

# State of Wisconsin Public Service Commission of Wisconsin

Focus on Energy Evaluation

*Home Performance with ENERGY STAR:  
Insulation Supply-side Study Results and  
Integration with Participant Findings*

April 16, 2010

Evaluation Contractor: PA Consulting Group Inc.

Prepared by: Laura Schauer, PA Consulting Group

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## 1. EXECUTIVE SUMMARY

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The Home Performance with ENERGY STAR program is offered to Wisconsin residential customers that reside within existing one to three unit buildings. The Wisconsin Energy Conservation Corporation (WECC) administers the program under the Focus on Energy umbrella of residential offerings.

Through the program, WECC works with a network of independent consultants and qualified contractors to provide in-depth audits to program participants. There are two paths a customer can use to get an audit: (1) the consultant path and (2) the qualified contractor path. These consultants and qualified contractors sign up to be part of the program. These market actors interact with customers to identify problems with the home and provide recommendations for energy efficiency home improvements.

Both consultants and qualified contractors provide the initial audit and report the findings to customers; however, qualified contractors will complete the work following the audit whereas consultants provide written reports and the customer then finds an installation contractor to perform the recommended work. Additionally, customers are more likely to be referred to a consultant through the program or word of mouth or via referrals from insulation contractors whereas they are more likely to actively seek a qualified contractor to complete work prior to even knowing about the program.<sup>1</sup>

Based on discussions with the program manager, there was reason to believe there may be a difference in customers' awareness and decision-making processes by partner type. When developing the study, evaluators hypothesized that customers that work with qualified contractors may be further along in their decision-making process than those working with consultants, thereby potentially increasing the free-ridership rate amongst that group. The participant study concluded that this is indeed the case; participants that receive assessments by qualified contractors were less likely to say their decisions were influenced by the program.

WECC provides training to these participating contractors and consultants. These trainings are meant to ensure that the consultants and qualified contractors are following established program protocols and providing services and recommendations that are up to program specifications. Interviews with program staff found that while the program provides education and training to participating consultants/qualified contractors that may be changing recommendation practices as they conform to program standards, another component of the program theory is to educate program participants on the benefits and need for implementation of energy efficient equipment. The customer education is paramount to moving customers toward the implementation of energy efficient measures, and the education and training provided to the consultants and trade allies is a means to make sure this education to customers is happening effectively as well as ensuring the program is being delivered as intended.

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<sup>1</sup> The source for how customers come into the consultant and qualified contractor paths was discussed through meetings with program managers and verified with consultants, qualified contractors, and participating customers.

## 1. Executive Summary

### 1.1 STUDY BACKGROUND

HPWES is a largely consultant-driven program, which called into question whether the most recent net-to-gross analysis that only included participant self-report surveys accurately captured the program's impacts for either the customer or contractor. This issue was raised specifically regarding net-to-gross estimates for attic and sidewall insulation measures currently set at 62 percent and 50 percent, respectively.

In response to these issues, this study set out to address three primary objectives:

1. Identify any program-induced demand-side and/or supply-side effects on the participating customers and vendors through customer and vendor surveys.
2. Propose a method for determining whether and how to integrate participant and program partner self-reports as a basis for attribution.
3. Establish a two-staged process for collecting data and performing the integrated analysis to produce defensible results.

This report builds upon the customer-based analysis reported in February 2010 by integrating the supply-side research completed in February 2010. The reader is referred to the memorandum *Home Performance with ENERGY STAR Participant Survey Analysis and Recommended Supply-side Research Approach*<sup>2</sup> for full documentation of the participant self-report approach and results based on interviews with 142 customers.

The next phase of the study was to develop an approach and collect the data that would allow evaluators to integrate supply-side views with participant net-to-gross results. Because the consultants and qualified contractors were identified by program participants as the primary point of influence, they served as the subject for the supply-side research.

PA developed a supply-side guide to capture the perceptions of both of these groups of individuals, focusing on specific projects for less active consultants/qualified contractors and asking more active consultants/qualified contractors to generalize about their experiences. The sample frame consisted of consultants and qualified contractors associated with the 142 surveyed program participants. In total, 34 consultants and qualified contractors were included in the study sample. Twenty of these companies were interviewed as part of this effort, which represents approximately 85 percent of the participant projects surveyed.

This research is complicated by the fact that oftentimes the supply-side and demand-side perspectives on the source of program influence are not consistent with each other. For example, the trade ally (supply-side) may believe that, as the assessor, they were influential in the customer's decision-making process whereas the customer believes otherwise. The study design needed to develop a transparent methodology that appropriately takes both of these views into account while applying appropriate weight to each response.

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<sup>2</sup> Laura Schauer, PA Consulting Group. *Home Performance with ENERGY STAR Participant Survey Analysis and Recommended Supply-side Research Approach*. February 4, 2010.

There were several approaches to integration that evaluators considered which are enumerated below. Each of these approaches was considered when determining how to integrate supply-side and participant responses to the net-to-gross questions.

1. **Override the participant results if they said the consultant/qualified contractor was influential in their decision to install the equipment (*influential participant/supply-side selection approach*).** This approach provides full weight to the supply-side responses when the respondent claims supply-side influence. A benefit of this approach is that if the participant believes the supply-side contractor is influential, then the program impacts may be best assessed from the supply-side perspective. A limitation of this approach is the assumption that the consultant/qualified contractor view is the most accurate assessment of the program influence and the participants' perceptions are discounted entirely. Another limitation of this approach is that it relies on the participant's ability to recognize the influence of the supply-side role. Participants that do not recognize the impact of this role on their decision-making processes will rate the supply-side influence low when, in fact, it may be more of a factor in their decision than they realize.
2. **Select the score or rating that assumes the greatest program influence when have both participant and supply-side responses (*highest influence indicator approach*).** This approach assumes that the program should receive credit for its influence, regardless of the party that is influenced. The logic is that without one of those points of influence, the efficiency activities would not have been implemented. The benefit of this approach is that it ensures the program receives credit for all points of influence. The limitation of the approach is that it assumes that free-ridership is non-existent if the market actor claims program influence.
3. **Average the participant and supply-side results (*average approach*).** This approach weights the customer self-report and supply-side self-report analysis equally. In the event either party says, "don't know," we will select the response that is valid. In the event both parties say, "don't know," the analysis will eliminate that case. There is no evidence from this study or others that one self-report response source is more reliable than the other is. Therefore, the benefit of this approach is to avoid the assumptions altogether and combine the results with equal weight in the absence of other reliable sources of data (e.g., market share data) that would indicate one source is more reliable than another is. The limitation of this approach is that it could bias the results—either upwards or downwards—although without knowing the "correct" answer it is not evident in which direction the results are biased.

The net-to-gross estimates presented in this report are reflective of both the participant and consultant/qualified contractors' perspectives.

## 1.2 KEY FINDINGS

**The evaluation identified program-induced demand-side and/or supply-side effects on the participating customers and vendors through customer and vendor surveys.** The program is clearly influencing participants' decision-making processes as well as consultants' and qualified contractors' recommendation practices. The two groups are fairly consistent in their perception of the program's influence in the installation, although the supply-side interviews provide consistently higher attribution results than the participant interviews.

## 1. Executive Summary

The program-induced effects vary somewhat when the results are reviewed by delivery method (or also referred to as audit path). Participants that use qualified contractors claim relatively low program influence on their decision-making processes, while qualified contractors are more likely to report that the program impacts their recommendation practices.

The program theory is centralized around education and training. The participant and supply-side survey results indicate that the information and training is the primary driver of the energy efficiency improvements. The participants surveyed indicated that the information they received had a high level of influence in their decisions to implement projects, and the supply-side research showed that nearly all contractors received education and training through WECC and ECW, which they report, impacted their recommendation practices as well as addressed other measure and certification needs.

The majority of program participants surveyed (76 percent) received both attic and sidewall insulation. One could hypothesize that participants' net-to-gross ratios would vary by number of measures received. Taking into consideration the customer education component of the program's theory, the net-to-gross ratio for could be higher for those participants that received more measures as the program's information encourages them to install measures they otherwise would not have installed. The analysis does not provide any evidence that the net-to-gross ratio is higher when the program installs multiple insulation measures installed. However, there is evidence taking into account the contractor's perspective that households that receive air sealing are more influenced by the program than those that did not receive air sealing.

**There is the potential for integrating participant and program self-reports as a basis for attribution, which are documented in this report. The evaluation established a two-staged process for collecting data and performing the integrated analysis to produce defensible results.** We believe the methodology included in this study was effective in its approach to integrating supply-side and demand side self-report results. Additionally, this study developed a methodology that we believe could be duplicated for other studies, albeit with some potential modifications based on the program and population being reviewed.

Most important in the study design was the ability to directly link contractor results with program participant results. Although doing this on a project-by-project basis was not feasible in all cases for reasons discussed later in this report, the ability to at a minimum link contractor's general perceptions with customers they served provided a basis for some level of integration.

The resulting survey and sampling design provided for two chains of questioning: one for qualified contractors/consultants that provided services to fewer than five households in CY09 through June 2009 (smaller contractors) and one for qualified contractors/consultants that provided services to five or more households in CY09 through June 2009 (larger contractors). The survey attempted to gather project-specific information from the smaller contractors and asked the larger contractors to generalize about their experiences. Either way, we were able to link the contractor data was to customer-specific results. The participant and supply-side surveys were designed so that critical net-to-gross questions mirrored each other to assess the program's influence on changes to recommendation and/or decision-making processes.

Three integration approaches were considered when conducting the analysis. The study found that there is no one approach that is right for all analysis. In thinking through the

optimal approach for integrating the results, one must consider the benefits and limitations of each approach as well as the approach that makes the most rational sense, lends itself to the most accurate reporting, and mitigates any potential response bias as best as possible.

### 1.3 RECOMMENDATIONS

**Integrate supply-side research with participant self-reports where it makes sense.** The two-staged impact analysis approach documented within this report illustrates the need to continue to rigorously design net-to-gross studies to integrate supply-side as well as participant results. Designing a study to ensure that the perspectives of all parties potentially influenced by the program as well as the primary decision-makers are adequately represented provides a well-rounded perspective of program attribution, particularly for programs that have significant supply-side influence.

**Continue to develop the methods systematically, but avoid a strict “one size fits all” approach.** It is oftentimes our first inclination to create a standardized approach for developing impact methodologies, particularly for net-to-gross studies. However, programs and the populations they serve can vary significantly, which will require customization of approaches and questions. Additionally, while this study outlined a variety of integration approaches for program and PSCW consideration in determining net-to-gross estimates, other programs evaluations may require additional approaches or refinements to these approaches as they make sense for that study.

**Revise the current net-to-gross estimate to reflect this research.** The net-to-gross estimate using the recommended integration approach in determining program influence is 65 percent for attic insulation, 73 percent for sidewall insulation, and overall 69 percent for both insulation types. This compares to 55 percent for attic insulation and 59 percent for sidewall insulation using the customer self-report approach only. This approach not only recognizes the rebate and information and services provided to the participant, but also gives credit for impacts other program services may be having on the consultants and qualified contractors. The recommended attic net-to-gross ratio of 69 percent is only slightly higher than that currently used by the program (62 percent). The difference in current to recommended rates is more significant for sidewall insulation (50 percent currently used versus 73 percent recommended). There could be a variety of explanations for the significant difference in sidewall insulation. The most likely explanation for the significant difference in the sidewall estimate is that the study method and survey questions are significantly different between these studies.

**Do not distinguish estimates by delivery method, but recognize there is a distinction in participants that are served by these groups.** The participant study analysis revealed that participants’ decision-making processes differed by delivery method. Participants that received services from qualified contractors were more likely to say that the program or contractor did *not* influence their decisions when compared with the responses of those that received services from consultants. The preliminary report provided a preliminary recommendation to distinguish net-to-gross ratios by delivery method. However, whereas the participant survey produced significantly different results by delivery method, the integrated approach upon which the recommended net-to-gross estimates are developed did not yield results that were so strikingly disparate between the two groups. Additionally, discussions with program staff revealed that assigning different estimates by delivery method could have its limitations due to the way the tracking system currently records the data. Therefore, we do not recommend that the program distinguish net-to-gross estimates by delivery method.



## 1. *Executive Summary*

However, it is still noteworthy in program design to understand the decreased level of qualified contractors' influence on customers' decision to install insulation as reported from the participants' perspectives.

## 2. INTRODUCTION

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### 2.1 PROGRAM DESCRIPTION

The Home Performance with ENERGY STAR program is offered to Wisconsin residential customers of participating utilities that reside within existing one to three unit buildings. The Wisconsin Energy Conservation Corporation (WECC) administers the program under the Focus on Energy umbrella of residential offerings. The program serves households throughout the state although a significant percentage of participants served reside in southern Wisconsin. Over a quarter of households served through the first half of 2009 were located in Madison.

Through the program, WECC works with a network of independent consultants and qualified contractors to provide in-depth audits to program participants. There are two paths a customer can use to get an audit: (1) the consultant path and (2) the qualified contractor path. These consultants and qualified contractors sign up to be part of the program.

Both consultants and qualified contractors can provide the initial audit and report the findings to customers; however, qualified contractors can complete the work following the audit, whereas consultants only provide written reports and the customer then finds an installation contractor to perform the recommended work. Our research found that customers are more likely to be referred to a consultant through the program or word of mouth whereas they are more likely to actively seek a qualified contractor to complete work prior to even knowing about the program.<sup>3</sup>

These consultants/qualified contractors interact with customers to identify problems with the home and provide recommendations for energy efficiency home improvements. Specifically, a household will receive a comprehensive evaluation of the following areas:

- Insulation and building shell
- Air leakage
- Mechanical equipment
- Moisture and ventilation
- Combustion safety and carbon monoxide.

Based on their comprehensive evaluation, the consultants/contractors prioritize recommendations made to program participants. The participants receive cash back rewards from Focus on Energy for implementing the recommended energy efficient measures.

In addition to maintaining a list of participating consultants and qualified contractors, the program also engages trade allies to participate and serve customers through the program.

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<sup>3</sup> The source for how customers come into the consultant and qualified contractor paths was discussed through meetings with program managers and verified with consultants, qualified contractors, and participating customers.

Consultants are encouraged to develop a network of trade allies from whom they may also receive referrals. Interviews with consultants indicate that the trade ally network is indeed one source of referrals for the program. Trade allies are *not* providing recommendations and are therefore not the primary source of program influence for program participants (although they may be the referral source that encourages the assessment). Rather, they receive the direction from the consultant that provided the home assessment and implement the recommended work.

WECC provides training to all these program market actors at the point they enter the program as a participating trade ally and make information about training available throughout the year through Energy Center of Wisconsin and WECC sponsored events. These trainings ensure that the market actors are following established program protocols and providing services and recommendations that are up to program specifications.

Interviews with program staff found that while the program provides education and training to participating trade allies that may be changing recommendation practices as they conform to program standards, another component of the program theory is to educate program participants on the benefits and need for implementation of energy efficient equipment. The customer education is paramount to moving customers toward the implementation of energy efficient measures, and the education and training provided to the consultants and trade allies is a means to make sure this education to customers is happening effectively as well as ensuring the program is being delivered as intended.

## 2.2 STUDY BACKGROUND

This study assesses program influence, or attribution, on participants' decisions to install attic and/or sidewall insulation measures through HPWES and the supply-side market's recommendation practices.

Prior to the 2009/2010 participant and supply-side studies, the most recent HPWES research was a net-to-gross analysis conducted by Glacier Consulting Group in 2007.<sup>4</sup> That research reviewed attic and sidewall insulation measures installed through the program during FY06 using a customer self-report methodology. The 2007 analysis suggested a net-to-gross ratio of 62 percent for attic insulation and 50 percent for sidewall insulation, which is currently being used by the program.

However, program administrators believe that prior to the program few contractors were offering sidewall insulation services outside of weatherization agencies, let alone installing these measures. Therefore, they believe that Focus has had considerable influence in these sidewall insulation practices. Additionally, the estimates derived from that study were based on participant self-reports. There was question as to whether the estimates were capturing the full program influence given that it uses a consultant model to promote energy efficiency to households. The 2007 report recommended that in the future, evaluators conduct supply-side research to augment the end-user net-to-gross analysis in order to recognize any

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<sup>4</sup> Tom Talerico and Rick Winch, Glacier Consulting Group. *Home Performance with ENERGY STAR Program Net Analysis*. October 8, 2007.

program influence on the supply-side market that may not be recognized by the customers, particularly related to sidewall insulation.

This recommendation was the premise for this study. Based on discussions with the PSCW, WECC, and evaluation staff, PA designed this study to address three primary objectives:

1. Identify any program-induced demand-side and/or supply-side effects on the participating customers and vendors through customer and vendor surveys.
2. Propose a method for determining whether and how to integrate participant and program partner self-reports as a basis for attribution.
3. Establish a two-staged process for collecting data and performing the integrated analysis to produce defensible results.

While the objectives of this study are focused on advancing supply-side research methods, it also results in program attribution net-to-gross estimates for WECC and PSCW review and consideration. These revised estimates could, at the discretion of the PSCW, be applied to the HPWES program's insulation savings estimates.

### 2.2.1 Participant study results

This report builds upon the customer-based analysis reported in February 2010 by integrating the supply-side research completed in February 2010. The reader is referred to the memorandum *Home Performance with ENERGY STAR Participant Survey Analysis and Recommended Supply-side Research Approach*<sup>5</sup> for full documentation of the participant approach and results based on interviews with 142 customers.

Based on discussions with the program manager, there was reason to believe there may be a difference in customers' awareness and decision-making processes by partner type. Evaluators hypothesized that customers that work with qualified contractors may be further along in their decision-making process than those working with consultants, thereby potentially increasing the free-ridership rate amongst that group. Therefore, PA incorporated the partner path stratification into the sampling strategy.

In summary, the participant analysis found that:

1. Projects completed through the qualified contractor path result in lower net savings estimates than projects completed through the consultant tract.
2. There was preliminary evidence that the current net-to-gross ratio for sidewall insulation, established at 50 percent, may be too low for the 2009 participants. Fifty-nine percent of households that received sidewall insulation said the program was influential in their decision.

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<sup>5</sup> Laura Schauer, PA Consulting Group. "Home Performance with ENERGY STAR Participant Survey Analysis and Recommended Supply-side Research Approach. February 4, 2010.

3. The program theory of influencing customers through the technical assessment process is operating as designed, particularly among those customers that receive a pre-assessment via participating consultants.
4. The percentage of households that said the program was influential in their installation of attic insulation did not vary considerable from the percentage that said the program was influential in their installation of sidewall insulation (55 percent and 59 percent, respectively). Qualitative in-depth interviews with three qualified contractors and consultants indicated that there should be a more distinct difference in attribution related to attic and sidewall insulation than we saw through this participant study. It was not clear from the participant study whether the sidewall insulation attribution estimate should be higher or the attic insulation attribution should be lower, an issue which the supply-side research investigated further.
5. Customers reported being influenced by the consultant/qualified contractor recommendations and education more so than by the rebates. This highlighted the importance of continuing this study with supply-side research as there may be supply-side effects not recognized by participants that are not captured in the participant self-report batteries.
6. Consultants and contractors that represent the highest portion of savings have been involved in the program for a considerable amount of time, some from program inception. In thinking through the supply-side research, we need to recognize that it may difficult for consultants and contractors to identify specifically how the program has influenced their behaviors over time, particularly if any changes have been gradual.

### **2.2.2 Supply-side study and sampling**

The next phase of the study was to develop an approach and collect the data that would allow evaluators to integrate supply-side views with participant net-to-gross results. Because the consultants and qualified contractors were identified by program participants as the primary point of influence, they served as the population of interest for the supply-side research.

As discussed within this document, two potential approaches were included within the study. The first is the ability to directly integrate participant and supply-side responses. To do so, similar questions are asked consistently of program participants and supply-side respondents. The analysis combines these responses to establish a single net-to-gross estimate that accounts for both perspectives.

The second approach is to triangulate the supply-side and participant responses. Questions are asked of the consultants and qualified contractors that provide context and perspective to the researchable issue that is the crux of the study—to what extent has their involvement in the program influenced their current recommendation practices?

The study and sampling approach was driven by the need to potentially directly integrate the program participant and supply-side survey responses. The best case method to do this is to ask supply-side respondents questions associated with specific participants so their responses are relevant for that case and can be directly integrated with end-user responses. In the case of commercial and industrial applications, this is not typically problematic because the projects tend to be fairly large and market actors (e.g., design consultants or technical assistants) have significant involvement in the design and specification process.

While some of the consultants and qualified contractors may be able to identify single residential projects, the more active market actors will be less likely to do so given the sheer number of projects they complete annually. Over 50 of the 149 participants interviewed were associated with one qualified contractor (Duerst). North Star Consulting, Blaze Insulation, On-site Performance Testing, and GDS Associates accounted for another 41 projects in the participant sample ranging from eight to 14 projects each. Furthermore, the number of projects represented in the sample is only a portion of the projects that consultants/contractors served through the program over time. These consultants and contractors represent 60 percent of the projects in the participant data. The inability to directly tie participating customer's responses with these supply-side responses limited our ability to directly integrate the results from the two sources.

With this in mind, PA developed a supply-side guide to capture the perceptions of both of these groups of individuals, focusing on specific projects for the less active consultants/qualified contractors. The survey assessed program influence for all consultants and qualified contractors on their sales and recommendation practices.

- Consultants and qualified contractors associated with five or more projects in the survey were asked general questions about their sales and recommendation practices and asked to generalize about their role in customers' decision-making processes. This generalized analysis was then linked with all surveyed participants associated with their firm. The program database provided contact information for consultants and qualified contractors and, based on this information, PA identified the most involved individual(s) from the more active organizations. Interviewers then confirmed that they were speaking with the individual or individuals at the firms that had the most involvement with customers or were most familiar with the program and its influences on recommendation practices.
- Consultants and qualified contractors associated with fewer than five projects from the participant survey were asked questions specific to the projects for which we had participant interview results. The interview focused on individual projects, asking questions similar to those asked in the participant survey. These supply-side responses were directly linked to the surveyed participant responses for integration into the analysis. Customer-specific supply-side data was captured for ten projects.

The sample frame consisted of consultants and qualified contractors associated with the 142 surveyed program participants. In total, 34 consultants and qualified contractors were included in the study sample. Twenty of these market actors were interviewed as part of this effort, which represents approximately 85 percent of the participant projects surveyed. Table 2-1 provides the names of qualified contractors and consultants interviewed and number of households represented in the participant data for each contractor.

Also shown is the percentage of households represented in the participant survey and in the population. For the most part the percentage surveyed is consistent with the percentage in the population with the exception of a few cases, the most extreme being Duerst. The data is weighted so to provide lower emphasis on the qualified contractors, including Duerst, to ensure better program representation in the data.

Table 2-1. Consultants and Qualified Contractors Interviewed

Qualified Contractors/Consultants Interviewed	Number of Households Represented in Participant Survey	Percentage of Households in Participant Survey (out of 142)	Percentage of Households Represented in Population (CY09 through June 2009)
A-A Exteriors.com Inc	2	1%	1%
Alternative Resource Management LLC	1	1%	5%
Blaze Insulation	10	7%	3%
Duerst Insulation Technicians	52	37%	17%
Energy Strategies Inc	4	3%	2%
GDS Associates Inc - Madison	8	6%	9%
Grading Spaces LLC	2	1%	3%
Highland Building Consultants LLC	2	1%	4%
Holcombe Enterprises	4	3%	4%
Home Performance Testing	7	5%	4%
Homesafe Building Performance Inc	2	1%	1%
Janesville Home and Solar Survey	1	1%	>1%
Noble Home Performance LLC	1	1%	>1%
Nook & Cranny Home Inspection	2	1%	1%
North Star Energy Consulting LLC	14	10%	11%
On-Site Performance Testing	9	6%	8%
Renewal Home Energy Inc	1	1%	1%
Ryan Builders & Design Inc	1	1%	1%
St Croix Energy Solutions Inc	2	1%	1%
TJH Energy Consulting - Lake Geneva	1	1%	>1%

### 2.3 REPORT STRUCTURE

The remainder of this report presents a summary of the supply-side survey results, integration of demand and supply-side research, and recommendations for PSCW and program consideration. The supply-side and survey instruments are included as Appendices A and B.

### **3. SUPPLY-SIDE SURVEY RESULTS**

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This section provides the results of the twenty supply-side surveys. As the delivery method is a key component of the analysis, the data is weighted to account for the disproportionate sampling and surveying by delivery method.

#### **3.1 INTERVIEWED CONSULTANT/QUALIFIED CONTRACTOR CHARACTERISTICS**

The program database from which the participant sample was drawn included 797 households that received attic and/or sidewall insulation. Approximately 48 organizations provided assessment services to those households. The organizations interviewed served 610 of those households.

Half of consultants/qualified contractors have been participating in the program since 2004 or earlier and 38 percent of respondents began participating after 2005. The most common way for these consultants and qualified contractors to hear about the program was through a Focus on Energy contract (22 percent) and a business colleague (22 percent).

Their customers tend to be referred to them by the Focus on Energy website (58 percent) or another contractor or insulation vendor (44 percent). About a quarter of respondents also said that program participants are referred by other friends, neighbors, or relatives and/or their utility company.

A majority of consultants/contractors are also involved in other Focus programs. These other programs include Wisconsin ENERGY STAR Homes program (69 percent), Together We Save Pilot (nine percent), and Apartment and Condominium and Efficiency Services Program (three percent). Other programs mentioned by fewer consultants/contractors include the Mobile Home Pilot program and Brillion Community pilot program.

The consultants and qualified contractors interviewed reported a range of assessments provided in 2009, from a low of seven to a high of 400. Note that these numbers are different from those detailed in the database as the question asked them to assess the full year whereas the database captured information for half of the calendar year. Qualified contractors, on average, reported fewer assessments than consultants did, although they provide other services to program participants in addition to the assessment such as insulation sales and installation.

A significant portion of these consultants and qualified contractors' jobs are reportedly through the HPWES program. The data shows that a relatively high percentage of respondents report their customers participated in HPWES; 13 of the 20 respondents reported that 75 percent or more of their customers participated in HPWES. Only two respondents said that fewer than 50 percent of their customers participated in HPWES. There is no distinction in the percentage of customers going through the program between delivery methods.

#### **3.2 ATTIC AND SIDEWALL RECOMMENDATION PRACTICES**

Consultants and qualified contractors recommended attic insulation to an average of 85 percent of their customers, regardless of whether the insulation levels are program qualifying. With the exception of two cases, the consultants and qualified contractors recommend attic insulation to a majority of households as standard practice. The two consultants that varied in



### 3. Supply-side Survey Results

their recommendations practices said they only recommend attic insulation to 20 percent and 40 percent of their customers. There was nothing in the data to indicate why these consultants differed in their recommendations of attic insulation.

Respondents recommended sidewall insulation to significantly fewer customers than attic insulation. Respondents said that, on average, they recommend sidewall insulation to 35 percent of their customers.

There is no apparent trend to consultants and qualified contractors' sidewall insulation recommendation practices. The two consultants that reported the highest percentage of sidewall insulation recommendations reported providing audit services to a relatively high number of households in 2009 (375 and 350). However, the respondents that reported serving the most households (400) also said they recommend sidewall insulation to a relatively low percentage of their customers (10 percent to 25 percent).

This analysis shows that recommending attic insulation is a prevalent practice, whereas recommending sidewall insulation is not nearly as common. Installing sidewall insulation is typically a more invasive process and, depending on household conditions (e.g., age, siding type), could be a complex or difficult project to complete. With that said, consultants and qualified contractors did not note effort or inability to get into the wall cavity as a significant barrier to installing sidewall insulation. Installing sidewall insulation also tends to be more costly than blowing in attic insulation, as the labor time is more extensive. It may also be the issue that there is less of a need for sidewall insulation, although the survey results do not provide any support for this theory.

The take-away from this analysis is that sidewall insulation recommendations are not made for a majority of households served by qualified contractors and respondents interviewed. As the intent of the study was not to characterize barriers to recommending sidewall insulation, there is not sufficient data to further characterize the difference in recommendation practices between these two types of insulation.

**Table 3-1. Characteristics of Assessment Activities of Respondents**  
(Shaded row indicates a qualified contractor)

Response Number	Number of Households Provided Audits to in 2009	Percent of Households Participated in HPWES	Percent of Households Recommended Attic Insulation to	Percent of Households Recommended Sidewall Insulation to
<b>Participant and recommendation characteristics</b>				
<b>Average (n=20)</b>		<b>85%</b>	<b>87%</b>	<b>40%</b>
<i>Consultant (n=16)</i>		<i>83%</i>	<i>88%</i>	<i>42%</i>
<i>Qual. contractor (n=4)</i>		<i>92%</i>	<i>80%</i>	<i>31%</i>
1	150	50%	20%	20%
2	400	20%	90%	10%
3	400	75%	90%	25%
4	150	100%	95%	10%
5	25	90%	40%	20%
6	120	40%	70%	30%
7	7	66%	95%	20%

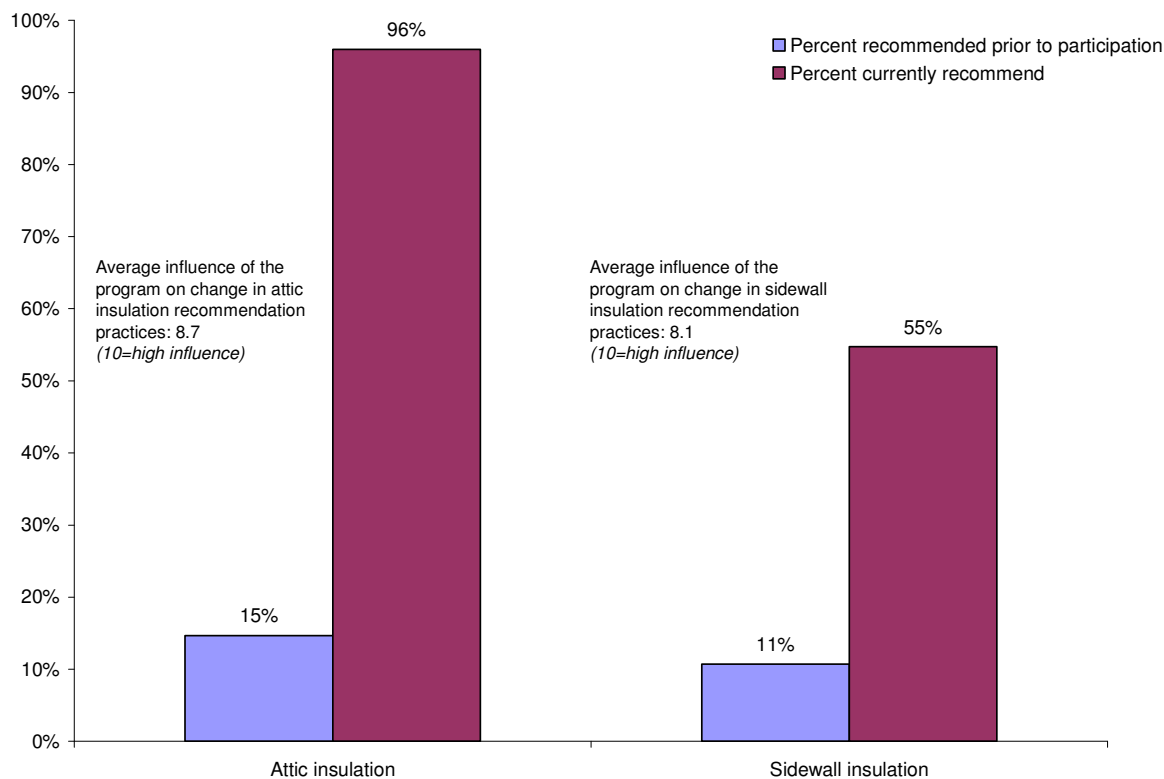
Response Number	Number of Households Provided Audits to in 2009	Percent of Households Participated in HPWES	Percent of Households Recommended Attic Insulation to	Percent of Households Recommended Sidewall Insulation to
8	350	85%	90%	60%
9	50	100%	98%	15%
10	236	100%	70%	40%
11	100	100%	100%	80%
12	30	DK	100%	90%
13	101	80%	95%	50%
14	100	50%	95%	20%
15	50	90%	100%	10%
16	DK	100%	98%	10%
17	250	DK	100%	25%
18	375	97%	99%	90%
19	100	95%	DK	DK
20	200	95%	75%	30%

Source: HPWES Supply-side Survey (A6 to A7c). Average statistics are weighted by recommendation path and number of jobs completed.

Not only did the survey attempt to characterize the contractors and qualified consultants in terms of their recommendation practices, but the study also probed for whether these practices have changed over time and if so, why. About half of respondents said their insulation recommendation practices have changed since their initial involvement with the program (50 percent for attic and 40 percent for sidewall insulation). When asked about how these practices have changed, respondents commented on increases in insulation levels as standard practice, participating in trainings that educated them in best practices (through local training, program training, and as national initiatives), and increasing standard practice levels to meet codes and standards requirements.

Figure 3-1 illustrates the percentage of residential projects for which consultants and qualified contractors recommended program-qualifying levels of sidewall and attic insulation prior to their involvement with the program and as well as currently. There is clearly a significant increase in both attic and sidewall insulation recommendation practices of program-qualifying levels of insulation. Consistent in the analysis presented in Table 3-1, the consultants and qualified contractors more prevalently recommend attic than sidewall insulation. (Note that while the questions addressed in Table 3-1 and Figure 3-1 are similar, the average statistic varies due to missing responses and the questions' focus on program-qualifying equipment.)

**Figure 3-1. Percent of Project Recommend Qualifying Levels of Insulation: Pre-program and Current**



Source: HPWES Supply-side Survey (E4, E5, E6, F4, F5, F6). Statistics are weighted by recommendation path and number of jobs completed.

Specific to changes in sidewall insulation recommendation practices, two respondents mentioned using infrared cameras to identify sidewall needs whereas previously this was not used. One of these respondents said at the time he was limited to drilling holes in the wall whereas now he can more easily identify insulation needs using the infrared cameras. Qualitative interviews with consultants and qualified contractors completed in December of 2009 also indicated that the use of infrared cameras is particularly effective for identifying the need for sidewall insulation and, even more so, in convincing customers of the need for that improvement. Consultants and qualified contractors interviewed rated the use of infrared cameras as highly useful in their ability to influence customers to install the insulation (an average rating of 9.7 on a scale where 10 is “very useful”).

Eight respondents specifically addressed the reasons behind their changes in sidewall insulation recommendation practices. Five of these respondents mentioned the training provided through Focus on Energy as a reason for their shifts in recommendation practices.

*“Because of the continuing education I feel more informed.”*

*“Experience and feedback from Focus made me aware that some walls can have insulation added.”*

*“I went through the training. It wasn’t a focus of mine before I joined this program.”*

Other than an increase of business for about half of respondents, it does not appear that the federal tax credit had an impact on respondents’ recommendation practices. Respondents were asked whether their business or recommendation practices have changed since June 2009 when the Federal tax credits became available for residential customers. No respondent mentioned any changes in recommendation or sales practices as a result of the credit.

### **3.3 EDUCATION AND TOOLS TO PROMOTE ENERGY EFFICIENT MEASURES**

As discussed in the Introduction, one component of the program theory is to provide education and training to the consultants and qualified contractors. The survey specifically probed on the education and training received through the program.

The majority of respondents (95 percent) said they received training or assistance from Focus on Energy. The types of trainings reported by respondents include the initial training to become a consultant, continuous and quarterly training opportunities, certification updates, and specific training offerings such as Better Buildings and Advanced Building Science. One respondent said they “...*did so many over the years I can’t even count.*” Nearly all of those that received training said it addressed attic or sidewall insulation issues.

A number of respondents also mentioned receiving mentoring and assistance from WECC while in the field. They reach out to WECC for quality assurance direction and general assistance they may need while working on a job.

In addition to the standard education and training offerings, 88 percent of respondents said they also received certification as a participating consultant /qualified contractor. The majority of these respondents said they received RESNET certification. Respondents also mentioned obtaining or being in the process of obtaining their BPI certification (n=8) and Green Built certification (n=1).

Tools and resources participating consultants and qualified contractors use through the program include infrared cameras (the majority say they own their own cameras), the website, and facts sheets. A few respondents (n=2) said they have the brochures and other literature from Focus on Energy but do not use it.

About half of respondents said there were no other tools or assistance the program could provide to them to help them sell attic or sidewall insulation. Three respondents recommended more targeted promotional events. One of these respondents mentioned that they noted an increase in activity after radio advertisements. One respondent also mentioned another extreme makeover event similar to the event that took place in Milwaukee.

Three respondents also suggested providing more evidence of the benefits of cellulose insulation based on recent test studies. One respondent in particular felt it would be beneficial to be armed with hard evidence to support why households should increase their insulation. Other recommendations include providing guidance to prioritization of recommendations (“*they are just an educated guess and we aren’t allowed to change as soon as we put it on paper*”) and provide an electronic audit tool so that the assessor can input the specifications directly at the job to illustrate and verify energy savings. Program managers plan to include

this tool in future program designs and are currently investigating options for developing an electronic audit tool.

### 3.4 PERCEPTION OF PROGRAM INFLUENCE ON CUSTOMERS

Consultants/contractors were also asked a series of agree/disagree questions to assess the program’s influence on customers’ decision-making processes. These questions were separate from the standard attribution questions and addressed respondents’ perception of program impacts on the timing and efficiency levels of the purchases.

The majority (over 80 percent) of respondents agree that the program is encouraging households to install insulation to higher and/or recommended R-value levels. Respondents most strongly agree with the idea that the program encourages customers to install more insulation than they initially planned. Of all four statements, respondents were least likely to agree with the statement that the program is encouraging customers to purchase sidewall installation.

**Table 3-2. Agreement with Program Influence Questions**

Influence Statement (n=20)	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree
The program is encouraging customers to purchase attic insulation to recommended R values.	30.1%	53.5%	0.2%	16.2%	0.0%
The program is encouraging customers to install sidewall insulation.	31.2%	39.7%	12.9%	16.2%	0.0%
The program is encouraging customers to purchase insulation sooner than they planned to.	45.1%	30.0%	21.1%	3.7%	0.0%
The program encourages customers to purchase more insulation (to recommended levels) overall.	66.1%	28.1%	5.8%	0.0%	0.0%

Source: HPWES Supply-side Survey (G1 to G4). Statistics are weighted by recommendation path and number of jobs completed.

Qualitative interviews with three qualified contractors and consultants completed prior to this study indicated that participants are typically contacting the program or qualified contractors because they need to fix something; the program then provides them with the information and recommendations to promote high efficiency or additional measures. The example most commonly mentioned was ice damming. Participants identify the need for repairs due to ice damming, which may possibly include the need to replace attic insulation. However, while they may know they need the attic insulation at that time, they may not be aware of the optimal level of insulation that should be installed. The program provides the information that encourages them to install program-qualifying levels of information. As such, the timing is likely not as much influenced as the recommended levels of insulation.

Another example is in the case of remodeling their home. Participants may not necessarily be looking to retrofit their home; rather, they identified a need due to significant changes in their home’s structure. Again, the program provides them with the program-qualifying standards

and may even encourage participants to look beyond the measures they were considering and also install other measures they did not know they needed.

#### 3.5 AIR SEALING

Initial discussions with program managers indicate that insulation is only a piece of the puzzle when it comes to addressing HPWES shell measures, although not necessarily a piece that homeowners fully understand. For program managers, air sealing is equally as important in assessing program impacts as it increases the overall effectiveness of the insulation installed.

A number of consultants and qualified contractors agree with this assessment. Interviewers received several qualitative comments on the subject of air sealing from contractors and consultants that we feel are important to share. While the survey did not specifically quantitatively address air sealing, qualitative responses we received during the survey indicate that it is an important issue to contractors and consultants.

Two respondents, who had 136 participating customers between them, mentioned that while the program does promote attic and wall insulation, the area in which it really excels is in promoting air sealing. Several other respondents noted that they simply do not install attic insulation without conducting an air sealing test first (it is a requirement in order to receive program rewards); one respondent said that *“attic insulation was irrelevant without air sealing done at the same time.”* Another respondent said, *“We sell air sealing first because that is the biggest energy savings.”* These respondents emphasized that while insulation is important, air sealing enhances the performance and brings the quality of an insulation installation to the next level.

Several respondents commented that air sealing is a distinguishing factor of the HPWES program. One respondent more specifically noted that the air sealing component *“is what separates Home Performance work from a blow-and-go insulator.”* These respondents commented positively on the program’s training and education related to air sealing.

Several respondents noted that few people are aware of the benefits, or even the existence, of air sealing before the program contractors or consultants mention it during the assessment. The participant surveys confirm this assessment: only 37 percent of program participants said they heard of air sealing prior to their consultation with the qualified contractor or consultant. One respondent noted, *“if air sealing and insulation can be tied together in customer’s mind, they get a better a job and better peace of mind.”*

While these responses seem to indicate that the program is influencing the inclusion of air sealing in homes and is resulting in increased program impacts related to the air sealing, the study was not designed to address this issue in any depth. Additionally, the air sealing measure was not included in this net-to-gross analysis as its current attribution rate is set at 100% which evaluators deemed appropriate. Further research would be required to assess the full impacts the program has on contractors’ air sealing practices should that be of interest to WECC and/or the PSCW.

## 4. INTEGRATION OF DEMAND SIDE AND SUPPLY-SIDE RESEARCH

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### 4.1 STUDY DESIGN

The Focus evaluation team recognizes there are studies where a customer self-report methodology is employed but the results are limited. In particular, self-report studies for programs that have the potential for significant supply-side influence may not fully represent program influence on energy efficiency related transactions. The evaluation team, led by Ralph Prael, developed a white paper to guide evaluators' approach to integrating supply-side research in these situations where end-user self-report may be less reliable.<sup>6</sup>

One approach considered for this research was to directly integrate supply-side and participant self-reports, overwriting participant survey results with supply-side results. According to the white paper, this approach may be appropriate where the program influences the supply-side practices particularly if customers are unaware of that influence. Past evaluations of Focus programs have primarily used this approach with the net-to-gross evaluations of commercial and industrial programs<sup>7</sup>.

When considering this approach for this HPWES study, evaluators needed to address the complication that qualified contractors and consultants tended to serve a large number of residential households in a given year. The prior section illustrated that consultants and qualified contractors provided assessments to an average of 176 households with the highest number estimated at 375 households in 2009. Given the high number of households these organizations served, it was not feasible to assume that these market actors would be able to recall and discuss specific individual projects with evaluators.

As a result, the study employed a mixed methodology for gathering contractor data regarding their participant experiences. Interviewers attempted to gather participant-specific information from contractors and qualified consultants that had relatively few projects documented in the program database from which the sample was drawn. This threshold was set at fewer than five projects. Interviewers asked contractors that served five or more households through the program to generalize their responses.

The resulting data collected from the supply-side research was then linked to the participant data for analysis. If a consultant or qualified contractor was able to recall customer-specific data, then that information was linked to that specific participant analysis. Otherwise, the

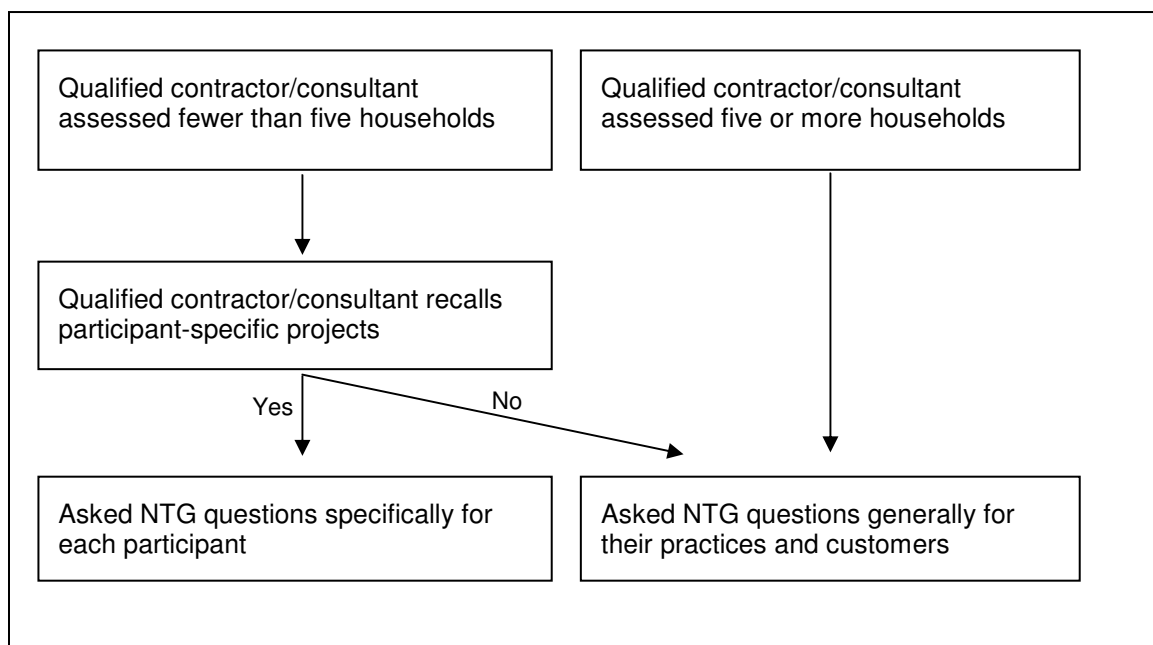
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<sup>6</sup> Ralph Prael with contributions from Mimi Goldberg, David Sumi, Tom Talerico, Bobbi Tannenbaum, Bryan Ward, and Rick Winch. *Integrating Supply-side Results with End-user Net-to-gross Self Reports*. July 2, 2008.

<sup>7</sup> Examples include the estimation of net-to-gross ratios for commercial and industrial programs using the framework developed for the California Public Utilities Commission (*Methodological Framework for Using the Self-Report Approach to Estimating Net-to-Gross Ratios for Nonresidential Customers*), the standardized approach developed for Massachusetts consortium of utilities (*Standardization Methods for Free-ridership and Spillover Evaluation*), and net-to-gross analysis for Focus on Energy Business Program evaluations.

generalized consultant and qualified contractor data was associated to participants for whom participant data was available. Figure 4-1 illustrates the types of net-to-gross questions asked depending on number of projects associated with each consultant or qualified contractor in the program database.

**Figure 4-1. Net-to-Gross Question Type by Number of Projects**



The contractor analysis in this section is weighted to represent delivery method and, as the contractor responses are attached to program participant responses, number of projects. The participant analysis in this section is weighted by delivery method.

## 4.2 ANALYSIS PLAN AND QUESTIONS

There are six series of questions in the supply-side survey instrument. (1) background and context (A series), (2) program attribution questions (B and C series), (3) training and education questions (D series), (4) recommendation and influence questions (E and F series), (5) recommendation practices outside of the program (V series), and (6) wrap-up questions, including additional influence questions (G series). Chapter three addressed the majority of the series with the exception of the attribution-related influence questions in sections E and F. The analysis from these series are addressed within this section.

The survey was in part designed to ask similar questions to the participant surveys. This initial analysis plan used the questions, detailed in Table 1 below, to adjust the customer self-report attribution analysis.

There were several approaches to integration that evaluators considered. In all cases, where values are missing for one source, the valid response from the other source is used. For example, if a participant says, “don’t know” to a question but the consultant provides a response to the corresponding question, then the consultant value is used. The case is eliminated from the analysis when both responses are invalid or missing.



1. **Override the participant results if they said the consultant/qualified contractor was influential in their decision to install the equipment (*influential participant/supply-side selection approach*).** This approach provides full weight to the supply-side responses when the respondent claims supply-side influence. A benefit of this approach is that if the participant believes the supply-side contractor is influential, then the program impacts may be best assessed from the supply-side perspective. A limitation of this approach is the assumption that the consultant/qualified contractor view is the most accurate assessment of the program influence and the participants' perceptions are discounted entirely. Another limitation of this approach is that it relies on the participant's ability to recognize the influence of the supply-side role. Participants that do not recognize the impact of this role on their decision-making processes will rate the supply-side influence low when, in fact, it may be more of a factor in their decision than they realize.
2. **Select the score or rating that assumes the greatest program influence when have both participant and supply-side responses (*highest influence indicator approach*).** This approach assumes that the program should receive credit for its influence, regardless of the party that is influenced. The logic is that without one of those points of influence, the efficiency activities would not have been implemented. The benefit of this approach is that it ensures the program receives credit for all points of influence. The limitation of the approach is that it assumes that free-ridership is non-existent if the market actor claims program influence.
3. **Average the participant and supply-side results (*average approach*).** This approach weights the customer self-report and supply-side self-report analysis equally. In the event either party says, "don't know," we will select the response that is valid. In the event both parties say, "don't know," the analysis will eliminate that case. There is no evidence from this study or others that one self-report response source is more reliable than the other is. Therefore, the benefit of this approach is to avoid the assumptions altogether and combine the results with equal weight in the absence of other reliable sources of data (e.g., market share data) that would indicate one source is more reliable than another is. The limitation of this approach is that it could bias the results—either upwards or downwards—although without knowing the "correct" answer it is not evident in which direction the results are biased.

Table 4-1 outlines the participant and supply-side questions used for this study. Note that O4 and E7/F8 are the primary variables upon which the participant net-to-gross estimates were developed as there was concern over the responses from T1 in the participant survey; T1 only assessed the influence of the rebate and did not take into consideration the influence of the information and services.

Table 4-1. Mirroring Supply-side and Participant Questions

Participant Variable	Participant Question	Supply-side Variable	Supply-side Question
T1	If the rebate had not been available through the Home Performance with ENERGY STAR program, would you have added this [measure] in your home at the same time?	B3/C3	If the rebate or information or services you provided had not been available through the program, would the household/what percentage of households would have added the insulation at the time they did?
N12	Were you specifically looking to install [measure] at that time?	B1	What percent of households/did this household have specific plans to install insulation prior to your visit with them?
O1	On a 0 to 10 scale, with 0 being not at all likely and 10 being very likely, how likely is that you would have bought the same [measure] if you had not received this incentive through the Home Performance with ENERGY STAR program?	B5/C5	On a 0 to 10 scale, with 0 being not at all likely and 10 being very likely, how likely is that they would have installed the same R-value of insulation had they not received the rebate through the Home Performance with ENERGY STAR program?
O2	How much influence did the [consultant/qualified contractor] have in your decision to install the [measure] to the specifications installed? Please rate the influence on a 0 to 10 scale, where 0 is not at all influential and 10 is extremely influential.	B7/C7	On a scale from 0 to 10, where 0 is not at all influential and 10 is extremely influential, how influential do you believe the information and services you provided to them as a (contractor/qualified consultant) was in their decision to install the to Focus on Energy specifications?
O4	Can you please describe what impact, if any, the Home Performance with ENERGY STAR program had on your decision to install the [measure] at the time you did?	E7/F8	What impact, if any, did the program have on your recommendations? (Coded the same as participants)

The subsequent analysis shows the results using the three different integration approaches. In addition to these integration-ready questions, we asked a variety of questions that are used to inform the extent of program influence on contractors/qualified contractors' practices that may not be recognizable to the customers and potentially adjust the net-to-gross factors. A majority of these contextual questions were presented in the previous section. A number of relevant variables are also used within this section to support the abovementioned integration analysis.

### 4.3 INTEGRATING RESPONSES TO KEY QUESTIONS

This section details the results of the integration of the supply-side and participant survey data. As outlined above, there are several approaches that can be employed when integrating the two data sources. This section presents the results of each of the key questions outlined in Table 4-1.

All analysis is segmented by insulation type. The data is weighted to account for disproportionate sampling (ensuring that qualified contractor cases are not disproportionately accounted for in the analysis) and savings.

#### 4.3.1 Installation of insulation without services

The participant survey question associated with this series is:

*T1. "If the rebate had not been available through the Home Performance with ENERGY STAR program, would you have added this [measure] in your home at the same time?"*

The supply-side survey question associated with this series is:

*B3/C3. "If the rebate or information or services you provided had not been available through the program, would the household/what percentage of households would have added the insulation at the time they did?"*

Note that there is some inconsistency in the question wording that needs to be recognized. The participant survey focused entirely on the rebate, whereas the supply-side survey also included information and services.

Table 4-2 presents the results from each survey effort, and then combines the results using two integration approaches: the highest influence indicator approach and the average approach. Note that for the greatest influence approach the *minimum* of the two responses is taken as it accounts for the greatest program influence.

**Table 4-2. Percent of Households Would have Added Measure in home at Time Without Rebate/Services**

Insulation Type	Participant Response (T1)	Supply-side Response (B3/C3)	Highest Influence Indicator Approach (Minimum) <sup>8</sup>	Average Approach
Attic	95%	59%	64%	80%
Sidewall	91%	38%	46%	69%
Total	93%	51%	55%	74%

Source: HPWES Participant Survey (T1) and Supply-side Survey (B3 and C3). Data is weighted by recommendation path and contractor data is also self-weighted by number of jobs completed.

The consultants and qualified contractors were less likely to say that the household would have installed the insulation at the time they did—particularly for sidewall insulation. The rate that consultants and qualified contractors reported was a third of the rate reported by

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<sup>8</sup> While we would expect the highest influence indicator approach to provide a result lower than the minimum between the participant and supply-side results, the selection of the minimum response on a case-by-case basis does not provide this result.

participants. Both integration approaches provide additional credit to the program than the participant surveys alone.

As discussed earlier, the questions for both the supply-side and participant surveys were asked differently. However, had the T1 question from both the participant and supply-side instrument been asked similarly, we would recommend using the average integrated response, not the integration approach that assumes the greatest program influence. This question is asking about program influence on one group of individuals—the participants—and not program influence on each party surveyed. Overwriting the participant response regarding their intentions with the supply-side response if it showed greater program influence could significantly bias the results. And yet, we do want to recognize the supply-side's perceptions. Therefore, an average is more appropriate for this question.

Results for the influential participant/supply-side approach, which takes the supply-side response if the participant said the contractor was influential in their decisions, is not detailed in this table. It may be appropriate to use this approach if the survey captures customer-specific data from the contractor *and* the participant said the contractor was most influential in their decisions. This option is not preferred for this question as the majority of the supply-side responses referred to their customers in general and their responses were not customer specific given the number of customers they had go through the program.

For this study, we recommend not including this question series in the net-to-gross analysis as the participant analysis opted to not use the results from this question. The analysis found that reviewing this question (T1) related to the influence of the rebate alone was misleading when attempting to understand program influence on customers' decision-making process. The program's influence goes beyond the rebate, which is not accounted for in the participant survey question. Based on this program theory, and a review of the open-ended responses in regard to the response to T1, we believe the program influence is not accurately represented through these questions.

#### 4.3.2 Installation of insulation at same time

The participant survey question associated with this series is:

*N12. "Were you specifically looking to install [measure] at that time?"*

The supply-side survey question associated with this series is:

*B1/C1. "Did this household have/what percent of households had specific plans to install insulation prior to your visit with them?"*

Table 4-3 presents the results from each survey efforts then integrates the results taking the highest influence indicator and average approaches. Again, the *minimum* of the two statistics is taken for the highest influence indicator approach as it accounts for the greatest program influence.

**Table 4-3. Percent of Households Planning to Install Measure in Home at that Time**

Insulation Type	Participant Response (N12)	Supply-side Response (B1/C1)	Highest Influence Indicator Approach (Minimum) <sup>9</sup>	Average Approach
Attic	72%	47%	44%	62%
Sidewall	66%	17%	28%	49%
Total	69%	37%	36%	56%

Source: HPWES Participant Survey (N12) and Supply-side Survey (B1 and C1). Data is weighted by recommendation path and contractor data is also self-weighted by number of jobs completed.

Taking the same logic outlined in for the T1/B3/C3 question series, we would recommend using the average statistic for this integration analysis rather than the response that indicates the greatest program influence. Again, we do not show results using the influential participant/supply-side selection approach, as we do not believe it is appropriate to consider overwriting participant with contractor data as the majority of contractors could not customer-specific responses to this question.

#### 4.3.3 Likelihood would have purchased same efficiency without the rebate

The participant survey question associated with this series is:

- O1. *“On a 0 to 10 scale, with 0 being not at all likely and 10 being very likely, how likely is that you would have bought the same [measure] if you had not received this incentive through the Home Performance with ENERGY STAR program?”*

The supply-side survey question associated with this series is:

- B5/C5. *“On a 0 to 10 scale, with 0 being not at all likely and 10 being very likely, how likely is that they would have installed the same R-value of insulation had they not received the rebate through the Home Performance with ENERGY STAR program?”*

Table 4-4 presents the results from each survey efforts then integrates the results taking the highest influence indicator and average approaches. The *minimum* of the two statistics are taken for the highest influence indicator approach as it accounts for the greatest program influence.

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<sup>9</sup> While we would expect the highest influence indicator approach to provide a result lower than the minimum between the participant and supply-side results, the selection of the minimum response on a case-by-case basis does not provide this result.

**Table 4-4. Mean Likelihood of Purchasing Same Efficiency Without Rebate**

Insulation Type	Participant Response (O1)	Supply-side Response (B5/C5)	Highest Influence Indicator Approach (Minimum) <sup>10</sup>	Average Approach
Attic	8.5	6.6	7.2	7.8
Sidewall	8.7	7.9	8.1	8.5
Total	8.6	7.2	7.6	8.2

Source: HPWES Participant Survey (O1) and Supply-side Survey (B5 and C5). Data is weighted by recommendation path and contractor data is also self-weighted by number of jobs completed.

In this analysis, the participant and supply-side surveys results were somewhat different but not to the degree seen in the previous two analysis. The supply-side research indicated that the contractors felt the participants were less likely to install the same R-value in the absence of the rebate than the participants claimed.

Interestingly, for both the participants and contractors, sidewall insulation ranked higher in the likelihood to purchase the same R-value without the rebate than the attic insulation. There is no data to show exactly why this is the case, but it may be that the participants and contractors view the sidewall insulation as black and white—install or do not install—rather than having shades of gray for the varying R-values that can be installed with attic insulation.

Taking the same logic outlined in for the T1/B3/C3 question series, we would recommend using the average statistic for this integration analysis rather than the response that indicates the greatest program influence. Again, we do not show results using the influential participant/supply-side selection approach, as we do not believe it is appropriate to consider overwriting participant with contractor data as the majority of contractors could not customer-specific responses to this question.

#### **4.3.4 Influence of contractor/qualified consultant in decision to install measure to specifications**

The participant survey question associated with this series is:

*O2. “How much influence did the [consultant/qualified contractor] have in your decision to install the [measure] to the specifications installed? Please rate the influence on a 0 to 10 scale, where 0 is not at all influential and 10 is extremely influential.”*

The supply-side survey question associated with this series is:

*B7/C7. “On a scale from 0 to 10, where 0 is not at all influential and 10 is extremely influential, how influential do you believe the information and services you*

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<sup>10</sup> While we would expect the highest influence indicator approach to provide a result lower than the minimum between the participant and supply-side results, the selection of the minimum response on a case-by-case basis does not provide this result.

*provided to them as a (contractor/qualified consultant) was in their decision to install the to Focus on Energy specifications?"*

Table 4-5 presents the results from each survey efforts then integrates the results taking the highest influence indicator and average approaches. The *maximum* of the two statistics are taken for the highest influence indicator approach as it accounts for the greatest program influence.

**Table 4-5. Mean Influence of Information and Services Provided by Consultant/Qualified Contractor in Decision to Install to Focus on Energy Specifications**

Insulation Type	Participant Response (O2)	Supply-side Response (B7/C7)	Highest Influence Indicator Approach (Maximum) <sup>11</sup>	Average Approach
Attic	7.5	9.1	8.9	8.1
Sidewall	7.6	9.2	9.0	8.2
Total	7.6	9.1	8.9	8.2

Source: HPWES Participant Survey (O2) and Supply-side Survey (B7 and C7). Data is weighted by recommendation path and contractor data is also self-weighted by number of jobs completed.

As we would expect, the contractors were more likely than the participants to say they were influential in the participants' decision to install the insulation to Focus on Energy specifications. The average supply-side response on the 0 to 10 scale was over a 9 whereas the participant response was between a 7.5 and 7.6. There is no significant difference in responses by insulation type.

The contractor may want to appear as if they had more of an influence on the customer than is the case, and the customer may want to appear they knew more about what they would have installed regardless of contractor guidance. Therefore, we recommend that questions such as this use the average integration approach to balance both potential biases.

#### 4.3.5 Impact of program on decision to recommend/install insulation

After all the data was considered, the participant survey analysis memorandum based the analysis on the coding of open-ended responses to the following question:

O4. *"Can you please describe what impact, if any, the Home Performance with ENERGY STAR program had on your decision to install the [measure] at the time you did?"*

Responses to the open-ended question were coded into one of five categories: (1) influential/influenced decision, (2) no influence, (3) little influence, (4) accelerated decision,

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<sup>11</sup> While we would expect the highest influence indicator approach to provide a higher result than the maximum between the participant and supply-side results, the selection of the maximum response on a case-by-case basis does not provide this result.

and (5) made it easier to make decision. The attribution estimate was based on the percentage of participants that reported program influence (category 1).

Because the participant study heavily relied on the response to O4, the supply-side research included a similar question. However, instead of asking about the influence of the program on the participants' decisions, the question focused on the influence of the program on contractors' recommendation practices. The supply-side survey question associated with this series is:

*E7/F8. "What impact, if any, did the program have on your recommendations?"*

The open-ended responses were coded to into two categories: (1) influential/influenced recommendation practices, and (2) no influence. Examples of responses coded as influential include the program requirements and/or the training initiatives influenced their recommendation practices.

The intent of assessing the program influence questions from each perspective was to provide a rounded view of the program's influence on the two market actors. This approach then allows the analysis to take into account program impacts resulting from the range of services provided whether it is training, information, rebates, services, etc.

Again, two integration approaches were used for this analysis. Responses indicated as influential were coded as a '1', and non-influential responses were coded as a '0'. The participant responses that indicate partial influence (e.g., accelerated decision) were not included in the influential category, consistent with the participant analysis.

These questions, and the resulting analysis, differ from the other questions as it pointedly addresses the program's impacts for the contractors directly rather than asking the contractor to assess the program impacts on the participant. Therefore, we should be more confident in the validity of the responses as they are not addressing other parties' intentions.

Additionally, the contractor question is not project-specific. It asks about program influence on their recommendation practices, which can be assumed to apply to all projects completed through the program for a specified period of time (in this case, CY09 through June 2009). Therefore, the program influence can be assessed for each contractor, and then linked to participants' results with some level of confidence that the influence response could impact the participants' decision-making processes as well as the contractors' recommendations.

These distinctions in the questions open up the potential for a third integration approach: including the contractor response when the participant said the contractor was highly influential in their decision to install the insulation to program specifications (labeled influential participant/supply-side selection approach). Where the customer assesses the contractor's influence as a 7 or higher on the 0 to 10 scale in question O2, the supply-side response is used. Where the customer assesses the contractor's influence below a 7, the customer's assessment of program influence is used. Customers that could not provide a contractor rating are eliminated from this analysis.

As described above in the discussion of the various approaches, the accuracy of this approach could be diminished if the participant does not recognize the influence of the contractor on their decision-making processes. Almost a quarter of program participants in this HPWES study rated the influence of the consultant/qualified contractor lower than a 7



where 10 is “extremely influential”. With the exception of a few cases, the contractors disagreed with participants’ rating of the contractor’s influence at a six or lower. However, as we illustrated above, the contractor also sees their level of influence much higher than participants in general (on average, over a nine on a 10-point scale) which is likely an inflated perception. Therefore, we do not feel we should discredit participants’ ability to recognize the supply-side influence.

Table 4-6 presents the results from each survey effort as well as the results using all three integration approaches: influential participant/supply-side selection approach, highest influence indicator approach, and the average approach. The *maximum* value for the highest influence indicator approach is selected as it represents the greatest program influence.

**Table 4-6. Percent of Respondents that Indicate the Program Impacted Decisions/Recommendation Practices**

Insulation Type	Participant Response (O4)	Supply-side Response (E7/F8)	Influential Participant/Supply-side Selection Approach	Highest Influence Indicator Approach (Maximum) <sup>12</sup>	Average Approach
Attic	54.9%	68.4%	65.0%	87.3%	59.3%
Sidewall	58.8%	85.8%	73.1%	96.2%	72.3%
Total	56.8%	77.0%	69.1%	91.7%	65.5%

Source: HPWES Participant Survey (O2 and O4) and Supply-side Survey (E7 and F8). Data is weighted by recommendation path and contractor data is also self-weighted by number of jobs completed.

We recommend using the influential participant/supply-side selection approach when assessing program attribution using this series of questions. Assuming the participants are aware of the supply-side impacts on their decisions, this approach most accurately assesses the program’s impacts at the main point of influence in the decision-making process, whether it is the contractor or the participant. If the participant believes that the contractor was a significant decision-maker in the process, then the program’s attribution factor should be determined based on the program’s impact on those contractors’ recommendation practices. On the other hand, if the participant does not believe that the contractor significantly influenced their decision, then it is most reasonable to assess the program’s impact at the participant-level to ensure other influences (such as the rebate) are accounted for.

As with the participant analysis, we also present the results by delivery method. The integration approach used is the influential participant/supply-side selection approach. The integrated data trends are consistent with what was documented in the participant analysis: attribution results from the qualified contractor path are lower than the consultant path (Table 4-7). However, the distinction is less so than when reviewing the participant results alone as the qualified contractors are more likely to claim program influence on their recommendation

<sup>12</sup> While we would expect the highest influence indicator approach to provide a higher result than the maximum between the participant and supply-side results, the selection of the maximum response on a case-by-case basis does not provide this result.

practices than the consultants are. Keep in mind the sample sizes when reviewing the supply-side responses; they are based on interviews with 16 consultants and four qualified contractors.

**Table 4-7. Percent of Respondents that Indicate the Program Impacted Decisions/Recommendation Practices by Delivery Method**

Insulation Type	Participant Response (O4)	Supply-side Response (E7/F8)	Influential Participant/Supply-side Selection Approach
<b>Consultant path</b>			
Attic	62.7%	63.0%	66.2%
Sidewall	65.9%	81.1%	74.0%
Total	63.9%	70.3%	69.4%
<b>Qualified contractor path</b>			
Attic	26.8%	77.4%	55.6%
Sidewall	30.7%	95.0%	67.4%
Total	28.3%	84.3%	60.4%

Source: HPWES Participant Survey (O2 and O4) and Supply-side Survey (E7 and F8). Data is weighted by recommendation path and contractor data is also self-weighted by number of jobs completed.

Regardless of delivery method, the program's influence on the recommendations of sidewall insulation when compared with attic insulation is far more distinct than the participants' responses. One theory presented in the participant analysis is that the program process from the participants' perspective was more holistic in that the auditor treated their home in total rather than as individual measures. This full project view, rather than measure-by-measure view, may be reflected in the little distinction in program influence between attic and sidewall insulation. The distinction in the contractor analysis may be a result of measure-targeted training, requirements, and support through the program.

#### 4.4 RESULTS SUMMARY AND RESULTING NET-TO-GROSS ESTIMATES

Although not a key objective, the study also developed net-to-gross estimates. This section provides recommendations for which value evaluators recommend the program adopt. Before providing this recommendation, we summarize the analysis presented above.

##### 4.4.1 Summary of analysis

The survey included four variables traditionally used in net-to-gross analysis: (1) percent of households that would have added the measure without rebate or services, (2) percent of households that had plans to install measure in home at that time, (3) the likelihood of purchasing the same measure without the rebate, and (4) influence of the information and services provided by the consultant or qualified contractor in decision to install the measure to Focus on Energy specifications.

Table 4-8 shows the results of the analysis on these variables from the participant, supply-side, and two of the integration perspectives. The analysis shows that the supply-side response is consistently more favorable to the program's influence in participants' decisions to install the insulation to Focus on Energy specification.

The previous sections recommended that the average integration approach be used for these four questions if they were to be formally included in the net-to-gross analysis. This report documents several reasons for this recommendation, one of which being that the contractors were asked to respond on behalf of the participants' intentions and replacing the participants' results with the contractors' did not give the appropriate weight to the participants' perspectives.

Table 4-8. Integration Results for Four Key Variables

Insulation Type	Participant Response	Supply-side Response	Influential Participant/Supply-side Selection Approach	Highest Influence Indicator Approach	Average Approach
<b>Percent of households would have added measure in home at time without rebate/services</b>					
Attic	95%	59%	NA	64%	80%
Sidewall	91%	38%	NA	46%	69%
Total	93%	51%	NA	55%	74%
<b>Percent of households had plans to install measure in home at that time</b>					
Attic	72%	47%	NA	44%	62%
Sidewall	66%	17%	NA	28%	49%
Total	69%	37%	NA	36%	56%
<b>Mean likelihood of purchasing same efficiency without rebate</b>					
Attic	8.5	6.6	NA	7.2	7.8
Sidewall	8.7	7.9	NA	8.1	8.5
Total	8.6	7.2	NA	7.6	8.2
<b>Mean influence of information and services provided by consultant/qualified contractor in decision to install to Focus on Energy specifications</b>					
Attic	7.5	9.1	NA	8.9	8.1
Sidewall	7.6	9.2	NA	9	8.2
Total	7.6	9.1	NA	8.9	8.2
<b>Percent rate program influential in decision to purchase/recommendation practices</b>					
Attic	55%	68%	65%	87%	59%
Sidewall	59%	86%	73%	96%	72%
Total	57%	77%	69%	92%	66%

Source: HPWES Participant and Supply-side Surveys Data is weighted by recommendation path and contractor data is also self-weighted by number of jobs completed.

The initial analysis plan only intended to use the first question (percent of households that would have added insulation in home at time without rebate/services) as the basis of the net-to-gross estimate, and use the likelihood questions as consistency checks. However, as documented in this report as well as the participant survey results memorandum, evaluators did not believe that particular question yielded results that were an accurate reflection of the program influence on the participants' decision to install the equipment. This question resulted in higher free-ridership, which was not corroborated by the contextual and open-ended data.

Additionally, the participant question only focused on the rebate, whereas the supply-side questions also included information and services. The focus on the rebate called into question

the validity of this question to assess the full range of how participants could be influenced by the program, which may also be reflected in the high free-ridership rate found in this question.

Evaluators instead referred to the open-ended question related to program influence on recommendations and decision-making processes which were classified and analyzed. The question classified responses as program influential and not program influential for both program participants and contractors.

When determining the net-to-gross results using this question, evaluators recommend the influential participant/supply-side selection approach be used to represent the net-to-gross results. This approach used the supply-side data if the participant recognized them as influential in the decision to install the insulation (rated a seven or greater), otherwise used the customer data to assess net-to-gross. For this question, the supply-side data was used for approximately 75 percent of the cases. The recommended approach resulted in an attic insulation estimate of 65 percent and a sidewall insulation estimate of 73 percent. The combined estimate for both insulations is 69 percent.

Whereas the participant survey produced significantly different results by delivery method, the integrated approach did not yield results that were so strikingly disparate between the two groups. This is because the qualified contractors reported significant program influence in their recommendation practices.

The majority of program participants surveyed (76 percent) received both attic and sidewall insulation. One could hypothesize that participants' net-to-gross ratios would vary by number of measures received. Taking into consideration the customer education component of the program's theory, the net-to-gross ratio for could be higher for those participants that received more measures as the program's information encourages them to install measures they otherwise would not have installed.

The analysis does not provide any evidence that the net-to-gross ratio is higher when the program installs multiple insulation measures installed. In fact, the analysis shows the opposite is the case, with those that have only one measure type having a higher ratio than those that receive both types of insulation. However, there is evidence taking into account the contractor's perspective that households that receive air sealing are more influenced by the program than those that did not receive air sealing (Table 4-9).

**Table 4-9. Estimates by Measures Received**

	Participant Response	Supply-side Response	Influential Participant/Supply-side Selection Approach
<b>Analysis by Number of Measures Installed</b>			
Attic or sidewall insulation only	70.3%	78.2%	78.4%
Attic and sidewall insulation	53.7%	76.7%	67.0%
<b>Analysis by Air Sealing Present</b>			
Insulation with air sealing	57.9%	51.2%	58.0%
Insulation without air sealing	56.7%	79.5%	70.3%

Source: HPWES Participant Survey and Supply-side. Data is weighted by recommendation path and contractor data is also self-weighted by number of jobs completed.

#### 4.4.2 Recommended values

The analysis presented above provides a mix of net-to-gross ranges upon which the program could base its revised estimates. Excluding the 0 to 10 scale questions, three questions could lend themselves to net-to-gross estimates. These questions are referenced in the table below along with the integrated net-to-gross result based on the integration approach recommended within this report. The low end of the range is 20 percent attribution for attic insulation to a high end of 73 percent attribution for sidewall insulation.

**Table 4-10. Range of Attribution Estimates Based on Participant/Supply-side Integration**

Question	Integrated Result: Attic	Integrated Result: Sidewall	Integrated Result: Overall	Integration Approach
Would not have added measure in home at time without rebate/services <sup>13</sup>	20%	31%	26%	Average approach
Did not have plans to install measure in home at that time <sup>14</sup>	38%	51%	44%	Average approach
Program impacted decision to install/recommend insulation at program specified levels	65%	73%	69%	Influential participant/supply-side selection approach

Source: HPWES Participant and Supply-side Surveys data is weighted by recommendation path and contractor data is also self-weighted by number of jobs completed.

This report documents the serious limitations for the first question and, while interesting from a contextual perspective, the second question only provides one aspect of the decision-making process. Additionally, both of these questions represent the decision-making processes from the participant perspective; the program influences on the contractor's practices are not represented.

We recommend the PSCW consider a net-to-gross range that is in line with the third series that includes the self-report program influence for both the customer and trade ally (65 percent for attic insulation and 73 percent for sidewall insulation.) The recommended net-to-gross ratio should the program decide to report a combined net-to-gross estimate is 69 percent representing both insulation types. This approach not only recognizes the rebate and information and services provided to the participant, but also gives credit for impacts other program services may be having on the consultants and qualified contractors, including training and education offerings.

The recommended attic net-to-gross ratio of 69 percent is only slightly higher than that currently used by the program (62 percent). The difference in current to recommended rates

<sup>13</sup> These two rows are reversed analysis to move from free-ridership to net estimates.

<sup>14</sup> These two rows are reversed analysis to move from free-ridership to net estimates.

#### 4. *Integration of Demand Side and Supply-side Research*

is more significant for sidewall insulation (50 percent currently used versus 73 percent recommended). There could be a variety of explanations for the significant difference in sidewall insulation. For example, it could be a function of the population surveyed; the previous study results are based on interviews with 22 households compared with the 98 interviewed for this study. Another possibility is that the program was reaching lower hanging fruit in prior years. More likely than these two options though is that the study method and survey questions are significantly different.

## 5. CONCLUSIONS AND RECOMMENDATIONS

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HPWES is largely a consultant-driven program, which called into question whether the most recent net-to-gross analysis that only included participant self-report surveys accurately captured the program's impacts for either customers or contractors. This issue was raised specifically regarding net savings estimates for attic and sidewall insulation measures currently set at 62 percent and 50 percent, respectively.

In response to these issues, this study set out to address three primary objectives:

1. Identify any program-induced demand-side and/or supply-side effects on the participating customers and vendors through customer and vendor surveys.
2. Propose a method for determining whether and how to integrate participant and program partner self-reports as a basis for attribution.
3. Establish a two-staged process for collecting data and performing the integrated analysis to produce defensible results.

Although not detailed as a key objective, the study also set out to develop net-to-gross estimates using the integrated methodology developed per the objectives outlined above. The key findings related to each of these objectives are detailed below. Recommendations based on these key findings follow.

### 5.1 KEY FINDINGS

**Identify any program-induced demand-side and/or supply-side effects on the participating customers and vendors through customer and vendor surveys.** The program is clearly influencing participants' decision-making processes as well as consultants' and qualified contractors' recommendation practices. The two groups are fairly consistent in their perception of the program's influence on the installation of attic insulation, with 55 percent of participants saying the program influenced the installation of attic insulation and 68 percent of contractors that say the program impacted their attic insulation recommendation practices. The difference between participant and contractor results is more distinct when reviewing sidewall insulation; 59 percent of participants say the program impacted their decision to install sidewall insulation, compared with 86 percent of contractors that claim program influence in their sidewall insulation recommendation practices.

The program-induced effects vary somewhat when the results are reviewed by delivery method. Whereas participants that use qualified contractors claim relatively low program influence on their decision-making processes, qualified contractors are more likely to report that the program impacts their recommendation practices. Taking into consideration both the participant and supply-side perspectives balances out the overall attribution analysis so the end result is not such a distinct difference in net-to-gross estimates between the two delivery methods.

The program theory is centralized around education and training. Interviews with program managers indicate that education to participating consultants and qualified contractors as well as the flow-down education to the customer is a central objective of the program. A number of these consultants have been with the program a considerable amount of time (survey results show a majority have been participating in the program for over five years) so education and training efforts for these organizations are often to reinforce program requirements and

## 5. Conclusions and Recommendations

address specialized training needs. Additionally, in order for participants to convert recommendations to projects they need to be educated on the benefits of the improvements so that they buy into the value of those improvements.

The participant and supply-side survey results indicate that the information and training is, indeed, the primary driver of the energy efficiency improvements. The participant survey indicated that the rebate was a less influential component of the program than the information provided by the consultants and qualified contractors, although not an unimportant component of the program design as cost continues to be a traditional barrier to implementing energy efficiency projects. And the supply-side research indicated that nearly all contractors received education and training through WECC and ECW which had an impact on their recommendation practices as well as addressed other measure and certification needs. The open-ended responses related to program influence include a variety of comments around the education and training received through the program influencing their recommendation practices. Below are a few representative comments.

*“WECC does a very good job training consultants.”*

*“It has had a total impact on my recommendations because of the continuing education offered by the program.”*

*“[Recommendation practices changed based on] information from the program manager from Focus on Energy and the achievable [savings resulting from] sidewall insulation.”*

**Propose a method for determining whether and how to integrate participant and program partner self-reports as a basis for attribution. Establish a two-staged process for collecting data and performing the integrated analysis to produce defensible results.** We believe the methodology included in this study was effective in its approach to integrating supply-side and demand side self-report results for this study. Most important in the study design was the ability to directly link contractor results with program participant results. Although doing this on a project-by-project basis was not feasible in all cases for reasons discussed in this report, the ability to at minimum link contractor’s general perceptions with customers they served provided a basis for some level of integration.

Net-to-gross analysis for other programs, including BP and other commercial programs, commonly integrate participant and other relevant program trade ally survey results. This study was different in that the magnitude of any individual job on the HPWES trade allies’ businesses is lower than that of a business project. Therefore, we needed to develop a method that would allow contractor data to directly link to participant data, while providing flexibility in the study design so that those trade allies unable to recall project specific details can still provide valuable information that can be linked to the customer self-reports.

The resulting survey and sampling design provided for two chains of questioning: one for contractors that provided services to fewer than five households in CY09 through June 2009 (smaller contractors) and one for contractors that provided services to five or more households in CY09 through June 2009 (larger contractors). The survey attempted to gather project-specific information from the smaller contractors and asked the larger contractors to generalize about their experiences. Either way, we were able to link the contractor data to customer-specific results.



The participant and supply-side surveys were designed so that critical net-to-gross questions mirrored each other to assess the same type of information. For example, the participant was asked the influence of the rebate on their decision-making process. The contractor was also asked about their perception of the influence of the rebate on the customers' decision-making process.

In addition to questions that focused on participants' decisions, the survey also assessed the program's influence on changes to recommendation and/or decision-making processes. These questions focused on the participants' and consultants'/contractors' intentions or changes rather than perception of the other group's behaviors or thoughts, but the issue at hand was similar enough to allow for integration of results (e.g., impact of the program on their activities).

Three integration approaches were considered when conducting the analysis. The first approach used the contractor response rather than the participant response when the participant considered the contractor influential (for this study, rating the contractor a seven or greater on a 0 to 10 scale of influence). The second approach used the result that inferred the greatest level of program influence, ensuring that all points of influence were accounted for. And the third approach averaged contractor and participant self-report responses.

The study found that there is no one approach that is right for all analysis. In thinking through the optimal approach for integrating the results, one must consider the benefits and limitations of each approach as well as the approach that makes the most rational sense and lends itself to the most accurate reporting and mitigating any potential response bias as best as possible.

The study used the averaging approach as well as the last approach – using the contractor results when the customer deemed that contractor influential in their decisions – when integrating the two sets of data. The highest influence indicator approach, which would have taken the data point that indicated the greatest program influence, was not a recommended approach for any of the analysis, although data resulting from this approach was presented.

This study developed a methodology that could be duplicated for other studies, albeit with some potential modifications based on the program and population being reviewed. Integration of supply and demand side responses provides a basis for capturing the range of program impacts, which is particularly effective for programs where trade allies are a significantly influential component of the program such as HPWES.

**Develop net-to-gross estimates based on the integration methods developed through this study.** Although not a key objective, the study also developed net-to-gross estimates. Whether and how these revised estimates are used for future program planning and to adjust retrospective savings is at the discretion of the PSCW. However, the section following this discussion does provide recommendations for which value evaluators recommend the program adopt.

### 5.2 RECOMMENDATIONS

**Integrate supply-side research with participant self-reports where it makes sense.** This two-staged impact analysis approach illustrated the need to continue to rigorously design net-to-gross studies to integrate supply-side as well as participant results. There has been significant debate over whether participants are able to accurately assess the impacts the program has on the decision-making process. Designing a study to ensure that the

perspectives of all parties potentially influenced by the program as well as the primary decision-makers are adequately represented provides a well-rounded perspective of program attribution. This is primarily true for programs that have significant supply-side or trade ally influence on the program participant and for which the program theory intends to influence those primary points of contact.

**Develop the supply-side and participant surveys to ensure that questions are comparable and results can be integrated.** It is important when designing integration studies such as this HPWES study to be thoughtful about the participant and trade ally survey. The questions asked of each market player need to be comparable so that the results can be directly compared and potentially integrated. Doing so will provide more informative results and improve the defensibility of the conclusions and recommendations. While not always possible, it is useful to include a draft analysis methodology as it provides a roadmap to direct the integration of the perceptions.

**Continue to develop the methods systematically, but avoid a strict a one size fits all approach.** It is oftentimes our first inclination to create a standardized approach for developing impact methodologies, particularly for net-to-gross studies. And it is not unreasonable to do so; there is a systematic pattern in the types of questions that should be addressed and common flow for these questions. The same could also be true for a method to integrate data for residential supply and demand side studies.

However, programs and the populations they serve can vary significantly, which will require customization of approaches and questions. Additionally, while this study outlined a variety of integration approaches for program and PSCW consideration in determining net-to-gross estimates, other programs evaluations may require additional approaches or refinements to these approaches as they make sense for that study.

**Revise the current net-to-gross estimate to reflect this research.** The net-to-gross estimates currently being used for planning and reporting are 50 percent for sidewall and 62 percent for attic insulation. While the attic insulation results are fairly consistent with this study, the sidewall insulation estimates are too low. This is especially apparent when considering the changes in recommendation practices for sidewall insulation described by participating partners.

The net-to-gross estimate using the recommended integration approach in determining program influence is 65 percent for attic insulation, 73 percent for sidewall insulation, and overall 69 percent for both insulation types. This approach not only recognizes the rebate and information and services provided to the participant, but also gives credit for impacts other program services may be having on the consultants and qualified contractors.

Whereas the participant survey produced significantly different results by delivery method, the integrated approach did not yield results that were so strikingly disparate between the two groups. This is because the qualified contractors reported significant program influence in their recommendation practices. Therefore, we do not recommend a distinction be made in the net-to-gross estimate by delivery method; however, it is still noteworthy in program design to understand the decreased level of qualified contractors' influence on customers' decision to install insulation as reported from the participants' perspectives.

## **APPENDIX A: SUPPLY-SIDE SURVEY**

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Hello, I'm calling from PA Consulting Group. We are speaking with **[consultants/qualified contractors]** about their participation in Home Performance with ENERGY STAR and their customers. Could I speak with **[named sample in database]**?

- 1 Yes
- 2 No (ATTEMPT TO CONVERT)

I'm not selling anything; I'd just like to ask your opinion about this program. I'd like to assure you that your responses will be kept confidential and your individual responses will not be revealed to anyone.

**(Who is doing this study:** The Public Service Commission of Wisconsin, which oversees Focus on Energy and the Home Performance with ENERGY STAR Program, is overseeing evaluations of the energy efficiency equipment being installed through different programs.)

**(Why are you conducting this study:** Studies like this help the state of Wisconsin better understand contractors' opinions about the types of equipment being rebated through programs.)

**(Timing:** This survey should take less than 15 minutes of your time. Is this a good time for us to speak with you? IF NOT, SET UP CALL BACK APPOINTMENT OR OFFER TO LET THEM CALL US BACK AT 1-800-445-5070.)

**(Sales concern:** I am not selling anything; we would simply like to learn about your experience with the program. Your responses will be kept confidential. If you would like to talk with someone from the Public Service Commission about this study, feel free to call Oscar Bloch at 608-264-8267. If you would like to talk with the Home Performance with ENERGY STAR program, feel free to call Carter Dedolph at 608-249-9322).

### **BACKGROUND QUESTIONS**

A1. First, I want to ask a few questions about yourself and the company you work for. In what year did you first become involved with Home Performance with ENERGY STAR?

- 1 2009
- 2 2008
- 3 2007
- 4 2006
- 5 2005
- 6 2004
- 7 Before 2004
- 8 Don't know/unsure
- 9 Other (RECORD)

A2. Have you been with (company name) that entire time, or did you work with Home Performance with ENERGY STAR prior to joining (company name)?

- 1 Have been with company that entire time
- 2 Worked with program prior to joining the company
- D Don't know
- R Refused

A3. How did you first hear about the Home Performance with ENERGY STAR Program?  
(INDICATE ALL THAT APPLY. PROBE: ANYTHING ELSE?)

- 1 Through Focus on Energy contact
- 2 Attended workshop or training seminar and learned about the program
- 3 Through a manufacturer/supply house
- 4 From a customer
- 5 Learned about the program at trade show
- 6 Saw/heard ads for the program (Where?\_\_\_\_\_)
- 7 Attended a program-sponsored information session
- 8 Focus on Energy website
- 9 Business colleague
- 10 Business customer
- 11 Other \_\_\_\_\_
- 12 Don't know/unsure

A6. On average, about how many residential households did you provide audit services to in 2009, including households serviced outside of the program?

A7a. For about what percentage of all assessments completed in 2009 did you recommend attic insulation be installed?

\_\_\_\_\_ %

A7b. And for about what percentage of all assessments completed in 2009 did you recommend sidewall insulation be installed?

\_\_\_\_\_ %

- A7c. You said before that you provided audits to [A6] households in 2009. Of those households, about what percentage participated in the Home Performance with ENERGY STAR program in 2009?

[IF R SAID DK OR REF AT A6, SAY: "You said before that you aren't sure of the total number of households show "you gave audits to in 2009. Do you think you can estimate what percentage participated in the Home Performance with ENERGY STAR program in 2009?"]

\_\_\_\_\_ %

- A8a. In addition to providing audit services to customers, do you sell and/or install insulation to customers? [Indicate all that apply]

- 1 No, provide audit services only (*SKIP TO A9*)
- 2 Sell insulation
- 3 Install insulation
- 4 Other (*SPECIFY*)
- 5 Don't know
- 6 Refused

- A8b. [IF A8a=2] For about how many households did you sell insulation in 2009?

\_\_\_\_\_ Number of homes  
D Don't know  
R Refused

- A8c. [IF A8a=3] In about how many households did you install insulation in 2009?

\_\_\_\_\_ Number of homes  
D Don't know  
R Refused

- A9. How are households generally referred to you? (Indicate all that apply)

- 1 From Focus on Energy website
- 2 From a meeting/exhibit/trade show (*SPECIFY NAME, DATE*)
- 3 A contractor/insulation vendor
- 4 From a designer/architect (*SPECIFY NAME*)
- 5 From family, neighbor, or friend
- 6 Mailing/Literature (*SPECIFY*)
- 7 Utility company
- 8 Trade ally (non-contractor)
- 9 Other (*SPECIFY*)

A10. (IF A9 IS MORE THAN ONE SOURCE) From which of the sources mentioned do you receive the most referrals? (*INDICATE ONLY ONE*)

- 1 From Focus on Energy website
- 2 From a meeting/exhibit/trade show (*SPECIFY NAME, DATE*)
- 3 A contractor/insulation vendor
- 4 From a designer/architect (*SPECIFY NAME*)
- 5 From family, neighbor, or friend
- 6 Mailing/Literature (*SPECIFY*)
- 7 Utility company
- 8 Trade ally (non-contractor)
- 9 Other (*SPECIFY*)

A11. What other Focus on Energy programs are you involved with? (*INDICATE ALL THAT APPLY. PROBE: ANYTHING ELSE?*)

- 1. ENERGY STAR Products
- 2 Targeted Home Performance with ENERGY STAR
- 3 Wisconsin ENERGY STAR Homes (WESH)
- 4 Business Programs (*SPECIFY FOR SECTOR*)
- 5 ACES (Apartment and Condominium Energy Services)
- 6 Milwaukee Community Pilot/Together We Save
- 7 Other (*RECORD*)
- 8 None, not involved in other Focus on Energy programs
- 9 Don't know
- 10 Refused

**Confirmation of households (ONLY ASK IF HAVE <5 PROJECTS)**

S1 We would like to ask you about [# OF HOUSEHOLDS] specific households in this survey. These are: [READ OFF PARTICIPANT NAMES AND ADDRESSES]. Do you recall these specific projects?

- 1 Yes, recall all of them
- 2 Yes, only recall some of them
- 3 No, don't recall any of them specifically
- D Don't know
- R Refused

S2 [IF ONLY RECALL SOME OF THEM] Which of these projects do you recall? [LIST PROJECTS AND RECORD WHICH PROJECTS RECALL]

---

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S3 Is there someone else we could speak with who might recall the other projects?

- 1 Yes (*REQUEST CONTACT INFORMATION AND ATTEMPT TO REACH*)
- 2 No
- D Don't know
- R Refused

*(IF DOESN'T RECALL SPECIFIC PROJECTS, THAN ASK ABOUT ALL PROJECTS DONE IN CY09 THROUGH PROGRAM)*

### PROGRAM ATTRIBUTION QUESTIONS

*Note: wording is distinguished based on whether we are asking about a specific household (for consultants/contractors with fewer than 5 participants in the data) or in general.*

#### **ALLIES WITH 5+ PROJECTS IN DATA OR DO NOT RECALL SPECIFIC HOUSEHOLD**

**INFORMATION:** For my next questions, I would like you to think about the households you served through the Home Performance with ENERGY STAR program in 2009. I will be asking you to think about insulation measures, specifically attic and wall insulation.

**ALLES WITH <5 PROJECTS IN DATA:** I would like you to think about the specific households we discussed before this interview began. I will go through the series of questions for each. First, let's think about the participant that lived at [PROVIDE ADDRESS]. *Complete the C and D series questions for each household they recall providing services to.*

#### ***Attic Insulation***

B1a. [IF 5+ PROJECTS] What percent of households you serviced through Home Performance with ENERGY STAR in 2009 had specific plans to install *attic insulation* prior to your visit with them?

- \_\_\_\_\_ %
- D Don't know
  - R Refused

B1b. [IF HOUSEHOLD SPECIFIC] Did this customer have specific plans to install *attic insulation* prior to your visit with them?

- 1 Yes
- 2 No
- D Don't know
- R Refused

B2. [ IF B1b <> YES OR B1a = 0, SKIP] How did they know they needed the attic insulation? (INDICATE ALL THAT APPLY)

- 1 A contractor spoke with them
- 2 Their own assessment
- 3 Felt the homes were cold/drafty
- 4 Had ice damming
- 5 Their own prior experience
- 6 Other (RECORD)

B3a. [IF 5+ PROJECTS] If the program rebate or the information and services you provided had not been available through the Home Performance with ENERGY STAR Program, what percentage of the households you served through the program would have added the attic insulation in their home at the time they did?

\_\_\_\_\_ %  
D Don't know  
R Refused

B3b. [IF HOUSEHOLD SPECIFIC] If the program rebate or the information and services you provided had not been available through the Home Performance with ENERGY STAR Program, would this household have added the attic insulation at the time they did?

- 1 Yes
- 2 No
- D Don't know
- R Refused

B4a. [IF 5+ PROJECTS] And of those that would have installed attic insulation without the program, what percentage of them would have installed attic insulation at R-values that were at or above program requirements?

\_\_\_\_\_ %  
D Don't know  
R Refused

B4b. [IF HOUSEHOLD SPECIFIC] And would this household have installed attic insulation at R-values that were at or above program requirements without the program?

- 1 Yes
- 2 No
- D Don't know
- R Refused



- B5. On a 0 to 10 scale, with 0 being not at all likely and 10 being very likely, how likely is that (this household/these households) would have installed the same R-value of attic insulation had they not received the rebate through the Home Performance with ENERGY STAR program?

\_\_\_\_\_ 0 to 10 rating  
D Don't know  
R Refused

- B6. On a scale of 0 to 10, where 0 is not at all influential and 10 is extremely influential, how influential do you believe the rebate was in (this household's/households') decision to install attic insulation to Focus on Energy specifications?

\_\_\_\_\_ 0 to 10 rating  
D Don't know  
R Refused

- B7. On a scale from 0 to 10, where 0 is not at all influential and 10 is extremely influential, how influential do you believe the information and services you provided to them as a (contractor/qualified consultant) was in their decision to install the attic insulation to Focus on Energy specifications?

\_\_\_\_\_ 0 to 10 rating  
D Don't know  
R Refused

- B8. On a scale from 0 to 10, where 0 is not at all influential and 10 is extremely influential, how influential do you believe the overall program was in their decision to install the attic insulation to Focus on Energy specifications?

\_\_\_\_\_ 0 to 10 rating  
D Don't know  
R Refused

### **Sidewall Insulation**

Now I want to ask you similar questions about sidewall insulation.

- C1a. [IF 5+ PROJECTS] What percent of households you serviced through Home Performance with ENERGY STAR in 2009 had specific plans to install *sidewall insulation* prior to your visit with them?

\_\_\_\_\_ %  
D Don't know  
R Refused

C1b. [IF HOUSEHOLD SPECIFIC] Did this customer have specific plans to install *sidewall insulation* prior to your visit with them?

- 1 Yes
- 2 No
- D Don't know
- R Refused

C2. [ IF C1b <> YES OR C1a = 0, SKIP] How did they know they needed the sidewall insulation? (*INDICATE ALL THAT APPLY*)

- 1 A contractor spoke with them
- 2 Their own assessment
- 3 Felt the homes were cold/drafty
- 4 Had ice damming
- 5 Their own prior experience
- 6 Other (*RECORD*)

C3a. [IF 5+ PROJECTS] If the program rebate or the information and services you provided had not been available through the Home Performance with ENERGY STAR Program, what percentage of the households you served through the program would have added the sidewall insulation in their home at the time they did?

- \_\_\_\_\_ %
- D Don't know
  - R Refused

C3b. [IF HOUSEHOLD SPECIFIC] If the program rebate or the information and services you provided had not been available through the Home Performance with ENERGY STAR Program, would this household have added the sidewall insulation at the time they did?

- 1 Yes
- 2 No
- D Don't know
- R Refused

C4a. [IF 5+ PROJECTS] And of those that would have installed sidewall insulation at R-values that were at or above program requirements?

- \_\_\_\_\_ %
- D Don't know
  - R Refused

C4b. [IF HOUSEHOLD SPECIFIC] And would this household have installed sidewall insulation at R-values that were at or above program requirements without the program?

- 1 Yes
- 2 No
- D Don't know
- R Refused

C5. On a 0 to 10 scale, with 0 being not at all likely and 10 being very likely, how likely is that (this households/these households) would have installed the same R-value of sidewall insulation had they not received the rebate through the Home Performance with ENERGY STAR program?

- \_\_\_\_\_ 0 to 10 rating
- D Don't know
  - R Refused

C6. On a scale of 0 to 10, where 0 is not at all influential and 10 is extremely influential, how influential do you believe the rebate was in (this households/these households') decision to install sidewall insulation to Focus on Energy specifications?

- \_\_\_\_\_ 0 to 10 rating
- D Don't know
  - R Refused

C7. On a scale from 0 to 10, where 0 is not at all influential and 10 is extremely influential, how influential do you believe the information and services you provided to them as a (contractor/qualified consultant) was in their decision to install the sidewall insulation to Focus on Energy specifications?

- \_\_\_\_\_ 0 to 10 rating
- D Don't know
  - R Refused

C8. On a scale from 0 to 10, where 0 is not at all influential and 10 is extremely influential, how influential do you believe the overall program was in their decision to install the sidewall insulation to Focus on Energy specifications?

- \_\_\_\_\_ 0 to 10 rating
- D Don't know
  - R Refused

## TRAINING AND EDUCATION

I just have a few more questions for you on your participation with Home Performance with ENERGY STAR.

D1a. As a participating (consultant/qualified contractor), have you received any training or assistance from WECC? [INTERVIEWER NOTE: ASSISTANCE COULD BE MENTORING OR MONETARY]

- 1 Yes → WHAT DID YOU RECEIVE (RECORD RESPONSE)
- 2 No
- D Don't know

D1b. As a participating (consultant/qualified contractor), have you received any certification from WECC?

- 1 Yes → WHAT DID YOU RECEIVE (RECORD RESPONSE)
- 2 No
- D Don't know

D2. (If Yes D1b = Yes) Has this training or assistance specifically addressed attic or sidewall insulation?

- 1 Yes
- 2 No
- D Don't know

D4 What tools are available from Focus on Energy that help you sell program-qualifying insulation to program participants? (*RECORD VERBATIM. PROBE FOR INFRARED CAMERAS FOR SIDEWALL INSULATION IF NOT MENTIONED*)

## ATTIC INSULATION RECOMMENDATION AND INFLUENCE QUESTIONS

E1. Have any of your recommendation practices regarding attic insulation changed since you first participated in the program in (INSERT YEAR FROM A1)?

- 1 Yes
- 2 No (*SKIP TO E4*)
- D Don't know

E2. How has it changed? (*RECORD VERBATIM*)

E3. Why do you think your recommendation practices changed? (*RECORD VERBATIM*)

E4. In what percentage of your residential projects did you recommend program qualifying levels of attic insulation prior to your involvement with the program?

- \_\_\_ Enter percentage
- D Don't know
- R Refused

E5. In what percentage of your residential projects do you currently recommend program qualifying levels of attic insulation?

- \_\_\_ Enter percentage
- D Don't know
- R Refused

E6. On a scale of 0 to 10, with 0 meaning no influence and 10 meaning high influence, how influential was the program in your changes in your attic insulation recommendation practices?

- \_\_\_\_\_ 0 to 10 rating
- D Don't know
- R Refused

E7. Please tell me in your own words what impact, if any, has the program had on your recommendation practices for attic insulation? (*RECORD VERBATIM*)

**SIDEWALL INSULATION RECOMMENDATION AND INFLUENCE QUESTIONS**

F1. Have any of your recommendation practices regarding sidewall insulation changed since you first participated in the program in (INSERT YEAR FROM A1)?

- 1 Yes
- 2 No
- D Don't know

F2. How has it changed? (*RECORD VERBATIM*)

F3. Why do you think your recommendation practices changed? (*RECORD VERBATIM*)

F4. In what percentage of your residential projects did you recommend program qualifying levels of sidewall insulation prior to your involvement with the program?

- \_\_\_ Enter percentage
- D Don't know
- R Refused

F5. In what percentage of your residential projects do you currently recommend program qualifying levels of sidewall insulation?

- \_\_\_ Enter percentage
- D Don't know
- R Refused

F6. On a scale of 0 to 10, with 0 meaning no influence and 10 meaning high influence, how influential was the information and/or requirements of the program in changes in your sidewall insulation recommendation practices?

- \_\_\_\_\_ 0 to 10 rating
- D Don't know
- R Refused

F7. On a scale of 0 to 10, with 0 meaning not at all useful and 10 meaning very useful, how useful are infrared cameras in your ability to influence customers to install sidewall insulation?

- \_\_\_\_\_ 0 to 10 rating
- 1 Do not use infrared cameras
- D Don't know
- R Refused

F8. Please tell me in your own words what impact, if any, has the program had on your recommendation practices for attic insulation? (*RECORD VERBATIM*)

### RECOMMENDATION PRACTICES OUTSIDE OF THE PROGRAM

V1. In 2009, did you recommend program-eligible attic insulation to Wisconsin customers outside of the program?

- 1 Yes
- 2 No (*SKIP TO V4*)
- D Don't know (*SKIP TO V4*)
- R Refused (*SKIP TO V4*)

V2. In 2009, about how many households did you recommend program-qualifying levels of attic insulation outside of the program?

- \_\_\_\_\_ # of households  
D Don't know  
R Refused

V3a. I'm going to read you three statements. For each statement, please tell me whether you agree or disagree that this statement applies to your company.

Our past experience specifying or installing attic insulation through energy efficiency programs has convinced us that this type of insulation is cost effective or beneficial even without a program incentive.

- 1 Agree  
2 Disagree  
D Don't know  
R Refused

V3b. We are better able to identify opportunities to improve customers' attic insulation efficiency because of what we learned and our experience with the Home Performance with ENERGY STAR Program.

- 1 Agree  
2 Disagree  
D Don't know  
R Refused

V3c. We are more likely to discuss energy efficient options with all of our customers when developing project plans for attic insulation because of what we learned and our experience with the program.

- 1 Agree  
2 Disagree  
D Don't know  
R Refused

V4. In 2009, did you recommend program-eligible sidewall insulation to Wisconsin customers outside of the program?

- 1 Yes  
2 No (SKIP TO G1)  
D Don't know (SKIP TO G1)  
R Refused (SKIP TO G1)

V5. In 2009, about how many households did you recommend program-qualifying levels of sidewall insulation outside of the program?

\_\_\_\_\_ # of households  
D Don't know  
R Refused

V6a. Again, please tell us if you agree or disagree with these three statements. Our past experience specifying or installing sidewall insulation through energy efficiency programs has convinced us that this equipment is cost effective or beneficial even without a program incentive.

1 Agree  
2 Disagree  
D Don't know  
R Refused

V6b. We are better able to identify opportunities to improve customers' attic insulation efficiency because of what we learned and our experience with the Home Performance with ENERGY STAR Program.

1 Agree  
2 Disagree  
D Don't know  
R Refused

V6c. We are more likely to discuss energy efficient options with all of our customers when developing project plans for attic insulation because of what we learned and our experience with the program.

1 Agree  
2 Disagree  
D Don't know  
R Refused



## WRAP-UP

I just have a couple more questions for you to wrap up this interview.

G1. One of the purposes of the program is to encourage customers to purchase attic insulation to recommended R levels, which may be higher than they would otherwise purchase. Do you strongly agree, agree, neither agree nor disagree, disagree or strongly disagree that the program is accomplishing this?

- 1 Strongly agree
- 2 Agree
- 3 Neither agree nor disagree
- 4 Disagree
- 5 Strongly agree
- D Don't know
- R Refused

G2. Another objective of the program is to encourage customers to install sidewall insulation. Do you strongly agree, agree, neither agree nor disagree, disagree or strongly disagree that the program is accomplishing this?

- 1 Strongly agree
- 2 Agree
- 3 Neither agree nor disagree
- 4 Disagree
- 5 Strongly agree
- D Don't know
- R Refused

G3. The program also encourages customers to purchase insulation sooner than they had planned to. Do you strongly agree, agree, neither agree nor disagree, disagree or strongly disagree that the program is accomplishing this?

- 1 Strongly agree
- 2 Agree
- 3 Neither agree nor disagree
- 4 Disagree
- 5 Strongly agree
- D Don't know
- R Refused

G4. Finally, the program encourages customers to purchase more insulation, to recommended levels, which may have been higher than they had planned to. Do you strongly agree, agree, neither agree nor disagree, disagree or strongly disagree that the program is accomplishing this?

- 1 Strongly agree
- 2 Agree
- 3 Neither agree nor disagree
- 4 Disagree
- 5 Strongly agree
- D Don't know
- R Refused

G5. Are there any other tools or assistance the program could provide to you to help you sell attic or sidewall insulation? (*RECORD VERBATIM*)

G5a. Since June 30th, 2009 has any other aspect of your business changed dramatically?

(PROBE FOR NUMBER OF CUSTOMERS, SIZE OF BUSINESS, ETC)  
(IF R DOES NOT MENTION IT, PROBE: "Have you noticed any difference in the level of customers due to the energy-efficient tax credit?)

(*RECORD VERBATIM*)

G6. These are all the questions I have for you. Is there anything you'd like to comment on regarding your participation or your customers' participation in this program?  
(*RECORD VERBATIM*)

**APPENDIX B: PARTICIPANT SURVEY**

**Focus on Energy  
Home Performance with ENERGY STAR Participant Survey  
(Insulation Measures)**

**NOTE:**

1. Variable names are in bold type.
2. Questions were asked of all respondents unless indicated otherwise.
3. A code of -8 means the respondent answered “Don’t know”
4. A code of -9 means the respondent Refused to answer the question.

**Measure reviewed:**

- 1 Attic insulation
- 2 Wall insulation

*[SEE RESPONSES IN OPEN ENDS SPREADSHEET]*

**Introduction**

**DIALSCR** Hello, my name is \_\_\_\_\_ and I am calling on behalf of the Wisconsin Focus on Energy Home Performance with ENERGY STAR program. May I speak with [contact name]?

- 1 Yes
- 2 No  
*(Attempt to convert; if R not available, ask for the person who is responsible for making decisions about purchasing new insulation for this property)*

**Identification of Appropriate Decision-Maker(s)**

**C1** Do you recall participating in the Home Performance with ENERGY STAR program?

- 1 Yes (*SKIP TO C5*)
- 2 No
- 8 Don’t know

**C2** Through the Home Performance with ENERGY STAR program, you would have received a rebate for installing [attic insulation/wall insulation/attic and wall insulation]. Do you recall participating in this program?

- 1 Yes (*SKIP TO C5*)
- 2 No
- 8 Don't know

*(ASK IF DOESN'T RECALL ANY OF THESE MEASURES)*

**C3** Is it possible that someone else would know about the insulation you received a rebate for through the Home Performance with ENERGY STAR program? (RECORD ONE NUMBER)

- 1 Yes
- 2 No (*THANK AND TERMINATE*)
- 8 Don't know (*THANK AND TERMINATE*)
- 9 Refused (*THANK AND TERMINATE*)

**C4** May I please speak with that person? (RECORD ONE NUMBER)

- 1 Yes (*BEGIN THE SURVEY AGAIN WITH THIS NEW RESPONDENT*)
- 2 No (*TERMINATE*)
- 8 Don't know (*TERMINATE*)
- 9 Refused (*TERMINATE*)

**C5** Our records show that you received rebates to install [attic insulation/wall insulation/attic and wall insulation] through the program. Is this correct?

- 1 Yes (*SKIP TO C7*)
- 2 No

**C6** What is incorrect? (*DO NOT READ; INDICATE ONE*)

- 1 Did not receive any insulation  
(*PROBE FOR ALTERNATE CONTACT, ELSE TERMINATE*)
- 2 Did not receive attic insulation, but received wall insulation
- 3 Did not receive wall insulation, but received attic insulation

*(IF SAMPLE=ATTIC AND WALL INSULATION AND (C6=2 OR 3) CONTINUE BUT SKIP QUESTIONS FOR INSULATION TYPE THEY DID NOT RECEIVE.)*

*(IF (C6=1) OR (SAMPLE=ATTIC AND C6=2) OR (SAMPLE=WALL AND C6=3) THANK AND TERMINATE)*

**C7** Were you personally involved in the decision to install the insulation through this program?

- 1 Yes (*SKIP TO N1*)
- 2 No

**C8** We would like to speak with the person who was involved in the decision. Is there someone else we should speak with?

- 1 Yes
- 2 No

**C9** Who should we contact?  
(*PROBE: IF MORE THAN ONE DECISION MAKER, ASK R WHO WAS RESPONSIBLE FOR MAKING THE ULTIMATE DECISION*)

For C9\_1a-d to C9\_4a-d

*[SEE RESPONSES IN OPEN ENDS SPREADSHEET]*

- C9\_1a** Name
- C9\_1b** Title
- C9\_1c** Phone number
- C9\_1d** Probe for role
- C9\_2a** Name
- C9\_2b** Title
- C9\_2c** Phone number
- C9\_2d** Probe for role
- C9\_3a** Name
- C9\_3b** Title
- C9\_3c** Phone number
- C9\_3d** Probe for role
- C9\_4a** Name
- C9\_4b** Title
- C9\_4c** Phone number
- C9\_4d** Probe for role

*(IF R WAS INVOLVED IN THE DECISION, CONTINUE; ELSE TERMINATE AND DIAL ONE OF DECISION MAKERS IN C9)*

N1 First, how did you hear about the services offered through the Home Performance with ENERGY STAR program?  
(DO NOT READ; INDICATE ALL THAT APPLY)

For N1\_1 through N1\_15

0 Not  
1 Mentioned

**N1\_1** From Focus on Energy website  
**N1\_2** From a meeting/exhibit/trade show (SPECIFY NAME, DATE)  
**N1\_3** From the person conducting an audit on my home/consultant  
**N1\_4** From a contractor/insulation vendor (SPECIFY NAME)  
**N1\_5** From a designer/architect (SPECIFY NAME)  
**N1\_6** From family, neighbor, or friend  
**N1\_7** Mailing/Literature (SPECIFY)  
**N1\_8** Radio advertisement  
**N1\_9** Newspaper advertisement  
**N1\_10** Television advertisement  
**N1\_11** Other advertisement (SPECIFY)  
**N1\_12** Utility company  
**N1\_13** Other (SPECIFY)  
**N1\_14** Don't know  
**N1\_15** Refused

**N1\_2** From a meeting/exhibit/trade show (SPECIFY NAME, DATE)  
  
[SEE RESPONSES IN OPEN ENDS SPREADSHEET]

**N1\_4** From a contractor/insulation vendor (SPECIFY NAME)  
  
[SEE RESPONSES IN OPEN ENDS SPREADSHEET]

**N1\_5** From a designer/architect (SPECIFY NAME)  
  
[SEE RESPONSES IN OPEN ENDS SPREADSHEET]

**N1\_7** Mailing/Literature (SPECIFY)  
  
[SEE RESPONSES IN OPEN ENDS SPREADSHEET]

**N1\_11** Other advertisement (SPECIFY)  
  
[SEE RESPONSES IN OPEN ENDS SPREADSHEET]

**N1\_13** Other (*SPECIFY*)  
*[SEE RESPONSES IN OPEN ENDS SPREADSHEET]*

**N2** Our records show that a [consultant/qualified contractor] audited your home. Did the [consultant/qualified contractor] provide you with a written report about the Home Performance evaluation conducted on your home?

- 1 Yes
- 2 No
- 8 Don't know
- 9 Refused

**N3** Did this [consultant/qualified contractor] mention that you could receive a rebate if you purchased and installed [show measure(s)] through the program?

- 1 Yes
- 2 No
- 8 Don't know
- 9 Refused

**N4** What other information did the [consultant/qualified contractor] provide to you related to your insulation levels and needs? (*RECORD VERBATIM*)

*[SEE RESPONSES IN OPEN ENDS SPREADSHEET]*

**N5** Did you or will you also receive financial assistance or a rebate from someone other than the Home Performance with ENERGY STAR program for purchasing the insulation?  
(*NOTE: could be in the form of a tax credit as well*)

- 1 Yes
- 2 No (*SKIP TO N9*)
- 8 Don't know (*SKIP TO N9*)
- 9 Refused (*SKIP TO N9*)

N6 Who did you receive it from? (*READ LIST; INDICATE ALL THAT APPLY*)

For N6\_1 through N6\_8

- 0 Not mentioned
- 1 Mentioned

- N6\_1** Installation contractor
- N6\_2** Manufacturer
- N6\_3** Local government
- N6\_4** Federal tax credit
- N6\_5** Utility company
- N6\_6** Someone else (*SPECIFY*)
- N6\_7** Don't know
- N6\_8** Refused

**N6\_6** Someone else (*SPECIFY*)

*[SEE RESPONSES IN OPEN ENDS SPREADSHEET]*

N7 How did you first find out about these other sources of assistance?  
(*DO NOT READ; INDICATE ALL THAT APPLY*)

For N7\_1 through N7\_8

- 0 Not mentioned
- 1 Mentioned

- N7\_1** Consultant/Qualified contractor that did audit
- N7\_2** Installing contractor
- N7\_3** Television advertisements
- N7\_4** Radio advertisements
- N7\_5** Newspaper
- N7\_6** Other (*SPECIFY*)
- N7\_7** Don't know
- N7\_8** Refused

**N7\_6** Other (*SPECIFY*)

*[SEE RESPONSES IN OPEN ENDS SPREADSHEET]*



N8 About how much was that other financial assistance?  
(RECORD TO THE NEAREST DOLLAR)

- \_\_\_\_\_ Amount in dollars
- 8 Don't know
  - 9 Refused

(Ask N2 through O5 for each measure rebated.)

**N9\_1-2** I would like to ask you some specific questions about the [measure]. You may have received a rebate for other equipment or services as well but we are focusing on insulation.

Our records indicate that you received about [incentive amount] from the Home Performance with ENERGY STAR program to offset the cost of the [measure]. Does this amount sound about right?

*[INTERVIEWER NOTE: RESPONDENTS MAY HAVE ALSO RECEIVED A COMPLETION REWARD OR COMFORT BONUS, WHICH THEY MAY MENTION]*

- 1 Yes (SKIP TO N8)
- 2 No
- 8 Don't know (SKIP TO N8)
- 9 Refused (SKIP TO N8)

**N10\_1-2** What would you estimate to be the actual amount of the rebate you received?

- \_\_\_\_\_ Amount in dollars
- 8 Don't know
  - 9 Refused

**N11\_1-2** At exactly what point in the planning, purchasing or installation process were you when you first talked to the [consultant/qualified contractor]? (READ LIST; INDICATE ONLY ONE)

- 1 During the initial planning before talking to contractors
- 2 While talking to contractors/getting estimates for the project
- 3 After planning but before installation
- 4 Other (SPECIFY)
- 8 Don't know
- 9 Refused

**N11\_4\_1-2** Other (SPECIFY)

*[SEE RESPONSES IN OPEN ENDS SPREADSHEET]*

**N12\_1-2** Were you specifically looking to install the [measure] at that time?

- 1 Yes
- 2 No
- 8 Don't know
- 9 Refused

**N13\_1-2** Had you researched the cost of [measure] before the audit?

- 1 Yes
- 2 No
- 8 Don't know
- 9 Refused

*(IF N11 = DURING PLANNING OR AFTER PLANNING)*

**N14\_1-2** Did you have to change your plans in order to qualify for the rebate through the Home Performance with ENERGY STAR Program?

- 1 Yes
- 2 No *(SKIP TO T1)*
- 8 Don't know *(SKIP TO T1)*
- 9 Refused *(SKIP TO T1)*
- 3 Skip Error

*(IF YES)*

**N15\_1-2** Could you explain what changes you made? (RECORD VERBATIM)

*[SEE RESPONSES IN OPEN ENDS SPREADSHEET]*

**Direct Attribution—Timing**

**T1\_1-2** If the rebate for the [measure] had not been available through the Home Performance with ENERGY STAR program, would you have added this [measure] in your home at the same time?

- 1 Yes *(SKIP TO EQ1)*
- 2 No
- 8 Don't know
- 9 Refused

**T2\_1-2** Would you have installed it at a later date?  
(*PROVIDE INSTALLATION DATE IF NECESSARY*)

- 1 Yes
- 2 No (*SKIP TO EQ1*)
- 8 Don't know
- 9 Refused

**T3\_1-2** When do you think you would have installed the insulation??

- \_\_\_\_\_ Months
- 8 Don't know
- 9 Refused

**T3\_1\_1-2** \_\_\_\_\_ Years (*SKIP TO EQ1*)

- 8 Don't know
- 9 Refused

(*IF DON'T KNOW*)

**T4\_1-2** Do you think you would have installed it within...? (*READ LIST*)

- 1 1 year
- 2 1-2 years
- 3 3-4 years
- 4 Never
- 8 Don't know
- 9 Refused

<b>Efficiency Awareness Questions</b>
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*(NOTE TO WECC – THESE EFFICIENCY QUESTIONS WILL BE USED TO ASSESS EDUCATION, WHICH IS A COMPONENT OF THE PROGRAM LOGIC. IT WILL NOT BE USED IN THE ALGORITHM.)*

**EQ1\_1-2** Prior to participating in the Home Performance with ENERGY STAR program, did you know that [measure type] came in different ranges of efficiency levels, or R-values?

- 1 Yes
- 2 No (*SKIP TO EQ3*)
- 8 Don't know (*SKIP TO EQ3*)
- 9 Refused (*SKIP TO EQ3*)

**EQ2\_1-2** How did you first learn that insulation comes in different ranges of efficiency levels? (*DO NOT READ; INDICATE ALL THAT APPLY*)

For EQ2\_1-2\_1 through EQ2\_1-2\_12

- 0 Not mentioned
- 1 Mentioned

- EQ2\_1-2\_1** Family/friends/neighbor
- EQ2\_1-2\_2** Focus on Energy → Who at Focus on Energy?
- EQ2\_1-2\_3** Home Performance with ENERGY STAR Consultants
- EQ2\_1-2\_4** Home Performance with ENERGY STAR qualified contractor
- EQ2\_1-2\_5** A non-program contractor
- EQ2\_1-2\_6** News articles
- EQ2\_1-2\_7** Radio advertisement
- EQ2\_1-2\_8** Television advertisement
- EQ2\_1-2\_9** Focus on Energy website
- EQ2\_1-2\_10** Other (*SPECIFY*)
- EQ2\_1-2\_11** Don't know
- EQ2\_1-2\_12** Refused

**EQ2\_1-2\_2** Who at Focus on Energy?

*[SEE RESPONSES IN OPEN ENDS SPREADSHEET]*

**EQ2\_1-2\_10** Other (*SPECIFY*)

*[SEE RESPONSES IN OPEN ENDS SPREADSHEET]*

*(IF EQ2 IS MISSING OR EQ2 <> CONTRACTOR, CONSULTANT, OR FOCUS ON ENERGY)*

**EQ3\_1-2** Did a contractor, Home Performance consultant, or a Focus on Energy representative talk with you about the range of efficiency levels available for [measure type]?

- 1 Yes
- 2 No
- 8 Don't know
- 9 Refused

**Overall Impacts Questions**

**O1\_1-2** On a 0 to 10 scale, with 0 being not at all likely and 10 being very likely, how likely is that you would have bought the same [measure] if you had not received this incentive through the Home Performance with ENERGY STAR program?

- \_\_\_\_\_ Response 0 – 10
- 8 Don't know
- 9 Refused

**O2\_1-2** How much influence did the [consultant/qualified contractor] have in your decision to install the [measure] to the specifications installed? Please rate the influence on a 0 to 10 scale, where 0 is not at all influential and 10 is extremely influential.

- \_\_\_\_\_ Response 0 – 10
- 8 Don't know
- 9 Refused

**O3\_1-2** Did the [consultant/qualified contractor]...  
*(READ CATEGORIES AND RECORD RESPONSE)*

For O3a\_1-2 through O3e\_1-2

- 1 Yes
- 2 No
- 8 Don't know
- 9 Refused

- O3a\_1-2** Tell you about the different ranges of insulation levels you could install?
- O3b\_1-2** Refer you to other Focus on Energy programs?
- O3c\_1-2** Identify additional equipment you could install to save energy?
- O3d\_1-2** Discuss behavioral changes you could make to save energy?

**O3e\_1-2** (PROBE: WHAT CHANGES?  
Did the [consultant/qualified contractor] discuss anything else with you?  
(PROBE: WHAT ELSE?)

*[SEE RESPONSES IN OPEN ENDS SPREADSHEET]*

**O3d\_1-2** PROBE: WHAT CHANGES?

*[SEE RESPONSES IN OPEN ENDS SPREADSHEET]*

**O4\_1-2** Can you please describe what impact, if any, the Home Performance with ENERGY STAR program had on your decision to install the [measure] at the time you did?

*[SEE RESPONSES IN OPEN ENDS SPREADSHEET]*

*(ASK IF RECEIVED OTHER ASSISTANCE—N5= YES)*

**O5\_1-2** Earlier you said you also received financial assistance from [FILL WITH N6 RESPONSE]. On a 0 to 10 scale, with 0 being not at all likely and 10 being very likely, how likely is that you would have bought the same level of [measure] if you had not received this other financial incentive?

\_\_\_\_\_ Response 0 – 10  
-8 Don't know  
-9 Refused

<b>Air sealing</b>
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*(IF DATABASE SAID DID NOT RECEIVE AIR SEALING SKIP TO O1)*

**AS1** Our records also indicate that you received air sealing. Did you know about air sealing prior to your meeting with the [consultant/qualified contractor]?

- 1 Yes
- 2 No (*SKIP TO EQ6*)
- 3 Did not receive air sealing/am not aware of air sealing (*SKIP TO O1*)
- 8 Don't know (*SKIP TO O1*)
- 9 Refused (*SKIP TO O1*)

**AS2** How did you first hear about air sealing?  
*(DO NOT READ; INDICATE ALL THAT APPLY)*

For AS2\_1 through AS2\_12

- 0 Not mentioned
- 1 Mentioned

**AS2\_1** Family/friends/neighbor  
**AS2\_2** Focus on Energy → Who at Focus on Energy?  
**AS2\_3** Home Performance with ENERGY STAR Consultants  
**AS2\_4** Home Performance with ENERGY STAR qualified contractor  
**AS2\_5** A non-program contractor  
**AS2\_6** News articles  
**AS2\_7** Radio advertisement  
**AS2\_8** Television advertisement  
**AS2\_9** Focus on Energy website  
**AS2\_10** Other (*SPECIFY*)  
**AS2\_11** Don't know  
**AS2\_12** Refused

**AS2\_10** Other (*SPECIFY*)

*[SEE RESPONSES IN OPEN ENDS SPREADSHEET]*

**AS3** Why did you choose to have air sealing done in your home?  
(DO NOT READ; INDICATE ALL THAT APPLY)

For AS3\_1 through AS3\_9

- 0 Not mentioned
- 1 Mentioned

- AS3\_1** Wanted improved comfort
- AS3\_2** Wanted improved indoor air quality
- AS3\_3** Wanted to reduce energy costs
- AS3\_4** Wanted to reduce energy consumption
- AS3\_5** Needed it to have insulation installed
- AS3\_6** Received an additional incentive if we completed air sealing
- AS3\_7** Other (*SPECIFY*)
- AS3\_8** Don't know
- AS3\_9** Refused

(IF RECEIVED ATTIC INSULATION)

**AS4** Did the [consultant/qualified contractor] discuss with you the benefits of having air sealing completed when installing attic insulation?

- 1 Yes
- 2 No
- 8 Don't know
- 9 Refused

**AS5** Was air sealing a requirement for receiving attic insulation?

- 1 Yes
- 2 No
- 8 Don't know
- 9 Refused



<b>Spillover</b>
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**S1** Since participating in the program, are you considering or have you installed additional energy-efficient equipment without assistance through a Focus on Energy program?

- 1 Yes, considering
- 2 Yes, already have implemented
- 3 No, not considering (*SKIP TO S5*)
- 8 Don't know (*SKIP TO S5*)
- 9 Refused (*SKIP TO S5*)

(*IF S1=CONSIDERING OR DONE*)

**S2** What [are you considering doing/have you done?]  
(*PROBE ON ALL SPECIFICS BELOW; RECORD VERBATIM*)

For S2\_1 through S2\_8

- 0 Not mentioned
- 1 Mentioned

**S2\_1** Water heater  
**S2\_2** HVAC  
**S2\_3** Lighting  
**S2\_4** Water saving devices (showerheads, faucet aerators)  
**S2\_5** Insulation  
**S2\_6** Other (*SPECIFY*)  
**S2\_7** Don't know  
**S2\_8** Refused  
**S2A** Location

For S2a1 through S2a6

- \_\_\_\_\_ Location
- 8 Don't know
- 9 Refused

**S2a1** Water heater  
**S2a2** HVAC  
**S2a3** Lighting  
**S2a4** Water saving devices (showerheads, faucet aerators)  
**S2a5** Insulation  
**S2a6** Other (*SPECIFY*)

**S2B** Quantity

For S2b1 through S2b6

- \_\_\_\_\_ Number considering/purchased  
 -8 Don't know  
 -9 Refused

- S2b1** Water heater
- S2b2** HVAC
- S2b3** Lighting
- S2b4** Water saving devices (showerheads, faucet aerators)
- S2b5** Insulation
- S2b6** Other (*SPECIFY*)

**S3** How do you know that this is energy efficient?  
 (DO NOT READ; INDICATE ALL THAT APPLY)

For S3\_1 through S3\_6

- 0 Not mentioned
- 1 Mentioned

- S3\_1** Previous experience
- S3\_2** Same insulation as received through program
- S3\_3** ENERGY STAR label
- S3\_4** Home Performance with ENERGY STAR consultant/qualified contractor told me it is
- S3\_5** Other (*SPECIFY*)
- S3\_6** Don't know

**S3\_5** Other (*SPECIFY*)

*[SEE RESPONSES IN OPEN ENDS SPREADSHEET]*

**S4a** Did your previous participation in the Home Performance with ENERGY STAR Program influence your decision to install this/these energy efficiency improvements on your own?

- 1 Yes
- 2 No (*SKIP TO S5*)
- 8 Don't know (*SKIP TO S5*)

**S4b** What role did your previous participation in the program have on your decision to install this/these energy efficiency improvements?  
(RECORD VERBATIM; PROBE TO DETERMINE IF WAS SOLE CAUSE OR ONE OF SEVERAL REASONS)

*[SEE RESPONSES IN OPEN ENDS SPREADSHEET]*

**S5** On a 0 to 10 scale, where 0 is not at all influential and 10 is very influential, how influential was the information provided to you by the [consultant /qualified contractor] in your decision to install the insulation?

- \_\_\_\_\_ Response 0 – 10  
 -8 Don't know  
 -9 Refused

**Satisfaction**

**S6** What benefits, if any, have you realized in your home as a result of installing the [attic insulation/wall insulation/attic and wall insulation] through the Home Performance with ENERGY STAR program? Did you experience... (ROTATE. READ LIST, RECORD RESPONSE)

For S6\_a through S6\_e

- 1 Yes  
 2 No  
 -8 Don't know  
 -9 Refused

- S6** Reduced energy costs
- S6\_b** Reduced energy usage
- S6\_c** Increased comfort
- S6\_d** Better understanding of energy efficient options
- S6\_e** Anything else? (*SPECIFY*)

*[SEE RESPONSES IN OPEN ENDS SPREADSHEET]*

**S7** Would you participate in this program again if you purchased a home in the near future?

- 1 Yes  
 2 No  
 -8 Don't know  
 -9 Refused

**S8** Have you recommended the program to others?

- 1 Yes
- 2 No
- 8 Don't know
- 9 Refused

**S9** What changes, if any, to the program would you recommend?  
(RECORD VERBATIM)

*[SEE RESPONSES IN OPEN ENDS SPREADSHEET]*

### Additional Demographics

We're almost finished. I just have a few additional questions about your household to make sure we're getting a representative sample of participants.

**D1** Do you own or rent your home?

- 1 Own
- 2 Rent
- 9 Refused

**D2** What is the approximate square footage of the living space of your home?

- \_\_\_\_\_ Number in square feet
- 8 Don't know
  - 9 Refused

**D3** In what year was your home built?

- \_\_\_\_\_ Number in year
- 8 Don't know
  - 9 Refused

**D4** How long have you lived at this home? (READ LIST)

- 1 Less than 1 year
- 2 1-2 years
- 3 3-4 years
- 4 5-10 years
- 5 More than 10 years
- 8 Don't know
- 9 Refused

D5 Including yourself, how many people currently living in your home year-round are in the following age groups?  
(*READ CATEGORIES; RECORD RESPONSE*)

For D5\_1 through D5\_6

\_\_\_\_\_ Number of persons  
-9 Refused

- D5 Under 20 years old
  - D5\_2 20-24 years old
  - D5\_3 25-34 years old
  - D5\_4 35-54 years old
  - D5\_5 55-74 years old
  - D5\_6 75 or older
- TOTAL SHOULD EQUAL D1

D6 Did you borrow money to finance any of the improvements in your home?

- 1 Yes
- 2 No
- 8 Don't know
- 9 Refused

D7 Have you participated or been involved in any other Focus on Energy program?

- 1 Yes
- 2 No
- 8 Don't know
- 9 Refused

D7\_1 Which ones?

*[SEE RESPONSES IN OPEN ENDS SPREADSHEET]*

D8 We will be contacting the individuals that audited participants' homes. Could you please verify the contact information for the [consultant/qualified contractor] that went through your home?

*(SHOW INFORMATION FROM PROGRAM DATABASE AND VERIFY. CAPTURE IF DIFFERENT.)*

- D8\_1 \_\_\_\_\_ Name
- D8\_2 \_\_\_\_\_ Company
- D8\_3 \_\_\_\_\_ Phone

[SEE RESPONSES IN OPEN ENDS SPREADSHEET]

**End**            THANK YOU FOR YOUR TIME.

**GENDER**

- 1    Male
- 2    Female

**LOOPTYPE**    Roster loop flag for stacked file

- 1        Attic loop
- 2        Wall loop

<b>Sample Variables</b>
-------------------------

<b>caseid</b>	PA-assigned ID
<b>fname</b>	First Name
<b>lname</b>	Last Name
<b>address</b>	Address
<b>city</b>	City
<b>phone</b>	Phone number
<b>auditor</b>	Consultant or Qualified Contractor
<b>pkcustid</b>	Customer ID
<b>wphone</b>	Work Phone
<b>air</b>	Air Sealing Flag
<b>attic</b>	Attic Insulation Flag
<b>wall</b>	Wall Insulation Flag
<b>dentered</b>	Date of Participation
<b>airkwh</b>	Air Sealing KWH
<b>attickwh</b>	Attic Insulation KWH
<b>walkwh</b>	Wall Insulation KWH
<b>airkw</b>	Air Sealing KW
<b>attickw</b>	Attic Insulation KW
<b>walkw</b>	Wall Insulation KW
<b>airths</b>	Air Sealing Therms
<b>atticths</b>	Attic Insulation Therms
<b>wallths</b>	Wall Insulation Therms
<b>airreb</b>	Rebate for Air Sealing
<b>atticreb</b>	Rebate for Attic Insulation
<b>wallreb</b>	Rebate for Wall Insulation
<b>pbiznm</b>	Consultant/Contractor Name
<b>pcontact</b>	Consultant/Contractor Business
<b>pphone</b>	Consultant/Contractor phone
<b>totikwh</b>	Total KWH
<b>totiths</b>	Total Therms
<b>aapor</b>	Disposition

**oldattic**      Old attic rebate amount  
**oldwall**      Old wall rebate amount.