

EXECUTIVE SUMMARY

ES.1 INTRODUCTION

The U.S. Department of Energy's (DOE's) Better Buildings Neighborhood Program is focused on creating self-sustaining markets for residential building energy efficiency that yield economic, environmental, and energy benefits for communities throughout the United States. DOE provided \$508 million in grants to 41 state and local governments to test potential energy efficiency upgrade program delivery and business models that improve the efficiency of buildings across the country. These grants are piloting innovative ways to design programs, services, financial structures, and methods for engaging consumers with the goal of identifying effective and replicable practices. Find out more at <http://www.betterbuildings.energy.gov/neighborhoods>.

A sustainable residential energy efficiency market benefits the public and private sectors through reduced energy usage, increased comfort and health, lower utility bills, job opportunities, and a better environment. To translate publicly funded innovations into sustainable models and expand the residential energy efficiency marketplace, the private sector will be a necessary and important partner and/or driver. Therefore, DOE and its grant recipient partners are collectively striving to understand the interests of businesses operating in this environment to identify where they could capitalize on and evolve the success of local Better Buildings Neighborhood programs.

This guide combines early lessons learned from Better Buildings Neighborhood Program grant recipients, data from existing research studies, and insights from private sector sources to highlight business models that can help pave the way toward a sustainable residential energy efficiency market. These business models should help inform Better Buildings grant recipients, program administrators, contractors, and retail companies seeking to expand their services in and into the residential energy efficiency market. This version of the guide is aimed at enhancing program administrators' understanding of critical market players as programs identify partners for long-term growth. The intent is to position these program administrators for effective partnership opportunities, which will help them enhance their business strategy to achieve long-term program sustainability. Contractors can also use this guide to work more effectively with program administrators, expand their business into energy efficiency, enhance their current business strategy, or better understand the perspectives and business drivers of other market actors. In the future, DOE will incorporate additional information from Better Buildings grant recipients and partner businesses based on their experience in implementing residential energy efficiency programs over the years of their grants.

The insights in this guide focus on common themes and benchmarks at a national level. Therefore, it is critical to factor in the local/regional conditions and dynamics when applying these insights to a specific market.

ES 1.1 Guide Development

To identify business models that might help organizations expand and become sustainable in the residential energy efficiency market, the Better Buildings Neighborhood Program conducted a study of the market and its key players. This study involved:

- Identifying key actors in the energy efficiency value chain
- Classifying common elements of a business strategy



- Conducting market research, interviewing more than 40 stakeholders, and reviewing financial data for six of the actors that form the core of the residential energy efficiency market
- Aggregating and analyzing the data to highlight common themes

This document presents the results of the study, including:

- The energy efficiency value chain that characterizes the actors and services in the market
- Six actors critical to the development of a sustainable market for energy efficiency, providing the vast majority of needed energy upgrade services to consumers
- A framework for comparing the different actors in the value chain
- A detailed look at key financial, operational, and market-related decision-making criteria relevant to the six actors
- Key points of interaction among market participants and key opportunities for collaboration
- Program practices and benchmarks that can help the market evolve toward providing home energy efficiency services

ES 1.2 Energy Efficiency Value Chain

The residential energy efficiency value chain is complex, with multiple actors from the private, public, and nonprofit sectors providing overlapping services to the market. After mapping the value chain, DOE chose to examine six key market actors that influence and/or provide the opportunity to expand the residential energy efficiency market:

A **value chain** is a representation of a market that highlights all key actors and how they interact with one another.

- Remodelers
- Heating, ventilation, and air conditioning (HVAC) contractors
- Home performance contractors
- Retailers
- Non-utility energy efficiency program administrators
- Utility energy efficiency program administrators

DOE studied business models for companies that provide home energy upgrade services to consumers: remodelers, HVAC contractors, home performance contractors, and retailers. These actors have the potential to either grow their existing home energy upgrade services or expand into the energy efficiency upgrade market if they do not currently offer those services. Because these firms provide home energy upgrade services directly to consumers, they represent significant partnership opportunities for program administrators.

DOE also studied business models for program administrators—both non-utility program administrators (such as the New York State Energy Research and Development Authority and Better Buildings for Michigan) and utility program administrators (such as Dominion Electric or Pacific Gas & Electric [PG&E]). Program administrators are key actors because they influence policy, regulation, programs, and/or incentives in the residential energy efficiency market and can enable the success of private contractors. Specifically, they can influence the value chain by providing financial incentives, training and certifications programs, and marketing and outreach tools that reach contractors and consumers.

The actors addressed in the study often partner or interact with other individuals or businesses who are part of the home energy upgrade service chain in specific localities. Among these are home energy auditors or raters, building science experts who perform quality assurance, and building code inspectors. These individuals and business types, while not specifically covered in DOE's analysis, could play an important role in safe and effective delivery of energy efficiency services.

ES 1.3 Business Model Elements

Each member of the energy efficiency value chain uses a distinct business model characterized by multiple elements:

- **Governance: how a firm makes decisions in the market.** Understanding the governance structure associated with a given business model can help uncover what objectives a business will prioritize, how it will respond to both market trends and policy, and whom it recognizes as relevant stakeholders.
- **Financial model or structure: how a firm raises capital for startup or expansion and sets performance targets.** Establishing and tracking a key set of financial metrics and benchmarks across each industry segment can reveal the major motivations for a business to seek change, as well as key decision points.
- **Assets and Infrastructure: how a firm invests and brands itself in order to operate.** Assessing the benefits and costs associated with an asset or infrastructure enables management to identify opportunities for creating value and reducing costs.
- **Service offering: what goods and services a firm markets and sells.** Examining existing service offerings and uncovering untapped opportunities to expand core business offerings or enter into partnerships can reveal ways to increase customer traffic, consumption, and revenue over time.
- **Customers and customer acquisition: who a firm's target market is and how it is reached.** Identifying customer segments associated with each business model can help to measure probability of success for partnerships and service offerings.

The unique mix of these business model elements determines how a given actor will be affected by various financial incentives, regulations, and fluctuations in the market. By analyzing each business model's unique components, DOE has gained some insight into possible opportunities for increased energy efficiency services in the market. These insights are based on 2011 market conditions and interviews conducted with people listed on page xii of this report ("Acknowledgements"). Therefore, they may not apply to all local markets and may change over time.

This report presents key insights regarding the six actors studied, grouped into two primary categories: contractors/retailers and program administrators.

ES.2 CONTRACTORS/RETAILERS

ES 2.1 Contractor/Retailer Description

The home improvement market includes a range of private-sector entities that currently provide or could offer home energy upgrade services. Most of these entities are remodelers, HVAC contractors, home performance contractors, or retailers, so this business model analysis focuses on those groups.

- The **remodeler** business model focuses on the remodeler's operating environment in the general home improvement market. This model covers general remodelers as well as integrated design and build firms. It highlights opportunities for expansion into the residential energy efficiency market.



- The **HVAC contractor** model reviews the operating environment for contractors whose primary service offering is HVAC installation and repair. It highlights opportunities for expansion into the residential energy efficiency market.
- The **home performance contractor** model walks through the “one-stop-shop” model for delivering home energy upgrades. It illustrates both opportunities and barriers for becoming a home performance contractor company.
- The **retailer** model demonstrates how energy efficiency services are provided in combination with or through retailers. It examines the longstanding role of retailers as marketing powerhouses and the newer trend toward retailers partnering with various types of service providers, such as utilities or HVAC contractors. As a result of this trend, retailers may sell contractor services under their brand name or sell energy efficiency products to “do-it-yourself” consumers directly.

Figure ES-1 provides an overview and descriptions of contractors/retailers.

Description of Contractors/Retailers					
	Remodeler Model		HVAC Contractor Model	Home Performance Contractor Model	Retailer Model
Descriptor	General Remodelers	Integrated Design and Build Firms	Trade Contractors	Home Performance Contractors	Retailers
Market Role	<ul style="list-style-type: none"> Represent the majority of the home improvement market 	<ul style="list-style-type: none"> Represent a small segment of the general remodeler market 	<ul style="list-style-type: none"> Represent a large portion of the home improvement market 	<ul style="list-style-type: none"> Represent a small segment of the home improvement market 	<ul style="list-style-type: none"> Primary seller of goods to “do-it-yourself” consumers
Service Offering	<ul style="list-style-type: none"> Offer standard range of home improvement services 	<ul style="list-style-type: none"> Offer services that integrate architects, remodelers, and project managers 	<ul style="list-style-type: none"> Offer specialized products and services such as HVAC and windows 	<ul style="list-style-type: none"> Specialize in energy efficiency services and provide “one-stop shop” for home energy upgrades 	<ul style="list-style-type: none"> Provide goods and services either directly to the consumer or indirectly through network of qualified contractors that operate under the retailer brand
Implications	<ul style="list-style-type: none"> Largest segment of the market, but also the least specialized May require the most additional training to shift from general home improvement to home energy upgrade model 	<ul style="list-style-type: none"> Generally have more control over entire home improvement process than general remodelers Design component of work may offer greater opportunity to work energy efficiency into home improvement projects 	<ul style="list-style-type: none"> HVAC contractors require highly technically skilled staff to start up/operate, which results in a lower marginal cost for them to enter the home energy efficiency market 	<ul style="list-style-type: none"> While larger firms in the related remodeler or trade contractor markets can shift their focus to become vertically integrated energy upgrade providers, small businesses may have more success by only focusing on providing home energy upgrades 	<ul style="list-style-type: none"> In addition to sale of goods, retailers help facilitate the home improvement market by providing home improvement services via partnerships with qualified contractors (e.g., general remodelers)

Source: Booz Allen research

Figure ES-1: Description of Contractors/Retailers

ES 2.1.1 Contractor Comparison

The business model analysis highlights the five critical components—described in Section 1.4—that influence each contractor’s delivery of home energy upgrade services. To better understand contractors’ opportunities for expansion, collaboration, and sustainability in the residential energy efficiency market, it is

useful to first understand the key similarities and differences among these contractors. This section highlights key points of comparison in the categories of size, operating environment, competitive landscape, and collaborative landscape.

- **Size:** Remodelers, HVAC contractors, and home performance contractors are very similar in size, with the majority of firms employing 1 to 15 people. The majority of retailers, on the other hand, are large, established big box companies, with some smaller franchises.
- **Operating environment:** Each contractor experiences barriers to entry into both the broader home improvement and niche residential energy efficiency markets:
 - **Remodelers** have the lowest barriers to entry into the general home improvement market, as they require only a state license in order to operate legally. Remodelers generally start at the local level and are not seasonal businesses by nature.
 - **HVAC contractors** experience higher barriers to entry into the general home improvement market because they offer specialized services that require substantive training and certification, particularly for health and safety requirements. HVAC contractors are also characterized by the seasonal and regional nature of their industry.
 - **Home performance contractors** focus primarily on the residential energy efficiency market, rather than the broader home improvement market. New businesses face slightly higher barriers when entering into the residential energy efficiency market than the general home improvement market because home energy upgrade services require specialized training and equipment.
 - The **retailer** market is saturated, competitive, and dominated by big box stores. Growth is achieved through the addition of new services or through mergers and acquisitions, rather than opening new stores.
- **Competitive landscape:** Remodelers, HVAC contractors, home performance contractors, and retailers compete with one another directly when it comes to energy efficiency services, although they occupy different niches of the broader home improvement market. These companies generally compete for the same target demographic group but provide a wide array of services, with limited overlap:
 - Contractors' general target demographic for home energy upgrades includes homeowners with income of greater than \$60,000 per year, homes between 1,500 and 3,000 square feet, and homes built between 1970 and 1990.
 - **HVAC contractors** and **home performance contractors** compete solely in the installation, maintenance, and replacement of heating and cooling units.
 - **Remodelers** compete with **home performance contractors** in providing insulation, duct sealing, appliance installation, and other general home improvements that also relate to improving a home's energy performance.
 - **Home performance contractors, HVAC contractors, and remodelers** may also compete with energy efficiency programs that offer free or discounted energy assessments or conduct home energy upgrades directly.
 - **Retailers** primarily compete with other service providers by selling goods and services to "do-it-yourself" homeowners.
 - **All contractors** are concerned with the health and safety issues surrounding their work. Because the misdiagnosis of a health or safety issue can present significant legal risk to the contractor, most contractors prefer to do their own assessments of the home to ensure that no major health or safety risks are missed. Currently, the majority of contractors conduct all phases of the home energy upgrade, from start (assessment) to finish (quality assurance), because this lets them control their

risk and deliver their message directly. Many contractors, however, are comfortable with outsourcing quality assurance services to save on labor costs. To date, business models built around only providing assessment services have not typically been found viable, but models are being explored that involve contractors working with third-party assessors that they know and trust.

- **Collaborative landscape:** Contractors and retailers have many opportunities for collaboration with program administrators and other actors.
 - **Remodelers** and **HVAC contractors** may hire other specialists, such as insulation contractors, as subcontractors on large jobs. **Remodelers** also often subcontract to general **HVAC contractors** to provide specialized HVAC services.
 - **Remodelers, home performance contractors, and HVAC contractors** who cannot or do not want to perform a whole house energy upgrade can work together to share loads.
 - **Retailers** and **program administrators** may partner with **remodelers** or **HVAC contractors** by retaining them as certified service providers that do home improvement or home energy upgrade work on their behalf.
 - **Home performance contractors**, though their sector is not as large, collaborate with both **non-utility** and **utility program administrators** to obtain new business.
 - As well as partnering with **remodelers** and **HVAC contractors**, **retailers** may engage **home performance contractors** and **non-utility program administrators** through pilot programs. They may also consider acquiring those **home performance contractors** who can demonstrate the sustainability of their service offerings in their market.
 - **Retailers** may partner with **utility program administrators** by offering to market and/or offer their rebates in-store.

In addition to these points of comparison, contractors face similar investment decisions including when to invest in the business, what investments to make, and how to fund an investment. Each contractor experiences similar start-up and growth patterns over time. These patterns can be characterized by a life cycle that highlights specific points where potential future expansion is a strategic decision. As these contractors invest money into their businesses to spur this growth, they must achieve a required rate of return at least the equivalent of their respective cost of capital (also known as their “hurdle rate”) on those investments to sustain their businesses in the long run. Of all the common elements of the various contractor models, profitability is arguably the most critical. Finally, each contractor must identify sources of funds from the many options available for business to secure capital.¹

Summary of Contractor/Retailer Insights		
	Observations	Impact on Potential Expansion into Residential Energy Efficiency Market
Market	<ul style="list-style-type: none"> ■ Most remodelers, HVAC contractors, and home performance contractors employ 1 to 15 people. ■ The majority of retailers are large, established big box companies, with some smaller franchises. Because of market saturation, large retailers are increasingly looking for opportunities to expand services rather than physical locations. 	<ul style="list-style-type: none"> ■ Remodelers and HVAC contractors may have difficulty expanding into the residential energy efficiency market without outside help (e.g., business development and additional staff). ■ The size of the potential market for home performance contractors is being evaluated by service providers looking to enter the market. ■ Big box retailers are considering expanding into the energy efficiency market as an opportunity for growth.

¹ Chapter 2 of the *Business Models Guide* has a more complete description of the life cycle, hurdle rates, and sources of funds.

Summary of Contractor/Retailer Insights

	Observations	Impact on Potential Expansion into Residential Energy Efficiency Market
Governance	<ul style="list-style-type: none"> A firm's strategic decision-makers directly control the growth/expansion investment strategy. Many firms choose not to expand further when they reach a level of sustainability at which the owner is comfortable. 	<ul style="list-style-type: none"> For a firm to consider expanding into energy efficiency, the owner must first commit to the expansion strategy. This decision can be particularly challenging for remodelers and HVAC contractors who already have profitable base businesses, because they might be reluctant to take on work that requires different skills and equipment.
Financial Model or Structure	<ul style="list-style-type: none"> The methodology most used by firm decision-makers to evaluate potential investments is the hurdle rate analysis. A wide variety of funding sources are available to fund investments that exceed the hurdle rate for a business, but many of them are costly or require personal collateral. Smaller contractors will have a high cost of debt due to the higher risk associated with the startup of a business. Often, the cost of this debt is in the 10 to 20 percent range, or requires the posting of personal assets for collateral (such as in home equity lines of credit). 	<ul style="list-style-type: none"> Firms will only make investments with returns that exceed the desired hurdle rate, so the profitability of energy efficiency as a line of business needs to be established. Taking out a business line of credit can allow a small business to finance its investments without putting up personal assets for collateral. Program administrators can help lower risk to small contractors by providing training or education on getting a business line of credit.
Assets and Infrastructure	<ul style="list-style-type: none"> As firms grow over time, critical investments must be made in overhead infrastructure to support the expansion of the business. This overhead typically consists of administrative support for expanded field work, including additional staff, training, and/or software functionality. These investment points typically come at around \$1 million, \$3 million, and \$5 million in annual revenues, when the business looks to expand service offerings or grow into additional regions. 	<ul style="list-style-type: none"> Expanding a business from a startup or established model into home energy upgrade services will require an additional investment of capital (an additional \$33,000 to \$50,000 for remodelers, an additional \$45,000 to \$55,000 for an HVAC contractor, and \$78,000 to \$100,000 to start a home performance business). Training staff in new service offerings can be a sizable barrier for smaller contractors due to the time commitments and associated costs required.
Service Offering	<ul style="list-style-type: none"> Each of the four primary service provider types—remodelers, HVAC contractors, home performance contractors, and retailers—occupies a specific niche in the energy efficiency market, offering a diversity of services. These services vary widely among firms, even within the same service provider type. Retailers differ from contractors because they provide goods directly to “do-it-yourself” consumers and contractors, in addition to providing goods and services through contractor partners. Due to the liabilities associated with health and safety risks, contractors often prefer to conduct their own home assessments before doing installation work. 	<ul style="list-style-type: none"> Given the diversity of services offered, the requirements for expanding into the residential energy efficiency market will vary by firm. Models centered around providing third-party energy assessment depend on contractors working with assessors that they know and trust.

Summary of Contractor/Retailer Insights		
	Observations	Impact on Potential Expansion into Residential Energy Efficiency Market
Customers and Customer Acquisition	<ul style="list-style-type: none"> ■ As a general rule, most contractors are competing for the same target niche of the market (homeowners with income above \$60,000 per year, homes between 1,500 and 3,000 square feet, and homes built between 1970 and 1990), but provide a wide array of services. ■ Consumers who can afford home energy upgrades can realize large energy savings from these improvements. 	<ul style="list-style-type: none"> ■ Because contractors target a similar demographic, competition within the residential energy efficiency market is high. ■ At the same time, the range of specific services provided means there are opportunities for collaboration between firms. ■ It is important to have potential customers living in the firm's service area who meet the demographic of the target market (with respect to income level, home size, etc.).

ES 2.2 Remodeler

A remodeler is a company whose core business is to provide a full array of home improvements, such as remodeling an individual room, replacing floors, or adding rooms. Remodelers compete with and often employ more specialized contractors as subcontractors. These include window, insulation, and HVAC contractors. Remodelers may also provide design and construction services. Only 20 percent of remodelers currently offer home energy upgrade services, although an additional 40 percent are considering offering these services.²

OPPORTUNITY STATEMENT: Remodelers are uniquely positioned to capture a share of the residential energy efficiency market. Because remodelers offer a range of services, they operate a model that seeks long-term relationships and multiple projects over a number of years. When they are in the home to discuss or provide remodeling services, they can also discuss potential home energy upgrades with the homeowner. Having already overcome a key barrier—access to the home—they have a significant opportunity to “upsell” their existing services. Conversely, remodelers can use home energy assessments as an entry point to perform both energy efficiency upgrade services and other remodeling work. The home energy assessment can help generate a list of improvements to tackle over time.

Summary of Remodeler Insights		
	Observations	Impact on Potential Expansion into Residential Energy Efficiency Market
Market	<ul style="list-style-type: none"> ■ As of 2007, there were 650,000 firms in the remodeler industry, but only 30 percent generated more than \$100,000 per year in revenue. ■ The most well-established remodeling firms generate more than \$1 million in annual revenue, representing just 15 percent of the market. ■ Below \$1 million in annual revenue, companies are typically not large enough to consider hiring new staff or adding service offerings. 	<ul style="list-style-type: none"> ■ Established firms generating more than \$1 million in annual revenue are most likely to have the capacity to incorporate energy efficiency products and services into their businesses. ■ Smaller firms may have difficulty expanding into the residential energy efficiency without outside assistance. ■ The largest firms (over \$3 million per year in annual revenue) could help serve as early adopters and help demonstrate the profitability of home energy upgrades to the rest of the home improvement market.
Governance	<ul style="list-style-type: none"> ■ Firms in the remodeling industry tend to have a lean decision-making structure and are highly responsive to customer demand 	<ul style="list-style-type: none"> ■ Small companies, such as remodelers, have the decision-making ability to expand into new service offerings relatively quickly. However, they

² Source: Booz Allen research, industry interviews. (See “Acknowledgements” for a complete list of industry representatives interviewed.)

Summary of Remodeler Insights		
	Observations	Impact on Potential Expansion into Residential Energy Efficiency Market
	<p>at the point of sale.</p> <ul style="list-style-type: none"> While remodeling firms can be sustainable at varying sizes, there are critical decision points in the growth of a company where management must decide to reinvest in growth or remain static. 	<p>may require assistance in conducting long-term strategic planning to do so.</p> <ul style="list-style-type: none"> Investment decisions regarding expansion of services (such as into home energy upgrades) depend both on the owners' willingness to grow their businesses on a broader scale and on homeowner demand trends.
Financial Model or Structure	<ul style="list-style-type: none"> To grow beyond the \$1 million revenue per year level, firms may need to seek out additional sources of sales, either through expansion to different regions or through additional service offerings. 	<ul style="list-style-type: none"> Firms with annual revenue below \$1 million typically do not generate enough cash flow to cover the cost of expanding their service offerings. Firms seeking to establish themselves in the market over the long term can use home energy upgrades as a potential source of differentiation, additional sales, and, by extension, profits.
Assets and Infrastructure	<ul style="list-style-type: none"> Approximately \$40,000 to \$50,000 in equipment and training costs are required to expand from a typical remodeling contractor model to a home performance contractor model offering home energy upgrades. As a remodeler's business enters the growth stage, overhead costs typically increase due to additional administrative staff needed to manage job reporting and tracking, incentive paperwork, staff training, and marketing efforts. It is often difficult for smaller remodelers to reinvent their brand or re-train their staff once they are up and running. 	<ul style="list-style-type: none"> Technical training costs may be mitigated through leveraging existing manufacturer or program administrator trainings. Many overhead functions can be streamlined through the use of software, such as customer relationship management (CRM) and job reporting software that lowers the need to have dedicated administrative staff. Implementing this software can be costly up front, but can reduce costs over the long term. Smaller remodeler firms that are still trying to establish their firm's value to the market could build home energy upgrades into their core service line right from the beginning and brand the company as a home performance firm. This is one of the keys to success for the home performance contractor.
Service Offering	<ul style="list-style-type: none"> Remodelers provide general home improvement services that can span many different types of measures. Most jobs are customized to the home. Approximately 50 percent of remodeler jobs are of the one-off variety or are simple repairs. Nearly 50 percent of jobs are for single rooms or feature remodels. Whole-home remodels account for only 1 percent of total jobs. Home energy upgrade jobs tend to be larger and more complex than single repairs, but smaller and easier to navigate than standard room remodel jobs. 	<ul style="list-style-type: none"> Most remodelers already have skills—such as insulation installation, window replacement, and appliance installation—that could be readily modified to improve energy efficiency. Remodelers may be more comfortable expanding their service offerings to provide a series of energy efficiency measures that can be completed over time, rather than trying to sell the whole-home package in one transaction. To generate revenues from home energy upgrades, remodelers may need to adjust their service offerings strategy from longer, larger projects to shorter, higher-volume efficiency jobs. To expand their offerings, it is critical for remodelers to help homeowners understand the energy efficiency opportunities for their homes. Because remodelers have access to homes and homeowners, they can be important partners for programs in demonstrating demand and helping the market expand.
Customers and Customer Acquisition	<ul style="list-style-type: none"> The general remodeler's target customer base is homeowners with at least \$60,000/year in income, in homes built between 1960 and 1990 of 1,500 to 3,000 square feet in size. This target group 	<ul style="list-style-type: none"> Customers requesting whole-home remodel and single room/feature services are demographically similar to those inclined to complete energy efficiency projects. Both customer types have upper middle incomes, smaller to medium-sized

Summary of Remodeler Insights

	Observations	Impact on Potential Expansion into Residential Energy Efficiency Market
	<p>represents only 8 percent of the total home improvement market.</p> <ul style="list-style-type: none"> ■ The primary drivers of sales for most remodelers are referrals from existing customers or repeat business. ■ Remodelers could be excellent partners for energy efficiency programs due to their established customer base and sales capabilities. ■ Interviewed remodelers indicated that they have about a 70 to 80 percent close rate on small jobs and only a 20 percent close rate on large jobs. ■ Home energy upgrades are estimated to have about a 50 percent close rate when marketed by experienced home performance companies. ■ The average cost of a lead for a standard remodeler is estimated to be approximately \$200. 	<p>homes, and, typically, higher levels of education. This illustrates the strategic opportunity for remodelers to expand their services to include home energy upgrades.</p> <ul style="list-style-type: none"> ■ Referrals from program administrators could be a new source of leads for firms trying to establish themselves in the residential energy efficiency market. ■ In times of slow economic growth, general remodelers must develop customer loyalty and continually drive repeat sales among customers to be successful. Expanding their services into home energy upgrades could provide an opportunity for additional sales.

ES 2.3 HVAC Contractor

An HVAC contractor is a specialized contractor whose core business is to install and maintain HVAC equipment. An HVAC contractor's specialized business model is focused primarily around the installation and maintenance of HVAC units.

OPPORTUNITY STATEMENT: The HVAC contractor possesses many unique advantages for expanding into the residential energy efficiency market. These include lower expansion costs due to fewer additional asset and training requirements than a general remodeler. Further, an HVAC contractor has established repeat business streams through service contracts and a reputation for maintaining home comfort—a natural selling point for home energy upgrade services.

Summary of HVAC Insights

	Observations	Impact on Potential Expansion into Residential Energy Efficiency Market
Market	<ul style="list-style-type: none"> ■ Most businesses in the HVAC contractor market are small, earning less than \$1 million in revenue per year. ■ The HVAC industry is seasonal and regional in nature. ■ Approximately 20 percent of HVAC contractors fail across the industry every year, with 70 percent of new HVAC businesses failing in their first year of operation. 	<ul style="list-style-type: none"> ■ Smaller HVAC contractors with annual revenue below \$1 million typically would not consider expanding into home energy upgrade services. ■ Medium-sized contractors with an already established HVAC business are prime candidates for an expansion into the residential energy efficiency market. They have the assets already in place to expand and a solid body of established service contracts in hand to drive sales.
Governance	<ul style="list-style-type: none"> ■ Most HVAC contractors are sole proprietorships or family-run businesses. ■ HVAC contractors typically have a lean governance structure that is centered on the owner or a few key players. 	<ul style="list-style-type: none"> ■ The owner has limited time to evaluate expansion opportunities for the residential energy efficiency market and may require assistance in that area. ■ Lean governance provides HVAC contractors with the flexibility to make decisions quickly.

Summary of HVAC Insights

	Observations	Impact on Potential Expansion into Residential Energy Efficiency Market
Financial Model or Structure	<ul style="list-style-type: none"> The HVAC business is seasonal: most HVAC repair and replacement jobs occur during the seasons when occupants are least comfortable with their climate. HVAC contractors are generally funded through personal finance and often rely on lines of credit to cover their cash shortfalls during off seasons. Successful HVAC contractors typically aim for about a 12 percent net margin for profitability. An HVAC contractor's gross profit is higher for equipment (approximately 45 percent on average) than for labor.³ It is generally in the HVAC contractor's best interest to limit the amount of labor hours on a job in order to keep average margin up. 	<ul style="list-style-type: none"> Personal credit cards carry a high cost of debt and high risk. A high cost of start-up debt lowers profitability of smaller firms. The seasonal nature of the HVAC business provides an opportunity for expansion into the residential energy efficiency market. Such a shift gives HVAC contractors a chance to bring in revenue year-round, as home energy upgrade demand is not seasonal in nature. The slow season is the best time for programs to collaborate with HVAC contractors to provide training and incentives because contractors have time to take advantage of program offerings. HVAC contractors can maintain desired levels of profitability even after shifting to a more labor-driven model by focusing on home energy upgrade sales during their slow season. To avoid shifting too far toward a labor-driven model, HVAC contractors can subcontract more labor-intensive components of home energy upgrade services to specialists such as insulation contractors.
Assets and Infrastructure	<ul style="list-style-type: none"> HVAC asset requirements are broadly similar to those of a home performance contractor. HVAC contractors tend to lease their equipment, reducing the need to invest a significant amount of capital in assets up front. The largest investment necessary for an HVAC contractor to expand into the residential energy efficiency market is training for existing staff in home energy upgrade concepts. Dedicating a line of business to home energy upgrades requires HVAC contractors to hire specialized staff, purchase additional equipment, and develop marketing materials. 	<ul style="list-style-type: none"> Limited assets are required to expand services from HVAC into home energy upgrade services. The marginal investment needed to enter the residential energy efficiency market is approximately \$45,000, and typically lower for an HVAC contractor than a remodeler. HVAC contractors can leverage existing HVAC manufacturer training to mitigate some of the cost of technical training. Labor-intensive components of home energy upgrade work (such as insulation and air sealing) can be subcontracted out to home performance contractors during the initial phase of expansion.
Service Offering	<ul style="list-style-type: none"> HVAC contractors provide specialized services that focus on heating and cooling equipment installation, such as central air conditioning units, furnaces, and hot water heaters. The HVAC contractor's key revenue driver is repeat business from maintenance contracts. Roughly 500 service contracts is a reasonable threshold for an HVAC business to be sustainable. As part of their core business, HVAC contractors may also provide high-efficiency equipment and thermostat installations. 	<ul style="list-style-type: none"> Adding labor-intensive home energy upgrade services to a service mix primarily focused on material sales will require a shift in strategic thinking and may require additional sales training (from program administrators or manufacturers). Because service contracts are key sources of revenue for an HVAC contractor and involve regular home visits, they can be leveraged to help drive sales of home energy upgrades as well. An expansion in service offerings can also affect the way HVAC contractors organize their annual schedules—for example, keeping staff employed year-round rather than seasonally.
Customers and Customer	<ul style="list-style-type: none"> Direct interaction with customers through repeat service visits is the primary means of generating revenue for HVAC contractors. 	<ul style="list-style-type: none"> Service contract touch points provide HVAC contractors with an optimal means of providing energy assessment services, helping to drive

³ Gross profit is revenues minus cost of goods sold.

Summary of HVAC Insights		
	Observations	Impact on Potential Expansion into Residential Energy Efficiency Market
Acquisition	<ul style="list-style-type: none"> HVAC contractors are considered experts in “home comfort,” health, and safety by consumers because they can moderate air temperatures. 	<ul style="list-style-type: none"> year-round sales of home energy upgrades. Home comfort, health, and safety give HVAC contractors a natural platform to offer home energy upgrades, because consumers already rely on HVAC contractors to improve their home comfort by repairing HVAC units.

ES 2.4 Home Performance Contractor

A home performance contractor is a company whose primary business is to deliver the full suite of home energy upgrade services to consumers directly. Home performance contractors range from small, start-up businesses to large national franchise chains that specialize solely in the delivery of home energy upgrade services to the consumer. They have a dedicated business model that integrates all aspects of a home energy upgrade into one comprehensive service. Their offerings include the initial energy assessment through installation to quality assurance.

OPPORTUNITY STATEMENT: Starting a new business as a dedicated home performance contractor provides several advantages over a business expansion model. A new business allows a firm to better define its goals, understand its market before entry, determine its key selling points, and undertake training before the launch of the business. Once in the market, firms should push for rapid growth to build a sustainable customer base, because most home performance contractor sales come from repeat business or customer referrals.

Summary of Home Performance Contractor Insights		
	Observations	Impact on Potential Entry into Residential Energy Efficiency Market
Market	<ul style="list-style-type: none"> As the energy efficiency market is relatively new, a large number of home performance contractor firms in the market are small startups, with a few large franchises that expanded into the market from other business types (e.g., remodelers, HVAC contractors). 	<ul style="list-style-type: none"> The potential size of the energy efficiency market is not yet known, but is currently being evaluated by many of the service providers looking to enter the market.
Governance	<ul style="list-style-type: none"> Home performance contractors are typically small, private companies with clear chains of command focused around the owner. In markets where the home performance contractor interacts with an efficiency program, decision-making will be influenced by external reporting regulations associated with the capture of incentives, on behalf of both the firm and the customer. 	<ul style="list-style-type: none"> Home performance contractors can take advantage of lean governance structure to make decisions quickly and adapt to both market and partnership regulations. The ability to navigate the incentive landscape without taking on too much of the administrative burden is critical to keeping overhead costs down and maintaining a sustainable home energy upgrade business.
Financial Model or Structure	<ul style="list-style-type: none"> Small home performance contractors are primarily funded through personal finance, such as credit card debt or home equity loans. Personal credit cards and home equity loans carry high cost of debt (between 5 and 16 percent) and a high risk due to the use of personal assets as collateral. Home performance contractors may be able to raise funding outside of funds already available to firms in more established markets (e.g., venture capital) due to the potential for future 	<ul style="list-style-type: none"> The high cost of start-up debt lowers profitability of smaller firms. To this end, a business line of credit, which protects small business owners from personal credit risk, may be the best option for financing growth. Many home performance contractors that do not secure external funding to grow or work with an energy efficiency program administrator cannot grow beyond \$1 to \$3 million in revenue per year. Home performance contractors must develop an

Summary of Home Performance Contractor Insights

	Observations	Impact on Potential Entry into Residential Energy Efficiency Market
	<p>demand for their services.</p>	<p>understanding of market demand and leverage partnership opportunities to reach their target revenue threshold and achieve sustainability for the business.</p> <ul style="list-style-type: none"> Seeking additional external funding to grow the business is critical. Home performance contractors must develop a sound business plan and demonstrate that there is sufficient market demand for home energy upgrades to secure external financing, establish key partnerships, and become sustainable.
Assets and Infrastructure	<ul style="list-style-type: none"> The cost of starting up a basic home performance contractor business ranges between \$80,000 and \$100,000, and includes basic remodeling equipment costs as well as specialized equipment and training costs. As a contractor's business enters the growth stage, overhead costs typically increase due to additional administrative staff needed to manage job reporting and tracking, incentive paperwork, staff training, and marketing efforts. 	<ul style="list-style-type: none"> A primary asset for overhead cost control is CRM, job tracking, and reporting software.
Service Offering	<ul style="list-style-type: none"> Home performance contractors are a one-stop shop for homeowners, providing a variety of home energy upgrade services including energy assessments, customer financing and incentives, installation, and quality assurance. Many home performance contractors differentiate themselves from their competition by demonstrating their knowledge of local efficiency rebates and incentives. Materials and installation labor amount to approximately 80 percent of the cost of an average home performance job. Materials costs are generally set by the market. Contractors attempt to control labor costs by limiting them; however, by trying to streamline installation labor costs, they may inadvertently increase quality assurance costs. 	<ul style="list-style-type: none"> Home performance contractors should know the full range of financing, incentives, and reporting options, and communicate these options to consumers to drive home energy upgrade sales. While incentives can be helpful in driving demand and closing sales, it is critical that home performance contractors reduce their reliance on them because incentives are not always available. Home performance contractors can collaborate with program administrators and implement software solutions to control administrative, marketing, energy assessment, and quality assurance costs. These costs are 20 percent of the cost of an average job. As customer referrals are the primary source of new jobs, it is essential that home performance contractors complete home energy upgrades correctly the first time.
Customers and Customer Acquisition	<ul style="list-style-type: none"> The primary drivers of sales for most home performance contractors are referrals from existing customers or repeat business. Building strong customer relationships is critical to developing referrals. The home performance contractor's energy assessment process is the best venue for the sale of home energy upgrades, provided the customer is home when the assessment takes place. Engaging the homeowner throughout the process will increase likelihood of a sale. While homeowners trust contractors as experts in their field, third-party validation that a contractor is knowledgeable of home energy upgrades is helpful during the sales process. Home performance contractors with business and sales training often relate to customers 	<ul style="list-style-type: none"> Home performance contractors should coordinate with local efficiency programs as much as possible to benefit from neutral third-party validation and referrals. For example, mass media advertising in time slots adjacent to program-sponsored advertisements has been shown to produce a bump in home energy upgrade sales for home performance contractors that have tried this strategy. Home performance contractors should consider involving both a technical and a sales staff member in the assessment to increase understanding of the value of the home energy upgrade and address technical questions. Home performance contractors should include options for discounted financing (either bought down by the contractor in conjunction with a

Summary of Home Performance Contractor Insights		
	Observations	Impact on Potential Entry into Residential Energy Efficiency Market
	better than those with only technical training.	private financial institution or arranged through a local efficiency program) in their sales pitches to help with the closing of sales.

ES 2.5 Retailer

The retailer is a highly profit-driven entity that traditionally has played a large role in providing goods and services directly to consumers. Energy efficiency products and upgrade services are just one of many types of offerings a retailer provides to the market. Retailers typically operate out of physical stores, although they are increasingly also providing shopping services over the Internet.

OPPORTUNITY STATEMENT: Retailers can be valuable partners in building a sustainable residential energy efficiency market. They have well-established brand names and central store locations that provide partner contractors and programs with credibility and better access to customers. This access comes at the cost of having to work around retailer profitability requirements, pilot processes, and project timelines. It is critical that anyone seeking to partner with a retailer come prepared with a well-thought-out business plan that addresses these concerns and highlights estimated demand for the market in question.

Summary of Retailer Insights		
	Observations	Impact on Potential Expansion into Energy Efficiency
Market	<ul style="list-style-type: none"> While there are multiple sizes and forms of retailers, big box chains represent 82 percent of the national market. Retailers primarily generate revenues through a product-based sales model rather than a service-provision model. The national market is nearing saturation with brick-and-mortar stores, so large retailers are increasingly looking for growth opportunities through expanding services. Big box retailers are purchasing small retailers with the hopes of enlarging their footprint at the local level. 	<ul style="list-style-type: none"> Because big box retailers cannot grow through the addition of stores, they are considering expanding services, including those focused on energy efficiency, as an opportunity for growth. Retailers may be willing to explore service offerings that are not product-sales-based, but often will subcontract out the implementation of the service itself.
Governance	<ul style="list-style-type: none"> Big box retailers are typically publicly traded and have multiple layers of decision-makers that determine corporate strategy, service offerings, and partnering opportunities. Franchised retailers are difficult to influence because there is little central control over store operations outside of branding. Small private companies may be easier to collaborate with from a decision-making standpoint. However, these companies typically have difficulty operating at scale and may face competitive pressures from big box retailers in their region. Retailers are highly sensitive to their competition's marketing and promotion strategies. 	<ul style="list-style-type: none"> Organizations that wish to partner with a retailer may find the decision-making process difficult to navigate. Managers of individual stores may be willing to collaborate, but the decision is at their discretion. To engage multiple stores, partners need to work with corporate management. Smaller retailers may have an advantage in expanding rapidly into new services at the local level, as they have shorter, more streamlined decision-making chains. If one retailer is willing to collaborate, its direct competitors are likely to as well to remain competitive.
Financial	<ul style="list-style-type: none"> Big box and wholesale/distributor/franchiser 	<ul style="list-style-type: none"> Big box retailers will seek similar profit margins

Summary of Retailer Insights

	Observations	Impact on Potential Expansion into Energy Efficiency
Model or Structure	<p>retailers have high profitability requirements, with a typical gross margin target of 35 percent.</p> <ul style="list-style-type: none"> ■ Small retailers have less determined profit targets. ■ All retailers may be willing to provide goods or services at a lower profit margin if by doing so they can increase store traffic, build customer loyalty, and drive future sales. ■ Retailers are focused primarily on sales and revenue implications of launching a new service line rather than up-front cost. 	<p>for home energy upgrades as with their traditional services.</p> <ul style="list-style-type: none"> ■ Energy-efficient goods and services do not have to meet profit targets if they can create a wider customer base. ■ A good understanding of the sales, cost, and potential profit implications of home energy upgrade services is critical to approaching an investor-owned retailer about long-term partnership opportunities.
Assets and Infrastructure	<ul style="list-style-type: none"> ■ A retailer's brand is one of its most critical assets. It is highly valuable in driving consumer demand and promoting consumer confidence in the retailer's goods and services. ■ Retailers on average recycle their inventory every 75 days. Finding more efficient ways to reduce this time leads to increased revenues and is at the core of the retailer's business model. ■ Retailers' physical locations are critical to driving walk-in sales. This is a major reason why retailers have raced to reach the widest possible range of physical locations in their initial expansion efforts. 	<ul style="list-style-type: none"> ■ There is significant benefit to using a retailer's brand. Organizations seeking to leverage a retailer's brand name through a partnership must have an established track record within the industry. ■ Retailers' physical locations can provide partners with a steady source of leads for new work, as well as a means of interacting with consumers in person.
Service Offering	<ul style="list-style-type: none"> ■ Retailers provide goods and services directly to consumers and small contractors. These include: <ul style="list-style-type: none"> – Materials such as insulation and appliances – Information on energy efficiency options, installation of equipment, or other home remodeling through retailer-certified contractors – Financing directly to consumers in-house and through partnerships with financial organizations, such as credit card companies ■ Retailers may use pilot programs to evaluate home performance contractors and test the demand for their services in a local market before rolling these services out on a broader scale. ■ Retailers generally train staff to sell their goods and service packages, but subcontract out the actual service work to partner contractors. ■ Retailers are generally willing to cross-promote with program administrators to drive sales. 	<ul style="list-style-type: none"> ■ Partnering with local remodelers, HVAC contractors, and financial institutions helps retailers expand their ability to provide a wide range of services to the market. ■ Program administrators and other organizations seeking to work with retailers must demonstrate that there is strong local demand for home energy upgrades. ■ Home performance contractors, as a relatively non-established niche of the market, may have a higher burden to illustrate their value to retailers as a potential partner. ■ Program administrators seeking to work with a retailer should create a detailed business plan focused around the retailer's pilot process and timelines, in order to ensure pilot success and expansion in the long run. ■ Partnership options that require training partner contractors or upselling customers directly are difficult to structure and implement effectively. ■ Retailers generally prefer partnership options focused on marketing and referrals between programs and retailers.
Customers and Customer Acquisition	<ul style="list-style-type: none"> ■ A retailer's brand and physical locations are its primary drivers of customer sales. ■ Retailers reach a wide range of consumers, including both "do-it-yourself-ers" (DIY-ers) and customers who prefer access to a one-stop-shop for home upgrades ("do-it-for-me" customers, or DIFM-ers). ■ Customers visiting retailers typically cannot 	<ul style="list-style-type: none"> ■ Retailers have larger marketing budgets than most building contractors and use mass-media advertisements to help build their brand image with customers. ■ Retailers focus on driving future sales by using the initial point of sale to highlight additional investments a consumer can make in their home in the future.

Summary of Retailer Insights		
	Observations	Impact on Potential Expansion into Energy Efficiency
	<p>afford to invest in a whole-home energy upgrade, but prefer instead to make smaller home investments over time.</p> <ul style="list-style-type: none"> Contractors represent a large and vocal segment of the retailer customer base. 	<ul style="list-style-type: none"> Working with contractors to help influence a retailer's product and service mix is one way to help build a local energy efficiency marketplace.

ES.3INTRODUCTION TO PROGRAM ADMINISTRATORS

ES 3.1 Program Administrator Description

Program administrators in the energy efficiency market come in many forms; however, DOE's business model analysis focuses on two influential program types:

- **Non-utility program administrators.** These programs include government-owned or non-governmental organization (NGO) programs. They are generally funded through grant awards (typically public funds), which are the largest individual source of their financing at the present time.
- **Utility programs.** These programs include government, NGO, or private contractor organizations that are primarily financed through utility ratepayer charges. However, they may supplement this funding with other types of income, such as the proceeds from regional carbon credit sales.

In both cases, program administrators can implement home energy upgrade programs themselves or hire a private third-party implementer to deliver the program on their behalf. This ownership structure, implementation strategy, and financing influence how program administrators impact the energy efficiency market (as shown in Figure ES-2).

Description of Program Administrators			
	Non-utility Program Administrator Model		Utility Program Administrator Model
Descriptor	Government Entity	Private Company or NGO	Utility
Ownership and Implementation	<ul style="list-style-type: none"> Completely government-owned (federal, state, or local) Typically program funder and administrator; may be implementer as well 	<ul style="list-style-type: none"> For-profit or not-for-profit company hired by government and utilities to administer programs Typical a third-party implementer Privately-funded programs are future possibility 	<ul style="list-style-type: none"> Public or investor-owned utility Typically program funder and administrator May also hire a third-party implementer to run program on utility's behalf
Key Decision-Makers	Federal, state, or local government representatives	Owner, shareholders (if public), board of directors, executive management	Shareholders (if public), board of directors, executive management
Sources of Financing	Public funds and debt	Public funds, foundation funds, owner's equity, and debt	Investor capital, ratepayer funds, and public funds (if government owned)
Implications	<ul style="list-style-type: none"> Products and services limited by government regulations and community needs Profit motive not as influential as with other market actors Extensive reporting requirements 	<ul style="list-style-type: none"> Set product and service mix based on funder/owner/leadership requirements May be subject to performance-based metrics that will limit ability to offer lower-return and/or riskier service offerings that still may provide value (e.g., education and outreach) 	<ul style="list-style-type: none"> Service offerings limited by public utility commission requirements and Total Resource Cost test, which typically require program costs per kilowatt hour (kWh) saved to be below standard generation costs per kWh Extensive reporting and evaluation, measurement, and verification requirements

Source: Booz Allen research

Figure ES-2: Description of Program Administrators

ES 3.1.1 Program Administrator Comparison

The business model analysis in this guide uses five business model elements to highlight critical components that influence each program administrator's delivery of home energy upgrade services. However, it is useful to first understand the key similarities and differences among these program administrators in order to better understand their opportunities for expansion, collaboration, and sustainability in the residential energy efficiency market. This section highlights key points of comparison in the categories of size, operating environment, market role, competitive landscape, and collaborative landscape.

- **Size:** Funding influences the size of a program administrator's organization.
 - **Non-utility programs** are heavily reliant on grant funding. This gives them a wide range of potential sizes (from \$500,000 to \$100 million in total public contributions).

- **Utility programs** are heavily reliant on ratepayer funding, so program size varies depending on the size of the utility's market. Utility funds make up the majority of energy efficiency program funding, at about \$3.5 billion overall.⁴

■ **Operating environment:** The regulatory environment strongly influences how program administrators can behave in the energy efficiency market. External regulators place various restrictions on both non-utility and utility program administrators. These restrictions include:

- Funder regulations on **non-utility program administrator** models, (e.g., government and NGO program administrators) in exchange for grant funding. These regulations typically include reporting requirements that demonstrate a program's impact in terms of kilowatt hour (kWh) savings.
- **Utility program administrators** face regulator goals and Benefit Cost Tests (e.g., Total Resource Cost, or TRC) among other requirements.

While both program administrators provide and enable home energy upgrades, **non-utility program administrators** generally have greater program flexibility than **utility program administrators** due to utility Benefit Cost Test restrictions.

- In addition to rebates and other standard program offerings, **non-utility program administrators** may also provide consumer education and outreach, low-cost financing for home energy upgrades, and contractor training.
- Despite their restrictions on program design, **utilities** can leverage customer energy usage data and provide on-bill financing and outreach services that other programs cannot offer without a utility partner.

■ **Competitive landscape:** Programs within or between states may compete with each other for customers by providing a range of incentives or with private sector contractors to conduct installation work directly. This competition may cause confusion in the market as reporting requirements and incentives shift over time. In markets where programs provide subsidized installation services, the private market may be squeezed out altogether.

■ **Collaborative landscape:** Program administrators can provide services directly, partner with others to deliver services jointly, or hire a third-party implementer to perform services on their behalf.

- Both program administrator types typically partner with contractors (e.g., remodelers, HVAC contractors, home performance contractors) who meet their program standards, assuming the program does not offer installation work directly.
- Both program administrator types may partner with retailers to help improve program brand image and expand the number of physical locations at which program services are offered.
- **Non-utility programs** typically partner with or subcontract to other programs to provide additional, specialized services such as contractor training or customer education.

⁴ American Council for an Energy Efficient Economy. *2010 State Energy Efficiency Scorecard*. (2010). <http://www.aceee.org/research-report/e107>.

Summary of Program Administrator Insights

	Observations	Impact on Potential Expansion into Residential Energy Efficiency
Market	<ul style="list-style-type: none"> There are two broad types of program administrators, utility and non-utility. Each program type has various strengths and weaknesses that shape how it views its role in the market. Non-utility programs generally have more flexibility in designing their program than utility programs, while utility programs have better access to technical staff and energy data. Several programs may offer similar services in any given market. These programs may collaborate, or even compete with one another to deliver services to the consumer. 	<ul style="list-style-type: none"> Organizations looking to work with programs that offer a wider array of services should determine if there is a non-utility program in their area. Organizations looking for rebates or specific technical expertise may wish to seek out their local utility program for assistance. The landscape for efficiency program services can be very confusing to an external observer. Ideally, all local programs will collaborate, but often this is not the case.
Governance	<ul style="list-style-type: none"> There are two basic types of non-utility program administrators: government and private/not-for-profit programs. Non-utility programs are generally regulated by their funding provider; utility programs are generally regulated by their state or local utility commission. Unlike the other program types, investor-owned utilities (IOUs) also have profit-seeking shareholders who drive the majority of the utility's investment decisions. 	<ul style="list-style-type: none"> Government programs may hire private or not-for-profit programs to run their programs for them as third-party implementers, as they often do not have the specialized staff on hand to conduct program operations. Non-utility programs must meet reporting requirements as a requisite for receiving program funding. Utility programs are highly limited by Benefit Cost Test regulations placed on them by their utility commissions. To appease their shareholders, IOUs require a monetary profit in addition to the basic energy savings targets of their programs.
Financial Model or Structure	<ul style="list-style-type: none"> Non-utility programs are often grant-funded initially, but are currently evaluating other methods of generating program revenues. Utility programs are typically funded through ratepayer surcharges. 	<ul style="list-style-type: none"> Grant funding is short-term funding and needs to be supplemented regularly to keep a program operational. Ratepayer funding levels are set by state and local regulators and can change over time.
Assets and Infrastructure	<ul style="list-style-type: none"> Each program type has different assets that give it a competitive advantage in delivering services to the customer. 	<ul style="list-style-type: none"> Non-utility programs have flexibility in how to invest their funds in strategic assets (e.g., CRM software). Utilities typically have access to ratepayer energy-use data, which is a critical asset for their programs.
Service Offering	<ul style="list-style-type: none"> Both non-utility and utility programs can choose to deliver their services directly or hire/partner with a third-party implementer to deliver them. The types of services available range from direct installation to an open market/market enabling strategy. 	<ul style="list-style-type: none"> Hiring or partnering with a third-party implementer allows the program to deliver specific expertise without hiring in-house experts, but it also may detach program management from direct customer interaction. A direct installation strategy may squeeze out private competition in the market, while an open market strategy is designed to build up private sector capacity for delivering home energy upgrades.
Customers and Customer Acquisition	<ul style="list-style-type: none"> Both program types are ultimately trying to reach the same group of consumers, but have different advantages in doing so. 	<ul style="list-style-type: none"> The greater program design flexibility of non-utility administrators may allow them to use their funding do to more education, outreach, and non-traditional marketing than utility programs. The ability to access energy usage data may allow utility program administrators to target their outreach efforts specifically at energy users who would benefit most from improved efficiency.

ES 3.2 Non-utility Program Administrator

A non-utility program administrator is an organization (e.g., government, NGO, or private contractor) that manages a home or commercial energy efficiency program. Non-utility program administrators span a range of financing and administrative types. They are primarily seeded with grant funding from federal, state, or NGO sources. They may be administered by the primary funding recipient (state, local, or NGO) or an implementation contractor (typically an NGO or private firm).

OPPORTUNITY STATEMENT: Non-utility program administrators have many advantages in designing and structuring their services to best reach local contractors and customers. A program that understands its local market's needs can form critical partnerships to help local businesses generate new revenue streams and increase demand for home energy upgrades. Ultimately, all non-utility program administrators should seek to move toward a sustainable model not reliant solely on grant funding.

Summary of Non-utility Program Administrator Insights

	Observations	Impact on Potential Expansion into Residential Energy Efficiency Market
Market	<ul style="list-style-type: none"> While the home energy efficiency market was \$38.3 billion in 2009, there is still much that is not fully understood at the regional and local level about the dynamics of the market.⁵ Program administrators typically have grant funding ranging from approximately \$500,000 to \$100 million. 	<ul style="list-style-type: none"> Program administrators may lack sufficient data on markets, including the baseline building stock, customer demographics and demand, and other regional considerations. Residential energy efficiency program administrators were created to help lower many of the barriers that have slowed the development of the market to date, such as lack of information, high up-front costs, and lack of consumer demand for energy upgrade services.
Governance	<ul style="list-style-type: none"> Program administrator's governance models include the following: <ul style="list-style-type: none"> Government-owned (federal, state, or local government) Private company or NGO (typically a subcontractor or third-party implementer to a government-funded program) Regulations associated with grant funding may restrict program design or operations, limit service offerings, or increase administrative burdens on potential partners. The program administrator-owner may be a different entity than the third-party implementer, adding layers of bureaucracy. 	<ul style="list-style-type: none"> Program administrator regulatory reporting requirements can be burdensome and may discourage the private sector from working with a program effectively. Program design flexibility enables non-utility programs to partner with a wide range of private and public organizations in pursuing their mission of delivering home energy upgrades. Program administrators can increase market sustainability by enabling private companies. This shifts market activity away from government-funded and -run programs to fully private-funded and -run programs.
Financial Model or Structure	<ul style="list-style-type: none"> Program administrators often rely heavily on public funding and do not have a comprehensive business plan for generating sustainable revenues. Program administrators can identify sustainable revenue streams through engaging contractors to determine potential demand and pricing for these services. Once pricing and services are determined, a program administrator can forecast potential revenues by integrating data from contractors and market research into a simple income 	<ul style="list-style-type: none"> At the present time, program administrators typically only last as long as their influx of public funding. Program administrators must leverage their initial funding to implement programs that generate sustainable revenue streams. Program administrators can partner with utilities, contractors, and financial institutions to leverage the expertise of established firms to deliver services that the program cannot provide directly.

⁵ Pike Research. "Residential Energy Efficiency Market Poised for Strong Growth During the Economic Recovery." (2010). <http://www.pikeresearch.com/newsroom/residential-energy-efficiency-market-poised-for-strong-growth-during-the-economic-recovery>.

Summary of Non-utility Program Administrator Insights

	Observations	Impact on Potential Expansion into Residential Energy Efficiency Market
	statement model.	
Assets and Infrastructure	<ul style="list-style-type: none"> ■ Perhaps the most critical program administrator asset is its reputation, which is critical to marketing energy-efficient goods and services both to customers and potential program partners. ■ A major program administrator asset is program management software, which can be costly if not optimized to program needs. ■ Program administrators can leverage software to streamline administrative functions. They can also generate revenue by providing data services to home performance contractors and other programs. ■ Program administrators may be able to purchase a multiple-license agreement at a bulk discount and/or sub-license additional licenses at a discount to neighboring programs. ■ Program administrations wishing to sell software to other programs or contractors as their primary service will need to build their own customer software package. 	<ul style="list-style-type: none"> ■ A well-developed program brand image can help a program not only sell its own services to customers but can also serve as a new offering to potential partners. The program could leverage its credibility with the consumer to endorse services offered by partner contractors or utility programs. ■ Investment in software enables a program administrator to be more sustainable in the energy efficiency market by reducing costs and creating additional revenue streams. ■ Software packages that can collect data on customer demand, job progress, and building performance can also enable program administrators to streamline reporting requirements and illustrate program value and growth potential to future investors.
Service Offering	<ul style="list-style-type: none"> ■ The program administrator's services include: <ul style="list-style-type: none"> - Generating and allocating leads - Serving as enablers of financing or incentives for home performance work - Qualifying and training contractors - Providing installation work and quality assurance work directly in some cases. ■ Aligning program service offerings with other existing market actors' (e.g., utilities) can help reduce customer confusion by lowering the potential for mixed messaging. ■ If given a choice between indirect benefits, such as discount loans, and direct incentives, homeowners will take the direct incentives. It is difficult to find the right balance between direct, non-sustainable subsidies to homeowners to spur demand and indirect service offerings that can extend program life. ■ Programs have flexibility to partner with other actors in the market. 	<ul style="list-style-type: none"> ■ Program administrators need to build and maintain relationships with local contractors and customers to effectively drive home energy upgrades in the long run. ■ Program administrators can help smaller home performance contractors generate business by allocating leads, although this may be frowned upon by established home performance contractors who have more established lead generation systems. ■ Program administrators may stunt private sector growth by doing installation work directly, rather than enabling private companies to provide home energy upgrades more effectively. ■ Program administrators must balance customer incentives with other service offerings that can cover program administrative costs. ■ Program administrators can offer a source of leads, low-cost customer financing, training, admin software, energy assessments, and third-party validation to generate sustainable sources of revenue. ■ Program administrators can generate revenue directly from homeowners, for example by charging a small fee for energy assessment services or offering homeowners a "concierge" service. ■ Program administrators can offer valuable business and sales training to companies seeking to become home performance contractors—these companies generally need this type of training at least as much as technical training. ■ Key industry partnerships can help programs expand their potential revenue base through co-

Summary of Non-utility Program Administrator Insights		
	Observations	Impact on Potential Expansion into Residential Energy Efficiency Market
		branding and referrals.
Customers and Customer Acquisition	<ul style="list-style-type: none"> ■ Program administrator marketing efforts are essential to the development of the market, but can be costly to maintain if outside stakeholders are not properly leveraged. ■ Program administrators can train local “champions” to promote program goals. This is a cost-effective way to promote education on efficiency. ■ There are two basic concierge models that a program could provide: customer representative to the contractor or contractor representative to the customer. 	<ul style="list-style-type: none"> ■ The program administrator can play a key role in generating awareness of energy efficiency and driving demand for home energy upgrades. ■ Collaborating with other actors and market “champions” is an effective way to develop market demand. ■ The type of concierge model chosen by the program should be structured based on the attributes of their local market, including the relative sophistication of the customer and the contractors.

ES 3.3 Utility Program Administrator

A utility is a public or investor-owned entity that is in the business of generating and disseminating energy to a range of customers. The vast majority of the electricity consumed by U.S. homeowners is generated by a utility, which may be structured as investor-owned, municipally owned, and/or cooperatively owned. While utilities have been running energy efficiency programs for many years, utility programs are primarily driven by mandates—either portfolio standards or targets set at the state or local level. Utilities have traditionally responded to the requirements to run these programs by providing efficiency rebates or technical assistance for homeowners, which are largely funded through efficiency surcharges on ratepayer utility bills. Specific programs dedicated to whole-home energy upgrades are a more recent trend in the industry, with only the most aggressive utility energy efficiency programs having reached just 2 percent of the single-family homes in their region.

OPPORTUNITY STATEMENT: While many utility programs do not currently offer home energy upgrades directly, their ability to track customer usage data and provide targeted rebates and services makes them highly valuable partners for contractors and non-utility program administrators. However, understanding how utilities evaluate cost, stakeholder value, and service reliability—as well as the regulatory environment in which utilities operate—is critical to informing potential partnership options.

Summary of Utility Program Administrator Insights

	Observations	Impact on Potential Entry into Residential Energy Efficiency Market
Market	<ul style="list-style-type: none"> IOUs represent the majority of the market, in terms of installed generation capacity (375 gigawatts, or GW, versus 195 GW for all other utility types—public, federal, and cooperative).⁶ 	<ul style="list-style-type: none"> IOUs have increased spending on energy efficiency steadily over the last few years. However, the energy efficiency spending remains a small fraction of total revenues (e.g., 1 percent of overall revenue). Municipal and cooperative utilities, while smaller in terms of market share, often have advantages in that their stakeholders are willing to take a less profit-driven approach to energy efficiency investment.
Governance	<ul style="list-style-type: none"> Utilities can be divided into three categories: <ul style="list-style-type: none"> IOUs have a traditional corporate governance structure and are motivated primarily by profit Municipal utilities are influenced by the municipal government and are generally regulated at the local level, rather than at the state level Cooperative utilities' service offerings are driven by the decisions of their members, which are their customers IOUs have profitability requirements (the average net margin in 2010 was 8 percent), whereas municipal and cooperative utilities are not bound by similar profit mandates from their stakeholders.⁷ Most IOUs are constrained by state regulations that have public agendas that can contrast with shareholders' profit requirements. Municipal utilities are influenced by the municipal government and are generally regulated at the local level rather than the state level. Cooperative utilities' service offerings are driven by the decisions of their members, which are their customers. State legislatures directly impact the regulation of utilities through public utility commissions (PUCs). Regulated utilities prioritize reliability above other considerations, unless directed to do otherwise by mandates. Stakeholder value is the second priority followed by clean energy in the hierarchy of utility priorities. Presenting real cost and value data (rather than deemed savings) to decision-makers is critical to making a partnership case to utility decision-makers. Many utilities (and their regulators) are also highly concerned about passing program costs along to program non-participants. 	<ul style="list-style-type: none"> Working with an IOU requires an understanding of the corporate chain of command. Managers of existing energy efficiency programs are key points of contact for program administrators as they are more familiar with energy efficiency. Municipals and cooperative utilities, while regulated, are not driven by profit margins. (The regulations they must comply with often differ from those covering IOUs.) Program administrators and other entities can work at the legislative level, as a starting point, to influence energy efficiency goals and targets, and can work with the PUC regarding utility regulations (a long-term process). The intervention process allows for some public participation in regulatory cases, such as rate evaluations. Other programs should be prepared to make a partnership case based on both cost and reliability grounds as well as on the value of efficiency as a social good. Making a quantitative case on the cost and value of efficiency to the utility is critical to influencing management and partnership decisions. Partners that can provide solutions to financing home energy upgrades without resorting to blanket ratepayer charges would be favored by utility management.

⁶ U.S. Energy Information Administration, Office of Electricity, Renewables & Uranium Statistics. *Electric Power Monthly*. (2011). <http://205.254.135.24/cneaf/electricity/epm/epm.pdf>.

⁷ Source: Booz Allen research.

Summary of Utility Program Administrator Insights

	Observations	Impact on Potential Entry into Residential Energy Efficiency Market
Financial Model or Structure	<ul style="list-style-type: none"> Utilities most commonly finance energy efficiency programs through ratepayer funding. This funding can take the form of a surcharge or cost-recovery rate. Many utilities advocate decoupling revenues from the sale of kWh to customers when developing energy efficiency programs, as the decrease in sales of electricity stemming from demand side management (DSM) negatively affects their profitability. Decoupling lowers the value of energy efficiency for customers as their energy costs may not decrease despite their investments in home energy upgrades. 	<ul style="list-style-type: none"> Decoupling is just one of many ways to remove negative financial incentives to utilities for pursuing energy efficiency. Other ways include allowing the utility to increase its rates to compensate for decreased revenues caused by energy efficiency programs, or removing the onus on the utility to run the program altogether. Third-party efficiency program administrators can provide similar benefits to decoupling, while being funded by fees levied on ratepayers. This structure removes the onus for running the efficiency program from the utility itself and provides incentives to homeowners to invest in home energy upgrades.
Assets and Infrastructure	<ul style="list-style-type: none"> Utility energy efficiency programs must meet mandatory cost-benefit tests, such as the TRC test, which compares the generation and transmission cost savings from energy efficiency against the program's operating costs. 	<ul style="list-style-type: none"> If other programs wish to collaborate with utilities in the energy efficiency market, understanding the cost-benefit methodology used by their local utility, as well as their basic infrastructure constraints, is critical to determining how the program can add value to a utility's existing programs. Expansion into the energy efficiency market can be more cost-effective than creating new capacity. An average tipping point is approximately \$600 per kilowatt for the cost of new generation.⁸
Service Offering	<ul style="list-style-type: none"> The services for residential customers in the energy efficiency market may include the following: <ul style="list-style-type: none"> DSM Customer services (rebates, home energy upgrades, loans, education) Utility energy efficiency programs do not typically offer home energy upgrades, which represent one of the least commonly offered services among utilities. Penetration rates are under 2 percent, due to a lack of demand, incentives, or sufficient contractor breadth. 	<ul style="list-style-type: none"> Utility cost-benefit tests are cited as a barrier for their entry into the energy efficiency market. Bundling packages of highly cost-effective and less cost-effective energy conservation measures together for submission can help get more aggressive measures to pass the test. Utilities can partner with other non-utility programs that can provide services on their behalf that would not pass strict Benefit Cost Tests.
Customers and Customer Acquisition	<ul style="list-style-type: none"> Utilities have direct access to customer energy usage data, which allows them to target key customers and better measure the effectiveness of specific energy efficiency programs. Utility bills are an often-cited advantage in program advertising, as they provide free advertising to potential customers. 	<ul style="list-style-type: none"> Utilities can effectively target customers in the energy efficiency market and enable greater impact of program dollars spent through the use of energy usage data. Positioning the program information next to the total cost of the bill is the optimal way to get customer attention when conducting on-bill advertising.

⁸ Source: Industry interviews. (See "Acknowledgements" for a complete list of industry representatives interviewed.)