High Meadows Fund

# INTERVIEWS WITH VERMONT HOME PERFORMANCE CONTRACTORS AND FUEL DEALERS

Key Players in Vermont's Residential Energy Future

Final Report v.2

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This 6/22/12 version of this report differs only from the 5/25/12 version in a correction for the listing of a contractor in Appendix A, page 33.

Table of Contents

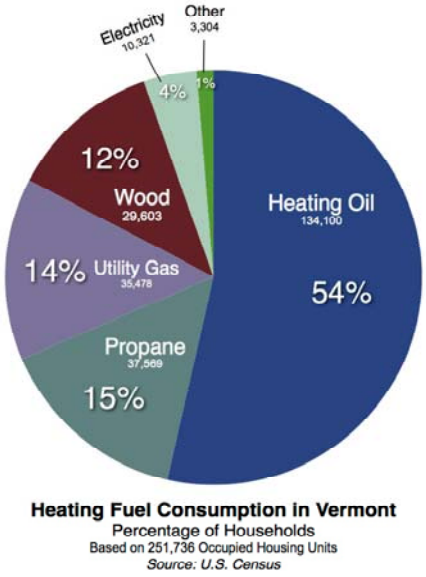
# EXECUTIVE SUMMARY

## INTRODUCTION

The High Meadows Fund engaged Grasteu Associates and Energy Futures Group to conduct interviews of twenty-four home performance[1] professionals and other residential contractors and fourteen residential heating industry professionals between December 2011 and March 2012. This research was designed to help the State of Vermont learn more about the barriers and opportunities related to these two key groups as it charts a path to meet the legislatively-established goal of improving the energy efficiency of 80,000 homes by 2020. Our conversations with these two communities were not only insightful and revealing in and of themselves; they also uncovered a synergistic business opportunity potentially of benefit to both home performance contractors and fuel dealers and which may also contribute to meeting the state goal.

Conventional delivered fuels (#2 fuel oil, propane and kerosene) have been the dominant form of residential heating energy in Vermont for at least half a century. However, the total volume of delivered fuels consumed for home heating in Vermont has been declining (see Figure 2). The average Vermont home uses less than half the delivered fuel today than it did in the 1970s, and, as a result, fuel dealers are seeking new business opportunities. In contrast, home performance contacting is a relatively new profession which today services a niche market consisting primarily of wealthier homeowners and has yet to reach the vast majority of Vermont homes that could benefit from energy efficiency services.

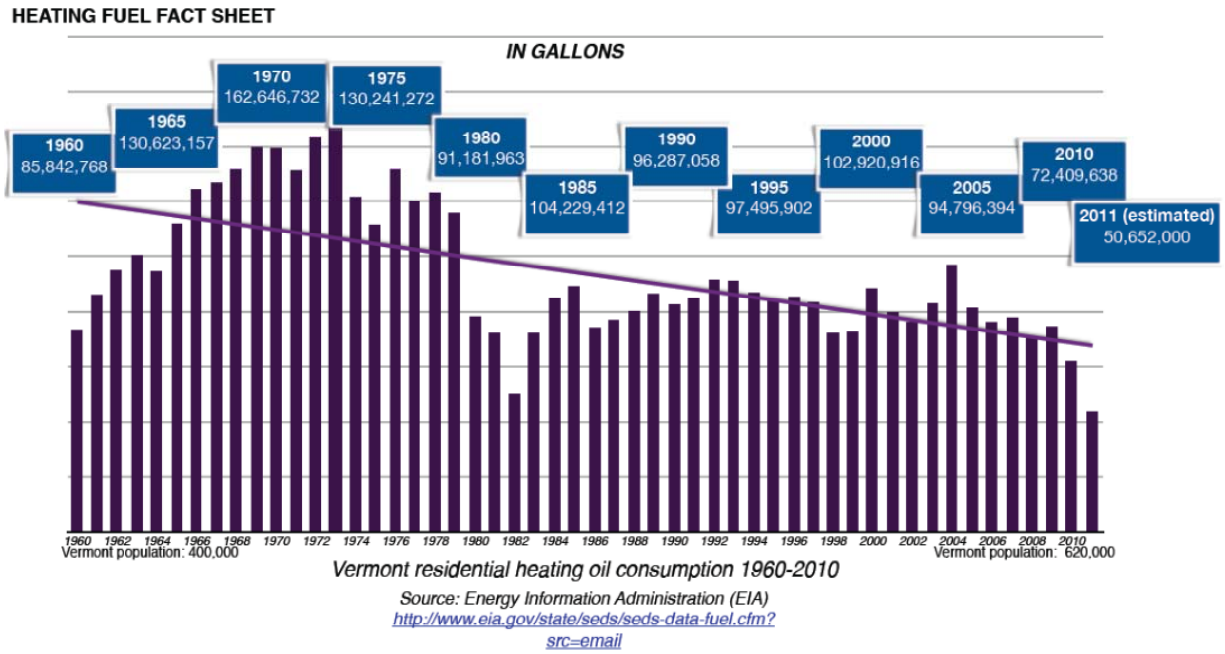
**Figure 1: Vermont Res. Heat Fuel by Type**




Vermont's current challenge with energy efficiency in existing homes is not unique. It is possible to cost-effectively save more than 20% of the energy used in the majority of existing homes across North America. However, home performance has yet to mature as a vibrant and growing service industry capable of reaching this energy saving (and job creation) potential. Home energy retrofits are not an easy sell. As a service, home performance faces the triple market barriers of being expensive, intangible and unexciting. Additionally, there is no comprehensive business plan in place to serve as a road map for the fledgling industry. In Vermont and across the country few potential customers today understand what home performance is or what benefits it can deliver, and only a small minority of early adopters have purchased the service.

[1] For the purposes of this document, "home performance contractors" refers to Vermont residential home improvement contractors who provide home performance services, and follow the protocols established by the Building Performance Institute (BPI).

**Figure 2: Vermont Residential Heating Oil Consumption 1960 - 2011**




On the positive side, there are many initiatives focused on increasing the energy efficiency of existing homes. Vermont state government has prioritized improving energy efficiency in existing buildings by establishing a Thermal Efficiency Task Force[2]. Efficiency Vermont (EVT) has talented and committed staff dedicated to growing the home performance industry in Vermont. Many other US states and Canadian provinces are also seeking better ways to promote and deliver home performance to homeowners and the US DOE has funded innovative program approaches in forty communities across the US, including West Rutland, Vermont. All of this activity has generated interesting experiences from which to learn and apply to Vermont.

## KEY FINDINGS – FUEL DEALERS

Vermont fuel dealers are a mature and significant Vermont industry. The fuel dealers we spoke to were very diverse in terms of the size of their businesses and the range of products and services that they offer. However they are all facing a dynamic and challenging marketplace where they find themselves in increasing competition with traditional and new commercial adversaries and market forces.

**Figure 3: Diversified Fuel Dealer Truck**


Fuel dealers are organized under the Vermont Fuel Dealers Association (VFDA) which provides effective representation for the industry at the statehouse and to outsiders. VFDA cooperated fully with our team in the execution of this research. The most innovative fuel dealers see numerous opportunities to change the

[2] Both authors of this report have been invited to serve on the Task Force.

traditional business models and succeed as more comprehensive "energy businesses". These opportunities include leveraging the strong positive relationships with their customers to convince them to make energy efficiency improvements.

Fuel dealers already tend to see themselves as service providers as opposed to sellers of a commodity fuel. They know that they are the ones who will get the call if a customer has no heat on New Year's Eve. Progressive fuel dealers see an opportunity to build on their customer service focus to increase customer satisfaction and to delight them by offering new services. We found these fuel dealers to be very interested in exploring partnering to develop new joint business ventures. In a competitive and changing business environment, they want to diversify their offerings to help spread risk. In addition to offering energy efficiency services, some are already experimenting with expanded fuel choice offerings, including wood pellets. This is seen as a way for fuel dealers to position themselves as "green and local", both good labels to carry today. Wood pellets also seem poised to compete with all conventional fuels on price as new pellet-fired home heating systems are refined.

## KEY FINDINGS – HOME PERFORMANCE CONTRACTORS

Vermont home performance contractors are also diverse but operate in a fledgling market made up of generally small firms. Very few of the Vermont home performance contractors we spoke with provide comprehensive home performance services, including residential HVAC systems. Each contractor we spoke to was an independent firm, often with business relationships with other service providers they work with to provide requested services, but not part of a larger corporate entity.

Home performance contractors remain dependent upon incentives provided by the Vermont Home Performance with ENERGY STAR (Vermont HPwES) program offered by EVT, but budgets are heading in the wrong direction: EVT is not able to maintain even past limited program budgets and funds from other sources do not appear to be forthcoming at this time. This dependence upon an uncertain resource is a significant barrier to growth.

Although contractors said many positive things about Vermont HPwES, we also heard many thoughtful suggestions about ways that EVT could improve the program, and about ways to engage contractors more in the decisions that affect them. Several of the contractors we spoke to participate in and/or commented on the H.E.A.T. Squad initiative by NeighborWorks of Western Vermont (NWWV), one of the US DOE funded initiatives mentioned above. NWWV seems to have figured out how to drive consumer demand, organize contractors, partner with fuel dealers, and provide a service that is highly regarded by currently participating contractors.

Vermont home performance contractors historically have not been organized as a professional community. The Vermont HPwES program provides contractor technical and sales training services but does not help contractors organize themselves. This situation is potentially changing with the recent formation of the Building Performance Contractors Association of Vermont (BPCA-VT).

## SYNERGIES

Our research found that fuel dealers are open to partnering with home performance contractors to mutually grow their businesses. In general, fuel dealers seemed quite interested in exploring these partnerships in order to continue providing good service to their customers and to sell more heating systems. Home performance contractors would welcome the market data--such as the identification of high energy users--that fuel dealers could provide, and the opportunity to sell their services in order to reduce the energy use in those homes. The key is finding a way to for both groups to coordinate their efforts and together provide high-quality customer service. If successful, this synergistic relationship could help Vermont meet the goal of improving the energy efficiency of 80,000 homes, benefitting Vermont's housing stock, diversifying fuel dealers' offerings and growing the local home performance business.

## RECOMMENDATIONS

Our research shows that there are excellent, immediate opportunities to start assembling the pieces of the Vermont home performance puzzle and move it from a small-scale, incentives-driven service to a large-scale, demand-driven industry. To put home performance on this path we recommend the following:

### *HOME PERFORMANCE COMMUNITY*

1. **Organize:** Home performance contractors should join the new BPCA-VT organization to help home performance contractors better represent and market themselves.
2. **Educate Fuel Dealers:** Fuel dealers will need to know more about building science, energy efficiency and the business of home performance as they look to sell this new line of services to their customers.
3. **Build Bridges:** Benefits and opportunities similar to those identified with fuel dealers are also possible with other shelter businesses, such as siding, roofing and window companies.

### *FUEL DEALER/HVAC CONTRACTOR*

4. **Design Productive Business Relationships:** VFDA, EVT, and BPCA-VT, should design model partnership agreements between fuel dealer and home performance contractors.
5. **Educate Home Performance Contractors:** Home performance contractors will need to know how to work with fuel dealer partners in overlapping areas.
6. **Build Bridges:** Expand the dialog with home performance contractors to include members of the residential renewable energy community as well.
7. **Explore Wood Pellets:** The VFDA should pro-actively educate fuel dealers this potential future direction for their industry.

*EFFICIENCY VERMONT*

8. **Plan Collaboratively:** Work with home performance contractors, fuel dealers, and other stakeholders to develop a new business plan for the Vermont HPwES program.
9. **Implement Collaboratively:** Define roles in Vermont HPwES program implementation for community-based organizations;
10. **Learn From NeighborWorks:** Adapt the successful integrated aspects of NWWV's H.E.A.T. Squad model to the statewide Vermont HPwES program.

*VERMONT STATE GOVERNMENT*

11. **Support EVT Innovation:** Tailor regulation to encourage EVT to experiment in the design and implementation of the Vermont HPwES program.
12. **Support Home Energy Disclosure Legislation:** Pass legislation to require disclosure of the results of a standardized home energy efficiency evaluation at the time-of-sale.
13. **Develop Long-Term Funding:** Find stable, adequate resources to fund a revamped Vermont HPwES program and support steady growth.
14. **Plan to Evaluate:** The DPS, should make plans to track progress on all Vermont HPwES program innovations and provide timely feedback to the various stakeholders.

*JOINT ACTIVITIES*

15. **Plan Collaborative Marketing:** Develop plans for a common Vermont HPwES marketing campaign involving all parties.
16. **Learn from Innovative Marketing:** Compare innovative marketing approaches from the home performance community outside of Vermont with EVT's own experience.
17. **Make Matches:** VFDA and EVT should work together to establish referrals between fuel dealers and home performance contractors.
18. **Collect Testimonials About Successful Business Models:** Document real, successful arrangements between fuel dealers and home performance contractors.
19. **Exercise Collective Influence:** The combined strength of the home performance community and fuel dealers is a significant constituency for "clean energy" public policy in Vermont.

# OVERVIEW

The High Meadows Fund (HMF) commissioned this "Home Performance Contractors and Fuel Dealers Interviews - Key Players in Vermont's Residential Energy Future" study in order to help Vermont meet its goals of weatherizing 80,000 homes by 2020. Other research sponsored by HMF has addressed related questions and issues, including a gap analysis, financing options and on-bill financing. For this current effort, HMF hired the team of Grasteu Associates (GA) of Richmond, Vermont and Energy Futures Group (EFG) of Hinesburg, Vermont as the principal investigators.

The scope of work for this study was to "assist the HMF in assessing opportunities for BPI certified contractors and other home improvement contractors as well as fuel dealers to participate in and benefit from increasing the pace of home energy efficiency improvements to Vermont homes." We were asked to "speak with home performance contractors and fuel dealers…and deliver a succinct report that identifies the players and their roles and responsibilities, summarizes what was learned from interviews with the players, define potential barriers to success, and suggest specific recommendations that might mitigate barriers."

Our interviews were conducted beginning in December 2011 through March of 2012, and included direct discussions with fourteen fuel dealers and/or HVAC contractors, nineteen home performance contractors and five non-profit organizations that are part of the Vermont home performance community. We conducted interviews from two lists of prepared questions (one targeting home performance contractors and one targeting fuel dealers, see Appendices D & C) either by telephone or in person as circumstances warranted.

This study does not purport to provide a statistically robust characterization of either home performance contractors or fuel dealers. The samples of contractors and fuel dealers interviewed were not selected randomly and our survey was not designed to provide fully representative results. We collected the subjective impressions of a cross-section of program and industry participants in order to provide typical but informed and thoughtful perspectives. Our objective was to help advance the collective understanding of the opportunities for improving the energy efficiency of the existing homes sector in Vermont.

# HOME PERFORMANCE CONTRACTORS

**Figure 4: Vermont Home Performance Contractor Truck**


## DESCRIPTION OF RESEARCH

### *INTERVIEWEES*

Between December 2011 and March 2012 the team completed interviews with nineteen residential building contractors who work in Vermont and five related non-profit organizations. The contractors interviewed consisted primarily of active Building Performance Institute (BPI) certified professionals, but also included a mix of some remodelers who do not specialize in offering energy improvement services, and some inactive BPI contractors. The non-profits we spoke with (ReSOURCE, Vermont Works for Women, Central Vermont Community Action Council, Sustainable Energy Resource Group and NeighborWorks of Western Vermont) train or coordinate home performance contractors, or offer home performance services directly.

We gathered additional information by participating in two contractors' meetings in December and February at NeighborWorks of Western Vermont and two meetings of Building for Social Responsibility. Some of the contractors who participated in the twenty-four in-depth interviews were also present at one or more of these group meetings. For a complete list of home performance community interviewees, please see Appendix B.

When selecting people to interview, one of our objectives was to try and develop a comprehensive (if necessarily subjective) group of perspectives on the home performance contracting community currently serving Vermont. This community includes contractors currently participating in the Vermont Home Performance with ENERGY STAR (HPwES) program offered by Efficiency Vermont (EVT), contractors providing related services but not participating in the program, home renovation contractors not currently offering home performance services, but who might choose to do so in the future, and people who train, coordinate or otherwise work with these contractors. By

questioning this diverse group, our intent is to draw a picture of the environment that Vermont home performance service providers work in, to identify the dangers and barriers they face, and to gather their thoughts on how to achieve a larger, more vibrant Vermont home performance industry.

### *QUESTIONS ASKED*

The team developed a list of questions to ask home performance community members in concert with HMF. We also shared our questions during development with EVT and the Vermont Department of Public Service. The questions fell into the following general categories:

1) Information about their organizations and services offered
2) Perspectives on the Vermont HPwES program.
3) Perspectives on the home energy retrofit market in general and ways to grow it. We developed five potential innovations as a way to get the conversation started and try and elicit ideas.

(Complete questionnaires can be found in Appendix B)

## FINDINGS

### *HISTORICAL CONTEXT*

Vermont's status as a leader in energy efficiency is well-established. EVT was the first, statewide "energy efficiency utility" and Vermont consistently scores high on energy efficiency spending per capita (mostly through EVT), savings per capita, and other metrics. Much of this energy efficiency activity is funded through systems benefits charges on electricity and to a lesser extent natural gas, and energy efficiency programs mostly target electricity use.

Because Vermont is a northern, rural state with expensive electricity (relative to, for example, Quebec or the Southeast) and natural gas available only in the northwestern corner of the state, relatively few homes are heated with utility-supplied natural gas or electricity and there is little electricity used for residential cooling. As a result, EVT has received system benefits charge funding to run large and effective residential electricity efficiency programs, but has historically received only limited resources to tackle oil, propane, kerosene and wood consumption by middle and upper income Vermonters. Low-income Vermonters are eligible to receive home performance services under the state Weatherization Assistance Program, but those resources are limited as well[3].

### Vermont Home Performance Services

Home performance services cover a range of products and practices. Because each existing home is different, each home performance job starts with an investigation into the energy performance of the house, or "energy audit", followed by the execution of a custom scope of work that the contractor develops with the homeowner based on the audit results. Because each job is a custom job, contractors have to be able to apply a wide range of home performance services, but there are five main categories:

[3] ARRA funding temporarily increased the low-income weatherization budget in Vermont, but those funds are now expended.

1) The energy audit
2) Instrumented air-sealing (using a blower door)
3) Building shell thermal insulation
4) HVAC system improvements
5) Health and safety test-out

Our research was not designed to measure how these services are usually delivered in Vermont, but our research suggests that most home energy audits and instrumented air-sealing are being performed through the Vermont HPwES program. Many residential contractors in Vermont install insulation, but possibly not to the same high quality level targeted by home performance contractors working to Vermont HPwES standards.

HVAC system energy efficiency improvements in Vermont, and elsewhere, are driven primarily by improvements in minimum federal equipment efficiency standards and the evolution of HVAC technology. As old, inefficient furnaces, boilers and water heaters break down they are replaced with new, more efficient units. According to the Vermont Housing Data website, there are 322,000[4] housing units in Vermont. Even if a heating system is only replaced once every 40 years, over 8,000 home heating systems are replaced in Vermont each year. Some portion of those replacements (probably less than 1,000 in an average year) receive incentives from the Vermont HPwES and Vermont Gas Systems (VGS)programs. These incentivized HVAC systems should be incrementally more efficient than the average new HVAC system, again due to Vermont HPwES and VGS program HVAC system efficiency requirements.

The fifth service category, health and safety test-out should be part of any combustion HVAC equipment installation, particularly with atmospherically vented equipment. It is formally part of the home performance protocol.

Home performance in Vermont today is a boutique service provided by mostly small residential construction and renovation companies. Very few Vermont home performance contractors provide all five categories of services. HVAC equipment installation is typically subcontracted out by the contractors we spoke to. Insulation is sometimes subcontracted out as well, particularly specialized forms such as closed cell foam. However, no Vermont home performance contractor we spoke to *only* provides home performance services. The custom nature of home performance work practically requires contractors to be able to provide some degree of building structural repair and moisture correction services also. Many home performance contractors perform some degree of remodeling or renovation, install renewable energy systems or also do new residential construction. The important point is that Vermont home performance contractors are mostly typical residential contractors who have invested in developing a home performance skill set, but who do a range of home improvement work in order to survive.

In the original business model for HPwES the energy audit was provided by a certified energy auditor who was not an employee of a home performance contractor. The thinking was that contractors have an incentive to make each job as large as possible and that an independent auditor

[4] US Census http://quickfacts.census.gov/qfd/states/50000.html

would be only serving his or her client. However, the HPwES model has evolved over the last ten years to what it is now; for the most part, contractors offer audit services and perform the work. This model has been shown to convert more jobs from audit to substantial work than the older, truncated model. Of the twenty-four home performance professionals we spoke to, only one non-profit organization provides only audits. Only a few of the contractors who offer air sealing do not also provide audits, and even these usually worked closely with specific auditors.

## Vermont Home Performance Contractor Community Structure

When we started our research, Vermont home performance contractors were not organized as a professional community. Unlike the Vermont Fuel Dealers Association, there has historically been no state-wide organization that represents home performance contractors' interests and serves as a channel for communication. A chapter of the nationwide contractor organization, Efficiency First, was established several years ago but failed to gain significant support or membership.

During the course of this project Building for Social Responsibility and others organized a meeting of home performance contractors, and out of that has come a new vibrant organization, the Building Performance Contractors Association of Vermont[5] (BPCA-VT). A core group of leaders has developed a mission statement, filed for incorporation with the state and formed committees, which have begun to meet. In addition to the first organizing meeting, EVT gave the group 30 minutes at their annual mandatory contractors meeting to discuss the organization and recruit members. This time around, it seems like this group has gained traction and Vermont home performance contractors will soon have an organization to represent their interests and communicate through as they work to advance their industry.

A few larger companies have begun to set up networks of home performance contractors in other parts of the country, but these networks are in the early stages of formation and none currently have affiliates or subsidiaries in Vermont. Each contractor we spoke to was an independent business, sometimes with business relationships with other service providers but no larger corporate parent. The Vermont HPwES program provides contractor technical and sales training services but has not attempted to help contractors organize themselves. One of the interesting aspects of the NeighborWorks H.E.A.T.Squad is that the program is actively organizing participating contractors into something like a professional association (more below under "NWWV").

### *Barriers & Challenges*

Home energy retrofit is not an easy sell. As a service, it faces the triple market barriers of being expensive, intangible and unexciting. Most homeowners still do not know what home performance services are and Vermont homeowners (like most Americans[6])do not know how their heating costs compare to similar homes in their town and therefore lack a frame of reference regarding their home's energy efficiency. Even when homeowners understand how home performance services

[5] http://bpca-vt.wildapricot.org/
[6] The Shelton Group, Energy Pulse survey, 2010

save money, market research has repeatedly shown that anticipated energy savings are rarely sufficient in themselves to motivate participation in home energy retrofit programs[7].

> "People don't know who to call, and they don't necessarily think that they have a problem. People are also nervous that they don't know what the scope of the work will be. The work is also messy, and not exciting the way that a new kitchen would be. It doesn't have the pizzazz that other investments in homes do."(Non-Profit Organization)

The contractors we spoke with noted several other common themes related to the overall business environment in which they work. Many had experienced significant changes in the demand for their services during the recession, though sometimes it was in terms of reduced demand for home performance and sometimes it was increased involvement in home performance due to new construction drying up. Many contractors mentioned significant competition with other contractors for the available home performance work in their areas. Many also cited the difficulty in finding and retaining employees who were willing to do the work required for an affordable wage.

According to EVT, VT HPwES incentives offered per participant average around $1,750[8]. Program provided QA/QC, training, administration and other costs add another $1,000 per home, which means that the average program cost per home today is close to $3,000 per home. The VT HPwES program tends to serve "early adopter" Vermonters with higher incomes and higher education levels than average. In summary, it currently costs the program about $3,000 each to recruit and process about 1,000 customers per year who are the most likely to participate and best able to pay. It seems reasonable to assume that, recruiting and processing 10,000 customers per year--the target volume to meet Vermont's 80,000 home goal-- will not lead to lower costs, unless the Vermont HPwES program approach changes. Higher volumes should be able to achieve some economies of scale, but recruiting non-early adopters to buy an expensive service which is not consistently defined and which they do not understand may require even higher incentives than early adopters need. If per participant costs remained constant, the annual price tag to get on track to the Comprehensive Energy Plan goal could be close to $30 million per year. This budget would also need to be maintained for eight years to meet the statewide goal by 2020. In contrast, the 2011 program budget was around $3 million, and is projected to decrease in 2012.

This calculation was not discussed during our interviews, but it is relevant because of the changes to the Vermont HPwES program which EVT may be forced to impose upon contractors. Over the past few years, Vermont HPwES has been able to fund all applications for incentives from contractors. In 2012 it is quite possible that demand for program incentives will exceed supply. This is not an uncommon dilemma for HPwES program managers [9] across the country, and it unfortunately increases the uncertainty for home performance contractors who have to think in multi-year terms when deciding whether to buy new equipment or hire new employees.

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[7] Ibid

[8] US home energy retrofit program incentives are constantly changing as programs either try to drive additional demand to meet goals, or try to limit demand to stay within budget.

[9] In both the Canadian ecoEnergy program and the New Jersey HPwES programs, incentives have been interrupted several times.

Until now, EVT's approach has been to provide financial incentives and technical training to contractors, who were expected to take responsibility for the marketing home performance services and building the industry. Even if it were possible to expand Vermont HPwES resources, only a couple of the contractors we spoke with had a strong vision of how to achieve strong growth under the current program structure. Our research suggests that Vermont home performance contractors, like their peers in other parts of North America, lack the resources and coordination to tackle the significant tasks of developing their own market. However, the BPCA-VT trade association is discussing joint marketing, but will need significant resources to make that happen.

As a result, home performance contractors' perspectives on Vermont HPwES program incentives are complicated. While interviewees usually said that incentives were important for getting work, one respondent further elaborated that the certainty of the incentive and the association with EVT was more important than the incentive amount. This seems like a useful insight given that the typical job cost is several times the maximum incentive amount and that incentives are usually not available until after the work is complete. Quite a few contractors also voiced the opinion that if EVT budgets were shrinking, they would rather see the budget directed at building consumer demand through effective marketing, rather than incentives. But this opinion was not universally shared.

> "We don't participate in EVT Home Performance program anymore because we didn't see where remaining involved was going to lead to more business. The market is demanding neither BPI certification nor Vermont HPwES participation. We believe in energy efficiency and in developing the industry, but can't justify the program from a business perspective." (HVAC Contractor)

Although it was rarely expressed in so many words, in many of the interviews with home performance service providers currently or formerly participating in Vermont HPwES there seems to be a sense of frustration with the current state of the market for their services. Many of the currently participating contractors we spoke with qualify as early adopters themselves. They are driven to become home performance providers by idealism around environmental or national energy independence goals, as well as by the promise of profits. However, there is no generally accepted formula for how to succeed in the field, though some contractors were clearly more successful than others.

### *OPPORTUNITIES*

- **Access to Innovation:** The problems facing Vermont's home performance community and the Vermont HPwES are not specific to Vermont and are shared in some degree by most other US states and Canadian provinces. No region has yet to clearly demonstrate a way to unleash the full potential of home energy retrofit. In response to this challenge, a broad range of innovation is going on across North America, and Vermont can share in the accumulating experience. Some home energy retrofit programs, like Austin Energy's HPwES, are able to be successful while offering smaller incentives[10] by harnessing the capacity of a municipal government and an

[10] *AE HPwES offers incentives of 20% or $1,575, whichever is less, or reduced rate financing through a credit union partner.*

engaged community. Oregon Clean Energy Works has developed a program model that provides support to homeowners throughout the participation process. Such programs are able to drive demand by using effective, local marketing and working with contractors to convey a consistent message, but tend to be expensive.

The DOE Better Buildings Neighborhoods programs is currently helping over 40 competitively selected state and local governments develop sustainable programs to upgrade the energy efficiency of more than 100,000 buildings. NeighborWorks of Western Vermont in West Rutland is a Better Buildings Neighborhood grant recipient and their innovative approach is discussed further below.

- **Supportive State Government:** The Vermont Comprehensive Energy Plan, the formation of the Thermal Efficiency Taskforce, and the sustained attention and support of the Department of Public Service are all testament to the unusually high profile that existing home energy efficiency has with the Shumlin Administration. Despite the state and national economic situations, it is an excellent time to develop Vermont solutions to this problem.

> "Get Peter Shumlin on the radio to do a public service spot regularly.... weatherize his houses, document all the work, and have the Governor say 'this is the best thing I have ever done'" (Home Performance Contractor)

  There are some legislative solutions which can support an emerging home performance industry, but in the short run the effective use of the bully pulpit is equally important.

- **EVT Resources:** Efficiency Vermont's approach to developing the Vermont home energy retrofit industry has not successfully applied some innovative approaches that seem to be showing good success at driving demand in HPwES programs in other regions. EVT certainly has the resources, and recently has also started to expand its internal capacity, to experiment with some of these new directions. With the current high level of support at the state, regulatory cost-effectiveness hurdles may be able to be addressed with a strong plan for moving forward.
- **Willing Fuel Dealers**: One of the most interesting results of our research is that there seems to be real potential for collaborative marketing between innovative home performance contractors and progressive fuel dealers. This opportunity is discussed in more detail in following sections.

# FUEL DEALERS/HVAC CONTRACTORS

**Figure 5: Diversified Fuel Dealer Truck**


## DESCRIPTION OF RESEARCH

We conducted interviews of fourteen fuel dealers and HVAC contractors in December 2011 through March 2012. Details on the description of our research, findings and recommendations follow.

### *INTERVIEWEES*

The Vermont Fuel Dealers Association (VFDA) was a key partner in conducting this research[11]. We assembled an initial list of twenty-four companies from a variety of sources and were eventually successful in interviewing fourteen. These included eleven full service "fuel dealers" (sellers of mechanical equipment and fuels, and/or service of mechanical equipment) and three service only "HVAC[12] contractor" companies (sales and service of mechanical equipment only, no fuels). This gave us a good sense of the fuel dealer market, but only provided a glimpse into the HVAC contractor market.

The companies we spoke to represent the spectrum of fuel dealers in Vermont, ranging from large, multi-national (Canada-US) to small local family-owned businesses, from about 1,000 customers to more than 10,000 Vermont customers across the state. The size of the companies ranged from a single office and two employees with four trucks to sixteen offices and eighty-five employees serving parts of Vermont with fifty-eight trucks. HVAC service contractors were more similar in size to the home performance contractors and ranged from two to a dozen employees.

(The interviewee list is included in Appendix A.)

### *QUESTIONS ASKED*

We developed our questions for the fuel dealers and HVAC contractors with the assistance of EVT and the Vermont Department of Public Service. Our questions were designed to gather general

[11] http://www.vermontfuel.com/Vermont_Fuel_Dealers_Association.html
[12] HVAC: "heating ventilation and air conditioning"

business information from interviewees and explore their perspectives on, and possible engagement with, home energy efficiency retrofits. The questions covered the following outline:

1) Information about their businesses and services offered
2) Perspectives on the market
3) Thoughts about potential future directions for their business, including but not limited to:
   a) Offering high efficiency biomass equipment
   b) Providing lead generation for home performance contractors.
   c) Partnering with home performance contractors to offer services other than heating equipment installation and service, like air sealing and insulation.
   d) Directly offering home performance services as part of their core business.

(The full set of interview questions is included in Appendix D).

### *NWWV Contractor Meetings*

In addition to individual meetings by telephone or at fuel dealer and HVAC contractor offices, Faesy and Granda each attended a NeighborWorks of Western Vermont (NWWV) contractor meeting consisting of NWWV staff, the 16 or so Building Performance Institute (BPI) contractors participating in their program and Rutland area fuel dealers. NWWV has been effective at building partnerships with at least two local fuel dealers and they have become part of the NWWV H.E.A.T. Squad network.

## Findings

### *The Fuel Dealer Community*

With natural gas distribution limited to the northwest corner of Vermont and electricity too expensive, or historically discouraged, for heating, the rest of the state relies primarily on delivered fuels for space heating and much of our water heating, cooking and clothes drying. As a result, Vermont has a robust infrastructure of over 140[13] independently owned companies that distribute heating oil, kerosene and propane in Vermont. Table 1 below shows a subset of these: the fuel oil distributors. There are more than 100 oil dealer locations, employing more than 850 people. The oil industry is a significant contributor to the Vermont economy, as shown in Table 1.

**Table 1. Vermont Oil Dealer Statistics[14]**

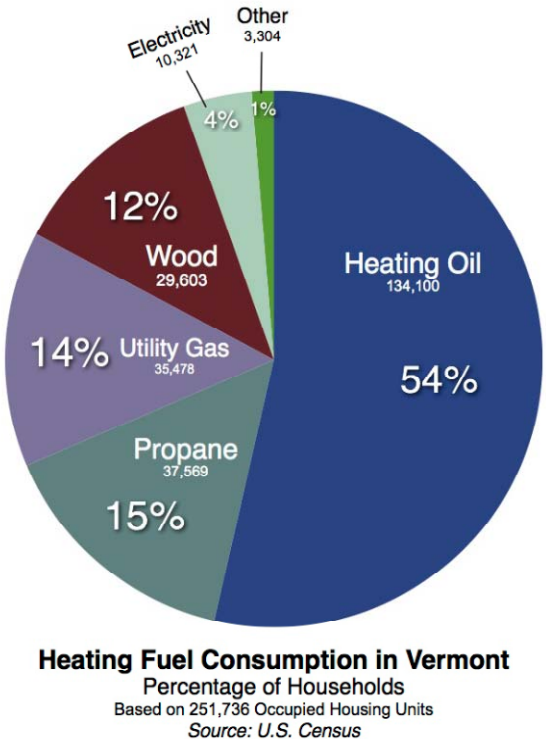
| Retail Oilheat Business Locations | Sales (000's) | Annual Payroll (000's) | Employees |
|---|---|---|---|
| 103 | $328,102 | $31,814 | 861 |

Data Source for Locations, Sales, Payroll: US Census Bureau, 2006 County Business Patterns and industry resource data.
Sales Data = Oilheat volume x avg. price for no. 2 distillate heating oil in state for Dec. 2006 (exclusive of any taxes) as reported by Energy Information Administration, plus a 7% allowance for HVAC sales.

[13] E-mail correspondence provided by Matt Cots, VFDA. 5/12/12.
[14] Provided by Vermont Fuel Dealers Association, April 2012

Delivered fuels heat more than two-thirds of Vermont households. The largest share goes to fuel oil, followed by propane and then wood. Natural gas, electricity and "other" (e.g. coal, solar) heat the balance (19%) of Vermont homes.

**Figure 6: Heating Fuel Consumption in Vermont by Percentage of Households**




### *The HVAC Service Contractor Community*

HVAC service contractors see less than half the world that fuel dealers do. While the fuel dealers we spoke to universally offer two primary lines of business (i.e. fuel sales and equipment sales/service), HVAC contractors tend to focus only on the equipment side of the business.

### *Barriers & Challenges*

While oil and propane dominate Vermont heating fuels, their slices of the home heating energy pie are shrinking as natural gas pipelines expand to serve more communities south and east of Burlington. There are plans to extend current gas lines down to Middlebury and then to Rutland over the next decade. Fuel dealers in Chittenden and Addison Counties are well aware of this expansion and are considering their alternatives as part of their business planning (more on this below).

The industry is also starting to feel new pressure from an old foe as electricity makes a comeback as a heating fuel. High-efficiency air-source heat pumps[15] can make heating with electricity affordable in Vermont and they are slowly making in-roads into the residential market. With electricity

[15] Sometimes also called "ductless mini-split heat pumps"

available throughout the state and customers beginning to generate some of their own on-site with photovoltaics, some fuel dealers fear that even in the areas that will never be served by natural gas they will soon have to compete with electricity, especially as oil climbs past $4.00/gallon and electricity prices stay relatively stable.

Home heating customers are also becoming more conscious of greener options. Fuel oil tanks have potential environmental issues and an increasingly negative public image. With the relatively recent introduction of wood pellets to the heating market, yet another source of competition to traditional fuel sales seems imminent. While chunk wood has been around forever and maintains a somewhat steady share of the heating market in Vermont, not everyone is willing to haul dirty wood around the house and live with a woodstove. European, and now new U.S.-made, wood pellet heating systems are overcoming these shortcomings and are making inroads into the heating market. Wood pellet plants have sprung up throughout the Northeast, competition tends to keep prices in check, and delivery and storage systems are improving.

At the same time that slices of the home heating energy pie are being cut differently, the entire pie is also shrinking. Historical trends show clearly that the quantity of home heating oil consumption per Vermont household is declining. In 1973, the average oil-heated Vermont home consumed 1,400 gallons of heating oil[16]. Today the average is 764 gallons[17]. Given that homeowners will continue to use cleaner fuels, continue to replace old heating equipment with new, more efficient equipment, continue to weatherize their homes and continue to respond to higher fuel prices by conserving, the fuel industry anticipates that average per home consumption will be in the six hundred gallon range in the Vermont within the next decade[18]. Figure 2 clearly shows this downward trend over time.

Add to this the increasing trend towards consolidation of fuel delivery businesses, and it is clear that the fuel dealer industry is truly in flux. We heard from a number of dealers that they are also going through self-imposed changes as one generation looks to retire and either hand the business off to the next generation or sell the business altogether. The fuel dealers we interviewed did not hold back in sharing these on-going and impending changes to their industry as we explored their perspectives and possible opportunities. They all agreed that they are going to need to adapt to survive.

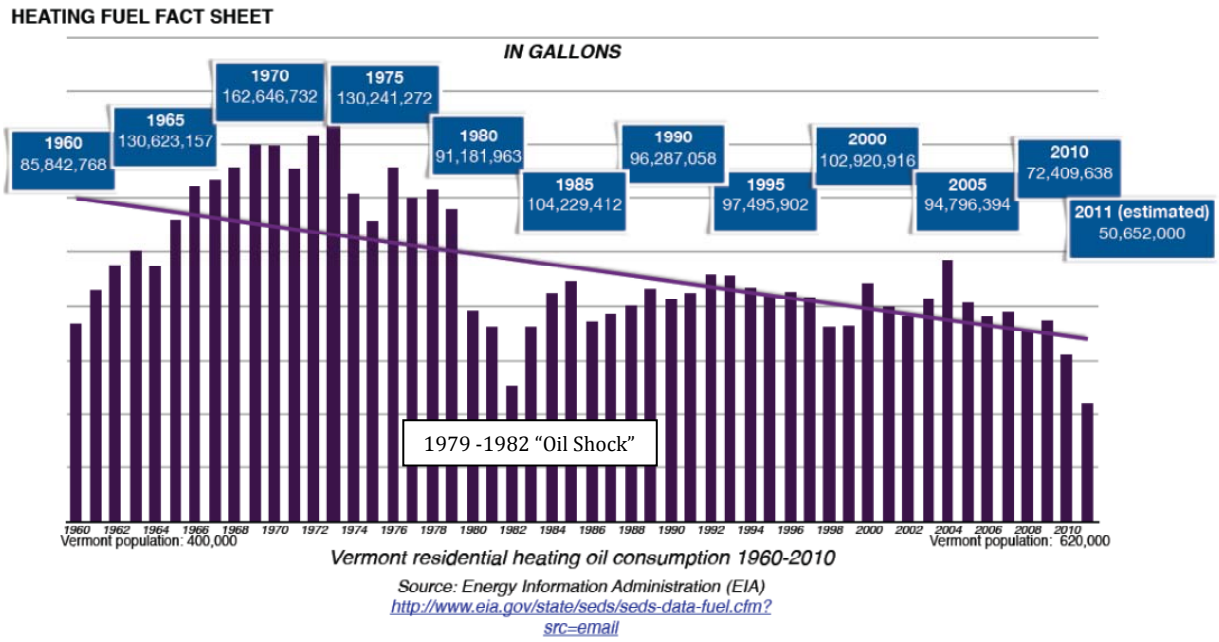
> "This is a shrinking business…" (Fuel Dealer)

In addition to these external challenges to the fuel dealers, there is also an interior barrier to incorporating energy efficiency into their current business model. Although the VFDA and some fuel dealers speak of their goal as being "selling less fuel to more people", many fuel dealers still believe that they benefit the most when they sell more fuel. These fuel dealers perceive little

[16] Northeast States for Coordinated Air Use Management (NESCAUM). Retrieved from http://www.nescaum.org/activities/major-reports
[17] Vermont Fuel Assistance Office
[18] Matt Cota, Vermont Fuel Dealers Association, April 2012

incentive in convincing homeowners to take additional energy efficiency steps. Changing this belief and overcoming this barrier will be challenging.

**Figure 7: Vermont Residential Heating Oil Consumption 1960 – 2011**




The situation seems to be more settled for the HVAC contractors. For the most part they sell and service equipment for a variety of fuels. This flexibility seems to allow them to concentrate on what they are good at—sales and service of equipment of heating and hot water equipment—and not feel like they need to pursue new opportunities. The small sample (three interviewees), we spoke to seems to have found a niche and are generally satisfied in staying there. They were open to partnerships with others for whom they could install and service HVAC equipment, but did not show much interest in branching out beyond their current line of work.

### *Opportunities*

Fuel dealers understand that their traditional business is declining and are eager to seek out opportunities to revive it and keep it relevant. Contrary to the common belief that fuel dealers are just interested in selling more fuel, we found that practically every one of the eleven fuel dealers we interviewed were open to exploring new and different opportunities that could result in their potentially selling less fuel. There seemed to be a sense of the inevitable, which followed the mantra of "sell less fuel and more service to more customers". Instead of being just a fuel sales business, fuel dealers seem open to the idea of becoming an "energy business". The following opportunities were unearthed through the interviews:

- **Relationships:** Fuel dealers have a trusting relationship with their customers. This relationship can potentially be parlayed into convincing customers to make energy efficiency improvements in addition to upgrading the mechanical systems of their homes.

> "There needs to be a mentor or a single point of contact with customers. The fuel dealer can be that person." (Fuel Dealer)

- **Customer Service & Satisfaction:** The fuel dealers all clearly understand that the best way to maintain and grow their customer base is through satisfied customers. Keeping customers happy by lowering their energy bills and increasing home comfort through energy improvements means there is a higher likelihood they will stay with that fuel dealer. Word of mouth from happy customers can also lead to additional customers coming on board.
- **New Profit Center:** A few of the fuel dealers interviewed have already taken the leap to offering new energy efficiency and renewable energy services. As fuel sales have declined, they are able to sell these other services to generate revenue. Some currently offer energy audits as a loss leader to get new heating systems installed. Others have also found that they are able to bring on new fuel customers when homeowners seek out these other services.

> "We are looking at a specific software package that allows the service tech to do a kind of home energy analysis during a service call." (Fuel Dealer)

- **Partnering:** For the most part, the fuel dealers we spoke to are not interested in selling leads (i.e. identifying their high-users for home performance contractors) or becoming direct providers of non-HVAC home performance services. However, they are very interested in developing partnerships with home performance contractors to offer energy auditing, air sealing and insulation services to their customers, especially if it means they are able to sell a new heating system as part of the job. The role of "general contractor" in which fuel dealers maintain their relationship with the customer but sub-contract out the energy retrofit work to home performance partners will be a key provision for the fuel dealers. They clearly want to maintain their relationship with the customer. Fuel dealers in the Rutland area noted opportunities to partner with organizations such as NeighborWorks of Western Vermont to promote energy efficiency services and help improve image by association.
- **Diversification:** In order to stay in business in today's market, fuel dealers realize that they either have to win customers away from other fuel dealers or diversify into new fuels and services. Some believe that by offering energy efficiency services to diversify their businesses, they will also win new customers who are seeking their new services. The ones who are already selling wood pellets and energy efficiency services explicitly stated diversification and growth as their reasons.

> "Biofuels will be a growing market. We are looking to become a 'localvore' with wood pellets." (Fuel Dealer)

- **Green and Local:** Fuel dealers are watching the nascent biomass fuel market closely. From their perspective, wood pellets and wood pellet-fired heating equipment provide a path to a renewable, lower cost alternative that is able to fit into their business model of customer service linked to centralized commodity fuel distribution. Offering biomass also offers a rare opportunity to fuel dealers to be on the cutting edge and green their businesses. Some have already jumped in and now sell wood pellets along with fuel oil and propane while others are waiting for the right time to embark. While not all fuel dealers are convinced that wood pellet technology is ready for prime time, they are all carefully assessing the opportunities as oil prices rise and new, efficient and more dependable equipment comes onto the market.

# PERSPECTIVES ON NEIGHBORWORKS OF WESTERN VERMONT

NeighborWorks of Western Vermont (NWWV) received a grant for $4.5 million in stimulus funds from the US Department of Energy's Better Buildings Neighborhood program. NWWV has a goal of developing a sustainable energy efficiency upgrade approach and drive at least 1,000 homes in Rutland County by the end of 2013 to participate in the Vermont HPwES program. NWWV does not provide home performance services itself, but works with sixteen home performance contractors (as of March 15, 2012) who have agreed to work as part of their "Home Efficiency Assistance Team," or H.E.A.T. Squad. All H.E.A.T. Squad contractors provide both and other home performance measure installation services.

## H.E.A.T. SQUAD CUSTOMER APPROACH

Homeowners who participate in the H.E.A.T. Squad are eligible to receive the same incentives as Vermont HPwES in other parts of Vermont, but key elements of the H.E.A.T. Squad approach differ substantially from the EVT program. Audits are offered at a standardized, discounted price with the discount recouped by the contractor when home performance work is sold. NWWV also relies on community-based social marketing tools, rather than commercial advertising, to reach out to potential customers working with respected local citizens, local civic organizations and partnerships with local fuel dealers (see discussion above) to spread the word and to develop public interest in energy efficiency. NWWV has an easy-to-access financing package, and an advocate is available to help customers navigate the home energy retrofit process.

## H.E.A.T. SQUAD CONTRACTOR APPROACH

NWWV also works intensively with the contractors, requiring them to share information on their productivity, and providing comparative performance feedback. During monthly contractor meetings NWWV also listens carefully to contractors and helps them solve problems with customers and with Vermont HPwES. In late 2011 NWWV found that contractors wanted to expand to become more productive, but were not ready to take on the responsibility of hiring new employees. In response, NWWV recently started what is essentially a temp agency for BPI-certified technicians to provide skilled labor to H.E.A.T. Squad contractors. All of the contractors we interviewed who are currently working with the NeighborWorks HEAT Squad spoke highly of the experience. One contractor who had worked with NeighborWorks but has subsequently dropped out criticized it as ineffective.

As of March 15, 2012 the H.E.A.T. Squad had completed 242 jobs in Rutland Country and another 112 jobs were in some stage of execution. The data so far suggest that NWWV's approach is successfully generating a significantly higher response in Rutland County than would have occurred with just conventional Vermont HPwES marketing, at the same level of participant incentives. A full analysis of program-related costs is outside of the context of this study therefore we cannot compare the cost-effectiveness of the H.E.A.T. Squad approach to the basic Vermont HPwES approach. However, the innovations embodied in the H.E.A.T. Squad approach seem to be able to effectively address at least some of the barriers we discovered during our research, and point to a path that might eventually allow Vermont HPwES to lower incentives and still maintain strong demand.

# PERSPECTIVES ON VERMONT HPWES

One of the sets of questions posed to the interviewees was about their experience with Vermont's Home Performance with ENERGY STAR (HPwES) program. We collected a wide array of candid perspectives which are summarized here. Most of the responses are from home performance contractors because most fuel dealers we spoke to were unfamiliar with the program, though at least one of the HVAC contractors was a prior participant. While many home performance contractors have positive things to say about Vermont HPwES, there are many ideas about how to do things differently and how to engage participating home performance contractors more in decisions. We have organized the comments by those suggestions that impact external and then internal factors.

## EXTERNAL FACTORS

### *FUNDING*

Universally, interviewees suggested finding more resources to support the HPwES program. This issue is somewhat out of EVT's control and really hobbles the program with insufficient and variable funding. Regardless of the circumstances, many of the contractors' recommendations for strategies (listed below) to improve and grow the program will require significantly more funding than is currently allocated. There are some suggestions for redirecting current funding used to pay EVT staff and put it towards program promotion and enhancements, but most felt that if Vermont was serious about meeting its 80,000 home goal, that more resources need to be made available to support these efforts.

### *MARKETING*

Every contractor interviewed mentioned the need to increase public awareness of the HPwES program and drive demand to increase program participation. Many pointed to the TV ads in New York State promoting their HPwES program as a model of what the contractors would like to see in Vermont. A few mentioned that TV is much more effective than radio for promoting this type of service. Quite a few contractors disparaged the recent EVT marketing campaign promoting efficient lighting wondering where the state's priorities lie: light bulbs or homes. One even called it a "slap in the face". If funding can be found, the contractors feel that homeowner education and awareness of the HPwES program could have the greatest impact on elevating the profile of Home Performance and increasing demand. Other suggestions were to use known personalities to deliver testimonials and other supportive messages about the HPwES program. Names suggested included Gov. Shumlin, Howard Dean and Grace Potter. Any new promotions should be guided by a comprehensive marketing strategy that addresses these concerns and suggestions.

> "Statewide comprehensive marketing with on-the-ground education might be a better use of funds than spending it on incentives." (Home Performance Contractor)

> "The biggest disappointment with EVT is that there is very little public support for the Home Performance program." (Home Performance Contractor)

### *INCENTIVES*

Contractors provided mixed messages about incentives. While most felt that they are absolutely necessary to close the deal with homeowners, given constrained funding for the HPwES program, some felt that marketing is a priority. While we could not definitively conclude as much, it almost seems that those with the best sales skills and highest close rates would prefer to see most of the budget in marketing, while others who are trying to sell primarily to moderate income customers feel that they cannot close jobs without a healthy incentive, which people have grown to expect.

> "Seventy percent of projects wouldn't go forward without the incentive money. People don't earn enough to do this work without the incentive." (Home Performance Contractor)

There were also quite a few comments about perverse incentives from EVT that seem to encourage making the home worse to start with in order to receive higher incentives. The investigators noted that program design has historically emphasized incentives rather than on improving program services and the participation experience for both customers and contractors. This additional emphasis should be considered going forward.

> "Incentives help, but people need to be really motivated to take action." (Home Performance Contractor)

### *PARTNERING*

All of the contractors to whom we mentioned the interest of the fuel dealers in partnering were excited about the prospects. Some planned to reach out to their local fuel dealers and others were hoping that EVT would facilitate a process to match up contractors with fuel dealers.

## INTERNAL FACTORS

### *STAFFING*

EVT staff were commended for being mission-driven and dedicated to helping the HPwES program and its contractors succeed. However, there were also some criticisms including the relatively high turnover of key staff, the lack of direct-contractor experience and the unwillingness to listen to the contractors as program decisions are being formulated.

> "EVT needs someone who contractors can look up to and respect." "EVT needs to ask contractors to provide more input on policy and insights." (Home Performance Contractors)

### *PAPERWORK*

Almost every contractor complained about the paperwork and data requests required for the HPwES program.

> "…at least 20 hours per week of paperwork for this program." "The reporting burden for HPwES is ridiculous." "Smaller jobs don't justify the paperwork to get a small incentive." (Home Performance Contractors)

### *AUDIT TOOLS*

Most contractors were excited at the suggestion of a different auditing tool and platform. Many envisioned reducing field time and office time with a different tool with the ability to enter information directly into a tablet computer. There seemed to be widespread support to head in this direction. A few contractors had their own proprietary software with reports that worked for them in selling jobs. But, by in large, most contractors welcomed software whose focus was on ease of data collection and generation of a slick report to sell the customer, with the focus on selling the job, rather than EVT reporting.

> "Offer audit software that can aide sales too and expedite the auditing process." (Home Performance Contractor)

### *INSTALLING CFLS*

While seemingly a relatively minor issue, a number of contractors complained specifically about the direct-install CFL requirements for the Vermont HPwES program. From the perspective of EVT, requiring the direct-install of CFLs during an audit increases the electricity savings that can be booked. However, it seems clear that many contractors feel that it interferes with the goal of all-fuels savings and many do not bother with installing CFLs for customers anymore due a number of factors including the following:

- CFL breakage during transport and stocking hassles;
- Limited time in the customer's house needs to focus on selling the job and not installing light bulbs;
- Many of their customers already have CFLs installed;
- Customer opposition to CFLs; and
- Callbacks from dissatisfied customers to change out CFLs costs the contractors.

Some recommended EVT sending in a SWAT team independent of the contractors to install lighting and taking the responsibility off of the contractors.

> "EVT knows that installing CFLs is not a money-making proposition so they make the contractors do it." "Installing CFLs in an obstacle to selling other work." (Home Performance contractors)

### *WEBSITE*

We heard various complaints from contractors about how some changes to the EVT website have resulted in a reduction of leads. Some blamed the functionality of the software that seems to now mis-match inquiring customers' home location with contractors who aren't necessarily local. Others asked to reinstate the automated e-mail response system again from the EVT website.

> "Quite a bit of work was generated from the automated e-mail response system but these e-mail inquiries have dropped off." (Home Performance Contractor)

# CONCLUSIONS & RECOMMENDATIONS

Our research suggests that both fuel dealers and home performance contractors would be open to participating in innovative initiatives to grow the market for home performance services in Vermont, and participation in the Vermont HPwES program. Coming up with a popular consensus amongst the various stakeholders on what home performance is in Vermont, and how it can be consistently packaged and sold is probably as important as--and a prerequisite to--obtaining sufficient and stable funding. Any such initiative should be inclusive and driven by strong leadership at the state level. The pieces of the puzzle lie in front of us. Our research suggests that the following recommendations can help the pieces fit together into a complete picture of a vibrant and growing market for residential home performance services in Vermont, and help make significant progress towards meeting the 80,000 home goal.

## RECOMMENDED ADDITIONAL RESEARCH

**Gather additional fuel dealer information:** It was significantly harder to arrange interviews with fuel dealers than home performance contractors. Our sample of fuel dealers is a very small part of the state-wide community and there are many others who were not part of this conversation and should be. We also did not collect quantitative information that would provide insight into fuel use, demographics, economic conditions or other characteristics of delivered fuel customers. We suggest gathering this information in partnership with the VFDA to better understand their customer base and the opportunities for energy efficiency and conversions to biofuels.

**Investigate opportunities with other professional communities:** We only spoke to three HVAC contractors who were not also heating fuel retailers and they are also important stakeholders in Vermont's home energy provider community. There may also be similar opportunities to partner with home performance services during roof, siding or window replacements and other kinds of home renovations. An exploration of potential synergistic opportunities in these other sectors would be a logical follow-on research project to this study.

## HOME PERFORMANCE COMMUNITY RECOMMENDATIONS

1. **Organize:** Home performance contractors should join the new BPCA-VT organization to help home performance contractors better represent and market themselves.
2. **Educate Fuel Dealers:** The fuel dealers are well organized under the VFDA and meet regularly. They also sponsor regular educational seminars and training for members and their employees. These events should be utilized to educate the fuel dealers on home performance in general and HPwES in particular, why working together makes good business sense, the opportunities for partnerships, and the details and specifics of engagement. Fuel dealers will need to know more about building science, energy efficiency and the business of home performance as they look to sell this new line of services to their customers. EVT should play a supporting role in this effort. On a parallel track, VHFDA should seek out those with wood pellet experience to share their knowledge and expertise. BERC and REV should play supporting roles in this effort.
3. **Build Bridges:** Benefits and opportunities similar to those identified with fuel dealers are also very likely present with other shelter businesses, such as siding, roofing and window

companies and others. BPCA should investigate ways to include home performance during other (typically non-energy focused) home improvement investments by exploring partnerships with window, siding and roofing contractors and others.

## FUEL DEALER/HVAC CONTRACTOR RECOMMENDATIONS

4. **Design Productive Business Relationships:** BPI home performance sub-contracting protocols may be in conflict with the stated preferences of the progressive fuel dealers who would like to work with Vermont home performance contractors. BPI requires that the home performance contractor be in charge of the job to ensure technical quality, while the fuel dealers want to remain in charge of the job to ensure high quality customer service. While this may not be a significant hurdle, VFDA, EVT, and BPCA-VT, should research and determine acceptable roles and responsibilities to ensure that no standards are being violated and that lines of authority are clearly established up front. In addition, VFDA should develop industry protocols for the sharing of customer information with home performance partners.

5. **Educate Home Performance Contractors:** To support effective partnerships, fuel dealers must be being educated about opportunities to work with home performance contractors, and home performance contractors should be educated on the benefits and opportunities for working with fuel dealers. Home performance contractors will need to know how to work with fuel dealer partners in areas such as the overlapping building component "grey areas" (e.g. heating system sizing as impacted by energy load reductions, duct leakage testing and sealing, pipe insulation, etc.) and how to collaborate on combustion test-out procedures. They will also need to be clear on how program incentives, customers' payments, data reporting and other programmatic responsibilities and details flow, in addition to different possible business arrangements. Case studies, testimonials and presentations from those who have already made such partnerships work would be effective tools to demonstrate how it can be done. Sessions at events where home performance contractors attend, such as the February Better Buildings by Design Conference or EVT's regular contractor meetings, would be good venues to spread the word.

6. **Build Bridges:** There has been very little communication between the fuel dealers, and the energy efficiency and renewable energy communities in the past beyond inviting each other to some meetings. Fuel dealers are open to engaging to explore offering energy efficiency services and to selling pellet fuels and equipment. The time is right to reach out on both sides to begin more in-depth conversations about how to work together to everyone's benefit.

7. **Explore Wood Pellets:** While fuel dealers appear to watching the wood pellet market on their own, we suggest that the VFDA be pro-active in educating their membership about this potentially viable alternative fuel. There is some good experience among its membership (among others in Vermont and regionally) already selling, installing and servicing pellet equipment and providing the fuel. These experienced businesses should be tapped into as resources to better understand where the market is headed and help get there. We

recommend including regular sessions at VFDA training events on pellets and partnering with organizations such as the Biomass Energy Resource Center (BERC) and Renewable Energy Vermont (REV) for assistance in sponsoring and finding speakers knowledgeable about our future with pellets.

## Efficiency Vermont Recommendations

8. **Plan Collaboratively:** Open up EVT's ongoing Vermont HPwES program planning process to include input from an advisory group consisting of home performance contractors, fuel dealers, the real estate community and other stakeholders with the goal of developing a new business plan for the Vermont HPwES program.
9. **Implement Collaboratively:** Open up Vermont HPwES program implementation to define roles for community-based organizations (e.g. faith-based groups, civic groups, conservation commissions, neighborhood associations, etc.) to help drive demand for program participation at lower incentive levels;
10. **Learn From NeighborWorks:** Adapt the successful integrated aspects of NWWV's H.E.A.T. Squad model to the statewide Vermont HPwES program.

## Vermont State Government Recommendations

11. **Support EVT Innovation:** Support through regulatory mechanisms EVT initiatives to open up the Vermont HPwES program to direct involvement by other stakeholders and encourage the application of resources towards program innovation and experimentation.
12. **Support Home Energy Disclosure Legislation:** Pass legislation to implement a Vermont home energy rating score with required disclosure of the results of a standardized energy efficiency evaluation at the time-of-sale.
13. **Develop Long-Term Funding:** Find stable, adequate resources to fund a revamped Vermont HPwES program and support steady growth.
14. **Plan to Evaluate:** The Department of Public Service (DPS), in its role as evaluator of EVT programs, should make plans to formally track progress on all Vermont HPwES program innovations and provide timely feedback to the various stakeholders. A process evaluation would highlight lessons learned and areas of improvement that could be changed or adjusted to improve the effectiveness of the partnership.

## Joint Activities

15. **Plan Marketing Collaboratively:** The fuel dealers, home performance contractors, EVT and others will all want to let the public know the benefits of this partnership as they attempt to sell services and grow the number of jobs. Plans for a marketing campaign involving all parties will help leverage each other's' resources and can lend credibility. Home- and business owners should be made aware of the benefits of working with those involved in these partnerships and should be encouraged to participate.
16. **Learn from Innovative Marketing:** Compare innovative approaches (such as Community Based Social Marketing) from the home performance community outside of Vermont with

EVT's own experience. Work collaboratively to develop common marketing platforms that all stakeholders can use. Explore providing Vermont HPwES participants with an energy savings guarantee and investigate other programmatic strategies to reduce participation risks perceived by both customers and contractors; and

17. **Make Matches:** VFDA and EVT should work together to establish referrals between fuel dealers and home performance contractors. This could be as simple as providing lists to members or could involve arranging meetings (around a meal such as breakfast or lunch could be a draw) to provide an opportunity for each to meet the other in person.
18. **Collect Testimonials About Successful Business Models:** Testimonials and case studies should be developed to document real, successful arrangements between fuel dealers and home performance contractors. Seeing and hearing their peers and competition may help motivate others to act.
19. **Exercise Collective Influence:** The combined strength of the VFDA, BPCA-VT and EVT (along with other renewable energy contractor and advocacy organizations) representing all of its jobs and businesses, represents a significant constituency for "clean energy" public policy and funding in Vermont. These organizations should work together to look for joint funding opportunities and legislative solutions towards meeting the 80,000 home goal.

# APPENDIX A: HOME PERFORMANCE CONTRACTORS AND NON-PROFIT ORGANIZATIONS INTERVIEWED

| Company | Contact Person | Qualifications | Office Location | Products & Services |
|---|---|---|---|---|
| Building Energy Corp. | Scott Gardner | BPI Accredited | Williston | Full service weatherization. |
| Building Performance Services, LLC | Brad Cook | BPI Accredited | Warren | Full service weatherization and general building repairs. |
| Dead River Company HPwES | | BPI Certified | Woodstock | Cross-over BPI and fuel dealer |
| Energy Smart of Vermont | Paul Zabriski | BPI Accredited | Barre | Full service weatherization. Heating/cooling system service. |
| Evergreen Building Contractors | Jonathan Dancing | BPI Certified | Brattleboro | Full service weatherization. |
| Hand Energy Services, Inc. | Thomas Hand | BPI Certified | Manchester Center | Full service weatherization. |
| Lewis Creek Builders | Amy Judd, Mark Boudreau | BPI Certified | N. Ferrisburgh | Builder and home performance |
| Montpelier Construction | Malcolm Gray | BPI Certified | Barre | Full service weatherization. Heating/cooling systems. Remodeling. |
| Murphy's Energy Solutions | Shane Murphy | BPI Certified | St. Johnsbury | Not doing HP projects any more |
| Neighborworks of Western Vermont | Melanie Paskevich | Perspective with experience | Rutland | Administers HEAT Squad |
| New Leaf Design, LLC | Tom Perry | BPI Certified | Hinesburg, Starksboro | Full service weatherization. Remodeling. |
| Peregrine Design/Build | Tim Frost | Recommended by Jeff Gephart | S. Burlington | Design/build remodeling |
| Perkins Smith Design Build | Russ Flanigan Laurie Smith | BPI Certified | Shelburne | Full service weatherization. Heating/cooling systems. New home builder. |
| Red Barn Design and Build, LLC | Steve Spatz | BPI Certified | Shrewsbury | Full service weatherization. |
| Reiss Building & Renovation | Chuck Reiss | BPI Certified | Hinesburg | Full service weatherization. Heating/cooling systems. New home builder. |
| ReSource (formerly Recycle North) | Tom Longstruth | Training, reuse, jobs. Recommended by Beth Sachs. | Burlington, Barre | Recycled building materials, etc. |
| Roaring Brook Constructors, Inc. | Jeff Findheisen | Recommended by Jeff Gephart | Killington | Builders of new homes and remodelers |
| Roundtree Construction | Dan Morris | Recommended by Jeff Gephart | New Haven | Builders of new homes and remodelers |
| Sustainable Energy Resource Group (SERG) | Bob Walker | BPI Certified | Thetford Center | Audits |
| Snowdog Construction | Michael Hooper Goetinck | BPI Certified | Norwich | Not doing HP projects any more |
| The McKernon Group, Inc. | Peter Fjeld | BPI Certified | Brandon | Full service weatherization. Remodeling. New home builder. |
| Turtle Creek Builders | Ward Smyth | Recommended by Jeff Gephart | Waitsfield | Builders of new homes and remodelers |
| Vermont Works for Women | Tiffany Bluemle | Recommended by Beth Sachs | Winooski, Barre | Job training |
| Weatherization Works | William Morrissey | BPI Certified | Paulet | Full service weatherization. |

# APPENDIX B: FUEL DEALERS AND HVAC CONTRACTORS INTERVIEWED

| Company | First Name | Last Name | Office Locations | Products & Services |
|---|---|---|---|---|
| Bennington Cooling & Heating | Mary Lou | Albert | Bennington | Heating System service & installation |
| Bourne's Energy | Peter | Bourne | Morrisville, Waterbury, Waitsfield, Swanton | Oil, kerosene, propane, diesel, biodiesel, bioheat, (BPI trained but not offering services) |
| Byrnes Energy Services | John | Byrnes | W. Brattleboro | Heating system Service & installation |
| Champlain Valley Plumbing & Heating, Inc. | William | Heffernan | Bristol, Middlebury | Oil, kerosene, gasoline, bioheat, heating system service & installation |
| Dead River Company | Blair | Tartaglia | St. Johnsbury, Woodstock, Manchester, NH, N. Haverill, NH | Oil, propane, kerosene, gasoline, diesel, heating system service & installation |
| Energy Co-op of Vermont | John | Quinney | Colchester | Oil, kerosene, heating system service & installation, wood pellets |
| Hart & Mead, Inc | John | Mead | Hinesburg | Oil, kerosene, gasoline, diesel, heating system service & installation |
| HB Fuels | Sue | Hernon | Springfield | Oil, kerosene, propane, diesel, biodiesel, heating system service & installation |
| Heritage Propane/Blue Flame Gas | Michael | Devost | Richmond, Newport, Waterbury, S. Barre, St. Albans, White River Jct, | Propane, heating system service & installation |
| Irving Energy | Sheldon | Illsley | Barre, Rutland, Littleton, NH | Oil, propane, diesel, heating system service & installation |
| Jackman Fuels, Inc. | Erin | Jackman | Vergennes | Oil, kerosene, propane, diesel, heating system service & installation |
| Johnson Energy, Inc. | Thomas | Johnson | Center Rutland | Oil, kero, diesel, service & installation |
| Keyser Energy | Chris | Keyser | Rutland, Castelton, Brandon, Proctor, Poultney, | Oil, kerosene, propane, gasoline, diesel, biodiesel, heating system service & installation |
| Vermont Energy Contracting & Supply | Marshall | Paulsen | Burlington | System service & installation |

# APPENDIX C: HOME PERFORMANCE COMMUNITY QUESTIONS

1) Explain HMF and HPwES background and reason for this interview
   a) Clarify that we are not associated with EVT, but they have assisted us in identifying contractors
   b) Clarify the confidentiality of the individual responses, but request whether they have any issues sharing them only with EVT.
   c) Statewide goal (80,000 homes 20% by 2020 = 12,000 homes/year) and current performance of Vermont HPwES/WAP/VGS (2000 homes/year), leaving gap of 10,000 homes/year
   d) What Vermont HPwES is and how it functions (if interviewee is unaware)
      i) Let them explain to me if they can
      ii) Incentives
      iii) EVT promotion
      iv) Paperwork and reporting requirements
      v) Training/certification requirements
      vi) QA/QC
   e) The goals of the Seamless Path, and the opportunity for interview to start an ongoing dialog
2) Business Background (try to get this information without taking time from the interview)
   a) Name
   b) Business Name
   c) Geographic coverage
   d) Business description & model
      i) Services offered
         (1) Audits?
         (2) Air sealing?
         (3) Insulation?
         (4) HVAC equipment installation and/or servicing?
         (5) Energy efficient lighting installation?
         (6) Renewables installation?
            (a) Solar hot water
            (b) pellet stoves
            (c) PV
            (d) Other?
         (7) Other remodeling or construction services?
      ii) Business plan
      iii) Partnering history & use of subs
   e) Size of business
      i) Annual sales
         (1) $
         (2) Houses remodeled

(3) Houses treated with whole-house EE upgrade measures
ii) # of employees
iii) Growth history
f) Describe employees (# of each, capabilities)
i) Administrative
ii) Technical (certifications)
iii) Sales
(1) Skills and capabilities
iv) Other
g) Business innovation
i) Partnerships
ii) Capacity for / experience with integration

3) Perspectives on the market
a) What trends have you seen in your industry over the past five years?
b) Where do you see your industry going in the next five years?
c) Where would you like your business to be in the next five years?

4) Perspectives on the Vermont Home Performance with ENERGY STAR Program. Respondents should each answer questions from only one of the following three sections:

a) For Contractors who are currently participating in Vermont HPwES:
i) Are you interested in growing your business?
ii) If <u>not</u> interested in growing:
(1) what barriers opportunities do you see for more a effective operation of your business?
(2) What opportunities do you see?
iii) If interested in growing:
(1) what barriers do you see to growing your home energy retrofit business?
(2) What opportunities do you see for growing your home energy retrofit business?
iv) What resources (only prompt if necessary: $$, skills, connections, marketing support) would be helpful to you in order to grow/make more effective your home energy retrofit business?
v) How do you think that the HPwES program could be improved [let them answer first, then prompt]… to:
(1) Support your business?
(2) Increase the number of customers for you?
(3) Increase the number of homes retrofitted across Vermont?
(4) Increase the total savings gained from each customer?
(5) Reduce program costs per project?
(6) Improve customer service?
(7) Grow the HPwES program in general?

b) For Contractors who formerly participated in Vermont HPwES but no longer do:
   i) What were your reasons for ending your participation in Vermont HPwES?
   ii) Do you still sell home energy efficiency improvement services in Vermont?
   iii) Do you see opportunities that might cause you to consider participating in the home efficiency retrofit market or HPwES program again in the future?
   iv) What resource ($$, skills, connections, marketing support) would you need in order to rejoin the program?
   v) How do you think that the program could be improved to
      (1) Support your business?
      (2) Increase the number of customers?
      (3) Increase the total savings gained from each customer?
      (4) Lower total costs?
      (5) Grow the HPwES program in general?

c) For Contractors who have not yet participated in Vermont HPwES:
   i) Are you aware of the Home Performance with Energy Star program offered by Efficiency Vermont?
      (1) If yes, can you describe your understanding of the program? [then skip to ii.]
      (2) If no, [describe program to them] skip to the combined iv/v below]?
   ii) Why haven't you participated in Vermont HPwES? (prompts: didn't know about it, too burdensome, too much paperwork, etc.)
   iii) Do you see opportunities that might cause you to consider participating in the home energy retrofit market or HPwES program in the future?
   iv) What resource ($$, skills, connections, marketing assistance) would you need in order to deliver whole-house comprehensive weatherization services and:
      (1) Become a participating HPwES contractor offering comprehensive efficiency services, including both thermal and HVAC measures?
      (2) Provide HPwES referrals (homes that would be good candidates for efficiency upgrades)
      (3) Develop partnerships with contractors who offer complementary efficiency service (e.g. HVAC installer developing partnership with shell contractor)
   v) How do you think that the program could be improved to
      (1) Support your business?
      (2) Increase the number of customers?
      (3) Increase the total savings gained from each customer?
      (4) Improve customer service
      (5) Lower program costs per project?
      (6) Increase the number of homes retrofitted in Vermont?

5) Growing the home energy retrofit <u>market in general</u>: What would be your top three ideas for growing the home energy retrofit market in Vermont? What would it take to increase demand?

6) We would like to explore a few potential scenarios with you for new roles for your company in an expanded Vermont Home Performance with ENERGY STAR program. For this discussion assume that the number of participants in the program increases from its current level of 1,000 per year to over 8,000 over the course of 2-3 years. These scenarios are based on models used by other programs for structuring their relationships with the contractors they work with. (Indicate response on a 5 point scale for each where 5 is like and 1 is don't like).

   a) Open Scenario: Is there any way that you see your company taking advantage of or responding to expanded market demand for home energy retrofit services in Vermont? (This will be followed by prompted scenarios.)

   b) Scenario 1: Move to "sales" audit: Do you think it would help to recruit more customers to move to a shorter, cheaper (ideally free), and more standardized audit (assuming that it still provided information to satisfy program requirements and define a scope of work)? The goal of the audit would be to get the customer to make a commitment to begin a home energy retrofit project.
      i) What elements would this have that you think could make it more effective? Less effective?
      ii) (For current HP contractors). What are the barriers to moving to a shorter, free audit that potentially does not include testing? Can you imagine changing your business model from $400 audits to free audits? How would you deal with health and safety issues in such a scenario? Are there certain tests that need to be included no matter what (blower door test, etc.)? Which element of the audit takes the most time?
      iii) Would it be helpful to have access to audit software that streamlined data collection and produced customer-friendly reports? What if EVT were to standardize the audit and require the use of software/reports?

   c) Scenario 2: Community Based Social Marketing: Would your business be interested in working with community organizations like energy committees or churches or schools to promote home energy efficiency improvement services? These organizations could sign up homes in their communities as bundled jobs that would be completed consecutively or at the same time. Homeowners would have access to the community group as a third party to assist them with understanding the audit and contractors would potentially be given assistance in identifying leads and scheduling the jobs.
      i) What elements would this have that you think could make it more effective? Less effective?

   d) Scenario 3: Energy Advocate: Do you think it would help both recruit and retain customers if they had access to a third party advocate, or ombudsman to explain the audit, monitor progress of the work, serve as a liaison, communicate with lenders and generally support the customer?

i) Who should this third party be? (Prompts: EVT, Neighborworks Homeownership Center, the State, a different organization?)
ii) What elements would this have that you think could make it more effective? Less effective?

e) Scenario 4: Contractor marketing or business services cooperative. Would you be interested in joining a contractor cooperative that offers common customer services such as marketing, project scheduling, customer service and support for the paperwork requirements of the Home Performance with ENERGY STAR or other potential publicly funded programs/services? Other business services could include, payroll and insurance or a temporary skilled labor pool.
i) What elements would this have that you think could make it more effective? Less effective?

f) Scenario 5: A more standardized home energy retrofit service. Do you think it would be helpful to your business if the "home performance service" were defined, for example, as test in with a blower door followed by air sealing and attic insulation as necessary with set pricing on a square footage basis that was common to all contractors? The customer would be offered the option of going further with HVAC upgrades, energy efficiency measures or renewable installations as desired on a traditional, custom basis.
i) What elements would this have that you think could make it more effective? Less effective?

7) Contractor challenge: If you could design an approach for the state of Vermont, applying the statewide resources including contractors, community groups, state government and Efficiency Vermont, how would you reach the goal of 80,000 home energy retrofits to 20% savings by the year 2020?

# APPENDIX D: RESIDENTIAL HEATING INDUSTRY PROFESSIONAL QUESTIONS

1) HMF and HPwES background and reason for this interview
   a) Make clear that we are not affiliated with EVT
   b) Review statewide goal and currently performance of Vermont HPwES
   c) What Vermont HPwES is and how it functions (if interviewee is unaware)
      i) Incentives
      ii) Paperwork requirements
      iii) Training requirements
      iv) QA/QC
   d) The goals of the Seamless Path, and the opportunity for interview to start an ongoing dialog

2) General Background (offer to ask assistant or bookkeeper to provide)
   a) Contact Name
   b) Business Name
   c) Geographic coverage
   d) Business history (when started, etc)
   e) Business description
      i) Products sold
         (1) Oil
         (2) Propane
         (3) Kerosene
         (4) Wood Pellets
         (5) Coal
         (6) Biodiesel
         (7) Other
      ii) Services offered
         (1) Heating equipment installation (if so what types? What fuels?)
         (2) Heating equipment servicing (annual contract or service call?)
         (3) Other
      iii) Business plan
   f) Size of business
      i) Annual sales
         (1) $
         (2) Number of residential customers
         (3) Number of commercial customers
         (4) Number of delivery visits per year
         (5) Gallons/tons of each type of fuel
      ii) Number of employees

iii) Number of delivery trucks

3) Perspectives on the market
   a) What trends have you seen in your industry over the past five years?
   b) Where do you see your industry going in the next five years?
   c) Where would you like your business to be in the next five years?

4) We would like to explore a <u>few potential scenarios</u> with you for new roles for your company in providing home energy efficiency retrofit services. For this discussion, assume that the demand for these services grows strongly over the next 2-3 years and that most customers who make energy efficiency improvements install new heating equipment. Please also assume that customers who receive these services will decrease their annual fuel consumption by 25% on average.

   a) Scenario 1: Focus on high efficiency <u>biomass</u> equipment (indicate likelihood on a 5 point scale where 1 is unlikely and 5 is certainly)
      i) Use existing model for fuel distribution and combustion equipment service, but move to include biofuels (pellets and/or chips on the Austrian model)?
      ii) Partner with an installer of high efficiency biomass heating equipment?
      iii) What are the barriers and opportunities you see to focusing on biomass heating equipment?
      iv) What you think you would need to be able to successfully focus on biomass combustion equipment?
      v) Would you see any value in diversifying your fuel distribution and servicing business to include energy efficiency services? If so, can we lay out some scenarios for your reaction?

   b) Scenario 2: Focus on <u>lead generation</u> for providers of home energy retrofit services. Under this scenario assume that this would be a business arrangement where your company would receive compensation for referring customers who eventually contract for home energy retrofit services. What is the likelihood that you would: (likelihood 1 – 5 )
      i) Distribute printed information about home energy retrofit services to customers during fuel deliveries?
      ii) Identify customers who would be good prospects for direct marketing by home energy retrofit contractors or by the Vermont HPwES program?
      iii) Train your staff to perform energy audits, and selling that service to your customers?
      iv) Share information about your customers' fuel consumption history and/or combustion equipment either with a contractor or with the Vermont HPwES program to help identify potential home energy retrofit customers?
      v) What barriers and opportunities do you see to expanding your business to generate leads for home energy retrofit?

vi) What you think you would need to be able to successfully such leads?

c) Scenario 3: Focus on partnering with existing home energy retrofit contractors to offer services other than heating equipment installation and service, like air sealing and insulation. Would you: (likelihood 1 – 5 )
   i) Partner with a contractor delivering air-sealing services, insulation, or both?
   ii) Participate with a partner in the Vermont HPwES program?
   iii) What are the barriers and opportunities you see to expanding to offer your customers air-sealing and insulation services?
   iv) What you think you would need to be able to successfully partner with home energy retrofit contractors?

d) Scenario 4: Offer energy retrofit services as part of your core business. Would you: (likelihood 1 – 5 )
   i) Train existing staff or hire qualified staff to offer energy assessments/audits?
   ii) Expand the scope of your sales staff to sell energy retrofit services in addition to your existing services?
   iii) Serve as the general contractor on retrofit jobs where you sub out most of the retrofit work, but maintain the relationship with the customer and run the jobs?
   iv) Purchase an insulation blowing truck and testing equipment (blower door, duct blaster, etc.), train or hire retrofit staff and offer a full-service energy retrofit, heating system servicing/replacement and fuel service company?

e) Other Scenario: Is there another way that you see your company taking advantage of or responding to expanded market demand for home energy retrofit services in Vermont?

5) Explore interviewees perceptions on:
   a) Perceived barriers and opportunities (for fuel dealers, in general) to getting into the Home Performance (HP) business;
   b) Interest and ideas on partnering (or selling leads) to established HP contractors as a way to offer HP services to their customers.
   c) What you would need in order to consider getting into the business