service quality for each relevant program (i.e. assess participant expectations and satisfaction with services received from the program and its contractors),
- determine how customers learned of the program,
- explore customer motivation for participation, and
- assess barriers that may or may not have been a challenge for their participation.

INTRODUCTION

Hello, my name is _____. I'm calling on behalf of Vermont Public Service Department. We are doing an evaluation of the [INSERT Vermont Gas Home Retrofit OR Efficiency Vermont Home Performance with ENERGY STAR] program. As part of this evaluation, we would like to hear from program participants about their experience.

Our records show that you recently completed home energy improvements and have received or will receive an incentive from [INSERT Vermont Gas or Efficiency Vermont] for that project. Would you be willing to answer questions about that experience? Your opinions will help improve energy efficiency programs offered in Vermont.

[IF NECESSARY:] Through this program, homeowners work with [Vermont Gas/a participating Home Performance with ENERGY STAR contractor] to have an energy audit and complete home energy improvements such as air sealing and insulation. Our records show that you worked with [Vermont Gas/a participating contractor] to complete improvements sometime in {YEAR}.

[IF NECESSARY:] You were selected as part of a carefully designed study and your feedback about this program is very important to future planning for energy efficiency

programs in the State. Your responses to this survey will be kept confidential to the extent permitted by law.

[IF THEY ASK HOW LONG WILL IT TAKE, SAY “This survey will take about 15 minutes”; SCHEDULE CALLBACK IF NECESSARY].

HOW PARTICIPANTS HEARD ABOUT PROGRAM

P1. Where did you FIRST hear about the opportunity to get assistance completing an energy efficiency project? [DO NOT READ, CHOOSE ONE]

1. The Vermont Gas/Efficiency Vermont website
2. Program Representative
3. NeighborWorks H.E.A.T. Squad
4. Family/Friend/Coworker told me about it
5. My Contractor
6. Mailing
7. Newspaper ad or article
8. Radio
9. Television
10. Bill insert
11. Workshop or community event (Button Up)
00. Other, specify: _____
98. Don't Know
99. Refused

MOTIVATION

P3. We'd like to understand what motivated you to complete these improvements. I am going to list several possible reasons. For each reason, please indicate how influential the factor was in your decision to consider completing a project. Please use 1 to 5 scale where 1 means 'Not at all influential, and 5 means 'Extremely Influential' How influential was it to....[RANDOMIZE, SCALE 1-5, 8=Don't Know, 9=Refused]

- a. Lower your heating fuel costs
- b. Improve the comfort of your home

- c. Increase the value of your home
 - d. Save energy/heating fuel
 - e. Switch to a different heating fuel
 - f. Incorporate energy efficiency into a larger remodeling project
 - g. Replace broken or failing equipment
 - h. Solve an issue with your home (such as mold, ice dams, etc.)
 - i. Help the environment/or reduce carbon impact
- P4. Which reason was most important? [DO NOT READ, CHOOSE ONE]
- 1. Lowering your heating fuel costs
 - 2. Improving the comfort of your home
 - 3. Increasing the value of your home
 - 4. Saving energy/heating fuel
 - 5. Switching to a different heating fuel
 - 6. Incorporating energy efficiency into a larger remodeling project
 - 7. Replacing broken or failing equipment
 - 8. Solving an issue with your home (mold, ice dams, etc.)
 - 9. Helping the environment/reducing carbon impact
 - 00. Other:_____
 - 98. Don't know
 - 99. Refused
- P6. I am going to list several program services that might have influenced your decision. For each one, please tell me how much of a role it played in your decision. Please use 1 to 5 scale where 1 means 'it played no role at all, and 5 means 'it played a large role'. [SCALE 1-5, 98=Don't Know, 99=Refused]
- a. The financial incentives you received
 - b. The information provided in the energy audit
 - c. contractor explanation of project benefits
 - d. Financing, if you used any

HOME ENERGY AUDIT

P7. Thinking about your experience with the home energy audit. Using a five-point scale where 1 means “do not at all agree” and five means “agree completely”. How much do you agree that....

[RANDOMIZE, 97= Not applicable, 98=Don't Know, 99=Refused]

- a. It was simple to schedule the home energy audit.
- b. The time required for the audit was reasonable.
- c. I learned valuable things about my home from the audit.
- d. The recommended work seemed appropriate
- e. I trusted the contractor
- f. The contractor explained the recommendations clearly
- g. The contractor was friendly and personable

P8. [IF P7e, P7f, OR P7g < 3] You gave your contractor a low rating, can you tell me what issues you had? [DO NOT READ, PROBE TO CODE, CHOOSE ALL THAT APPLY]

1. No issues (didn't mean to give a low rating) [CODE NEW RATING]

2. Didn't trust the contractor's recommendations
3. Didn't trust the contractor's ability to perform high-quality work
4. contractor was unfriendly
5. contractor didn't follow up with me in a timely manner/provided poor customer service
00. Other _____
98. Don't know
99. Refused

P9. Did the contractor who did your energy audit give you a report with the results of your home's energy audit?

1. Yes
2. No [Skip The Next Question]

98. Don't Know
99. Refused
- P10. Using a five-point scale where 1 means "do not at all agree" and five means "agree completely". How much do you agree that.... [RANDOMIZE 98=Don't Know, 99=Refused]
1. The report received was comprehensive.
 2. I was satisfied with the report.
 3. The report clearly showed what improvements my home needed.
- P11. Did the contractor review the report with you?
1. Yes
 2. No
98. Don't know/remember
99. Refused
- P11b. Did you do all of the recommended upgrades your [INSERT "an auditor" if Vermont Gas System Participant OR "a contractor" if Home Performance with ENERGY STAR Participant] recommended?
1. Yes
 2. No
98. Don't Know
99. Refused
- P12. [ASK IF P11=2 "No"]
- Why NOT? [DO NOT READ, CHOOSE ALL THAT APPLY]
1. Project cost
 2. Financing issues
 3. Pre-existing home conditions (knob & tube, vermiculite)
 4. Not ready yet/prioritizing other repairs
 5. Hassle/time constraints
 6. Amount of energy/money the upgrade would save is small

7. Didn't know what to do
 8. Planning to sell home
 9. Did some of them myself (DIY)
 00. Other, Specify: _____
 98. Don't Know
 99. Refused
- P13. [If P12=1 "Project Cost" OR P12=2 "Financing issues"] What, specifically, about the cost or financing of the work made it difficult for you to complete the project? [DO NOT READ, PROBE TO CODE, CHOOSE ALL THAT APPLY]
1. Up-front cost of the energy audit is too high
 2. Up-front cost of the improvements is too high
 3. Other priorities for available funds
 4. Overall cost is too high
 5. Wasn't aware of financing options
 6. Couldn't qualify for financing
 7. Didn't want to deal with hassle of arranging financing
 8. Didn't want to take on debt
 00. Other: _____
 98. Don't know
 99. Refused
- P14. [If P12=5 "Hassle/time constraints"] What, specifically, about the time needed to complete the project made it too difficult to do so? [DO NOT READ, PROBE TO CODE, CHOOSE ALL THAT APPLY]
1. Don't have time to think about it/manage the project
 2. Don't have time to do the work myself
 3. Hassle of locating a contractor
 4. Hassle of having a contractor in the home
 5. Don't want the mess / disruption in the home right now

00. Other: _____
98. Don't know
99. Refused
- P15. Did the contractor provide you with an estimate of the incentive amount you would receive for the upgrades you did?
1. Yes
2. No
98. Don't Know
99. Refused
- P16. Did the contractor estimate the extent to which your home improvements might lower your electricity use or fuel costs?
1. Yes – IF YES, What did they tell you? _____
2. No
98. Don't Know
99. Refused
- P17. [ASK IF Home Performance with ENERGY STAR Participant]
- Approximately how much did you pay for the audit?
- [ENTER AMOUNT, 9998=Don't Know, 9999=Refused] _____

FINANCING

- P18. Did you pursue financing for your project?
1. Yes
2. No
98. Don't Know
99. Refused
- P19a. [If P18=1 "Yes"] Did you secure financing for your project?
1. Yes
2. No
98. Don't know

99. Refused

P19b. [If P19a=2 “No”] Why not? [DO NOT READ, CHOOSE ALL THAT APPLY]

1. Could not qualify
2. Did not want to finance
3. Had money to purchase upfront/ did not need financing
4. Did not like terms of financing options
5. Did not want to take on debt
00. Other, specify: _____
98. Don't know
99. Refused

CONSTRUCTION PHASE- CONTRACTOR(S)

P20. We'd like to ask a few questions about your experience with the contractor who did the work.

How did you identify the contractor for your energy upgrade project? [DO NOT READ, PROBE TO CODE, CHOOSE ONE]

1. The contractor that did the energy audit also completed the work.
2. I got a referral from the auditor who did the energy assessment/audit.
3. Contacted by the contractor.
4. The Vermont Gas System Home Retrofit / Efficiency Vermont website
5. Yellow pages of a phone book/online search
6. Referral from friend/family/other
7. I already knew the contractor
8. NeighborWorks H.E.A.T. Squad
00. Other, specify:_____
98. Don't Know
99. Refused

P21. Did that contractor complete the work as proposed?

1. Yes

- 2. No- IF NO, Why Not? _____
- 98. Don't Know
- 99. Refused

P22. Did your contractor complete the work on schedule?

- 1. Yes
- 2. No- IF NO, Why Not? _____
- 98. Don't Know
- 99. Refused

INSPECTION

P23. Did anyone from [PROGRAMNAME] come to your home to inspect the work that was done?

- 1. Yes
- 2. No
- 98. Don't Know
- 99. Refused

[If yes] Did any issues emerge at inspection? What issues?

TAX CREDITS AND OTHER INCENTIVES

P24. Did you receive any tax credits besides the incentive you got from [PROGRAMNAME]?

- 1. Yes 2. No [Skip Next Question]
- 98. Don't Know
- 99. Refused

P25. [IF P24=1 "Yes"]

How influential were these tax credits in your decision to complete this project?

[Open end]

SATISFACTION WITH THE PROGRAM

P26. I'm going to list several aspects of the program and I'd like you to rate how satisfied you are with each one....

Using a scale of 1 to 5 where 1 means ‘not at all satisfied’ and 5 means ‘extremely satisfied’, please rate how satisfied you are with ...

- a. The incentive amount
- b. The audit process
- c. Overall quality of the WORK performed by the contractor.
- d. The amount of energy savings since completing your project
- e. The interaction with the contractor
- g. [If in Rutland County] The interaction with the NeighborWorks H.E.A.T. Squad.

P27. Using a scale of 1 to 5 with 1 being ‘not at all satisfied’ and 5 being ‘extremely satisfied’, how satisfied have you been with the experience as a whole?

[SCALE 1-5, 98=Don’t Know, 99=Refused]

P28. [Ask IF P27<=3]

Please explain why you gave it that rating?

[OPEN END; 98=Don’t Know, 99=Refused]

P29. Do you have any suggestions for how we might improve this program for future participants?

[OPEN END; 96=None, 98=Don’t Know, 99=Refused] _____

akAB

akAB1. We’re almost done, but I need to ask you about energy-related issues and energy actions you might have done at your home.

Using a scale of 0 to 10 where 0 means “not at all agree”, and 10 means “completely agree”, please tell me how much you agree with each statement. [ROTATE; SCALE 0-10, 98=Don’t Know, 99=refused]

- a. I sometimes worry whether there is enough money to pay my heating costs.
- b. I often worry that the cost of heating for my home will increase.
- c. I am very concerned about how energy use affects the environment.
- d. It is my responsibility to use as little energy as possible to help the environment.

- e. I feel guilty if I use too much energy.
- f. I intend to conserve on heating consumption in my home this winter.
- g. If my heating fuel costs go up, I feel like I must do something to reduce them.
- h. I have to take the lead in my household if we're going to keep our heating costs down.
- i. If others in my household can't or won't change their behavior to lower our heating fuel costs, I feel I should do even more to control these costs.
- j. Heating my house has an impact on the environment.
- k. Conserving the energy used to heat my house will help reduce global warming.

akAB2. How worried are you about global warming? [READ CHOICES except Don't Know or Refused]

- 1. Not at all worried
- 2. A little worried
- 3. Somewhat worried
- 4. Very worried, or
- 5. Extremely worried
- 98. Don't Know
- 99. Refused

akAB3 Other than this project, have you done anything else in your home to save energy in the last five years? [DO NOT READ, CHOOSE ALL THAT APPLY]

- 1. Nothing
- 2. Installed insulation
- 3. Air sealing/ weatherization/ duct sealing
- 4. Replaced heating equipment
- 5. Replaced cooling equipment
- 6. Replaced energy using appliances
- 7. Installed energy efficient lighting (CFLs, "twisty" bulbs, LED)

- 8. Replaced windows
- 9. Installed solar or renewable energy equipment
- 00. Other: _____
- 98. Don't know
- 99. Refused

akAB4. What percent of clothes do you wash in cold water?

- 1. Percent: _____
- 98. Don't know

akAB5. What percent of clothes do you dry on a line or drying rack either indoors or outside?

- 1. Percent: _____
- 98. Don't know

akAB6. When buying an appliance, how often do you choose energy efficient versions of that product?

- 1. Always
- 4. Most of the time
- 2. Sometimes
- 3. Never
- 98. Don't know

akAB7. Have you gotten an estimate for installation of any type of renewable energy system for your home (solar electric, geothermal, solar hot water)? [If needed: bid for installation AND system]

- 1. Yes
- 2. No
- 98. Don't know
- 99. Refused

akAB8. Over the past few years, many Americans have found themselves concerned about their economic situation. This includes households in Vermont. Using a

scale of 1-5, where 1 means “not at all concerned” and 5 means “extremely concerned”, to what extent does this apply to your household?

1. 1- Not at all
2. 2
3. 3
4. 4
5. 5 – Extremely
98. Don’t know
99. Refused

DEMOGRAPHICS

D1. I just have a few more questions.

Including all adults and children, how many people currently live in your household year-round (more than nine months out of the year)?

[NUMERIC, 99 Refused]_____

D2. What is your primary heating fuel? [DO NOT READ, CHOOSE ONE]

1. Fuel Oil
2. Natural Gas (not propane)
3. Liquid propane gas
4. Electric
5. Wood
6. Wood pellets
7. Kerosene
00. Other, specify:_____
98. Don’t Know

D3. Before your project, what was your primary heating fuel? [DO NOT READ, CHOOSE ONE]

1. Fuel Oil
2. Natural Gas (not propane)

3. Liquid propane gas
 4. Electric
 5. Wood
 6. Wood pellets
 7. Kerosene
 00. Other, specify: _____
 98. Don't Know
- D4. Do you have a supplemental heat source? [If needed: such as a woodstove, space heaters, or a gas fireplace?] [DO NOT READ, CHOOSE ALL THAT APPLY]
1. None
 2. Woodstove or wood fireplace insert
 3. Pellet stove or pellet fireplace insert
 4. Wood fireplace
 5. Gas fireplace
 6. Propane fireplace
 7. Electric baseboards or plug in heater
 8. Oil, propane, or kerosene space heater
 9. Oil furnace or boiler
 10. Propane furnace of boiler
 00. Other, specify: _____
 98. Don't Know
 99. Refused
- D5. [If D4 <> "None" or D4 <> "Don't know" or D4 <> "Refused"] Would you say that you use your supplemental heating:
1. Rarely
 2. Only on the coldest days
 3. Only during the coldest months
 4. Only in the Spring and Fall

- 5. Throughout the entire heating seasons (September through May)
 - 00. Other, specify: _____
 - 98. Don't Know
 - 99. Refused
- D6. [If D4 <> "None" or D4 <> "Don't know" or D4 <> "Refused"] Has your use of supplemental heat changed since you participated in the [insert program]?
- 1. Use more
 - 2. The same, no change
 - 3. Use less
 - 98. Don't know
 - 99. Refused
- D7. What is the highest level of education you have completed so far? [DO NOT READ, CHOOSE ONE]
- 1. Less than high school
 - 2. High school graduate (or GED)
 - 3. Some collage/Vocational or technical school (including Associate's degree)
 - 4. College graduate (Bachelor's degree)
 - 5. Some graduate school
 - 6. Post graduate degree
 - 99. Refused
- D8. In what year were you born?
[RECORD, 9999=refused] _____
- D9. About how many square feet is your home?
[IF STUDIO APT, BEDROOMS=0] [RECORD NUMBER, 99=Refused]

- D10. About when was this homebuilt? [DO NOT READ, CHOOSE ONE]
- 1. 2001 to 2012

2. 1991 to 2000
 3. 1981 to 1990
 4. 1971 to 1980
 5. 1961 to 1970
 6. 1951 to 1960
 7. 1941 to 1950
 8. 1940 or earlier
 98. Don't Know
 99. Refused
- D11. How long have you owned this home? [DO NOT READ, CHOOSE ONE]
1. 1-2 years
 2. 3- 5 years
 3. 6-10 years
 4. 11-15 years
 5. 16-20 years
 6. 21-30 years
 7. More than 30 years
 99. Refused
- D12. I'm going to read a list of options. Please stop me when I reach the range that includes your annual household income? [READ LIST]
1. Under \$20,000
 2. \$20,000 to under \$30,000
 3. \$30,000 to under \$40,000
 4. \$40,000 to under \$50,000
 5. \$50,000 to under \$60,000
 6. \$60,000 to \$75,000
 7. \$75,000 to \$100,000

- 8. \$100,000 to \$150,000
 - 9. \$150,000 to \$200,000
 - 10. Over \$200,000
 - 98. Don't Know
 - 99. Refused
- D13. GENDER [RECORD, DO NOT ASK]
- 1. Female
 - 2. Male
- F1. That is all of the questions I have for you today. Do you have any final comments about your experience?

Thank you very much for your time.

APPENDIX C:

STALLED PARTICIPANT SURVEY

**Vermont Gas System’s Home Retrofit and Efficiency Vermont’s Home
Performance with ENERGY STAR® Programs**

(September 5, 2012)

INTRODUCTION

Hello, my name is _____. I’m calling on behalf of the Vermont Public Service Department. We are doing an evaluation of the [INSERT Vermont Gas Home Retrofit OR Efficiency Vermont Home Performance with ENERGY STAR] program.

Our records show that you received a home energy audit but did not move forward with home energy improvements using incentives offered through the [INSERT Vermont Gas Home Retrofit OR Efficiency Vermont Home Performance] program. We want to ask you about this experience. Would you be willing to answer a few questions? [IF THEY ASK HOW LONG WILL IT TAKE, SAY “This survey will take about 10 minutes”; SCHEDULE CALLBACK IF NECESSARY].

[IF NECESSARY:] Through this program, homeowners work with [Vermont Gas/a participating Home Performance with ENERGY STAR contractor] to have an energy audit and complete home energy improvements such as air sealing and insulation. Our records show that you had an energy audit by [Vermont Gas/a participating contractor] sometime in {YEAR}.

[IF NECESSARY:] You were selected as part of a carefully designed sample and your feedback about this program is very important to future planning for energy efficiency programs in the State. Your responses to this survey will be kept confidential to the extent permitted by law.

HOW HEARD ABOUT PROGRAM

P1. Where did you FIRST hear about the opportunity to get assistance in completing an energy efficiency project? [DO NOT READ, CHOOSE ONE]

1. The Vermont Gas/Efficiency Vermont website
2. Program Representative
3. NeighborWorks H.E.A.T. Squad
4. Family/Friend/Coworker told me about it
5. My Contractor

6. Mailing
 7. Newspaper ad or article
 8. Radio
 9. Television
 10. Bill insert
 11. Workshop or community event (Button Up)
 00. Other, specify: _____
 98. Don't Know
 99. Refused
- P2. [Home Performance with ENERGY STAR Participants only] How did you find the contractor who did your energy audit? [DO NOT READ, CHOOSE ONE]
1. I was contacted by the contractor.
 2. NeighborWorks H.E.A.T. Squad
 3. Efficiency Vermont website
 4. Yellow pages /online search
 5. Referral from friend/family/other
 6. I knew the contractor
 00. Other, specify:_____
 98. Don't Know
 99. Refused

MOTIVATIONS TO PARTICIPATE

- P3. We'd like to understand what motivated you to have a home energy audit and consider a home energy improvement project. I am going to list several possible reasons. For each reason, please indicate how influential the factor was in your decision. Please use 1 to 5 scale where 1 means 'Not at all influential, and 5 means 'Extremely Influential' How influential was it for you to....[RANDOMIZE, SCALE 1-5, 98=Don't Know, 99=Refused]
- a. Lower your heating fuel costs
 - b. Improve the comfort of your home

- c. Increase the value of your home
 - d. Save energy/heating fuel
 - e. Switch to a different heating fuel
 - f. Incorporate energy efficiency into a larger remodeling project
 - g. Replace broken or failing equipment
 - h. Solve an issue with your home (such as mold or ice dams)
 - i. Help the environment/or reduce your carbon impact
- P4. Which reason was most important? [DO NOT READ, CHOOSE ONE]
- 1. Lowering your heating fuel costs
 - 2. Improving the comfort of your home
 - 3. Increasing the value of your home
 - 4. Saving energy/heating fuel
 - 5. Switching to a different heating fuel
 - 6. Incorporating energy efficiency into a larger remodeling project
 - 7. Replacing broken or failing equipment
 - 8. Solving an issue with your home (mold, ice dams, etc.)
 - 9. Helping the environment/reduce carbon impact
 - 00. Other_____
 - 98. Don't know
 - 99. Refused

HOME ENERGY AUDIT

- P5. Thinking about your experience with the home energy audit, I'd like you to rate several statements using that same five-point scale, but where 1 means "do not at all agree" and five means "agree completely", how much do you agree that.... [RANDOMIZE, 98=Don't Know, 99=Refused]
- a. It was simple to schedule the home energy audit.
 - b. The time required for the audit was reasonable.
 - c. I learned valuable things about my home from the audit.

- d. The recommended work seemed appropriate
 - e. I trusted the [INSERT “auditor” if Vermont Gas System Participant OR “contractor” if Home Performance with ENERGY STAR Participant]
 - f. The [INSERT “auditor” if Vermont Gas System Participant OR “contractor” if Home Performance with ENERGY STAR Participant] explained the recommendations clearly
 - g. The [INSERT “auditor” if Vermont Gas System Participant OR “contractor” if Home Performance with ENERGY STAR Participant] was friendly and personable
- P6. [IF P5e, P5f, OR P5g < 3)] You gave your [INSERT “auditor” if Vermont Gas System Participant OR “contractor” if Home Performance with ENERGY STAR Participant] a low rating, can you tell me what issues you had? [DO NOT READ, PROBE TO CODE, CHOOSE ALL THAT APPLY]
- 1. No issues (didn’t mean to give a low rating) [CODE NEW RATING]

 - 2. Didn’t trust the recommendations
 - 3. Didn’t trust that the contractor would perform high-quality work
 - 4. Unfriendly, or didn’t like him
 - 5. He didn’t follow up with me in a timely manner/provided poor customer service
 - 00. Other _____
 - 98. Don’t know
 - 99. Refused
- P7. Did your energy auditor (or the contractor that did the audit) give you a report with the results of your home’s audit?
- 1. Yes
 - 2. No [Skip next question]
 - 98. Don’t Know
 - 99. Refused

- P8. Using a five point scale where 1 means “do not at all agree” and five means “agree completely”, how much do you agree that...[RANDOMIZE, 98=Don’t Know, 99=Refused]
1. The report received was comprehensive
 2. I was satisfied with the report
 3. The report clearly showed what improvements my home needed
- P9a. New Question: Did the contractor review the report with you?
1. Yes: If necessary: capture description of this experience or limitations of this experience.
 2. No
 98. DK/don’t remember
 99. Refused
- P9b. Have you done any of the recommended improvements?
1. Yes [If Yes: What did you do? _____]
 2. No
 98. Don’t Know
 99. Refused
- P10. [If P9b=1 “Yes”] Who did the improvements? [DO NOT READ, CHOOSE ONE]
1. Did it myself
 2. Family member or friend did the work
 3. A contractor
 00. Other _____
 98. Don’t know
 99. Refused
- P11a. [If P9b=1 “Yes”] What stopped you from doing the other upgrades or improvements? [DO NOT READ, CHOOSE ALL THAT APPLY]
1. Project cost
 2. Financing issues

3. Pre-existing home conditions (knob and tube, vermiculite)
 4. Not ready yet/prioritizing other repairs
 5. Hassle/time constraints/time needed to complete project
 6. I did not believe it would save enough energy
 7. Concerned about the quality of the work/equipment
 8. Did not know how to finance the work
 9. Working with the program was difficult/confusing
 10. Planning to sell home
 00. Other, specify:_____
 98. Don't know
 99. Refused

- P11b. [If P9b=2 "No"] What stopped you from doing the suggested improvements? [DO NOT READ, CHOOSE ALL THAT APPLY]
 1. Project cost
 2. Financing issues
 3. Pre-existing home conditions (knob and tube, vermiculite)
 4. Not ready yet/prioritizing other repairs
 5. Hassle/time constraints/time needed to complete project
 6. I did not believe it would save enough energy
 7. Concerned about the quality of the work/equipment
 8. Did not know how to finance the work
 9. Working with the program was difficult/confusing
 10. Planning to sell home
 00. Other, specify:_____
 98. Don't know
 99. Refused

- P12. [If P11a or P11b=1 ("Project cost") OR P11a or P11b=2 ("Financing Issues")]
What, specifically, about the cost or financing of the work made it difficult for

you to complete the project? [DO NOT READ, PROBE TO CODE, CHOOSE ALL THAT APPLY]

1. Other home improvement priorities
 2. Overall cost of project is too high
 3. Wasn't aware of financing options
 4. Couldn't qualify for financing
 5. Didn't want to deal with hassle of arranging financing
 6. Didn't want to take on debt
 00. Other:_____
 98. Don't know
 99. Refused
- P13. [If P11a or P11b=5 (“Hassle/time constraints/time needed to complete project”)]
What, specifically, about the time needed to complete the project made it too difficult to do so? [DO NOT READ, PROBE TO CODE, CHOOSE ALL THAT APPLY]
1. Don't have time to think about it/manage the project
 2. Don't have time to do the work myself
 3. Hassle of locating a contractor
 4. Hassle of having a contractor in the home
 5. Don't want the mess / disruption in the home right now
 00. Other:_____
 98. Don't know
 99. Refused
- P14. Did the auditor provide you with an estimate of the incentive amount you could receive?
1. Yes
 2. No
 98. Don't Know
 99. Refused

P15. Did the [INSERT “auditor” if Vermont Gas System Participant OR “contractor” if Home Performance with ENERGY STAR Participant] estimate the extent to which the home improvements might lower your energy cost?

1. Yes – IF YES, What did they tell you? _____
2. No
98. Don’t Know
99. Refused

P16. And about how much did you pay for the audit?

[ENTER AMOUNT, 7777=Didn’t pay for the audit, 9998=Don’t Know, 9999=Refused] _____

FINANCING

P17. [P9=1 (“YES”)]

Did you pursue financing for your project?

1. Yes
2. No
98. Don’t know
99. Refused

P 17a: New question: if P17 “yes”: did you secure financing for your project

1. Yes
2. No
98. Don’t know
99. Refused.

P18. [If P17a=2 (“No”)] Why not?

1. Could not qualify
2. Did not want to finance/
3. Had money to purchase upfront/ did not need financing
4. Did not like terms of financing options
5. Did not want to take on debt

- 00. Other, specify: _____
- 98. Don't know
- 99. Refused

SATISFACTION WITH THE PROGRAM

P19. I'd like to ask about how satisfied you were with the parts of the program you did complete. Using a scale of 1 to 5 where 1 means "not at all satisfied" and 5 means "extremely satisfied", please tell me how you would rate ... [Options are 1-5, 98-Don't Know and 99-"didn't get that far"]

- a. The audit process
- b. Finding a contractor to conduct the energy audit
- c. Your interaction with your auditor [if Vermont Gas]
- d. Your interaction with your contractor [ask all]
- e. [If in Rutland County] The interaction with the NeighborWorks H.E.A.T. Squad.
- f. The incentives available

P20. [Any value under 3] Why did you rate [insert element] that way?

[OPEN END; 98=Don't Know, 99=Refused]

P21. Do you have any suggestions for how we might improve this program for future participants? [OPEN END; 96=NONE, 98=Don't Know, 99=Refused]

akAB

akAB1. We are almost done, but I need to ask you a few questions about energy-related issues and energy actions you might have taken.

These statements all use a scale of 0 to 10 where 0 means "not at all agree", and 10 means "completely agree". For each one, please tell me how much you agree. [ROTATE; SCALE 0-10, 98=Don't Know, 99=Refused. Please add an NA option.]

- a. I sometimes worry whether there is enough money to pay my heating costs.
- b. I often worry that the cost of energy for my home will increase.
- c. I am very concerned about how energy use affects the environment.

- d. It is my responsibility to use as little energy as possible to help the environment.
- e. I feel guilty if I use too much energy.
- f. I intend to conserve on heating consumption in my home this winter.
- g. If my heating fuel costs go up, I feel like I must do something to reduce them.
- h. I have to take the lead in my household if we're going to keep our heating costs down.
- i. If others in my household can't or won't change their behavior to lower our heating fuel costs, I feel I should do even more to control these costs.
- j. Heating my house has an impact on the environment.
- k. Conserving the energy used to heat my house will help reduce global warming.

akAB2. How worried are you about global warming? Would you say you are....[READ CHOICES except Don't Know or Refused]

- 1. Not at all worried
- 2. A little worried
- 3. Somewhat worried
- 4. Very worried, or
- 5. Extremely worried
- 98. Don't Know
- 99. Refused

akAB3. Have you done any upgrades or other improvements in your home to save energy in the last five years? [DO NOT READ, CHOOSE ALL THAT APPLY]

- 1. Installed insulation
- 2. Air sealing/ weatherization/ duct sealing
- 3. Replaced heating equipment
- 4. Replaced cooling equipment
- 5. Replaced energy using appliances

- 6. Installed energy efficient lighting
- 7. Replaced windows
- 8. Installed solar or renewable energy equipment
- 00. Other:_____
- 98. Don't know
- 99. Refused

akAB4. What percent of clothes do you wash in cold water?

- 1. Percent:_____
- 98. Don't Know

akAB5. What percent of clothes do you dry on a line or drying rack either indoors or outside?

- 1. Percent:_____
- 98. Don't Know
- 99. Refused

akAB6. When buying an appliance, how often do you choose energy efficient versions of that product?

- 1. Always
- 4. Most of the time
- 2. Sometimes
- 3. Never
- 98. Don't know

akAB7. Have you gotten an estimate for installation of any type of renewable energy system for your home (solar electric, geothermal, solar hot water)? [If needed: bid for installation AND system]

- 1. Yes
- 2. No
- 98. Don't know
- 99. Refused

akAB8. Over the past few years, many Americans have found themselves concerned about their economic situation. This includes households in Vermont. Using a scale of 1-5, where 1 means “not at all concerned” and 5 means “extremely concerned”, to what extent does this apply to your household?

1. 1 – Not at all
2. 2
3. 3
4. 4
5. 5 – Extremely
98. Don’t know
99. Refused

DEMOGRAPHICS

D1. I just have a few more questions left.

Including all adults and children, how many people currently live in your household year-round (more than nine months out of the year)?

[NUMERIC, 99 Refused]_____

D2. What is your primary heating fuel? [DO NOT READ, CHOOSE ONE]

1. Fuel Oil
2. Natural Gas (not propane)
3. Liquid propane gas
4. Electric
5. Wood
6. Wood pellets
7. Kerosene
00. Other, specify:_____
98. Don’t know

D3. Before your project, what was your primary heating fuel? [DO NOT READ, CHOOSE ONE]

1. Fuel Oil

2. Natural Gas (not propane)
 3. Liquid propane gas
 4. Electric
 5. Wood
 6. Wood pellets
 7. Kerosene
 00. Other, specify:_____
 98. Don't know
- D4. Do you have a supplemental heat source? [If needed: such as a woodstove, space heaters, or a gas fireplace?] [DO NOT READ, CHOOSE ALL THAT APPLY]
1. None
 2. Woodstove or wood fireplace insert
 3. Pellet stove or pellet fireplace insert
 4. Wood fireplace
 5. Gas fireplace
 6. Propane fireplace
 7. Electric baseboards or plug in heater
 8. Kerosene space heater
 9. Oil furnace or boiler
 10. Propane furnace of boiler
 00. Other:_____
 98. Don't know
 99. Refused
- D5. [If D4 <> "None" or D4 <> "Don't know" or D4 <> "Refused"] Would you say that you use your supplemental heating:
1. Rarely
 2. Only on the coldest days
 3. Only during the coldest months

- 4. Only in the Spring and Fall
 - 5. Throughout the entire heating seasons (September through May)
 - 00. Other: _____
 - 98. Don't know
 - 99. Refused
- D6. [If D4 <> "None" or D4 <> "Don't know" or D4 <> "Refused"] Has your use of supplemental heat changed since you participated in the [insert program]?
- 1. Use more
 - 2. The same, no change
 - 3. Use less
 - 98. Don't know
 - 99. Refused
- D7. What is the highest level of education you have completed so far? [DO NOT READ, CHOOSE ONE]
- 1. Less than high school
 - 2. High school graduate (or GED)
 - 3. Some collage/Vocational or technical school (including Associate's degree)
 - 4. College graduate (Bachelor's degree)
 - 5. Some graduate school
 - 6. Post graduate degree
 - 99. Refused
- D8. In what year were you born?
[RECORD, 9999=refused]_____
- D9. About how many square feet is your home?
[IF STUDIO APT, BEDROOMS=0] [RECORD NUMBER, 99=Refused]

- D10. About, when was this home first built? [DO NOT READ, CHOOSE ONE]

1. 2001 to 2012
2. 1991 to 2000
3. 1981 to 1990
4. 1971 to 1980
5. 1961 to 1970
6. 1951 to 1960
7. 1941 to 1950
8. 1940 or earlier
98. Don't Know
99. Refused

D11. How long have you owned this home? [DO NOT READ, CHOOSE ONE]

1. 1-2 years
2. 3- 5 years
3. 6-10 years
4. 11-15 years
5. 16-20 years
6. 21-30 years
7. More than 30 years
99. Refused

D12. I'm going to read a list of options. Please stop me when I reach the range that includes your annual household income? [READ LIST]

1. Under \$20,000
2. \$20,000 to under \$30,000
3. \$30,000 to under \$40,000
4. \$40,000 to under \$50,000
5. \$50,000 to under \$60,000
6. \$60,000 to \$75,000

- 7. \$75,000 to \$100,000
 - 8. \$100,000 to \$150,000
 - 9. \$150,000 to \$200,000
 - 10. Over \$200,000
 - 98. Don't Know
 - 99. Refused
- D13. GENDER [RECORD, DO NOT ASK]
- 1. Female
 - 2. Male
- F1. That is all of the questions I have for you today. Do you have any final comments about your experience?
- Thank you very much for your time.

APPENDIX D:

2011 AND 2012 INCENTIVES

2011 INCENTIVES

Step 1: Meet these minimum requirements in order to qualify for Home Performance with ENERGY STAR® incentives. Many Vermont homes have the potential to reduce air leakage by 30% or more. In 2010, more than 90% of homes participating in Home Performance with ENERGY STAR achieved at least a 10% reduction.				
Energy Efficiency Home Improvement	Qualifying Criteria			Customer Incentive
Minimum Requirement	Air leakage reduction \geq 10% as measured by a pre- and post- blower door test.*			\$250
	Install all recommended health and safety improvements including mechanical ventilation, CO detectors, or other essential health and safety improvements.			
Step 2: Complete additional energy efficiency improvements to increase your incentive. Not every home will qualify for an incentive in every category. Efficiency Vermont offers incentives for the energy efficiency improvements that save the most energy. In general, the less efficient your home was to start, the more opportunity there is to save.				
Energy Efficiency Home Improvement	Qualifying Criteria			Customer Incentive
Air Sealing	Reduce air leakage as measured by a pre- and post- blower door test.			20–35% reduction
				> 35% reduction
				\$500
Insulation	Install insulation meeting the following R-value* criteria:			
	Location	Existing Insulation	New Insulation	
	Attic flat	R-value \leq R-16	R-value \geq R-49	\$0.50 per square foot of additional insulation
	All other locations	R-value \leq R-6	R-value \geq R-12	\$0.75 per square foot of additional insulation
		R-values > 6 and \leq R-8	R-value \geq R-18	
	R-values > 8 and \leq R-16	R-value \geq R-49		
Heat Distribution Improvement	Install at least \$200 of duct sealing, leak repair, boiler pipe insulation, or other heat distribution improvements.			\$100
Heat System Replacement	Replace existing heating system with an efficient new system. See your contractor for details on qualifying criteria.			\$500
Step 3: See if you qualify for bonus incentives. Bonus incentives are for truly comprehensive projects that substantially improve the air tightness and insulation levels of your home.				
Energy Efficiency Home Improvement	Qualifying Criteria			Customer Incentive
Comprehensive Retrofit Bonus Package	Reduce air leakage \geq 35% as measured by a pre- and post- blower door test.			\$500
	Install insulation in areas equivalent to at least 75% of the home's finished floor area (example: a 2,000 sq. ft home could qualify by installing 1,000 sq. ft of insulation in the attic and 500 sq. ft of insulation in the walls). Insulation must meet the above criteria for pre- and post- effective R-value.			
Step 4: Calculate your total incentive based on the completed energy efficiency home improvements.				
Maximum total incentive per project			\$2,500	

*See Frequently Asked Questions for definitions.

2012 INCENTIVES

Step 1: Meet these minimum requirements in order to qualify for Home Performance with ENERGY STAR® incentives. Many Vermont homes have the potential to reduce air leakage by 30% or more. In 2010, more than 90% of homes participating in Home Performance with ENERGY STAR achieved at least a 10% reduction.							
Energy Efficiency Home Improvement	Qualifying Criteria		Customer Incentive				
Minimum Requirement	Air leakage reduction \geq 10% as measured by a pre- and post- blower door test.		\$250				
	Install all recommended health and safety improvements including mechanical ventilation, CO detectors, or other essential health and safety improvements.						
Step 2: Complete additional energy efficiency improvements to increase your incentive. Not every home will qualify for an incentive in every category. Efficiency Vermont offers incentives for the energy efficiency improvements that save the most energy. In general, the less efficient your home was to start, the more opportunity there is to save.							
Energy Efficiency Home Improvement	Qualifying Criteria		Customer Incentive				
Air Sealing	Reduce air leakage as measured by a pre- and post- blower door test.		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; text-align: center;">20-35% reduction</td> <td style="width: 50%; text-align: center;">\geq 35% reduction</td> </tr> <tr> <td style="text-align: center;">\$250 *</td> <td style="text-align: center;">\$500 *</td> </tr> </table>	20-35% reduction	\geq 35% reduction	\$250 *	\$500 *
20-35% reduction	\geq 35% reduction						
\$250 *	\$500 *						
Insulation	Install insulation meeting the following R-value criteria:						
	Location	Existing Insulation	New Insulation				
	Attic flat	R-value \leq R-16	R-value \geq R-49	\$0.30 per square foot of additional insulation			
	All other locations	R-values \leq 6 and \leq R-8	R-value \geq R-12	\$0.50 per square foot of additional insulation			
R-values $>$ 8 and \leq R-16		R-value \geq R-49					
Heat Distribution Improvement	Install at least \$200 of duct sealing, leak repair, boiler pipe insulation, or other heat distribution improvements.		\$75 *				
Heat System Replacement	Replace existing heating system with an efficient new system. See your contractor for details on qualifying criteria.		\$500				
Step 3: See if you qualify for bonus incentives. Bonus incentives are for truly comprehensive projects that substantially improve the air tightness and insulation levels of your home.							
Energy Efficiency Home Improvement	Qualifying Criteria		Customer Incentive				
Comprehensive Retrofit Bonus Package	Reduce air leakage \geq 35% as measured by a pre- and post- blower door test.		\$250 *				
	Install insulation in areas equivalent to at least 75% of the home's finished floor area (example: a 2,000 sq. ft home could qualify by installing 1,000 sq. ft of insulation in the attic and 500 sq. ft of insulation in the walls). Insulation must meet the above criteria for pre- and post- effective R-value.						
Step 4: Calculate your total incentive based on the completed energy efficiency home improvements.							
Maximum total incentive per project			\$2,000 *				

* Reduced in 2012.

